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Emotion Recognition And Drowsiness Detection Using Python

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Abstract: *The natural expressions of human emotions are those that individuals enjoy making without exerting any conscious effort, and which are followed by the reflexing of face muscles rather than any deliberate effort on the part of the individual. Among the most basic feelings that a human face might express depending on the scenario in which one finds himself or herself are: happiness, grief, surprise and wrath, to mention a few examples: stability, joy, and stability, among others (normality). As part of this work, we present software that detects and recognises faces, as well as providing a wealth of additional information about that individual. This information can be used to solicit feedback from customers, or to determine whether a person requires an incentive to engage in certain behaviours. The ultimate goal of the project is to build a product that is both cost-effective and efficient in terms of operation and maintenance. AI and DIP technologies were employed in the development of the system, which was written in Python and implemented using Artificial Intelligence. When it comes to avoiding an accident or tragedy, the ability to recognise eye blinking is vital in a variety of situations, such as driving or in security vigilance scenarios. The fact that the system also recognises the identification card makes this a fundamental function. As a result of the training provided, the camera that has been installed initially focuses on the card and recognises its form and colour before going on to the next item.*

1. INTRODUCTION

A growing number of people are becoming involved in the fields of artificial intelligence (AI) and digital image processing (DIP) all over the globe. The usage of deep learning-based artificial intelligence (AI) methods and applications is increasing across a broad variety of industries, with many of them relying on deep learning as their foundation. The project might be performed for marketing and improvement purposes, as well as with the objective of creating a completely new item from the ground up. Please let us know if you have any product development projects that we should be aware of that you would want to share with us. Because of this, it is able to offer an accurate and detailed assessment of the implications. While the features of artificial intelligence technologies are simple to implement and understand in the most common systems, they can also be installed in a cost-effective and efficient manner in schools, colleges, and any other area where surveillance is required; however, a lack of funding is the most significant factor causing difficulties in the development of artificial intelligence technologies. Monitoring might be included into the project, which would aid in the maintenance of a regular health check, identification of a person's mental state while at work, and other tasks. This statement may also be used to criticise employees who have made significant contributions to the growth of the organisation in which they work, even after they have been recognised for their efforts.

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End-to-End Image Super-Resolution via Deep and Shallow Convolutional Networks

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ABSTRACT

A novel picture super-resolution (SR) technique based on a Convolution Neural Network (CNN) is being developed as part of this project's research. When learning the feature extraction, upsampling, and high-resolution (HR) reconstruction modules at the same time, a deep convolutional neural network (CNN) is created that can be used to rebuild pictures from any source and is completely trainable. If, on the other hand, you want to train a deep network in a straight line from start to end, this is time-consuming and may provide sub-optimal results since it takes a longer time to converge than other strategies. According to our results, an ensemble of deep and shallow networks should be trained at the same time in order to overcome this difficulty. Its stronger representation power, rather than a lower learning capacity, allows the deep network to capture the high-frequency information contained within visual images, rather than the other way around. When utilised in combination with joint training, the shallow network reduces the complexity of deep network optimization by a factor of two, in part because the shallow network is considerably simpler to optimise than the deep network. High frequency characteristics are rebuilt in a multi-scale manner to further improve the accuracy of HR reconstruction. This allows for the simultaneous integration of both short- and long-range contextual information to be included in the reconstruction, which further improves the accuracy of HR reconstruction. The suggested technique has been carefully examined on a variety of commonly used data sets, and when compared to current best practises, it beats them by a significant margin. Large-scale ablation experiments are carried out to establish the contributions of various network topologies to image SR, which results in the finding of new insights that may be used to future study.

1. Introduction

A low resolution (LR) observation is used to attempt to recover a high resolution (HR) picture with a large number of high-frequency characteristics from a low resolution (LR) observation. Single image super-resolution (SR) attempts to recover a high resolution (HR) picture with a large number of high-frequency characteristics from a low resolution (LR). However, SR is fundamentally ill-posed since there is a lack of appropriate information about the situation, which is particularly true when considering that numerous HR images may be down-sampled into a single lower-resolution image. According to the most recent study, learning-based strategies have been gaining more and more attention, and they have shown to be more effective in image SR than their predecessors. It is the fundamental premise of learning the mapping function from the LR picture to its HR counterpart via the examination of auxiliary data obtained throughout the method that is being discussed. In order to estimate the residual between the HR picture and the bicubic-interpolated LR image, machine learning algorithms based on the commonly used notion of image SR utilising CNNs are applied. According to the assumptions, the basic structure of the target HR image will be structurally identical to the fundamental structure of the bicubic up sampled LR version. In contrast to the custom-crafted bi cubic interpolation, which was expressly created for this purpose, the custom-crafted bi cubic interpolation may have a negative impact on the final performance. In contrast to the previously disclosed CNN-based tactics that make use of bicubic interpolation, our approach makes use of CNNs to learn a direct mapping from LR to HR pictures, which is both faster and more accurate than the previously stated techniques, as shown in Figure 1. On the basis of our early study, we have learned that it is difficult to train a complicated deep network in an end-to-end manner, and that the final results are often poor in a wide range of conditions. According to our results, an ensemble of deep and shallow networks should be trained at the same time in order to overcome this difficulty. To build deep networks, it is necessary to follow a systematic procedure. There are three basic ways, with the shallow network being the most lightweight (it only has three convolution layers, for example) and simplest to adjust of the two.

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RESOLUTION TWO-STEP TDC CMOS BY PULSE-SHRINKING FINE STAGE, BUILT-IN COARSE GAIN CALIBRATION

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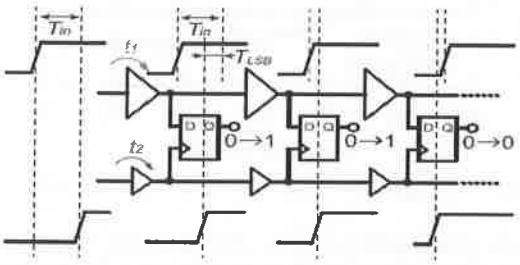
Abstract:
This article proposes a computerized converter (TDC) solution that can meet a broad range of knowledge and fine-time goals at the same time. The proposed TDC utilizes a beat contracting (PS) plot for a precise target and two-advance (TS) engineering for a larger range in the second phase. The suggested PS TDC solves the undesired non-uniform contracting rate issue that plagues conventional PS TDCs by using an assumed counterbalance beat and a balance beat width detecting method. Due to sign spread and extension fraud between coarse and fine phases, the proposed TS architecture achieves nonlinearity with a few methods, resulting in an inferred coarse increase adjustment mechanism. The replication findings in a 0.18-m normal CMOS innovation show 2.0-ps targets and 16-piece go connected to 130-ns input time interim of 0.08-mm2 area in a TDC modification. With an 18.0 maws 1.8-V supply, it has a single-shot accuracy of 1.44 ps and operates at 3.3 MS/s.

Built-in coordination includes beat contracting (PS), transition time-to-advanced, and two-stage transition time-to-advanced (TS).

1. INTRODUCTION EXAMPLE

As a result of late enhancements in Cmos producing scale, rapid semiconductors, and lower supply voltage, time goal is turning out to be more prevalent than voltage goal [1], [2]. ADPLLs, space logical programming, jitter computations, and different applications have as of late profited from the utilization of a chance to-computerized converter (TDC). It's likewise used to figure high-accuracy flight times, which are turning out to be more incessant as TDC effectiveness improves.



$T_{LSB} = t_1 - t_2$

Fig. 1. Simplified schematic of a typical Venire TDC.

Two instances of testing applications are the laser range locater [3] and mass spectrometry [4]. It is normal utilized in imaging frameworks for fluorescence lifetime [5]. Fine fleeting exactness and a huge unique reach are needed in these applications, which are the examination's fundamental objective applications [6]. The general estimation proficiency is determined by the TDC, in this way a couple of PHS time goals with low jitter at various MS/s samplingrates are constantly required. A few time change procedures with sub-door defer goal have been proposed as far as fine goal. In view of the adaptability of its plan thought, the Venire TDC is widely used [6]-[9]. An ordinary Venire TDC needs two separate postpone lines, which are for the most part associated as ring defer lines to save space, as displayed in Fig. 1. The underlying time span Tin diminishes when the lower defer line gets up to speed to the higher postpone line's change in light of the fact that the defer phases of two postpone lines, for example, t1 and t2, vary (t2 t1). We might get specific time goal by changing the defer differentiation TLSB = t1-t2. This plan, then again, comprises of two separate postpone lines with an underlying confound.

As displayed in Fig. 2 [10], [11], the beat contracting (PS) TDC is a sort of Venire TDC that uses the defer hole among rising and bringing down cradle advances rather than two separate postpone lines.

At the point when the info beat width diminishes TLSB = tryt f as it proliferates through each cushion level, the cradle is expected to create differing rise and fall delays, for example, pattern t f. (t f attempt). Rather than Venire's TDCs,

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MINING OF NUTRITIONAL INGREDIENTS IN FOOD FOR DISEASE ANALYSIS

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ABSTRACT

In the prevention and treatment of noncommunicable illnesses, such as cancer, it has long been recognised that a well-balanced, nutritious diet is essential (NCDs). Research has been conducted on the nutritional components of food that are beneficial in the rehabilitation of noncommunicable diseases, on the other hand, but only a small amount has been done. Because of the use of data mining technologies, we were able to conduct a thorough investigation into the association between food components and illnesses. In order to get started, we compiled a list of more than 7,000 disorders, after which we decided which foods were recommended for each condition and which foods were strictly forbidden. Using the China Food Nutrition as a reference, we went on to predict which nutritional ingredients are most likely to have beneficial impacts on disease using noise-intensity and information entropy.

At the conclusion of the research, we proposed an improved technique called CVNDA Red, which is based on rough sets and is used to select the necessary core ngredients from among the most favourable nutritional components. CVNDA Red is based on rough sets and is used to select the necessary core ngredients from among the most favourable nutritional components. A contraction of the phrases CVNDA and Red, which translates as "CVNDA Red." CVNDA Red is a trademark of the CVNDA Corporation. According to our knowledge, this is the first research in China to analyse the association between nutritious elements in food and illnesses via the use of data mining techniques based on rough set theory, which we believe is the case. We have shown via experiments carried out on real-world information that our data mining technique outperforms the conventional statistical approach, with accuracy 1.682 times greater than the conventional statistical methodology. By way of aside, our research has been beneficial in uncovering the first two to three nutritional components contained within foods that may be used to aid in the rehabilitation of a range of common conditions such as type 2 diabetes, hypertension, and cardiovascular disease. These experimental findings indicate the utility of using data mining to choose nutritional components in food for illness analysis when choosing nutritional ingredients in food when selecting nutritional elements in food when selecting nutritional components in food.

1. INTRODUCTION

As defined by the National Council on Chronic Illnesses (NCDS), chronic illnesses are those that are primarily caused by occupational and environmental factors, as well as lifestyle and behavioural variables. According to the organisation, chronic illnesses include obesity and diabetes as well as hypertension and tumours, among other diseases. Global Health Organization's (WHO) Global Status Report on Noncommunicable Diseases (Global Status Report on NCDs) states that the number of people who die each year from NCDs is increasing, resulting in a significant economic burden for the whole world's population. Noncommunicable diseases (NCDs) are responsible for over 40 million deaths per year worldwide, accounting for approximately 70% of all mortality on the globe. Chinese chronic disease and nutrition statistics show that the number of patients suffering from noncommunicable diseases (NCDs) in the country outnumbers those in any other country on the planet, and that China's current prevalence rate has risen far above that found in any other country on the planet. According to government statistics, the number of people aged 60 and over in China has surpassed 230 million, with noncommunicable diseases (NCDs) accounting for around two-thirds of those affected (NCDs). As a consequence, relevant departments in each nation, particularly in China, such as medical schools, hospitals, and disease research organisations, are all worried about noncommunicable diseases (NCDs), which are a result of this (NCDs). It is vital to eat nutritious meals (NCDs) in order to maintain health and avoid the advent of noncommunicable diseases (NCDs) (NCDs). As a result of the rising adoption of this paradigm in China, the nation has also re-configured the relationship between food and health. However, data mining is still considered to be a novel method of investigating the nutritional

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BREAST CANCER DETECTION WITH MACHINE LEARNING

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Abstract

Accordin to the Breast Cancer Institute (BCI), breast cancer is one of the most dangerous forms of cancers that, if diagnosed and treated early enough, may be successfully treated for women all over the world. It is believed by medical specialists that detecting this cancer in its early stages can help save people's lives by preventing it from spreading. This website, which covers more than 120 distinct types of cancer and the genetic disorders that are connected with them, provides personalised therapy suggestions based on the individual's medical history. Machine learning algorithms are used to detect the vast majority of breast cancers, which accounts for the majority of cases. This paper presents an adaptive ensemble voting approach for newly diagnosed breast cancer that was developed using the Wisconsin Breast Cancer database and is based on a randomised controlled experiment that was conducted using the Wisconsin Breast Cancer database. The Wisconsin Breast Cancer database was used in the research for this paper. The goal of this research is to compare and explain how the ANN and logistic algorithms, when used in conjunction with ensemble machine learning algorithms for diagnosing breast cancer, generate greater outcomes when the number of variables is reduced. The Wisconsin Diagnosis Breast Cancer dataset, which was produced specifically for this study, was used in this investigation. For the sake of comparison, this study is being compared to other comparable studies that have previously been published. When ANN methodology and the logistic algorithm are coupled, they provide a classification accuracy rate of 98.50 percent when compared to another machine learning technique, as demonstrated by a comparison to another machine learning strategy (Figure 1).

1. INTRODUCTION

World-wide, cancer ranks first among all diseases in terms of mortality, with breast cancer ranking first among all cancers in terms of hazard to women. According to the American Cancer Society, breast cancer claims the lives of hundreds of people every year. The physical detection of breast cancer is time-consuming, and it is difficult for the physician to determine what stage of the sickness is being dealt with at any one moment. As a result, in recent years, the detection of cancer through the use of various automated diagnostic technologies has gained growing importance and importance. In order to detect breast cancer, a range of algorithms and techniques are available, including the Support Vector Machine, Nave Bayes, Kernel Neural Network, and Convolution Neural Network, among others. It is the most recent algorithm in deep learning, and it is also the most recent algorithm in deep learning that is also utilised for classification. It is also the most recent algorithm in deep learning. In

deep learning, it is the most current algorithm to be developed, and it is also the most recent algorithm to be developed in deep learning. The categorization and identification of objects in photographs is mostly performed through the use of CNN and deep learning algorithms, which are becoming increasingly popular. In this study, we make use of the open database maintained by the University of California, Irvine (UCI), which contains two classes of tumours: one that is benign and another that is malignant, where benign Tumor is a non-cancerous tumour and malignant Tumor is a cancerous tumour, for training and testing purposes. There are still a large number of researchers working on this topic today, with the goal of discovering and diagnosing cancer in its earliest

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CROP YEILD PREDICTION USING ML

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ABSTRACT

In India's economy, agriculture is by far the most significant industry, and it has the greatest impact on the country's gross domestic product (GDP). An estimated 50 percent of the country's workforce is employed in the industry, which accounts for around 18 percent of the country's Gross Domestic Product (GDP). People in India have been engaged in agriculture for a long time, but the results have never been satisfactory owing to a variety of variables that influence crop productivity at different times of the year in different regions. A high agricultural production is required to meet the demands of the world's approximately 1.2 billion people in order to ensure that they are met. All of the variables that influence crop output are directly related to soil type, precipitation, seed quality, and the existence or lack of technical infrastructure, to name a few. To meet the increased demand, new technologies are required, and farmers must use their resources effectively by embracing new technology rather than relying on inefficient farming practises. The purpose of this project is to demonstrate how to develop a crop production forecast system using Data Mining methods. The dataset pertaining to agriculture was the topic of the investigation. Several classifiers, including the J48, LWL, LAD Tree, and IBK are used to forecast it. The performance of each classifier is evaluated by comparing its performance to the others using the WEKA tools for enhancing Python with machine learning performance (python with machine learning). In order to evaluate total performance, it is necessary to include Accuracy factors such as linear regression, as well as the accuracy of Random forest and KNN classifiers, were employed in this study, and one of them was the accuracy of linear regression. The overall performance of the classifiers is then assessed by comparing their Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), and Relative Absolute Error (RAE) values to the values of Root Mean Squared Error (RMSE) obtained from the training data (RAE). As a result, the technique will perform more correctly as the number of errors lowers. Classifiers are evaluated based on how well they perform in classification by making comparisons with one another.

1. INTRODUCTION

The purpose of information extraction and forecasting is to identify patterns in huge data sets. Information extraction and forecasting is the process of analysing, extracting, and predicting crucial information in order to identify patterns in the data. When businesses want to translate raw data from their customers into information that can be utilisedto improve the efficiency and effectiveness of their operations, they employ this strategy. The pre-processing and alteration of data is a critical component of the Data Mining process, and it accounts for a large portion of the total time spent on it. This process begins with the selection of data and continues until patterns are uncovered that may be used to forecast crucial insights. The data is then analysed further. It is necessary to perform two jobs during the preprocessing stage: outlier identification and the detection of missing data. Transformation, on the other hand, is concerned with the establishment of a relationship between two or more separate parts. In this study, historical climatic and agricultural output data were mined and evaluated with software created expressly for this purpose, resulting in a large number of projections being generated. It is possible to make judgments that can help in the expansion of agricultural production when you have access to precise data. In order to lower the costs involved with making decisions about the soil and crop that will be planted in a field, it is critical to provide farmers with a Decision Support System (DSS).

The usage of this software system while analysing raw data, academic papers, or business models aids analysts in forecasting or detecting key information that may be utilised to analyse an issue and solve it through decision-making. Farmers are likely to gain from this strategy since it will aid them in making critical decisions that were previously done inefficiently or based on educated speculation. When it comes to creating the final version of the prediction system, the application of data mining techniques will be utilised. Previous research has demonstrated

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Functional Architecture of integrated framework for Facet-based Data Collection and Analysis

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Abstract — *We present in this paper an integrated framework for collection and analysis of Facet-based text data. The integrated framework consists of four components: (1) user interface, (2) web crawler, (3) data analyzer, and (4) database (DB). User interface is used to set input Facet and option values for web crawling and text data analysis using a graphical user interface (GUI). In fact, it offers outcomes of research by data visualization. The web crawler collects text data from articles posted on the web based on input Facets. The data analyzer classifies papers in "relevant articles" (i.e., word sets to be included on such posts) and "nonrelevant articles" with predefined information. It then analyzes the text data of the relevant articles and visualizes the results of the data analysis. Ultimately, the DB holds the generated text information, the predefined user-defined expertise and the outcomes of data analysis and data visualization. We verify the feasibility of an integrated framework by means of proof of concept (PoC) prototyping. The experimental results show that the implemented prototype reliably collects and analyzes the text data of the articles.*

Keywords— *Data Analysis, Integrated Framework, Intelligent Service, Text Data Collection, Web Crawling.*

I. INTRODUCTION

Intelligent systems have recently received significant interest from both academia and industry, for instance media remedy and choice research and recommendation.(1–3) Such resources often use text-data from papers posted on the web to gather information that people require. In general, data collection and analysis are the most important features of the Web system. The data can be captured, stored and processed using a "internet sensor" which is a special type of network-centered infrastructure. Therefore, web crawling to collect text data and Data Analysis to analyze collected text data are widely considered as key enablers of sensor web for such intelligent services.

To date, some current research projects have attempted to use open source programming languages such as R, Python, and Scala to incorporate such functionality(5–7) Though, most have never used an automated web crawling or big data analytic framework. This is, in most of the existing studies, to separate the functionalities of web crawling and big data analytics. In order to enable smart services to be seamless, an integrated architecture of different functionality (e.g. web crawling, data analysis and user application) must be designed (10) and is therefore subject to unpredictable delays in a smart targeted service, since its feasibility highly depends on the developer's expertise.

In this article, they suggest an automated web-crawling platform and data analysis to allow smooth, intelligent services to collect and interpret Facet-based text content. The framework proposed consists of the following four components: (1) user interface, (2) web crawler, (3). These components interact to exchange data. The user interface component helps users to set a graphical user interface (GUI) for input Facet and detailed option values for web crawling and text data analysis. In comparison, different results for visualization of content, such as word clouds or word intensity charts, were generated based on results from the study of text information. The component of the Web crawler collects text data from web-based articles and provides data for the analysis through the storage of data from the collected text on the DB. The component of the data analyzer performs data pre-processing and analysis using data sets from the component of the Web crawler. The identification of objects is carried out for information preprocessing.

Throughout general, the papers will be categorized under predefined information (ie a set of words to be included) as "relevant articles" or "nonrelevant objects." Relevant articles are collected articles closely related to the subject the user is looking for, but non-relevant articles are not very closely related to the theme. Two steps are followed by data analysis. The first step is to extract words from the texts of corresponding articles, which consist of three or more characters. The latter is a process to filter words that eliminates unnecessary words. The data analysis results are displayed in word clouds and word frequency charts. In the last study, DB consists of three DBs: DB, DB and DB. The DB portion consists of three DBs. Every DB stores the text data collected, predefined knowledge and data analysis and visualization results.Through proof of concept (PoC) prototyping we check that the unified system is feasible. The web crawler and data analysis is performed by means of open-source R packages and the interface is implemented using Java Swing frames (11,12). The results from the experiments show that the integrated frame offers the functionality of web crawling and text data analysis reliably.

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A Deep Learning-Based Recommendation System for Textile Products

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Abstract

These days, it's more common to use recommendation algorithms to keep customers happy and boost revenue. It is hoped that consumers would be able to make more informed decisions thanks to these solutions. A recommendation system has become an essential aspect of internet buying. Recent emphasis has been focused on fashion and clothes as the subject of several recommendation algorithms. A Convolutional Neural Network (CNN)-based recommendation system has been proposed in this study (CNN). According to the preferences of the CNN's users and designers, distinct patterns have been assigned to different classes in the architecture. Color compatibility is taken into account by the deep learning model when recommending designs for textile items. Our own pattern dataset, which contains 12000 photos, was used to train and evaluate the suggested model. Using pattern datasets, we were able to demonstrate the efficacy of our technique.

Keywords— Convolutional neural networks, colour compatibility, and deep learning are all examples of recommendation systems.

INTRODUCTION

The growth of online shopping has been fueled by recent advancements in internet technology. It's more common for customers to buy new items in the same colour or design as their current ones. To find all of the appropriate items while buying online, it might take a long time. To uncover patterns that clients care about more quickly, automated recommendation systems are useful. Consumers are increasingly turning to recommendation systems to assist them sort through a large number of items on the internet and find the ones that best suit their requirements [1]. Research into recommendation systems has drawn the interest of scholars, and a number of distinct recommendation systems have been published [2–7] in the literature on various topics, such as movies, music, videos, fashion, and apparel, among others. Collaborative filtering [8], content-based approaches [9], or systems where these two methods are combined are the most often used recommendation systems. Collaborative filtering models interactions between people and goods using a matrix factorization method that incorporates cooperation between user behaviour and product evaluations. This kind of recommendation is based on the product description and user's preferences. Rather of relying on numerical and textual information, traditional recommendation system approaches such as collaborative filtering and content-based methods use deep learning to extract characteristics from photos and videos, such as clothes and fashion. In recent years, deep learning-based algorithms have been successful in pattern recognition, image processing, clustering, and classification. Deep learning-based research have been shown to be effective in recommendation systems, as well. An integrated multi-view recommendation system, called Deep-MINE, was suggested by Guan and colleagues [5] and a unified deep neural network model was constructed. Auto-encoder networks were used to Amazon.com's women's clothes to illustrate the model's efficacy. An strategy to extracting visual attributes such as shoes, dresses, pants and bags was used by Liu et al. [6]. The model uses style characteristics and visual category information to identify features in photos. Zhang et al. [7] used a hybrid CNN technique to select clothes based on the link between apparel and location. The support vector machine was used in conjunction with a multilabel CNN in this investigation. When it comes to making recommendations, it's important to take into account both visual and aural characteristics. They said that a neural network had been pre-trained to extract the aesthetic elements. In [12], a long-short-term memory (LSTM) network-based outfit suggestion system is suggested. Using existing photographs and descriptions of outfits, they set out to figure out how to create one that would be universally acceptable. A comparative deep learning model described by Lei et al. [13] learns picture and user preferences simultaneously. Three subnetworks make up the network. Using a sub-network, we were able to predict the preferences of our consumers. Fashion and apparel are the only areas where present recommendation algorithms have an emphasis. This research proposes an online recommendation system for textile items based on colour compatibility. Using the system's recommendations, customers may buy new goods that are compatible with their current purchases. According on the input from the designers and participants, it was determined whether or not the patterns are compatible. The research used CNNs instead of more typical recommendation systems. To the best of our knowledge, no research has examined the use of deep learning algorithms to propose patterns based on colour compatibility in textile items. In our opinion, our suggested research is the first of its kind.

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Deep Learning Fusions for Video-Based Detection of Abnormal Driving Behavior

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ABSTRACT

In order to ensure the safety of drivers and passengers in vehicles, as well as a necessary first step toward fully automated driving, video-based anomalous driving behaviour identification is becoming more popular. This tough identification job may be greatly helped by the notable generalisation potential of advanced deep learning models as well as the vast quantities of video clips that are essential for completely training these data-driven deep learning models New deep learning-based fusion models, inspired by the widely discussed densely connected convolutional network (DenseNet), are presented in this research to tackle the difficult issue of detecting anomalous driving behaviour from video. WGD, WGRD, and AWRDN are the names given to these three novel deep learning-based fusion models, which are all based on the concept of wide group densely (WGD) networks. When developing its DenseNet-based model structure, WGD takes significant deep learning model challenges, such as depth, breadth, and cardinality, into account. Remaining networks with superpositions of preceding levels is an essential concept in the WGRD and AWGRD since they are more complex. Three new models' efficacy is being tested with a slew of trials. In this video-based aberrant driving behaviour detection investigation, a comprehensive comparison of various prominent deep learning models revealed their superiority.

INDEX TERMS

Images, driving, aberrant driving, and tightly linked convolutional networks are all examples of artificial intelligence.

INTRODUCTION

At this point, it is generally accepted that high-resolution movies are becoming more and more popular in visual applications. Multiple high-definition cameras are required for video surveillance, for example, to cover a wide area. Working together, they may more easily identify the moving target (e.g.behaviour or even hypothetical purpose) by identifying it [1], [2], re-identifying it [3], [4], and tracking it [5], [6]. When it comes to today's security concerns, the use of high-resolution cameras to catch both noticeable and subtle changes in a target person's emotions in real time [7], [8] has a considerable influence. It is clear from the preceding descriptions that, for the time being, it is possible to acquire and store a considerable volume of high-resolution movies. It's difficult to make high-level choices based on vast quantities of low-level video clips, but that's not the most difficult problem to solve. Videos of drivers in their automobiles are given special attention in this research. Detecting anomalous driving behaviour (i.e. patterns) in drivers is an important high-level decision. The first step to achieving completely autonomous driving is the identification of aberrant driving behaviours. Safety is unquestionably the most important consideration when it comes to autonomous driving. Drivers' actions must be strictly regulated to prevent any possible mishap, as is well-known. As a result, many high-resolution cameras installed in the driver's car may be used to monitor the driver's condition in real time. Additionally, films taken with high-resolution cameras often need fast analysis to identify whether the driver's state remains abnormal or not. In light of the above, it's clear that accurate detection of anomalous driving behaviour, as well as the ability to recognise it quickly, are in great demand. An additional need for the automated identification of improper driving behaviour is a high-speed wireless transmission of high-quality videos, which is essential for this purpose [9]–[23]. Detecting inappropriate driving conduct frequently needs a clear and authoritative definition. Normal driving is defined by the International Organization for Standardization (ISO) as a state in which the capacity of a motorist to drive is compromised because the driver is preoccupied with anything other than the task of driving. The three primary types of anomalous driving behaviour may be summarised as follows: In the first case, the driver engages in potentially distracting behaviours like as smoking, drinking, eating, adjusting the temperature of the vehicle's air conditioning system, etc., to ensure their own personal well-being while driving. There are a number of things that may be done while driving, such as applying make-up, shaving, talking on the phone or using other needless equipment, to keep the driver from being distracted. The third category includes driving behaviour that is influenced by the surrounding environment, such as long-term attention to unexpected occurrences outside the vehicle, or caring for children. The usage of cell phones while driving has already become a key role in modern aberrant driving, as seen by the aforementioned abnormal driving behaviours. When making a phone call while driving, researchers discovered that the driver's attention was diverted by 20

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A SURVEY OF LOCATION PREDICTION ON TWITTER

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ABSTRACT

Places such as countries, states, cities, and points-of-interest play an essential role in news coverage, emergency situations, and people's daily activities. They are also crucial in politics. Researchers have been experimenting with automated recognition of locations that are related to or referenced in documents for several decades. Because of the vast number of users that send millions of tweets every day, Twitter has risen to become one of the most popular social media platforms available today. Geographic prediction has gained a great deal of attention in recent years, owing to Twitter's global reach as well as the real-time freshness of the information included in tweets in real time. The majority of the research is devoted to identifying and solving the new challenges and opportunities given by the loud, quick, and contextually rich nature of Twitter messages. In addition, we hope that this survey will give a more comprehensive picture of location prediction on Twitter than we now have. To be more specific, we're looking for user home location forecasts, tweet location predictions, and mentioned location predictions. We begin by identifying the three tasks and going over the assessment criteria one more time. When we summarise and analyse the Twitter network as well as the tweet content and context as possible inputs, we can more systematically explain how these inputs have an impact on the issues in question. Detailed analyses of the solutions that have been implemented in current best practises are offered for each dependency to support the point being made. In addition, we provide a high-level description of two related challenges, semantic location prediction and point-of-interest recommendation, which are treated in further depth later in this section. We then draw a conclusion based on the facts and offer some suggestions for further research.

1. INTRODUCTION:

It is estimated that the number of online social networking sites has expanded at an unparalleled rate since 2000, outpacing the number of people on the world at one point. In addition to Twitter and Facebook, there are a variety of additional social media platforms, including location-based platforms such as Foursquare and Gowalla, photo-sharing sites like as Flicker and Interest, and other domain-specific platforms such as Yelp and LinkedIn. Individuals can build online relationships with others who share similar interests as their own by making use of the services offered by these companies. Users may also share information about their regular activities with their online friends by sending messages, uploading images, uploading videos, and checking in at certain areas, among other methods. Its ability to allow users to follow friends and exchange messages with one another distinguishes it from the rest of the crowd of other online social networks. Even while Twitter relationships aren't always mutually advantageous to both sides, users have the option of "following" celebrities without having to reciprocate. On Twitter, textual submissions, often known as tweets or microblogs, are limited to a maximum of 140 characters, however photos are not restricted to a maximum of 140 characters. Aside from that, users are encouraged to write about anything they like, on a frequent and informal basis, such as their own thoughts, activities, and viewpoints, as well as local news and a range of other topics. Human beings, internet connections, and tweets have all played a role in the development of Twitter, which is a simulated online world that has gained widespread popularity. Communication between the virtual and the real world is possible at particular points when specific sites serve as intermediary bridges between the two realms. According to Twitter users' claims, they have long-term dwellings in a variety of cities throughout the world. As a result of their daily activity areas, their home locations boost their probability of discovering, getting interested in, and tweeting about news or events that take occurring in their daily activity regions. The usage of GPS-enabled devices, such as smart phones and tablets, can lead to the incorrect attachment of location information to tweets as they are being sent out to the public.

The following three sorts of Twitter-related locations will be studied in this poll: the user's home location, the location of a tweet, and the location of a mention on Twitter. Better awareness of where Twitter users are located allows us to perform a range of things, such as better understanding what is occurring in the real world, bridging the

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Recommendations for the Diagnosis of Nutrient Deficiency Syndromes in Plant Leaf Imagery through DIGITAL IMAGING PROCESSING are presented.

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Abstract

Thirteen different mineral nutrients are required for plant development and survival. A plant's development might be stunted or even stunted to death if it lacks one or more of these essential nutrients. As a result, a system for continuously checking the nutritional status of plants is crucial for increasing productivity and improving crop quality. The signs of a deficit might be detected by a diagnostic system that uses digital image processing rather than the human eye. The farmers will be able to take corrective measures sooner rather than later. Image processing methods are reviewed in this research to help identify nutrient deficiencies in plants.

Keywords: Mathematical Morphology; Color Segmentation; Color Feature Extraction; Classifier; Color

INTRODUCTION

Plants and crops need a total of 13 mineral nutrients in order to thrive and flourish. The earth provides them with the nutrition they need. Growth and quality are negatively impacted by a lack of essential nutrients. Thus, the importance of mineral nutrient status in agriculture and farming cannot be overstated. Leaf signs of nutrient insufficiency are typical in plants and crops. These signs include interveinalchlorosis, marginal chlorosis, uniform chlorosis, necrosis, deformed margins, and a decrease in the leaf's diameter. The deficiency nutrient may differ even when comparable symptoms are evident in both old and young leaves. Figure 1 displays some of the leaf signs of plant visual impairment. The mineral nutrients are broken down into macro and micro nutrients..macronutrients and micronutrients are essential for the survival of plants. Carbon, hydrogen, oxygen, sulphur and phosphorus are all macronutrients. Boron, Copper, Iron, Chloride, Manganese, Molybdenum, and Zinc are examples of micronutrients.

COMPONENTS OF NUTRIENT DEFICIENCY DIAGNOSTIC SYSTEM

The following elements would be included into the diagnostic system via the use of image processing techniques: Determining the shape of the leaf

- Segmentation of the edge and veins of the leaf
- Classifying insufficient mineral
- Identifying the leaf's age

Extracting the lea's chromatic information

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Using Storage Systems to Provide Frequency Control Reserves Affects Power System Operation

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Abstract: *Batteries may offer ancillary services like main frequency response. They, on the other hand, have a limited quantity of stamina. Therefore, temperature set points must be altered, and this energy must come from power plants that are not limited by energy. There are several benefits to power system stability and operational efficiency when energy-constrained units may engage in the ancillary service markets.Ancillary services, frequency control reserves, and battery energy storage systems are all used in this paper (BESS).*

INTRODUCTION

In every electric power system, the production and consumption of electric energy must constantly be in balance. Control systems that automatically adjust the output of specific power plants to fit current demand are often used to do this. In the event of a plant or line failure, these control mechanisms must be flexible enough to handle the situation. Depending on the quantity of energy produced or consumed, generator speed might increase or decrease due to power imbalances. This in turn affects system frequency f. The inertia of the rotating mass of generators determines the rate of frequency shift when there is a power imbalance. Until rotational inertia is employed to counterbalance the power imbalance, the system frequency will diverge until it becomes unmanageable, resulting in a blackout.To prevent this, the European electrical transmission system has three levels of control. Primary control is a distributed control approach that adjusts the output of the power plant based on the deviation from the normal system frequency and so limits the power plant's frequency change. To maintain a stable state, this secondary control employs a central controller with an included component to restore frequency to its nominal valuers. To relieve secondary control, a tertiary control may be manually initiated to re-dispatch production. There are comparable systems in existence on all of the main electrical networks, but with somewhat different names.Despite the fact that the management method outlined above is adequate to assure the grid's safety and stability in light of the rising quantity of renewable energy in Europe, It is necessary to reevaluate the power plants' ability to offer main control reserves.The primary control power plants now have up to 30 seconds to react to a frequency fluctuation. Since there is already so much inertia in place, it is unlikely that the system's frequency would spike if a major line went down. As a result, renewable energy sources have extremely low or no rotational inertia since they are linked to the grid through converters. An increase in the amount of renewables and a reduction in conventional facilities will lead to a faster drop in frequency after a power loss.

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Experimental and theoretical studies of sandwich beams made of steel, concrete, and steel have shown interesting results.

Perla Mounika[1],Dr.B.Arun Kumar[2],

Abstract: *Steel plates are subjected to axial and shear stresses to test theories of full and partial contact. Stud connections and frictional forces between steel plates and concrete at both the supports and load sites are included in the partial interaction research. Based on the partial interaction theory, the results of DSC beam testing are compared to the theoretical predictions. According to the findings, a theoretical approach may be used confidently to analyse fundamentally supported DSC beams of any shape. Various building techniques are described by terminology like "sandwich beams," "double skin composite structure," and "shear connections."*

INTRODUCTION

There are two concrete layers sandwiched between two steel plates and welded shear connections in a DSC structure. Even though its construction is equal to that of double-reinforced concrete components, a more flexible connection allows for greater displacement. This structure has much more benefits than any other.Many steel–concrete composite structures include steel as a core component. Steel plate, concrete, and reinforcing steel were used in its construction. With steel and concrete, shear connections are often used. Steel-concrete composite shear connectors are mechanically linked.Steel-concrete contact has an effect on shear flow and strain distribution. Modifications in stiffness, strength, and failure mode are all linked one to the other. All, some, or none of the above interactions between steel and concrete are possible (Veljkovic, 1996; Oehlers et al., 2000). In certain cases, structural performance may be impacted by assumptions. Partial interactions may help enhance forecasts of behaviour. Due to shear connection deformation and interface slippage under applied stresses, steel–concrete composite components typically meet partial-interaction (Johnson, 1994; Dogan, 1997; Roberts and Dogan, 1998; Oehlers and Bradford, 1999; Jeong et al., 2005; Ranzi et al., 2006; Oehlers and Bradford, 1999). Quéiroza, Ranzi, and Bradford (all in 2007), as well as Jeong (in 2008), have all made reference to Gara et al.For Christians, 2010 is a special year (Sousa Jnr. and colleagues, 2010). Due to its modest size, slippage in steel-concrete composite systems may go unnoticed (that is, full interaction). When shear connections are not necessary, stiffness connections may be reduced or the number of connections reduced. Slides may have a significant impact on a system's stiffness in certain circumstances (that is, partial interaction). In order for a composite beam to move and deform, it must have strong connections. A push-shear test may be used to measure the stiffness of shear joints.According to Newmark et alfindings, .'s (1951). Concrete and steel T-beams' deflection may be determined analytically. One school of thought argued that the two places were only tangentially linked.

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Using Storage Systems to Provide Frequency Control PRIME NUMBERS ANALYSIS AND THE RIEMANN HYPOTHESIS: An Investigation into Prime Numbers

M Chandrashekar Reddy[1,2],Mr. Doopati Pitchaiah[1,2]

Abstract:Many different elements of topology, cryptography, and other fields rely on prime theory calculations. This article examines prime number theory from a fresh perspective in an effort to give new measurements and insights into the arrangement of prime numbers. Python's prime package package was used for the computations, which can be installed as a module using pip install prime package.

Introduction

Euler and his colleagues had laid the groundwork for prime analysis, which the Riemann Hypothesis built on. The conclusions of the Riemann Hypothesis are used to further investigate the nature of prime numbers in this work. As mathematics is the sole means of expressing the universe apart from our personal perspective, prime numbers are found throughout the discipline. Perception. Primate number theory is so very important in practically every field of excellent reason for this investigation is provided. I'll begin by saying that by examining the best-selling items and putting together a system to categorise them. Then, go further into the examination of quadrants before concluding this article with the direct prime formulas. Python was used for all of the research in this publication.as well as pre-packaged best products available. Two unique primes will be defined as prime products in this study. In this case, p1 is divided by p2. items that are of the highest quality of two primes are employed in the IT sector to secure information.'sill start by putting up the context for my discussion of prime. products. There is just one prime plane MP in which all prime products pp may be found. And it's possible that Planes flying in formation. The dominating plane of any prime may exist on numerous planes. On numerous planes at the same time, he is known as "Optimus Prime". In order to determine the prime factorization formula, for a certain plane of travel Optimus is a brand.Unsolved issues abound in number theory, which deals with prime numbers, and have been attempted by the finest minds for centuries. Mathematical propositions that have yet to be proved, but which we firmly believe in, are some of the open questions. The term "conjecture" or "hypothesis" is used to describe such unsubstantiated theories. We've previously touched on the idea that there may be an unlimited number of pairs of prime integers that are only separated by two digits. Even numbers may be expressed as the sum of two prime numbers, according to Goldbach's conjecture, a well-known theory. For instance, 16 = 13 + 3 + 54 = 47 + 7 = 76. Achieving any of the above will earn you everlasting fame.3Riemann's hypothesis, perhaps the most famous unresolved issue in mathematics, was presented by the same Bernhard Riemann cited before. An 1859 study by Riemann outlined a hypothesis about how far away from the real value of the number of primes to x, (x), was an estimate offered by Riemann's prime number theory. Or to put it another way, what can be stated about "error term" in prime number theorem — the discrepancy between the true amount and the proposed formula? This is one of the seven challenges for which the Clay Foundation will award a $1,000,000 prize to the person who finds a solution! If you haven't been swayed by this award yet, maybe it will.What's the big deal? Who is interested in it? The complexity and inherent beauty of a problem are the primary criteria used by mathematicians when evaluating a solution. Both of these attributes apply highly to prime numbers.

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The Importance of Teaching Soft Skills to Engineering Students

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Abstract:

Because of the fierce rivalry for employment in global corporations and in a wide range of technical fields, soft skills are now required. Aspiring professionals in engineering and management need more than just academic and technical abilities to succeed in the workplace. They also need to be able to communicate effectively with colleagues and clients. The focus of this presentation is on the need

of providing engineering students with training in soft skills. Focused focus is given to a certain subject in most engineering institutes. Despite the fact that students must be given technical training, multinational corporations all over the world are asking for more. To master soft skills, today's engineering students must develop a broader set of hard abilities than those in their respective fields typically demand.

INTRODUCTION

There are a wide range of job possibilities available in India thanks to the arrival of multinational corporations. It wasn't only the hiring procedure that underwent radical alteration. For a long time, in our country, the sole requirements for well-paying work in multinational corporations (MNCs) were academic-technical training and certification. Since a result, this is no longer true, as there has been a paradigm shift in the demands of multi-national corporations. Consequently, this is no longer the case. To obtain a competitive edge, organisations throughout the world know this. Employees must be able to interact with customers and coworkers in a professional manner, which necessitates training in soft skills. Soft skills are in high demand in multinational corporations. The world's largest supplier of information technology (IT) is India. The problem is that in India, most engineering and management graduates lack the soft skills needed to succeed in the workplace, especially in the area of communication. In addition to academic and technical expertise, employers look for soft skills such as the ability to think critically, communicate clearly, negotiate effectively, and manage one's time well. In India, the Job Market The financial, tourism, and production industries, as well as ITES (Information Technology Enabled Services), have all witnessed significant expansion in the global economy. However, this development issluggish owing to India's soft-skill problem, which has limited the efficacy and expansion of the country's soft-skill workforce. The number of new workers needed to keep pace with the company's rapid expansion has risen as a result of this circumstance. According to staffing firms, India continues to have a dearth of "employable engineering, technology, scientific, and management graduates," which is a paradox in and of itself. The number of well-paying jobs is increasing rapidly, and a substantial number of engineering graduates are graduating each year without the soft skills necessary to succeed in the workplace. There are a lot of things that need a Hard skills, which include academic knowledge, competence, and hands-on experience, are required for job applicants. The importance of both hard and soft talents cannot be overstated.

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Evaluation of Existing Concrete Buildings for Seismic Risk

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ABSTRACT:

Earthquakes have exposed the vulnerability of existing reinforced concrete structures in India. Multi-story buildings in Bhuj, Gujarat, were severely damaged by an earthquake that rocked the city in 2001. Because of this, many Indian RC constructions that rely on gravity loads are now in jeopardy. Seismic adequacy evaluations were required after a number of concrete structures were damaged and destroyed by earlier earthquakes. For an earthquake-prone country like India, a simplified assessment process is required. The capacity of structures to resist earthquakes is crucial for the preservation of life and the minimization of damage. Response Spectrum analysis is used to assess the current black reinforced concrete frame, infill, and soil effect. Response spectrum analysis (RSA) is used to assess this model's performance, a seismic evaluation approach. Depending on the format, it is computed and adapted accordingly. This study examines a novel way to retrofitting. In the evaluation of existing RC buildings for earthquakes, building infill plays a critical role.Upgrades and infill walls are the focus of the meeting

.INTRODUCTION

Among the many natural disasters, earthquakes may do significant damage to man-made buildings. Engineering techniques need to be honed in order to analyse earthquake structures since their forces are random and unexpected. Many of the world's largest earthquakes have occurred in India in the recent century. It is estimated that more than half of the country's land area is at risk of earthquakes. The whole Himalayan belt, including the north-east area, is vulnerable to significant earthquakes with magnitudes of higher than 8.0.

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Review on the Detection of Leaf Disease Using Image Processing Techniques in Plants

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Abstract: *To achieve this goal, a survey on the detection of leaf disease using various image processing methods will be conducted as part of this investigation. Digital image processing is a technique that is fast, trustworthy, and accurate when it comes to the diagnosis of plant diseases. Additional algorithms for the diagnosis and classification of leaf diseases in a number of plant species are available, and they may be used in a variety of situations. Multiple authors in this paper explore a range of sickness identification methodologies, including clustering, colour base picture analysis, classifiers, and artificial neural networks for classification of illnesses, among others. In this paper, we focus primarily on the assessment of several leaf disease detection systems, but we also provide a comprehensive review of various image processing techniques in general. This research makes use of a variety of concepts, including leaf disease classification, SVM, segmentation, morphological processing, features extraction, neural networks, clustering, and fuzzy logic*

Introduction:

India is primarily an agricultural country, and agriculture provides a means of subsistence for the vast majority of the population. When it comes to fruit and vegetable crops, farmers have a wide range of possibilities to choose from. With the use of technology, it is possible to increase the efficiency of the agricultural process. If a pathogen is present, any environmental condition might cause disease to develop in a plant. Most plant diseases exhibit themselves on the leaves, fruits, and stems of the plant, and as a consequence, early detection of illness is essential to the success of crop production. For the most part, pathogens, germs, fungi, bacteria, viruses, and other pathogens are to blame for the formation of plant illnesses in the first place. An unfavourable environment, which might include soil and water in some cases, can lead to the development of plant diseases in certain cases. When it comes to diagnosing the many different types of plant diseases in their early stages, there are a range of options. Naked eye observation techniques are the conventional method of detecting plant diseases; however, these approaches are inadequate when dealing with large fields of crops. When digital image processing methods are used in the detection of plant diseases, the procedure is more efficient, less time-consuming, and the results are more accurate. By removing the need for pesticides, this technique saves time, effort, labour, and money. It also reduces the use of pesticides. Different authors propose a range of ways for accurate plant disease diagnosis using digital image and it includes all of the tactics used by all of the authors.

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Zero-Voltage and Zero-Current-Switching Full-Bridge PWM Converter Using Auxiliary Active Clamp

Saidula Valampatlu[1],Mekala krishnaveni[2],B.Raju[3],

Abstract— *Another zero-voltage and zero-current-exchanging (ZVZCS) full-connect (FB) pulsewidth balance (PWM) converter is proposed to improve the presentation of the recently exhibited ZVZCS FB PWM converters. By including an optional dynamic cinch and controlling the brace switch reasonably, ZVS (for driving leg switches) and ZCS (for slacking leg switches) are accomplished without including any lossy parts or the saturable reactor. Numerous preferences including basic circuit topology, high effectiveness, and ease make the new converter alluring for high-voltage and high-power (>10 kW) applications. The rule of activity is clarified and dissected. The highlights and structure contemplations of the new converter are likewise represented and checked on a 1.8-kW 100-kHz protected entryway bipolar transistor (IGBT)- based exploratory circuit.*

Index Terms— conversion of DC–DC power.

I. INTRODUCTION

Insulated gate bipolar transistors (IGBT's) are widely used in switching power conversion applications because of their distinctive advantages such as easiness in drive and highfrequency switching capability. The performance of IGBT's has been continuously improved, and the latest IGBT's can be operated at 10–20 kHz without including any snubber circuit. Moreover, IGBT's are replacing MOSFET's for the several or several tens of kilowatts power range applications since IGBT's can handle higher voltage and power with higher power density and lower cost compared to MOSFET's. The maximum operating frequency of IGBT's, however, is limited to 20–30 kHz [1] because of their tail-current characteristic. To operate IGBT's at high switching frequencies, it is required to reduce the turn-off switching loss. Zero-voltage switching (ZVS) with a substantial external snubber capacitor or zerocurrent switching (ZCS) can be a solution. The ZCS, however, is deemed more effective since the minority carrier is swept out before turning off [6]. ZVS full-bridge (FB) pulsewidth modulation (PWM) converters have received considerable attention in recent years [2]–[5]. This converter is controlled by a phase-shifted PWM technique which enables the use of all parasitic elements in the bridge to provide ZVS conditions for the switches. Distinctive advantages including ZVS with no additional components, and low-device voltage/current stresses make it very attractive for high-frequency high-power applications, where MOSFET's are predominantly used as the power switches. The IGBT's, however, are not suited for the ZVS FB PWM converter because the ZVS range is quite limited unless the leakage inductance is very large.

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In addition, several demerits such as duty-cycle loss and parasitic ringing in the secondary limit the maximum power rating of the converter. To apply IGBT's for a high-frequency converter, a

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VLSI DESIGNS VERIFICATION OF DSP

V.Sekharababu Yadlapal[1],N.Dasharath[2],

Abstract:

Foregg, Digital Signal Processing (DSP) is growing with sophisticated capabilities in locally accessible space applications, thanks to the use of Field Programmable Gate Arrays (FPGA) and Specific Integrated Circuits for Application (ASICs). Proof of these perplexing systems is being checked inside tiny timetables and characteristics. It is critical to conduct strict functional monitoring in order to ensure that these systems operate reliably in all conceivable run-time scenarios. Even with the use of cutting-edge Hardware Verification Languages (HVLs) and approaches such as System-Virology (SV) and Universal Verification Methodology (UVM), improving a mechanized self-checking validation state or test seats, including the age of bit-exact genius reference values, is a complex and time-consuming task. This article investigates a utilitarian check method for the DSP-based VLSI setup utilizing SV and Mat lab. The design of the verify situation, method for integrating Mat lab with SV-based validation condition, and age of bit-accurate genius references are continuously examined in detail, in addition to two contextual investigations.

Keywords: DSP, VLSI, UVM, predictor, coverage-powered verification, DPI

I. INTRODUCTION

DigitalVLSI designs are becoming more dynamic in order to meet ever-increasing practical requirements. Design teams are packing more and more logic gates onto a single chip in order to provide the necessary functionality and efficiency within the specified footprint. Practical testing of such systems using a traditional approach using guided test benches does not give sufficient confidence within the time constraints. In terms of enabling limited generation of random stimuli, self-checking and assertion-based verification, as well as defining the useable coverage matrix, test benches built in SV provide advantages. Random testing improves performance over manual testing, reduces the number of test vectors generated, and produces test cases that the verification engineer isn't aware of. Binding assertions to a specification at the simulation level identifies design flaws in real time and significantly reduces debugging times compared to non-assertion-based design. The simulated design's performance is compared to golden reference values generated using HVL and verified automatically during runtime. Functional simulation is considered complete when the goal of 100 percent functional coverage is met.In this SV-based test bench, assertions are used to verify the designs' control signals, and a predictor or checker is used to assess the designs' data processing capabilities. The verification engineer typically hand-codes these checks using a higher level of abstraction. With sophisticated features like DSP, checker development is difficult. With an onboard architecture that includes multiple DSP IP cores with capabilities like sine-cosine lookup table, fixed-to-floating-point translation, FFT, FIR filter, and so on, this becomes much more complex. DSP algorithms are available as standard features in MATLAB. The test bench can be simplified and overall verification efficiency can be significantly improved if these jobs can be utilized as golden reference models/checkers on the test bench. This article investigates the use of SV and the Mat lab pairing method with SV to create a verification environment.

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Overview of the CLEF 2010 medical imageretrieval track

K.Nithin Kumar[1],P.Nanda Kumar[2],

Abstract:

It was decided to hold the seventh round of the ImageCLEF medical retrieval assignment in 2010. Like the collections in 2008 and 2009, the 2010 collection includes photographs and captions from the Radiology and Radiographics journals published by the RSNA (Radiological Society of North America) as well as other sources (Radiological Society of North America). Three sub–tasks were completed under the auspices of the medical task: modality identification, image–based retrieval, and case–based retrieval, all of which were completed under the auspices of the medical task. The goal of the modality identification task was to ascertain the mode of acquisition of the images in the collection by utilising visual, textual, or a combination of approaches to identify them. When performing an image–based retrieval task, the goal was to return an ordered set of images from the collection that best met the information need specified as a textual statement and as a set of sample images, whereas when performing a case–based retrieval task, the goal was to return an ordered set of articles (rather than images) that best met the information need specified as a description of a "case." The number of research organisations registering for the medical task has increased to 51 from the previous number of registrants. The number of groups submitting runs, on the other hand, has remained constant at 16, with the total number of submitted runs increasing to 155. Ad hoc runs made up 51 of them, while case–based runs made up 48 and modal–ity classification runs made up the remaining 46 (see table below). The best results for the ad–hoc retrieval themes were obtained via the use of mixed approaches, with textual techniques also providing satisfactory results. For the case–based topics, textual means were unquestionably preferable. While textual and visual tactics alone were somewhat successful in the modality detection test, it was the combination of these approaches that proved to be the most effective.

1 Introduction

It is currently known as labs, and it is made up of a set of pre-planned evaluation tasks that are carried out. 2 Participation, data sets, tasks, and ground truth are all critical considerations in every project. This section goes into great depth on how the medical retrieval task was set up and how I was able to participate in it over the year 2010. Participation is encouraged (paragraph 2.1) ImageCLEF received registrations for its four sub–tasks from a new record number of 112 research groups in 2010, representing a decline from the seven sub–tasks that were registered in 2009.

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A Buck and Boost Based Grid Connected PV Inverter Maximizing Power Yield From Two PV Arrays in Mismatched Environmental Conditions

V.Sandhya Rani[1],Budida Harikanth[2],P.Srikanth[3],

Abstract:

To extract the maximum power from two serially connected subarrays, it is proposed in this paper that a single phase grid connected transformerless photovoltaic (PV) inverter, which can operate in either buck or boost mode and can extract the maximum power simultaneously from two serially connected subarrays while each subarray is subjected to a different environmental condition, be used. It is much less restrictive to employ a minimal number of serially connected solar PV modules to form a subarray when using an inverter that can operate in either buck or boost mode depending on the application since the inverter can operate in either mode depending on the application. It is as a result of this that the power yield from each subarray increases when each subarray is exposed to a different set of environmental variables. According to the design specifications, the topological configuration of the inverter and its control approach should be such that high-frequency components are not present in the common mode voltage, allowing the amplitude of the leakage current associated with the PV arrays to remain within a specified range of values. Additionally, a high degree of operating efficiency is achieved across the whole working range. Having completed a thorough analysis of the system, which eventually results in the development of a mathematical model of the system, it is assessed whether or not the project is practical by conducting extensive simulation studies. Extensive experimental experiments are required in order to demonstrate the accuracy of the design, and a 1.5 kW laboratory prototype is required.

Index Terms—Buck and Boost based photovoltaic (PV) inverter, grid connection, maximum power point (MPP), mismatched environmental condition, series connected module, single phase, transformer less.

INTRODUCTION

If you are designing a photovoltaic (PV) system, one of the most important considerations to make is making sure that individual PV modules in a solar-electric (PV) array perform to their maximum potential even when the modules are subjected to different environmental conditions as a result of differences in insulation level and/or differences in operating temperature. An incompatibility between the operating parameters of the modules results in a significant reduction in the power produced by a solar-electric array. When there are a large number of PV modules connected in series in a solar PV array, dealing with the problem of mismatched environmental conditions (MECs) becomes increasingly complex. Because the input dc-link voltage of an inverter in a grid connected transformer less (GCT) PV system must be of a certain size in order to reach the desired magnitude, a large number of series linked modules are required. Figure 1 shows the number of series linked modules required in a GCT PV system. A GCT PV system, such as a single phase GCT (SPGCT) inverter based system created from H-bridges or a neutral point clamp (NPC) inverter based system, has its power output severely decreased as a consequence of the MEC. To cope with the problem that emerges as a consequence of MEC in a PV system, a number of techniques have been offered in the literature. Such techniques are described in full in this study, which includes an in-depth examination of each one.

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Design and structural analysis of simply supported beam

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Abstract –

For this experiment, only beams that could be readily sustained were chosen. Equilibrium is a state in which the beam does not move. Because descending forces must equal rising forces, the total moment of forces on a beam must be zero. Equilibrium. A basic supported beam may travel in any direction since it has just two points of support. With point-loaded beams, not only may bridges and buildings be improved, but also machine beds. The moment's impact on stresses, beam curvature, and beam deflection is crucial in maintaining equilibrium. Additionally, the shear force and bending moment values of a beam may vary greatly across its length.

Introduction

The method for estimating the strength of a beam is independent of the material it is made of. Choosing a beam and doing the following steps are a good place to begin.

Measuring Weight and Measurement

Structural analysis may begin after the maximum load capacity of a beam is known. Loads may be categorised into two types:

The short-term stress on a structure is referred to as a "live load" (i.e. loads from snow, wind, vehicles, etc.). The magnitude of live loads will be specified or referred to in local building regulations.

Loads permanently connected to a structure are referred to as dead loads (i.e. loads from building materials, furniture, etc.). Material weights may be used to estimate the total dead weight of a structure. Most of the time, a rough estimate is given for the dead weight.

Calculating the stress level

When designing a beam, it's important to consider stresses like bending and shear. An in-depth discussion of bending and shear stress is provided here. To estimate the bending and shear stresses, the maximum bending moment and maximum shear in the beam must be known.

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Roof truss design approaches are compared. WSM and LSM

Ramavath Jaipal[1],K.Shravani[2],

ABSTRACT

Using the term "single entity," we indicate a framework with just two forces. Members are subjected to tensile and compressive stresses as a result of external forces. Beams refer to the top and bottom of a truss, respectively. There are intervals between the webs that are called panelling. A well-rounded design framework incorporates safety, cost-effectiveness, and aesthetics into the overall design process. Howe roof trusses and channel section purlins are studied using limit state and working stress techniques. A comparison of shear force, bending moment, deflection and displacement is the subject of this investigation. The Indian Standard Codes IS 875-1975, IS 800-2007 (limit state approach), and IS 800-2007 are used to calculate specimen section characteristics (working stress method). The building is designed with a long-term support system in order to endure wind loads. These researchers are primarily interested in finding techniques that are low-cost and easy to maintain while yet being able to manage large weights. The best bending and load-bearing capacity may be achieved by using the limit state approach design.They must be taken into consideration for their buckling strength, bending stiffness, and distortion stiffness.

INTRODUCTION

In the building business, panel points are used to connect two straight pieces of material together. The use of triangles to stabilise trusses is common, however this is not always the case. This is the only geometric form whose dimensions will never change since its sides are all of equal length. Four-sided figures need regular regulation of their angles and lengths in order to maintain their right shape. Trusses come in two varieties:

Thus, the pitched and common trusses have two separate triangle shapes. The most common usage of this material is for roofing. For example, trusses get their name from the web structure they have. The length, weight, and spacing of the chords and webs determine this.

There are parallel top and bottom strings, which is why it is known as a "parallel chord" kind of structure. This is a common building material for flooring.

the building is made of steel Purlins are classified as either horizontal or vertical. Structurally, purlins depend on the walls for their support. Without a crown plate, both purlins may be purchased. Rooftop "crown plates" are the term used by structural engineers and architects. Purlins of the later kind are what we see here. The purlin plate, primary purlins, and common purlins make up a purlin, on average. Purlins, channel and angle sections, and other roofing components are often used together. Cold-formed steel purlins play a vital role in Indian construction. When constructing a sloping roof with a lengthy span between the purlins, it is usual practise to employ "Z" sections. It is necessary to employ thick metal sheets to produce sectional steel sections for cold forming. Steel members are available in thicknesses ranging from 0.04 to 0.64 inches.millimetres. Cold forming improves both the At the time when a currency's value has reached its highest point of strength (1). Rolled stainless steel sheets are used to make cold-formed and light-gauge spools. Without the use of heat, these components are made from thin, uniformly sized metal sheets. Between 1 and 8 millimetres thick is typical for sheets.. When it comes to construction, purlins may be used to form anything from light supports to roof sheets to floor decking.

"Boots and Saddles"

Steel or wood may be used to build this truss, however wood is the preferred option. When it comes to architecture, who is in charge of it and how it's put together is of utmost importance. With a maximum length of 8 metres, the King Post Truss can accommodate a wide range of home sizes, particularly smaller ones.

Pratt Truss, a firm in the construction industry, makes use of it.

This is the most popular and least expensive kind of steel roof truss. Accordingly, when stress increases in the main strut, tension decreases in the diagonal strut. The typical length of this kind of building is 10 metres.

The King of the Post Trusses.

The Queen Post Trellis is a great option because to its adaptability and reliability. Because of its simple construction and 10-meter spread, it may be used by a wide range of organisations.

A Howe Truss is a particular kind of truss used in the construction business.

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Assessment of Deep Learning Techniques in Sentiment Evaluation from Twitter Statistics

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Abstract: This take a look at provides a assessment of different deep gaining knowledge of methods used for sentiment evaluation in Twitter statistics. on this domain, deep learning (DL) strategies, which make a contribution on the equal time to the solution of a extensive variety of issues, won popularity amongst researchers. specifically, two classes of neural networks are utilized, convolution neural networks (CNN), which are particularly performant in the location of photograph processing and recurrent neural networks (RNN) which might be implemented with success in natural language processing (NLP) duties. on this paintings we compare and compare ensembles and combinations of CNN and a category of RNN the lengthy shortterm memory (LSTM) networks. moreover, we compare one of a kind phrase embedding systems including the Word2Vec and the worldwide vectors for phrase representation (GloVe) fashions. For the evaluation of those strategies we used information furnished by way of the global workshop on semantic assessment (SemEval), that's one of the most famous international workshops at the location. Diverse tests and combos are applied and best scoring values for every version are as compared in terms of their overall performance. This take a look at contributes to the sphere of sentiment analysis with the aid of analyzing the performances, blessings and barriers of the above methods with an evaluation method underneath a unmarried testing framework with the identical dataset and computing surroundings.

key phrases: sentiment evaluation, deep gaining knowledge of, convolution neural networks, LSTM, word embedding models, Twitter statistics.

INTRODUCTION:

In latest years, thanks to the boom within the use of social media, sentiment evaluation gained recognition among a wide range of human beings with different hobbies and motivations. As customers everywhere in the international have the possibility to specific their opinion approximately unique topics associated with politics, schooling, travel, subculture, commercial merchandise, or topics of well known interest, extracting knowledge from those records have become a topic of excellent significance and significance. Besides facts concerning users' visited sites, buying choices etc., knowing their emotions as they're expressed by way of their messages in diverse systems, turned out to be an essential detail for the estimation of human being's opinion about a specific problem. a very common technique is to categorise the polarity of a text in phrases of user's pride, dissatisfaction or neutrality. The polarity can vary in terms of labeling or wide variety of tiers from effective to poor but in widespread it denotes the feelings of a textual content varying from a glad to an unhappy mode. The tactics used for sentiments analysis are numerous and are primarily based on onc-of-a-kind strategies of herbal language processing and system learning strategies for extracting ok functions and classifying text in suitable polarity labels. in view that some years, with the popularity that deep learning techniques have received, various deep neural networks were applied on the field with achievement. Particularly, the convolution neural networks and LSTM networks proved to be performant for sentiment analysis obligations.

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SEMI-SUPERVISED MACHINE LEARNING APPROACH FOR DDOS DETECTION

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Abstract - *Distributed denial of service (DDoS) attacks are a major threat to any network-based service provider. The ability of an attacker to harness the power of a lot of compromised devices to launch an attack makes it even more complex to handle. This complexity can increase even more when several attackers coordinate to launch an attack on one victim. Moreover, attackers these days do not need to be highly skilled to perpetrate an attack. Tools for orchestrating an attack can easily be found online and require little to no knowledge about attack scripts to initiate an attack. The purpose of this paper is to detect and mitigate known and unknown DDoS attacks in real time environments. Identify high volume of genuine traffic as genuine without being dropped. Prevent DDoS attacking (forged) packets from reaching the target while allowing genuine packets to get through. A DDoS attack slows or halts communications between devices as well as the victim machine itself. It introduces loss of Internet services like email, online applications or programme performance. We apply an automatic characteristic selection algorithm primarily based on N-gram sequence to obtain meaningful capabilities from the semantics of site visitors flows. DDoS attacks are the perfect planned attacks with the aim to stop the legitimate users from accessing the system or the service by consuming the bandwidth or by making the system or service unavailable. The attackers do not attack to steal or access any information but they decline the performance of the network and the system.*

Keywords - *Distributed Denial of Service (DDoS), Malware Detection, Machine learning, NLP Method, Text semantics.*

INTRODUCTION

Data mining techniques have been used to develop sophisticated intrusion detection systems for the last two decades. Artificial Intelligence, Machine Learning (ML), Pattern Recognition, Statistics, Information Theory are the most used data mining techniques for intrusion detection With the increase in dependability of the internet comes with it an important challenge: data availability. Data availability is a key requirement for a network system to be considered secure. Distributed denial of service attacks are intentional attempts by malicious users to disrupt or degrade the quality of a network or service These attacks involve a number of compromised connected online devices, The use of botnets makes it easier for attackers is to launch massive attacks due to the fact that they harness the power of a lot of devices for an attack. Attacks involving botnets also make it difficult to determine the exact source of the attack. Differentiating between flash crowds also poses a major challenge. There are two main methods to launch DDoS attacks in the Internet. The first method is for the attacker to send some malformed packets to the victim to confuse a protocol or an application running on it (i.e., vulnerability attack. The other method, which is the most common one, involves an attacker trying to do one or both of the following:

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DESIGN AND ANALYSIS OF 16nm GNRFET AND CMOS BASED LOW POWER 4Kb SRAM ARRAY USING 1-BIT 6T SRAM CELL

Dr.K.Muralibabu[1],Anam Srinivasa Reddy[2],

Abstract:

With the evolution in the microelectronic applications like high speed processors, multimedia and in current electronic communication for artificial intelligence devices and IOT necessitates bigger SOC SRAM arrays for high performance with low power consumption and less space. Generally, CMOS based technologies are most extensively utilised for the construction of 6T SRAM cell. When the nanoscale technology is scaling down CMOS devices are usually confronting with leakage current and short channel impact. The constant scaling of CMOS technology restricts the performance of 6T SRAM cell in terms of leakage power. Leakage current is the biggest contributor in the power consumption of SRAM. So, the researchers have invented GNRFET technology to compensate the CMOS technology. Graphene Nano Ribbon Field Effect Transistor is a three terminal device similar to MOSFET, here the semiconducting channel is created using graphene. In this study employing 1-bit 6T SRAM cell, 4kb memory array is developed using CMOS and GNRFET technologies at 16nm technology with supply voltage of 1v. Initially 4x4, 16x16, 32x32 SRAM arrays are created in two technologies and the parameter such as read delay, write delay and average power consumption are evaluated and the results are compared for the two technologies using HSPICE tool.

Keywords: SOC, SRAM, CMOS, GNRFET, MOSFET, HSPICE tool, read delay, write delay, average power.

1. INTRODUCTION

The organisation of embedded memory in current very large-scale integration (VLSI) systems has progressed to a more sophisticated level. Random access memory cells are generally divided into two types: static random-access memory (SRAM) cells and dynamic random-access memory (DRAM) cells. When compared to SRAM cells, which are implemented with transistors and latches, DRAM cells are implemented with capacitors and a single transistor, which takes a long time to charge and discharge the capacitors for storing and retrieving data, as well as consuming a significant amount of power during the process. Because of this benefit, SRAM cells are commonly employed in SOC devices which are semiconductor-based electronics [1].

As a result of the increasing need for power reduction and improved performance in modern SOC devices, several SRAM cells designs have been presented that are optimized for high performance. However, the 6T SRAM cell is often regarded as offering an excellent balance between size and performance. To boost performance, SOC devices make advantage of bigger SRAM arrays than are typically seen in other devices. Consequently, the effect on area resulting from the incorporation of a bigger SRAM array on the chip results in an indirect increase in power consumption, chip size, and cost [2]. When it comes to standard CMOS and GNRFET-based 16nm technology SRAM arrays, 1-bit 6T SRAM cells have been used to create them in the age of nanotechnology creation. The high-

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According to the HVDC Transmission System Review Paper,

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Abstract

Power transmission could be disrupted more easily with AC (alternating current) than DC in early days of electrical delivery since transformers utilised it (direct current). For industrial and residential clients, high-voltage AC grids may connect previously isolated distribution networks and massive power plants. Many decades after the introduction of high-voltage direct current (HVDC) technology, the first commercially feasible high-voltage direct current link was not created. This study's focus is on India's existing and future high-voltage direct current (HVDC) transmission networks. The article discusses new developments in HVDC transmission and other technologies. This research compares the design, operation, construction, and maintenance of HVDC transmissions to HVAC. HVDC transmission over an AC framework is also analysed in the paper, which includes an economic assessment In this research, the HVDC transmission frameworks in India are examined in detail. Using HVDC frameworks is recommended in the present development of power frameworks, according to the text.

Bipolar transmission, HVDC linkages, and transmission are the focus of this section..

HVDC History:-

During the first year of the world's first HVDC transmission in Miesbach-Munich power transmission, just 1.5 KW of energy was transferred. It was built on the border of Germany between Miesbach and Munich [16,17]. Obviously, the AC system was instantly adopted for the generation, distribution, and so on of electricity. [13] Voltage conversion was simplified by the transformer in an alternating current system. Among a transformer's most distinguishing features are its low power loss and high electrical output. Synchronized three-phase generators are a great alternative to DC generators. As a result, transmission over an AC network is more straightforward than transmission over a DC network. The HVAC system may be used in a broad variety of settings when employing asynchronous grids and long-distance transmissions.

Table 1 below demonstrates the development of HVDC technology throughout time.

[1]

Table 1: HVDV Technology Development

He with's mercury-vapour rectifier, which showed up in 1901.

Experiments with thyratrons in America and mercury circular segment valves in Europe before 1940.

First business HVDC transmission, Gotland 1 in Sweden in 1954. • First robust state semiconductor valves in 1970.

First microcomputer-based control gear for HVDC in 1979.

Highest DC transmission voltage (+/- 600 kV) in Itaipu, Brazil, 1984.

First dynamic DC channels for excellent supervising execution in 1994.

First Capacitor Commutated Converter (CCC) in Argentina-Brazil interconnection, 1998

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A Micro strip Patch Antenna for Wireless Communications of Design and Analysis

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Abstract:

It is critical that the microstrip antenna used for wideband communication be lightweight, easy to build, and small in size in order to be effective. A basic geometrically organised design for the microstrip antenna is required in the present context in order to achieve appropriate broadband performance. Presented here are the findings from a two-dimensional design study of rectangular and square shaped microstrip antennas conducted by the author. In order to feed both antennas, microstrip line was used in conjunction with each antenna. When compared to the rectangular microstrip antenna used in the preceding example, the square-shaped microstrip antenna provides a wider bandwidth and a more acceptable return loss. Small and lightweight, the small antenna is intended to function in the X band of frequencies, where it will be most effective. According to the results of the antenna performance evaluations, the proposed microstrip antenna has a wide bandwidth of 500MHz and a considerable return loss (-24 dB). Because of its huge bandwidth, it may be used in a wide variety of wideband applications in the X- band spectrum.

Index Terms: Broadband, Microstrip Antenna, Reflection coefficient, Stub Matching.

I. INTRODUCTION

The usage of a Microstrip antenna is a significant advancement in wireless communication systems because it satisfies the needs of the most recent generation of wireless communication technology, which is distinguished by its ability to introduce new concepts and ideas. It is being employed in each of these devices owing to the several benefits [1] that microstrip antennas provide, including the fact that they are incredibly lightweight, have a basic construction, and are highly efficient while being inexpensive. In contrast, the limited operating bandwidth of it is a restriction, and as a consequence, its usage in wireless systems is severely constrained [2]. We have grown to rely on broadband programmes that perform a range of tasks as well as wireless gadgets as crucial components of our day-to-day life. As a consequence, the need for low-profile wideband has been decreased [3] as a result of this development. As well as being able to fulfil the great majority of the requirements for mobile and satellite equipment, microstrip antennas are also capable of addressing an extensive variety of business demands. When it comes to wireless applications, the quantity of electrical circuits required is gradually decreasing, making the microstrip a particularly appropriate match in this case. Additionally, the size of the antennas that are used for the overwhelming majority of applications is shrinking at a frighteningly fast pace. Design of a microstrip antenna fix that satisfies the specifications of these Multiple methodologies have been examined [4-6], and it has been shown that the selection of the appropriate impedance bandwidth of the microstrip antenna may be one of the variables leading to the enhancement of performance. Notches have been shown to elicit craving responses [7,8].

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MULTI-TERRAIN ROBO ENGINEERING

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ABSTRACT

Due to the rapid progress in the field of robotics, it is a high time to concentrate on the development of a robot that can man in all type of landscapes, ascend and descend stairs and sloping surfaces autonomously. This paper presents details of a prototype robot which can navigate in very rough terrain, ascend and descend staircase as well as sloping surface and cross ditches. The robot is made up of six differentially steered wheels and some passive mechanism, making it suitable to cross long ditches and landscape undulation. Static stability of the developed robot have been carried out analytically and navigation capability of the robot is observed through simulation in different environment, separately. Description of embedded system of the robot has also been presented and experimental validation has been made along with some details on obstacle avoidance. Finally the limitations of the robot have been explored with their possible reasons.

INTRODUCTION

Multi Terrain Robots are the category of mobile robots that are capable of showcasing excellent off-road performances. They are able to navigate across bumpy and rough terrains. They mainly have wheels or tracks for locomotion. ATRs have various link mechanisms in order to overcome various sized obstacles. It is always desirable that the ATRs will be autonomous, that is, it will sense its environment with the help of sensors and then will take further decision on its own, with the help of instructions. The goal of this work was to conceive and build a mobile robot which will be a wheeled rover having good off-road capabilities, good grip over undulating, rough terrain, variable size obstacle negotiation capability, staircase ascending and descending capability, ditch/crevasse crossing capability and generating stable motion in undulating surface.

BLOCK DIAGRAM

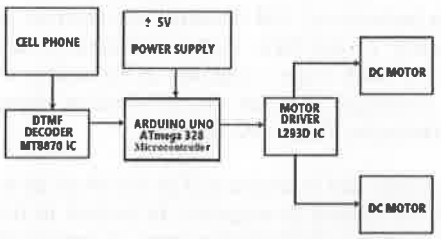

Fig 2.1

Block Diagram of Multi Terrain Robo

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RESOLUTION TWO-STEP TDC CMOS BY PULSE-SHRINKING FINE STAGE, BUILT-IN COARSE GAIN CALIBRATION

Erugu Krishna[1], Dr.M.Bal Raju [2],Dr.Palla Karunakar Reddy[3],Dr.Ch Ramesh Kumar[4],

Abstract:

This article proposes a computerized converter (TDC) solution that can meet a broad range of knowledge and fine-time goals at the same time. The proposed TDC utilizes a beat contracting (PS) plot for a precise target and two-advance (TS) engineering for a larger range in the second phase. The suggested PS TDC solves the undesired non-uniform contracting rate issue that plagues conventional PS TDCs by using an assumed counterbalance beat and a balance beat width detecting method. Due to sign spread and extension fraud between coarse and fine phases, the proposed TS architecture achieves nonlinearity with a few methods, resulting in an inferred coarse increase adjustment mechanism. The replication findings in a 0.18-m normal CMOS innovation show 2.0-ps targets and 16-piece go connected to 130-ns input time interim of 0.08-mm2 area in a TDC modification. With an 18.0 maws 1.8-V supply, it has a single-shot accuracy of 1.44 ps and operates at 3.3 MS/s.

Built-in coordination includes beat contracting (PS), transition time-to-advanced, and two-stage transition time-to-advanced (TS).

1. INTRODUCTION EXAMPLE

As a result of late enhancements in Cmos producing scale, rapid semiconductors, and lower supply voltage, time goal is turning out to be more prevalent than voltage goal [1], [2]. ADPLLs, space logical programming, jitter computations, and different applications have as of late profited from the utilization of a chance to-computerized converter (TDC). It's likewise used to figure high-accuracy flight times, which are turning out to be more incessant as TDC effectiveness improves.

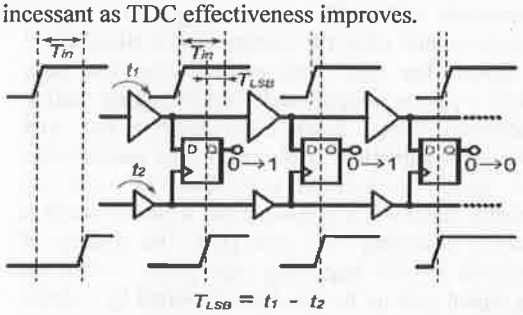

Fig. 1. Simplified schematic of a typical Venire TDC.

Two instances of testing applications are the laser range locater [3] and mass spectrometry [4]. It is normal utilized in imaging frameworks for fluorescence lifetime [5]. Fine fleeting exactness and a huge unique reach are needed in these applications, which are the examination's fundamental objective applications [6]. The general estimation proficiency is determined by the TDC, in this way a couple of PHS time goals with low jitter at various MS/s samplingrates are constantly required. A few time change procedures with sub-door defer goal have been proposed as far as fine goal. In view of the adaptability of its plan thought, the Venire TDC is widely used [6]-[9].

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A REVIEW OF NANO MATERIALS IN CIVIL ENGINEERING WORKS

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ABSTRACT :

The performance of conventional concrete can be improved by applying nanotechnology materials in constructional industry. The properties of materials actually become affected due to particle size at the length scale of nanometer, i.e., 10–9 m, based on this view, researchers have been pursuing to evolve new or alternative materials towards a green and sustainable solution. The Nanotechnology deals at a scale smaller than 100 nm (1 nm = 10-9 m). Due to their reduced size, nanomaterials properties vary considerably from bulk and thus they present exceptional mechanical and physical properties. The engineering of complex structure of cement based materials at nano level will definitely result in new generation of concrete, stronger and more durable with whole range of newly introduced smart properties. The nanotechnology materials have many unique characteristics but their material cost is very expensive due to novelty technology.

INTRODUCTION

Nanotechnology, introduced almost half century ago and is one of the most active research areas with both novel science and useful applications that has gradually established itself in the past two decades. The evolution of technology and instrumentation as well as its related scientific areas such as physics and chemistry are making the research on nanotechnology aggressive and evolutional. Not surprisingly, it is observed that expenditure on nanotechnology research is significant. The US National Nanotechnology Initiative (NNI) expenditure exceeds $1 bn each year with president's 2008 budget for NNI at $1.5 bn. The research is mainly moving forward motivated by immediate profitable return generated by high value commercial products. The nanotechnologies can be defined as the design, characterization, production and application of structures, devices and systems by controlling shape and size at the nanoscale. Nanotechnology requires advanced imaging techniques for studying and improving the material behavior and for designing and producing very fine powders, liquids or solidsof materials with particle size between 1 and 100 nm, known as nanoparticles (Gogotsi, 2006). Nanoscience can be divided into three fields (i) Nanostructures; (ii) Nanofabrication; and (iii) nanocharacterization with typical application in nanoelectronics and life science and energy. The usage of technology materials while being incorporated in constructional structures would not help in prolonging in their lifetime but would also help keep a check on the energy spent by them at the same time gauging their reaction and reacting to different agents like fire, corrosion, water penetration and cracks, etc.The purpose of reviews is to give clear image among the nanotechnology development areas where the construction process would immediately harness nanotechnology. By specifying clear recommendations. The information would be beneficial to both construction, engineering education and research.

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A MESOCHRNOUS TECHNIQUE based FPGA implementation of multibit flip-flops

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Abstract:

More relaxed clocking techniques such as mesochronous clocking replace completely sync clocking to enhance system composability and simplify timing closure. Under this regime, the modules on two ends of the mesokronous interface get the same clock signal, which works at the same clock frequency, but an unknown phase relationship might occur on the margins of the arrival clock signals. Clock synchronisation is required if data is sent across modules. In this short we introduce a unique mesochron first-input dual-clock first-output buffer (FIFO), which can manage clock synchronisation and temporary data storage, syncing data implicitly through explicit flow control synchronisation alone. Even if the transmitter and receiver are separated by a lengthy connection whereby delay cannot fit inside the intended operating frequency, the suggested system can function well. In such cases, the suggested mesochronous FIFO may be modified to accommodate delays with multi-cycle connections modularly and with little changes to the baseline design. The novel architecture is shown to produce a much-reduced cost implementation compared to prior state-of-the-art mesochronous FIFO architectures.

I. INTRODUCTION

The main development architecture in the field of rapid computer interfaces is Multiprocessor System-on-Chips (MPSoC). The evolution of new technologies has brought forth the necessity for MPSoC. However, the computer overhead and energy requirements have resulted in its optimization required for such a sophisticated design. The designers are dealing with this problem in two ways, by adapting the design to the application limit[1] and by scaling the operation to a restricted voltage / frequency operation[2,3]. Whereas adaptation is an optimum technique, the overall design is substantially high [4]. The design technique comprises monitoring the communications protocol and signal interface between different components [5] in the processor unit while optimising the overhead power and processing. The variety of the design units and the components utilised in this design are also a key restriction in the MPSoC optimization process[6]. The optimization restrictions also limit the operating frequency and system performance[7] in certain applications. This is why the design approach is described with an internal clock allocation updating process[8] and a FIFO-based technique for synchronisation across many units in sub unit activities. Here each core unit is linked to synchronise data exchange across various core units[9].Each of the IP core

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System of electromagnetic braking

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ABSTRACT

A non-contact braking system was proposed to solve the shortcomings of standard braking systems. Upright magnetic braking methods get very little mention in the extensive literature, which is good news for businesses. To build an upright magnetic system, determining the magnetic flux is a critical step. Fluctuating magnetic flux induces eddy currents in the conductor. These currents burn energy in the conductor and generate drag force in order to slow down the movement. Thus, a finite element model is utilised to examine the impacts of air gaps and track materials on magnetic flux density. The model's predicted magnetic flux is within the permissible range, according to the test findings. Based on the results, it will be simpler to develop magnetic braking systems.
Conventional braking methods, friction, heat, and so forth all fall under this umbrella.

Introduction

For heavy-duty vehicles, standard friction brakes may not be enough. There are many techniques to reduce the distance it takes for a vehicle to come to a complete stop, including the use of standard brakes. In the next section, we'll discuss the foundations of electromagnetic brake operation and design. We're working on a method to slow things down for this project. A two-wheeled vehicle may be used in certain situations As a result of its fast speed and cheap maintenance needs, electromagnetic brakes have been deployed as a supplemental slowing mechanism. A plunger and an electromagnetic coil are used in this experiment. The plunger is pushed in the direction of braking by an electromagnetic force. Only electricity can create a magnetic flux in a magnetic field. A hysteresis disc across the field collects the resulting flux. There is a hysteresis disc on the braking shaft. The output shaft may be dragged indefinitely using a magnet attached to the hysteresis disc.Electro-mechanical brakes (also known as EM brakes) use electromagnetic force to create mechanical resistance and slow or halt motion (friction). Although they were first referred to as "electric-mechanical" brakes, they have now been renamed "electromagnetic brakes" because of the method in which they work. There has been a tremendous rise in the number of applications and brake designs since the mid-20th century when they were extensively utilised in trains and trolleys. Despite these alterations, the system's essential functionality has remained constant. The magnetic force of eddy current brakes, as opposed to the friction of electromagnetic brakes, is used directly to stop the vehicle.

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MULTI-CYLINDER ENGINE CAMSHAFT DESIGN

M.Praveen Kumar[1,2,3,4], Dr A K S ANSARI[1,2,3,4], P NAVEEN REDDY[1,2,3,4], BANTU SAILESH[1,2,3,4]

ABSTRACT

The cam shaft and its associated parts control the opening and closing of the two valves. The associated parts are push rods, rocker arms, valve springs and tappets. It consists of a cylindrical rod running over the length of the cylinder bank with a number of oblong lobes protruding from it, one for each valve. The cam lobes force the valves open by pressing on the valve, or on some intermediate mechanism as they rotate. This shaft also provides the drive to the ignition system.

In this work, a camshaft is designed for multi cylinder engine and 3D-model of the camshaft is created using modeling software Solidworks with different materials aluminum alloy, forged steel &cast iron.

Present using the cast iron material for camshaft, we are replaced with aluminum alloy & forged steel.

Modeling done on Solidworks software.

INTRODUCTION

A cam is a rotating or sliding piece in a mechanical linkage used especially in transforming rotary motion into linear motion or vice versa. It is often a part of a rotating wheel (e.g. an eccentric wheel) or shaft (e.g. a cylinder with an irregular shape) that strikes a lever at one or more points on its circular path. The cam can be a simple tooth, as is used to deliver pulses of power to a steam hammer, for example, or an eccentric disc or other shape that produces a smooth reciprocating (back and forth) motion in the follower, which is a lever making contact with the cam.

Overview

The cam can be seen as a device that translates from circular to reciprocating (or sometimes oscillating) motion. A common example is the camshaft of an automobile, which takes the rotary motion of the engine and translates it into the reciprocating motion necessary to operate the intake and exhaust valves of the cylinders. The opposite operation, translation of reciprocating motion to circular motion, is done by a crank. An example is the crankshaft of a car, which takes the reciprocating motion of the pistons and translates it into the rotary motion necessary to operate the wheels.
Cams can also be viewed as information-storing and -transmitting devices. Examples are the cam-drums that direct the notes of a music box or the movements of a screw machine's various tools and chucks.

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Traits are analysed in terms of their structure

CH NAGAMANI[1,2,3,4], Dr A K S ANSARI[1,2,3,4], K KRISHNAVENI[1,2,3,4], R HARI KRISHNA[1,2,3,4]

ABSTRACT

This article compares and contrasts the many types of computational structural analysis research. Trusses play a critical role in the building process, hence our investigation focuses on this particular component. An active truss design with two piezoelectric devices coupled was studied using the d-SPACE control system. Another way to say it is: The experiments reveal that active and passive trusses work in distinct ways. Two piezoelectric components make it possible to accurately adjust the frequencies, modes, and damping ratios of an active truss. Because of this, an active structure has a larger lower-order damping ratio than a passive one. Structural vibrations may be reduced by increasing the damping ratio of the strut transfer functions. An active truss structure's dynamic performance may be enhanced by correct construction.

embedded steel frames and FTTD experiment mode analysis are discussed. Perovskite Stack Actuator

INTRODUCTION

Truss construction is increasingly turning to composite materials. Composite trusses have found use in construction due to their superior strength and performance. Research has been done extensively on the use of concrete and steel in the building of trusses. Various structural components, such as the materials and truss joints, have been thoroughly examined. These composite trusses, which are distinct from civil structures with regard to their materials and strength, stiffness and weight, were investigated in the seventeenth century.

An investigation was conducted on the impact of pre-stressed cables on a composite structural system. To build composite space trusses, the use of pre-stressed steel cables and concrete compression members has increased recently. [5] For their performance and features, several designs have been analysed [7, 8]. Pre-tensioned cables have been researched in the past, but further research is needed to fully understand its systemic design and analysis. When it comes to aeronautical structures, this research concentrates on composite trusses rather than civil buildings. Internal activities such as forces and moments, as well as design assessments for acceptable strength, are part of the current steel-design process.. Component-based architecture may be made more efficient by removing unnecessary complexity. It is possible to predeterminedfrequency

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Text Mining Based on Tax Comments as Big Data Analysis Using XGBOOST and Feature Selection

B.Venkateswarla[1],Dr.Ch.Ramesh Kumar[2],Erugu Krishna[3],Dr.M.Bal Raju[4],

Abstract - ***With the quick improvement of the Internet, enormous information has been applied in a lot of use. Be that as it may, there are regularly excess or unessential highlights in high dimensional information, so include determination is especially significant. By building subsets with new highlights and utilizing AI calculations including Xgboost and so on. To acquire early notice data with high dependability and constant by applying large information hypothesis, systems, models and techniques just as AI strategies are the unavoidable patterns later on. this examination proposed the fast choice of highlights by utilizing XGboost model in dispersed circumstances can improve the Model preparing proficiency under conveyed condition. GBTs model dependent on the inclination streamlining choice tree was superior to the next two models as far as precision and continuous execution, which meets the necessities under the large information foundation. It runs on a solitary machine, just as the conveyed preparing structures Apache Hadoop, Apache Spark.We can utilize inclination plummet for our slope boosting model. On account of a relapse tree, leaf hubs produce a normal inclination among tests with comparative highlights. Highlight determination is a basic advance in information preprocessing and significant research content in information mining and AI assignments, for example, order.***

Keywords: XGBoost method, Software program, Support vector machines, python, data Mining, decision tree, XGBoost algorithm, random forest, correlation mining, KNN.

Introduction

With the fast improvement of the Internet and data innovation, the size of information that can be prepared by different ventures has been ceaselessly created, and issues, for example, 'dimensional debacles' have been achieved. Highlight determination is a basic advance in information preprocessing and significant research content in information mining and machine learning tasks such as classification.

Highlight choice is to successfully decrease include measurement and improve arrangement exactness and effectiveness by erasing insignificant and repetitive highlights in informational indexes. It additionally has the capacity of denoising and forestalling AI model from over-fitting .

Highlight determination is generally in the pursuit space made out of all mixes of information highlights, through the component subset search calculation, to discover a subset of highlights that are profoundly connected with design acknowledgment issues, (for example, order learning issues), and dependent on the got ideal highlights. Subsets to improve the acknowledgment execution of learning calculations are recognized by the element subset assessment technique.

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KEY AGGREGATE CRYPTOSYSTEM FOR SCALABLE DATA SHARING BY CIPHER TEXT DATA IN THE CLOUD

G.Harika[1],G.Shankar Rao[2],Dr.M.Sreenivasulu[3],Dr.K.Venkata Ramana[4],

Abstract:

Data sharing is a significant usefulness in distributed storage. In this article, we tell the best way to safely, proficiently, and defily share information with others in distributed storage. We depict new open key cryptosystems which produce steady size ciphertexts with the end goal that effective appointment of decoding rights for any arrangement of ciphertexts are conceivable. The curiosity is that one can total any arrangement of mystery keys and make them as minimized as a solitary key, however including the intensity of the considerable number of keys being totaled. At the end of the day, the mystery key holder can discharge a consistent size total key for adaptable decisions of ciphertext set in distributed storage, however the other scrambled documents outside the set remain confidential. This minimized total key can be helpfully sent to others or be put away in a brilliant card with constrained secure stockpiling. We give formal security examination of our plans in the standard model. We additionally portray other utilization of our plans. Specifically, our plans give the main open key patient-controlled encryption for adaptable chain of importance, which was at this point to be known. In our cryptosystem, ciphertexts are labeled with sets of attributes and private keys are associated with access structures that control which ciphertexts a user is able to decrypt. We demonstrate the applicability of our construction to sharing of audit-log information and broadcast encryption.

Keywords – Cloud storage, Cloud storage, data sharing, key-aggregate encryption, Attribute-based encryption

INTRODUCTION

Cloud computing has created tremendous momentum in the IT industry that can be used to understand the kinds of computing, storage, and applications. Several IT companies dump data to cloud storage. Different users can access or send information stored in the cloud, regardless of their location. Distributed storage is picking up ubiquity as of late. In big business settings, we see the ascent popular for information redistributing, which aids the key administration of corporate information. It is likewise utilized as a center innovation behind numerous online administrations for individual applications. These days, it is anything but difficult to apply with the expectation of complimentary records for email, photograph collection, record sharing or potentially remote access, with capacity size more than 25GB (or a couple of dollars for additional than 1TB)[1]. Together with the present remote innovation, clients can get to practically the entirety of their documents and messages by a cell phone in any side of the world.

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Lightweight Internet of Things Intrusion Detection Based on Machine Learning

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ABSTRACT

In the IoT, small computer units make it susceptible to a wide range of assaults. A lightweight intrusion detection system (IDS) based on feature selection and feature classification is presented in this work to improve IoT security. The filter-based technique was used to choose the features because of its cheap computational cost. Based on a comparison of logistic regression (LR), neural networks, decision trees, random forests, KNN, SVM, and multilayer perceptrons, the feature classification approach for our system was selected (MLP). In the end, we chose the DT algorithm for our system because of its excellent performance across several datasets. The findings of this study serve as a guidance for selecting the best machine learning feature selection approach.

INTRODUCTION

As a new paradigm in computer networks, the Internet of Things (IoT) enables communication between all types of items over the Internet. Using a single addressing method, these devices may communicate and collaborate to accomplish a shared purpose, whether it RFID tags, sensors, actuators, or mobile phones, for example. It is possible to create ubiquitous computing via the Internet of Things (IoT) by mixing several forms of connectivity, all the time, on any item [2]. All aspects of our everyday lives are likely to be affected by this technology. Because of the hostile and insecure environment in which they are often deployed, IoT devices are more susceptible to various threats [3]. IoT devices must be protected against intruder assaults as a result. By examining the behaviours and events of a computer or network, an intrusion detection system (IDS) is able to identify and prevent assaults. A second line of protection against invaders [5] may be provided by this device. An IDS' primary goal is to identify as many threats as feasible with acceptable accuracy while using as little energy as possible in resource-constrained environments [6]. Signature-based and anomaly-based IDS are the two most common forms of IDS.

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THE INFLUENCE OF MOTHER TONGUE ON ENGLISH COMMUNICATION: A STUDY

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Abstract:

English is a worldwide, universal, and international language.... When learning a new language, our first instinct is to employ sounds from the language we learned it in. When it comes down to it, every person has some degree of mother tongue influence (MTI). For individuals proficient in the second language, the number of listeners is steadily increasing.learning a new language by speaking and fixing your own faults is a gradual process.The original English pronunciation of mother tongue sounds. It's a business language, in that sense.

INTRODUCTION

Communication of ideas, thoughts and wants through sounds is a technique of survival for the mind and body. As a second language, English is used. Language. The fact that it is a language we do not speak has Assimilate into the world's lexicon Teaching English is the primary goal.is not to sound like a native speaker or to improve one's language skills by Accents from either the United Kingdom or the United States are acceptable. Here, we're aiming towards a certain goal: examine the impact of the native language on one's ability to communicate in the English language among the university student body and the best ways to overcome a some of the issues that an Indian English language student. We begin speaking the second language when we begin to express ourselves verbally in that language. Initially, we employ sounds from our native language while speaking English. As a result, everyone bears the impact of their mother tongue first and foremost. Listening to individuals who are proficient in English more and more practising speaking and listening in the new language Over time, as you practise identifying and repairing your initial sounds of the maternal tongue English. The ubiquitous "z" sound serves as an illustration.it is possible to find at the end of English words, however startingpoint. Because of the language barrier, it's difficult to get by in this new and improved. "English is unquestionably the world's most widely spoken language. As the second most widely spoken language in the world, it's a70 nations use it as their primary language, with the majority of those using it being English-speaking. Countries are in charge of around 40% of global output. The ability to communicate effectively in English is an essential skill in today's society. We also need a second language to go along with our native speech. Shared language that allows us to speak with one other with other countries. The most widely spoken language is English. Language that most people in the area are familiar with world. Because of this, it is critical to be fluent in English. It is easier to get a message through if it is communicated effectively.

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Crowdsensing using smart contracts that is both secure and private: Problems and solutions

B.Venkateswarlu[1],Dr.M.Bal Raju[2],Dr.M.Sreenivasulu[3],DrCh.Ramesh Kumar[4],

Abstract

With the emergence of Blockchain and smart contracts, numerous technologies and systems are empowered to automate commerce and make it easier to trade, monitor, and provide commodities, data, and services in a reliable and auditable manner. Blockchain and smart contracts. In the last several years, there has been a lot of interest in crowdsensing systems. Consumer electronics such as smartphones and Internet of Things gadgets are utilised to build large-scale sensor networks in crowdsensing systems. Here, we outline several critical aspects of crowdsensing systems that use smart contracts and Blockchain technology. With these systems, we also look at viable solutions that might solve serious security flaws. Businesses and social organisations are taking use of these gadgets for both profit and the benefit of the general population. Approximately 8 billion people throughout the globe have mobile phone subscriptions, with 5.5 billion of them having smartphones by the summer of 2020, according to current study (as of 2021). Increases in the number of IoT devices and 5G/6G networks are projected to drive these figures much higher in the years to come. Previously, we've seen crowdsensing systems used in environmental monitoring, transportation and entertainment, security, and healthcare. Peoplesensing systems have been established in several nations lately in response to the Coronavirus Disease 2019 (COVID-19) pandemic, not only to track the spread of the disease but also to cure it [3,4]. Crowd sensing is only one of several technologies that are having a profound effect on society. These are Blockchain and smart contracts. In addition to providing safe data storage, retrieval, and sharing, the blockchain provides a number of other services, including immutability and transparency as well as decentralisation and fault tolerance. [6]. These computer programmes, called smart contracts, allow Blockchain transactions to be automated via the declaration of business logic and code required to do certain activities when certain circumstances are satisfied [7]. With smart contracts, crowdsensing may increase data collecting and sharing as well as the establishment of decentralised marketplaces in which sensor data collectors can sell their data without the need for a central institution or broker [9,10]. There are other security concerns that must be addressed in this concept, though. These difficulties and their solutions are examined in this study.

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Finite Element Analysis of Cold Formed Steel Purlin Bolted Connections

Ramavath Jaipal[1],K.Shravani[2],

Abstract:

Because of their cheap price and excellent strength, cold-formed steel purlins are often employed in industrial construction. Roof systems often use cold-formed steel C, Z, and sigma sections, which are commonly used. These are the most often used. A pre-engineered building with a greater bay span may be built by connecting two purlins together. The short sleeves are bolted together or simply overlapped in order to join the purlins. To calculate how much weight a bolted connection can withstand for the same thickness and depth of steel, there are formulas that may be employed Using finite element modelling (FEM), we examine each connection's stability, load capacity, and failure modes. ABAQUS/CAE is used to do a finite-element analysis (FEA). The results are compared to check whether there has been an improvement in the connection status.

You'll hear terminology like cold formed steel, Z purlins, bolted connections, and load-bearing capacities while discussing the building industry. When it comes to the construction sector, you'll hear terms like cold formed steel, Z purlins, bolted connections, and load-bearing capabilities.

INTRODUCTION
GENERAL

This material has been utilised for ages to satisfy a wide variety of structural and aesthetic needs. Cold-Form Steel construction was first used in India in the late 1990s, after its development in the United States during World War II. These sculptures may be dismantled and relocated to other locations using just hand tools.

"Cold-Form Steel Buildings" was first used in academic contexts in the 1960s. Conventional engineering techniques were used only for a limited number of "off the shelf" configurations in Cold-Form Steel constructions. Cold-formed steel items are made by stamping, rolling, or pressing sheet steel.

PURLINS CREATED FROM THE ICE:

Increasingly, steel structures are being built using cold-formed structural components. It is possible to mould cold-formed steel into a broad range of forms, making it a very adaptable material.

Testing is essential to generate design recommendations for cold-formed thin-walled structural parts because they are more susceptible to failure causes and deformation.

Compared to flat steel sheet, plate, strip, or bar, cold-formed sections have different mechanical properties at the corners than they had before they were cold-formed.

Cold-forming raises yield point and tensile strength while decreasing ductility, hence this is true. Many different cross sections are available for light gauge steel purlins,

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Grid-Connected Wind Energy System Control Scheme for Power Quality Enhancement

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Abstract

The addition of wind power may have an impact on the quality of the energy generated by a system. The efficiency of wind turbines and, therefore, the quality of the power they generate are assessed using measures and criteria that correspond to the International Electro-technical Commission standard IEC-61400. When a wind turbine is installed on a power grid it affects the quality of energy by influencing voltage fluctuations and flickering as well as harmonics and switching operations. A decline in power quality has been shown to be a consequence of wind turbines being added to the system, according to this report. A battery energy storage system (BESS) is connected to the STAT COMpensator (STATCOM) at one common connection point in order to minimise power quality issues. Battery energy storage is used to sustain the grid's power supply during times of fluctuating wind output. MATLAB/SIMULINK is used to model the grid-connected wind energy producing system's STATCOM control approach for enhancing power quality. The induction generator is utilised as the principal power source in the proposed design because of its efficiency in providing reactive power. Coordination control and a strategy to improve power quality have been shown.

Static command and control, or STATCOM, is a crucial concept. Static quality measure compensator implemented in Matlab and SIMULINK.

INTRODUCTION

The corporation must be successful in all of its markets to guarantee long-term profitability and social progress. Speed wind turbine operations express all variations in renewable energy resources such as wind and biomass as fluctuations in generation in the fixedis necessary to supply the energy demand. Voltage changes in a sustainable energy system are mostly controlled by factors such as mechanical torque, grid power, and the conservation and use of renewable energy sources. As part of everyday activities. Wind turbines generate a fluctuating but constant stream of wind energy, which must be fed into the electrical grid in order to function. In addition to [1] and [2], these power variations are caused by turbulence, wind shear, and tower-shadow effects [1]. Wind power may be integrated into the present power control system. These oscillations must be dealt with in the network's technical features. Wind power generation challenges such as voltage control, stability, and power may be examined in connection to the quality of the power supply. Transmission and distribution networks must include customer-focused voltage quality controls in order to function properly. Several different kinds of transient events have a negative influence on voltage quality and other similar metrics. On the other side, a distribution and transmission network may be powered by wind. Generators cause havoc with distributed generating. The quality of the electricity

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Layout Optimization of Mechanical components employing an upgraded teaching-learning based completely Optimization set of rules using Differential Operator

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Abstract:

TLBO is a mechanical component optimization approach based on differential operators (training-learning based mainly optimization). There is a lot of information in this page on TLBO's beginnings and present status. You can employ a huge population of replies to arrive at a global solution in the same way as most other techniques. Differential operators are used to find better solutions in TLBO. An open coil helical spring is utilised first, followed by a hollow shaft, to evaluate the method's efficacy in solving typical optimization issues. There was a resounding "yes." Current optimization strategies fail to uncover better alternatives as effectively as the proposed strategy, according to simulation results (mechanical components).

INTRODUCTION

To diminish a closed coil helical spring's capacity, conventional procedures must be used. In a hollow shaft situation, graphs were used to solve a set of constraints. The weight of a belt-pulley drive was reduced by Reddy and his colleagues using geometric programming. For this reason, engineers often consider optimization while developing mechanical systems. There are several factors and constraints that must be taken into consideration while optimising a mechanical system [4–6]. Focusing on individual components or intermediate assemblies instead of optimising the whole system is a typical practise. Centrifugal pumps without motors or seals are much easier to optimise than pumps with these components. The extremes of a function are often estimated using analytical or numerical methods in engineering calculations. When designing complex systems, the use of traditional optimization methods may not be sufficient. Most real-time optimization problems include a high number of design variables with complicated (nonconvex) and nonlinear effects on the objective function that has to be optimised. In order for us to accomplish our goal, we must find an acceptable global or local maximum. Any given circumstance necessitates a focus on optimising. Mechanical components should not be compromised in any way in terms of efficiency. It is possible to boost production rates and lower material costs by optimising machine components [9–12]. Thus, optimization tactics may be used to their fullest extent.

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THE INDUSTRY 4.0 STRATEGIC DEVELOPMENT REQUIRES A DIFFERENT TEACHING AND LEARNING METHOD THAN HAS BEEN USED TO DATE.

M NARSIMHA[1,2,3,4],Dr A K S ANSAR[11,2,3,4],K KRISHNAVENI[1,2,3,4],R HARI KRISHNA[1,2,3,4]

ABSTRACT

In recent years, job applicants have been expected to have not just professional knowledge and abilities, but also English that is tailored to the unique needs of their chosen field. As a result, English for particular purposes (ESP) has become the newest and fastest-growing trend in the field. There are a wide range of ESP courses available at most colleges in order to assist students meet their communication and professional requirements. This university has also supplied intriguing ESP courses that are meant to help students in engineering and technology fields. Aiming to help English language learners in engineering and technology as well as those learning English for specific professional purposes acquire specialised vocabulary by using Quizlet, a web-based and mobile study application, this paper proposes that technology be integrated into language teaching and learning. Teachers and students alike will reap the benefits of Quizlet's creative style of learning and teaching, which is likely spreading. While the benefits of Quizlet exceed the drawbacks in this area, it is clear that it should not be required, but rather used in conjunction with other approaches to help fulfil students' rising needs as the industrial revolution approaches. 4.0.

Incorporating technology into the classroom is an important part of the ESP curriculum.

INTRODUCTION

Vocabulary seems to be a critical component in improving students' ability to communicate effectively in English, but this aspect of language learning and instruction has received much too little attention in the past. Learners' needs have expanded greatly since ESP has become a new trend, requiring them to concentrate on enhancing their communication skills via practise in a variety of professional and occupational settings. To date, there are many different kinds of English as a Second Language (ESP) programmes in operation, from those geared toward waiters and tourists to those geared toward business and the sciences. But one thing is clear: the importance of terminology in the field of language teaching and learning cannot be overstated. Aiming to enhance awareness of the relevance of terminology in various professions, this study also introduces one of the creative tools that might help students learn. Students may face a broad range of challenges while attempting to acquire specialist terminology. Learning new vocabulary in a specific field of study or professional usage may be a challenge for students since these terms tend to be less common and less often encountered by those learning general English. In addition, if kids are just in the classroom, they have less opportunity to practise and utilise these terms on a daily basis. Additionally, these phrases must be interpreted in context in specialised disciplines that may need additional work to learn. Learning specialised vocabulary may be difficult and tedious for students, as they struggle to decide which terms are worth their time and effort. Another issue may be seenBecause each individual adapts in their own unique manner, how can you organise and arrange terminology systematically?However, it is commonly accepted that vocabulary learners should be concerned with two major issues: how to remember words correctly and how to pick the best ways for learning them. Technology has always played an important role in language learning and teaching, even if many conventional techniques continue to be used to aid both teachers and students.

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SEMI-SUPERVISED MACHINE LEARNING APPROACH FOR DDOS DETECTION

Erugu Krishna,[1]S.Raju[2],G.Harika[3],Bandam Haresh[4],

Abstract - *Distributed denial of service (DDoS) attacks are a major threat to any network-based service provider. The ability of an attacker to harness the power of a lot of compromised devices to launch an attack makes it even more complex to handle. This complexity can increase even more when several attackers coordinate to launch an attack on one victim. Moreover, attackers these days do not need to be highly skilled to perpetrate an attack. Tools for orchestrating an attack can easily be found online and require little to no knowledge about attack scripts to initiate an attack. The purpose of this paper is to detect and mitigate known and unknown DDoS attacks in real time environments. Identify high volume of genuine traffic as genuine without being dropped. Prevent DDoS attacking (forged) packets from reaching the target while allowing genuine packets to get through. A DDoS attack slows or halts communications between devices as well as the victim machine itself. It introduces loss of Internet services like email, online applications or programme performance. We apply an automatic characteristic selection algorithm primarily based on N-gram sequence to obtain meaningful capabilities from the semantics of site visitors flows. DDoS attacks are the perfect planned attacks with the aim to stop the legitimate users from accessing the system or the service by consuming the bandwidth or by making the system or service unavailable. The attackers do not attack to steal or access any information but they decline the performance of the network and the system.*

Keywords - *Distributed Denial of Service (DDoS), Malware Detection, Machine learning, NLP Method, Text semantics.*

INTRODUCTION

Data mining techniques have been used to develop sophisticated intrusion detection systems for the last two decades. Artificial Intelligence, Machine Learning (ML), Pattern Recognition, Statistics, Information Theory are the most used data mining techniques for intrusion detection With the increase in dependability of the internet comes with it an important challenge: data availability. Data availability is a key requirement for a network system to be considered secure. Distributed denial of service attacks are intentional attempts by malicious users to disrupt or degrade the quality of a network or service These attacks involve a number of compromised connected online devices, The use of botnets makes it easier for attackers is to launch massive attacks due to the fact that they harness the power of a lot of devices for an attack. Attacks involving botnets also make it difficult to determine the exact source of the attack. Differentiating between flash crowds also poses a major challenge.There are two main methods to launch DDoS attacks in the Internet. The first method is for the attacker to send some malformed packets to the victim to confuse a protocol or an application running on it (i.e., vulnerability attack. The other method, which is the most common one, involves an attacker trying to do one or both of the following:

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Tribology in Industry Mechanical and Tribological Properties Evolution of [Si3N4/Al2O3]n Multilayer Coatings

A SANTOSH[1,2,3,4], Dr V VENUGOPAL[1,2,3,4], K KRISHNAVENI[1,2,3,4], RAHUL PATIL[1,2,3,4]

ABSTACT

With their fascinating features, multilayer coatings [Si3N4/Al2O3]n have attracted much attention in the food and pharmaceutical sectors. They might be used in a variety of operations. Unfortunately, there are no robust tribological investigations on this multilayer system based on [Si3N4/Al2O3]n that might emphatically represent its unique tribological properties. In order to better understand how the mechanical and tribological characteristics of [Si3N4/Al2O3]n coatings change with increasing bilayer numbers, this work focused on the tribological properties in both a dry and lubricated environment for n=1, 10, 30, and 70. A reduction of 33 percent in friction coefficient and a rise of 8.8% in lubrication efficiency were found when the number of bilayers was raised from 1 to 70, while the hardness and elastic modulus rose by 29 and 6.3%, respectively. This research found that the coating [Si3N4/Al2O3]70 has perfect qualities that make it a good option for use as a protective coating for food and pharmaceutical processing equipment.

INTRODUCTION

High-performance materials are needed to keep up with the ever-growing demand for industrial goods throughout the world, as well as to keep up with industry competition [1–2]. As a result, tribologically compatible coatings with high wear resistance and low friction are needed, as are components and tools coated with single layers or multilayers of coatings that can endure harsh conditions and give extended service lives [3-10]. In the literature, many single layer coating materials with the purpose of increasing mechanical properties have been reported, such as Si3N4, which has been used in various metalworking applications due to its high resistance, low thermal conductivity, and inter chemical behaviour in aggressive environments [11, 12]. Al2O3 has also been described as a single layer coating material with high hardness, good chemical stability, and refractory properties. Al2O3 Surfaces subjected to frictional wear and erosion by solid particles, as well as surfaces subjected to high temperatures, are good candidates for this material [13]. Multilayer systems, such as [TiN/ZrN], [TiAlN/TiN], and many more, have been demonstrated to be superior than typical single layer systems, bringing together the best properties of several layers, such as [TiN/TiAlN]. Multilayer structures with symmetry breaches between the layers increase the mechanical and tribological properties of materials by decreasing fracture propagation. Due to its outstanding mechanical, morphological, and tribological qualities, [Si3N4/Al2O3]n has attracted considerable attention as a prospective coating for processing equipment and cutting tools in several sectors.

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As an adsorbent for water purification technologies in the form of nanomaterials, polymers and green materials.

Ms.N Rajeswari[1,2],Ms. Dwarapu Shirisha[1,2]

abstract

Numerous contaminants have contributed to water pollution, making it one of the most pressing issues facing people all over the world. When it comes to wastewater treatment, there are a variety of methods and materials to choose from. For researchers to develop and assess novel adsorbent materials for wastewater treatment, methods and processes are needed. An important step in the development of systematic protocols and processes for the synthesis of nanomaterials, polymers and green materials as adsorbents utilised in water purification has been taken with the present review. Protocols and processes for the production of nanomaterials, waste-derived material materials and polymer adsorbents are discussed in this paper. A set of water treatment evaluation techniques is also supplied. Researchers and industry employees may use the disclosed processes and procedures as a reference for creating and testing novel water treatment products.

Introduction

When two hydrogen atoms are joined together by an oxygen atom, water is the most important substance in our bodies. Particulate matter, such as fertilisers, waste, pesticides and other human-made chemicals, natural elements and pollutants (such as arsenic and fluorides), and pathogens (such as bacteria, amoebas, viruses and eggs) can all contaminate it. It is also possible that it is contaminated by a variety of pollution sources. It is necessary to eliminate and lower the concentrations of water pollutants present in the water in order to make the water appropriate for its intended purpose. Water treatment is defined as the process of making water suitable for an end-use. The quality of the raw water, the number of requirements that must be met after treatment, and the intended use of the water all play a significant role in the water treatment process.

Water treatment technologies

The general layout of a water treatment facility. Figure 1 depicts the overall layout of a water treatment facility. The first step in wastewater treatment is to collect it at the point of origin and settle it to remove any solids or fine sand. First, a screen separates suspended from floating particulates in the treatment unit. The raw water is then exposed to the elements through aerators, which remove gases from the water. A chemical coagulation and flocculation procedure is then carried out. Coagulants are then added to the water in a coagulant tank. To ensure appropriate mixing, a flash mixer is used. Coagulants, floccants, and pH adjusters are added to the water in high-speed mixing, and the water is stirred to form large flocs, which are then allowed to settle. The floc formed during flocculation is then allowed to settle and be separated from the water. Small particles may also be removed via sedimentation, which can be done with or without coagulants (e.g., ferric chloride or alum added to a secondary sedimentary tank), and by sand filtering, which removes the residual particles from the supernatant after secondary sedimentation. Secondary solids sink to the bottom of the tank and thicken as a result of this phenomenon. Phosphate may be removed from water by adding ferric chloride (FeCl3), alum (Al2(SO4)3•14H2O or lime (CaO or Ca(OH)2), or chemical precipitation (salts). Ammonia stripping (raising the pH to convert ammonium ions into ammonia and then purging ammonia from the wastewater in a process similar to aeration) and biological nitrification/de-nitrification are two methods for removing nitrogen from wastewater, which can be accomplished either chemically or biologically. Advanced treatment may include phosphate and nitrogen removal.

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Multiple Level and Section Interleave LLC Converter With More Advantageous Strength Processing Capabilities And Herbal Contemporary Day. Sharing

B.Raju[1],R.Shankar.[2],M.Venkateshwar Rao[3],B.Raju[4],

Abstract An interleaved flying-capacitor LLC converter architecture with high output current applications is introduced in this study. the number one facet's switches are less stressed by a single capacitance in the new converter compared to a traditional-section LLC converter. mechanically balancing the contemporary distribution of phases, and enhancing the strength processing abilities. The advantages of LLC converters, such as zero-voltage switching on the first side's MOSFETs, 0-cutting-edge switching on the second side's power devices, small switching frequency range, and simple architecture, are maintained. An explanation of the converter's basic functioning and analysis is provided, as are the converter's major features and the influence of subpar components on contemporary sharing behaviour In order to demonstrate the enticing features of the new converter, an experimental 600W, 400V-to-12V prototype is utilised to demonstrate exceptional current sharing, easy implementation and excessive performance of up to 97.3 percent.

Resonant power conversion, current sharing, and LLC Converters are all used as index words for this paper..

I. INTRODUCTION

To meet the demands of today's power converters, they must produce greater power and maintain high efficiency across a broad variety of loads. When it comes to front-end DC-DC conversion, the zero-voltage switching (ZVS) for primary side MOSFETs and the zero-current switching (ZCS) for secondary side power devices are two advantages of LLC resonant converter architecture [1]-[5]. Because the transformer leakage inductance is used as the resonant inductor, this device has a small switching frequency range, a quick transient response, and a cheap cost. Switching mode power supplies (SMPSs) are under increasing pressure to become more efficient and power dense, which is why the architecture has found widespread use in devices like flat-panel TVs, 80+ ATX, and small form factor PCs.Multiple converters, or multiphase operation, is an excellent option for distributing the current stress in high-power applications, and it has been extensively studied for both PWM [6]-[10], and resonant converters, [11]-[13]. Multi-phase operation of LLC converters has been discovered to present implementation issues. challenges that are typically related to the load current sharing between the converter's phases [11]-[24]. Current sharing is required to increase the power processing capability, maintain high efficiency and improve the reliability since the thermal stress is better distributed. Therefore, current sharing is considered mandatory in multi-phase LLC converters operation. Due to differences in the resonant networks, an imbalanced load sharing across converter phases is the norm. Mismatches in the resonant tank components affect the current distribution across phases when phases are interleaved because the operation depends on the equivalent switching frequency of the various phases [13].

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Recent Mimo Wireless System In antenna design schemes

Dr.Tejawath Ramakrishna[1],T.Sravanth[2],K.Ram Mohan Rao[3]

Abstract:

Multi-input Multi-output (MIMO) and diversity technology have recently attracted considerable attention in both industry and academia due to high data rates and high spectrum efficiency. The multiple/MIMO techniques can increase the number of antennas on the transmitter and/or receptor side of the wireless link without needing additional power or spectrum in a rich scattering environment. However, the correlation coefficients between MIMO antenna elements are usually very high, due to the small space of mobile devices and the overall efficiency of MIMO elements would be severely degraded by the interconnected connections. Furthermore, the human body causes high electromagnetic waves losses. The presence of users in actual applications could significantly reduce the total efficiency of the antenna, and the correlations of MIMO antenna systems are also greatly affected. This chapter examines the performance of some basic MIMO antennas as well as the recent technologies to improve the performance of MIMO antennas on mobile devices and terminals. In mobile terminal applications, the interactions between MIMO antennas and human body are also targeted.

Keywords: Multiplexing Antenna array Mobile handset antenna Long Term Evolution (LTE) WiFi Over-The-Air (OTA) performance Human body effect Specific Absorption Rate (SAR)

1. Introduction

For many years since 1960, antenna diversity techniques have been introduced into communication systems (Pierce and Stein 1960; Schwartz et al. 1965; Jakes 1974). In the late 1970s, the diversity technique was used with multi-antenna systems to overcome degradation by decaying environments (Taga 1990; Pedersen and Andersen 1999; Ogawa et al. 2001). In order to achieve good performance of diversity, multi-antenna systems typically require low reciprocal loss and a low pattern correlation between radiating elements. Independent fading signals (branches of diversity) are achieved not only via spaced antennas, spatial diversity and other techniques such as frequency diversity, angle of arrival diversity, polarization diversity, time diversity and multipath diversity. A system's overall ersity performance usually results from different diversity mechanisms. Since 1985, mobile communications systems have evolved quickly from analogue system (1G) to digital (2G: second-generation system) and later to third-generation (3G), supporting multimedia transmission. MIMO technology has become an important feature in the LTE wireless communication systems in order to increase data transmission further (4G: fourth generation system). In the last decade, MIMO has been a great success in Wireless communication and can linearly increase the channel capacity by increasing the number of antennas without the need for additional frequency spectrum or power. In addition, the most popular wireless communication systems typically operate in a wide range of dispersion environments, including LTE cell phones of 4th generation and WiFi IEEE 802.11n, where MIMO uses the above-mentioned high-performance gains. A multi-antenna system can operate in the latest modern Smartphone under a rich dispersion schema, depending on the signal-to-noise (SNR) level.

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Comparative Study of Different 2D Roof Truss Design

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Abstract:

For decades, the construction industry has relied on structural steel, a resilient material that can be moulded into any shape requested to achieve a project's final and attractive look. In addition to Type, Pratt, Howe and Warren types of steel trusses, there are many additional options available. They are also available in a variety of sections, such as tubular, square, and rectangular hollow. The Warren type, the Howe type, and other truss types are examined side by side in this work. There have been no delays in the building of Pratt and K-type trusses with a 36-meter span and varied heights. Rather of using solid pieces, hollow components are employed in their place. Some of the parts that are commonplace Stad pro v8i software is utilised to conduct the research. According to the results of this comparison, it will be established that the most cost-effective steel truss structures are those with the lowest prices and lightest weight.Structure, hollow parts, design, and lowest weight are some of the key terms.

INTRODUCTION

Externally applied loads only affect the triangular frame members of trolley truss constructions to axial forces. Because the cross section is strained almost equally, steel members exposed to axial stresses perform better than steel members in flexure. Because trusses are primarily composed of axially loaded components, they are quite good at coping with external forces. They may be used for a broad range of different things. a wider variety of time periods With less material and more labour required to build than other methods, truss structures are more cheap. This is very fitting in an Indian context. Plane truss and space truss are the two types of trusses that may be used. trusses with parallel elements are known as plane trusses. They're all arranged in a straight line and on the same plane in two dimensions. Aside from that fact, all of these pressures exerted against it are placed on the same plane. Truss is used to hold things in place while they are orbiting the Earth. Forces may be applied in any direction due to the components' three-dimensional orientation. Generally speaking, there are three main kinds of plane truss: All of the roof trusses listed above are examples of the kind of roof truss.

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Characterization of Hemp/Vinyl Ester/Carbon Fiber Laminated Hybrid Composite Reinforced with Carbon Nano Tubes

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ABSTRACT

Natural fibres derived from sustainable natural resources have recently shown promise as an alternative to glass, carbon, and other man-made fibres as a reinforcing material for polymer composites. Hemp is the most often used natural fibre because of its low density, inexpensive cost of manufacturing, and good mechanical qualities. Lightweight, strong, corrosion resistant, and close to net forms are all requirements for today's materials, and composites may help satisfy these. Two or more coupled elements, which are not soluble in each other, make up a composite material, which is a structural substance. Reinforcing phases such as fibres, particles, or flakes exist in composites, as do matrix phases such as polymers, metals, and ceramics. In this study, hemp/carbon fibre and carbon nano tube reinforcement and vinyl ester are used as matrix materials to make various composite materials. The following tests were performed on the composites: a density test, a water absorption test, and an impact test. An investigation into the influence of carbon nanotubes on hemp/vinyl ester/carbon fibre hybrid composites found that fibre loading and performance were significantly affected by the inclusion of carbon nanotubes.

The following terms and concepts are used in this paper: Hemp Fiber, Carbon Fiber, Vinyl Ester, Density, Water Absorption, and Impact.

INTRODUCTION

A major breakthrough in the history of material science occurred with the creation of composite materials and its accompanying design and production processes. Developed for specific applications, composites are materials with unique mechanical and physical characteristics. Materials have a wide variety of benefits over traditional materials, including tensile strength, impact strength, flexural strengths, stiffness, and fatigue properties. Aerospace and commercial mechanical engineering applications, such as machine components, automobiles, combustion engines, mechanical components such as drive shafts, tanks, brakes, pressure vessels and flywheels, thermal control and electronic packaging, railway coaches and aircraft structures, use them widely due to their numerous benefits. A composite material is created by mixing together two or more distinct materials, each with its own unique qualities. Reinforcement, a strong load-bearing substance, is included into the composite material (known as matrix). Reinforcing fibers/particles in a composite improve its mechanical properties such as tensile strength, flexural strength, impact strength, stiffness, etc., while the matrix's primary function is to transfer stresses and protect reinforcing fibers/particles from mechanical and/or environmental damage. Composites may be categorised in a variety of ways. Metal matrix composites, ceramic matrix composites, and polymer matrix composites may all be subdivided into three groups based on their matrix materials. Each form of composite material may be used for a variety of different purposes. Metal matrix composites are made using metals such as aluminium or copper as the matrix material. Superior electrical and thermal conductivities, as well as excellent ductility and strength, are among the characteristics of these materials. Due to the low thermal expansion coefficient of the matrix, these materials have good dimensional stability and can endure high temperatures.

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MULTI-TRAFFIC SCENE PERCEPTION BASED ON SUPERVISED LEARNING

B.Venkateswarla[1],Dr.M.Bal Raju[2],G.Harika[3],Raju Anthoti[4],

ABSTRACT

Wet days, evenings, rainy seasons, rainy seasons, ice, and days without street lights are all high-risk traffic accident scenarios. The Present Situation The support systems are intended to be employed in ideal weather conditions. Classification is a method for identifying the optical characteristics of more effective vision expansion procedures. Improve computer vision in the most unpleasant way possible Weather contexts, a multi-class weather categorization system, many weather features, and supervision made learning possible. The first step is to extract basic visual properties. When additional traffic images are taken, the function is revealed. The team has eight different dimensions. There were also five supervisors. Instructors are educated in a variety of ways. According to the extracted features, the image accurately portrays the maximum recognition of etymology and classmates, based on the accuracy rate and adaptive skills. The suggested technique of promoting invention through prior vehicle innovation is laid forth here. The night light alters on an ice day, and the view of the driving field expands. Picture feature extraction is the most efficient way for simplifying high-dimensional image data, and it is the most important step in pattern recognition. Because it's tough to extract specific information from the M N 3-dimensional image matrix. As a result, crucial information from the image must be obtained in order to evaluate a multi-traffic scenario.

INTRODUCTION

As a consequence of automotive accidents on the highway, a significant number of lives and properties are lost. The deployment of modern driver assistance systems has the potential to decrease traffic accidents by a substantial amount (ADAS). In the case of extreme weather, a multi-traffic display of the circumstances might be valuable to humanitarian organisations. When it comes to increasing visibility, there are a variety of options available, each of which is based on the situation.This will aid in the acceleration of the implementation of ADAS. Until recently, little attention was devoted to the difficulties that car cameras have while operating in adverse weather. The contrast between images taken on the inside and photographs taken on the outside is distinguished by the intensity of the edges. Concentration curves are utilised to produce four various degrees of fog, which are generated using a neural network. It is necessary to develop a novel way to discriminating between different climates. This collection of towns includes Milford as well as a plethora of smaller communities. View-based mapping and localization are currently being employed in external environments that are constantly changing. Continue to keep a watchful eye out for any significant developments. When using a driving assistance system, it is essential that you maintain control of the car at all times. To address the problem of picture brightness discrepancies, Fu and Al propose a skyline-finding technique that relies on sight in order to fix the situation. There is a wide range in the amount of data that is automatically collected from one system to the next.

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For hypertensive patients, a remote HRV (Heart rate variability) monitoring system based on IOT (Internet of Things) is needed.

Sravanti[1],K.Ram Mohan Rao[2],

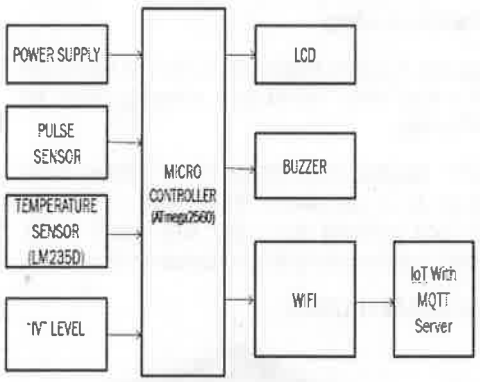
ABSTRACT

HRV (heart rate variability) is a measure of the difference between consecutive heartbeats. Coronary disease complications, diabetes, autonomous dysrhythmic illness problems, including hypertension, and a wide variety of chronic degenerative medical diseases are all sensitive to HRV study. The doctor's use of a diagnostic, prognosis tool, and the effectiveness of the treatment provided are all enhanced when HRVs are exposed to specific medical issues. Borderline individuals, including those with and without a cardiac history, are often at risk for stroke and high-risk cardiac death. When medical treatment is needed, monitoring HRV values in these high-risk circumstances may be helpful. This article describes a low-cost, simple-to-use remote HRV monitoring device for borderline hypertensive patients that utilizes Internet of Things (IoT) technology. HRV characteristics are extracted using an IoT-based pulse sensor in the proposed system.

1. INTRODUCTION

The execute design is the safest method of monitoring the patient's heart rhythm. The songs are influenced by the environment. To be able to live, the patients must be kept close together. In order of guy who it is, patient status inside the icu's add houses homes the mechanism has been discovered. Will you upload the information on the internet? What are the curing parameters going to be? This, too, can be operated remotely. the notion that anything is feasible (iot). The fundamental idea of the technique of propagation is that patients will be won by continuously tracking the proposed gadget via the internet. Heart rate and atmospheric conditions will be used to diagnose patient issues and provide support for different emotions.

BLOCK DIAGRAM:



Description OfBlock Diagram:

The block diagram for the project "AN IOT Dependent REMOTE HRV" is shown in the graphic above (Heart Rate Variability).

The following items are required for this project: 1. Microcontroller (Arduino Mega): a small built-in circuit in an embedded device that is customized for a certain process. A typical microcontroller has a single chip CPU, memory, and input/output peripherals.

2.Power Supply: A power supply is a collection of electrically powered devices that are usually found in powered components.

3. Pulse Sensor: A pulse sensor, also known as a heart rate sensor, is a device that monitors pulses and heart rate in real time.

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FLOWGAURD APPLICATION IN FLOODLIGHT FOR SECURED AND RELIABLEECURED SOFTWARE DEFINED NETWORKS

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Abstract: - Software-Defined Networking (SDN) provides network-wide access to programmers and direct control from a theoretically centralized controller over the underlying switches. SDN proposes a positive path for the Internet to grow in the future. However, SDN has several modern protection problems as well. How to develop a stable firewall programme for SDN is a vital task for them. Since the stateless property of the Open Flow-based SDN firewall lacks audit and monitoring mechanisms, current SDN firewall implementations may also be easily bypassed by rewriting the switch flow entries. Focusing on this hazard, by testing flow space and firewall authorization space, we implemented a novel approach for dispute detection and resolution in Open Flow focused firewalls. Unlike Fortnum, based on the whole flow paths inside an Open Flow network, our method will verify the contradictions between the firewall rules and flow policies. Finally, for flow tables and firewall guidelines, we introduced intra-table dependency testing.

Keywords: - Networks Identified Applications, Firewalls, and Space Analysis Header.

I. INTRODUCTION

It is an arduous process to run and manage a computer network. Network operators need to configure each individual network system separately from a heterogeneous set of switches, routers, middle boxes, etc., to communicate the appropriate high-level network policies, utilizing vendor-specific and low-level commands. Networks are dynamic in addition to configuration complexities, and operators have little or no tools to react automatically to network incidents. In such a constantly evolving climate, it is often difficult to implement the necessary policies. Network switches become basic forwarding machines with the isolation of the control plane from the data plane that lays the foundation for the Software Specified Networking model, and control logic is applied in a logically centralized controller.

An innovative network architecture implemented at Stanford University is Software Based Networking (SDN). This helps programmers, by machine engineering, to monitor and identify networks, which makes it known as advancement in the field of networking. As the central SDN technology, Open Flow (OF) [1] is a modern paradigm of network transfer that distinguishes network access and flow features. Users can monitor the activity of packets on networks in this model by integrating flow inputs into the switches. Switches and routers are implemented in a conventional network data plane and control plane, while SDN decouples those two flights. In an SDN, the control plane monitors the flow tables in the switches by utilizing a modern technique named the Open Flow protocol. The control plane, in this sense, understands the unified control over the whole network. For specialized work, a controller can compute the shortest flow paths and monitor the forwarding actions made by the switches. A device, a virtual machine, or a physical server might be the controller [2].

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Multiple Response Optimization of machining parameters on turning of AA 6063 T6 aluminum alloy which established on Taguchi L9 orthogonal array coupled with Grey relational analysis.

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ABSTRACT

There is a new way to optimising the turning characteristics of aluminium alloy AA 6063 T6 based on I. Taguchi L9 orthogonal array and current research. The tests employ aluminium alloy AA 6063 T6. It is used for turning trails in dry cutting conditions with the uncoated carbide inserts. Optimization of cutting parameters including cutting speed, feed rate, and depth of cut take into consideration both surface roughness (Ra) and the material removal rate (MRR) (MRR). Based on the grey analysis, a grey relational grade (GRG) is created. ANOVA is used to determine whether variables have a significant effect once the optimal number of components has been determined using grey relational grade values. The findings of the exam are verified by doing a follow-up test. This conclusion is supported by the data gathered throughout the research. Increasing the turning process's response time is an option.

Taguchi and ANOVA, Grey Relation Analysis, S/N Ratio, Material Removal Rate, and Taguchi Method

INTRODUCTION

It has always been challenging for ManufacturingIndustries to develop items easily with high quality and high production rates in order to stay competitive in the global market... To produce a particular shape and size, a procedure known as turning is used. This involves rotating pieces that spin the product.

A Lathe machine uses cutting tools to remove the undesired material from the workpiece, allowing us to get the required form. Making a U-turn is critical.in the engineering industry. It is a property of surface texture to have a roughness to it. An idealised surface's departures from reality are quantified by measuring the direction of the normal vector's deviations. The top is rough A smooth surface is one with minimum roughness when these variations are taken into account; this is often referred to as the high frequency, short wavelength Surface metrology refers to the measurement of a surface's constituent parts. As a result, industries need a greater material removal rate (MRR) in order to increase their production capacity good quality while keeping a high pace of manufacturing. Cutting speed, feed, and depth of cut may all be increased to get a high MRR.High cutting speeds need additional power, which may exceed the capability of the machine tool. As the parameters of the process rise, It becomes hotter

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Several Reactions Taguchi L9 orthogonal array and Grey relational analysis were used to optimise machining settings for turning AA 6063 T6 aluminium alloy

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ABSTRACT

With numerous responses established on Taguchi L9, orthogonal array coupled with current work proposes a novel methodology for optimizing machining parameters on turning of AA 6063 T6 aluminum alloy. Experimental assessments are accomplished on AA 6063 T6 aluminum alloy. Turning trails are carried out under dry cutting conditions using an uncoated carbide insert. Cutting parameters such as cutting speed, feed rate, and depth of cut are optimized in this effort while numerous responses such as surface roughness(Ra) and material removal rate are taken into consideration (MRR). From the grey analysis, a grey relational grade(GRG) is calculated. The optimal amounts of parameters have been identified based on the values of grey relational grade, and then ANOVA is used to determine the significant influence of parameters. To authenticate the test result, a confirmation test is executed. The result of the experiments shows that by using this method. the turning process responses can be significantly improved.

Keywords : Material Removal Rate, ANOVA, Taguchi Method, Grey Relation Analysis, S/N ratio

INTRODUCTION

It has always become difficult for Manufacturing Industries to produce products conveniently with high quality and higher production rates to remain in the competitive world. The desired shape, size of the product can be achieved by the process called turning, which is performed by rotating parts that rotate the workpiece and the cutting tools which cut the unwanted material to get our desired shape which is done by using Lathe machines. Turning is important and widely used in engineering industries. Surface roughness, often known as roughness, is a characteristic of surface texture. The deviations in thedirection of a real surface's normal vector from its ideal form are used to quantify it. The surface is rough if these variances are considered, the surface is smooth if they are minimal roughness is often thought of as the high frequency, short wavelength component of a measured surface in the surface metrology. At the same time, industries need a higher material removal rate(MRR) so that they can raise the production rate while maintaining high quality. Increases in process parameters such as cutting speed, feed, and depth of cut might result in all high MRR. High cutting speeds require more power, which may be greater than the machine tool's capacity. At the same time, as the process parameters are increased, the cutting temperature rises. Therefore selecting the appropriate process parameters plays a vital role in the effectiveness, efficiency, and overall economy of manufacturing by machining industries to achieve these objectives (higher MRR and product quality).

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Development of a modified Z-source integrated PV/grid/electric vehicle DC charger and inverter

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Abstract:

Based on the sun's rays For residential and semi-commercial uses, energy has been the most common source of sustainable power. Storage structures may be used to mitigate fluctuations in the amount of sunlight-based vitality that can be harvested due to meteorological circumstances. Solar power may also be used to recharge electric car batteries, reducing the need for a network. Such applications need a converter that has fewer alterations organised and provides solitude. Using the Z-source inverter (ZSI) design, many stages are eliminated, allowing for single-stage voltage raise and DC-AC power conversion. Latent sections may also be used to integrate energy storage systems (ESS) into the system. In order to charge the batteries of electric cars (EVs), this study shows how a modified Z-source inverter (MZSI) works in conjunction with a split essential secluded battery charger. The notion of the suggested converter's activity has been shown by reenactment and exploratory results.

Energy storage, photovoltaic (PV) power production, single-phase systems, and transportation electrification are only a few of the topics covered in the index of articles on qZSIs..

I. INTRODUCTION

The use of alternating current power infrastructure is now heavily reliant on charging electric automobiles. Wireless charging and plugging in, even though they are more efficient topologies, may still pollute the environment since they simply use the AC grid. When you know how much fossil fuels are utilised to generate the power required to charge the vehicle, it's much simpler to assess an electric vehicle's carbon impact. One way to reduce carbon footprints is to include renewable energy sources into a charging infrastructure. In order to build an EV battery charger, isolation transformers are a must since they provide galvanic isolation between the user and the rest of the high voltage (HV) system [1]. On the AC grid or on the charger, galvanic isolation may be implemented. Grid-side isolation transformers tend to be larger than charger-side isolation transformers. [2] High frequency switching has made it possible to reduce the size of galvanic isolation transformers owing to semiconductor technological developments. Solar grid-coupled systems [3] have been employed in commercial charging infrastructure in the past. The AC grid benefits as a consequence of these technologies. Using a solar and grid-interconnected charging system for electric vehicles (EVs) at home may be advantageous. Household applications up to 10 kW may be powered by single-phase inverters [4][5]. Home solar PV may be connected to the grid in a variety of ways, including isolated and non-isolated topologies [4]- [6].

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FLUID-STRUCTURE INTERACTION IN WATER TANKS: DYNAMIC ASSESSMENT

Dr. D V Ramana[1,2],Dr. SanjeevKumar[1,2]

ABSTRACT

Due to increased population and growth of cities, the number of raised water tanks servicing the demand urban \swater system is on the rise. As it has been indicated in the Iranian code of practise for Earthquake /2800 due \sof the necessity of sanitation and hygiene water tanks have been recognised as vital constructions during theunforeseen occurrences such as earthquake. There is a high anticipation not to observe any phase out for their serviceabilityfollowing the earthquake. Because of the presence of fluid with various behavioural features of structures containing itBecause the most part of mass of tanks are positioned in a great distance from their foundation, the behaviour of thesesorts of structures in comparing with conventional structures are more sophisticated. In this study, cylindricalconcrete water tanks, which feature a central shaft, have been examined with consideration the influence of the structure'scontact with water via accurate execution of boundary constraints on the interface between fluid andstructure. Also considering the volume of water in the tank and their response under recorded acceleration of variedearthquakes utilising finite element approach. The findings were then compared with proposed ways by Iranian code/2800, which shows a significant variation between the approaches given.

INTRODUCTION

The behaviour of liquid storage tanks during earthquakes is more significant than the economic worth of the tanks and their contents, which are crucial buildings in the water, oil and gas industries. Firefighting water, for example, must be available in the event of an earthquake, and utility infrastructure must be operable to satisfy these needsor satisfy the needs of the public as a source of drinking water. In light of these factors, serviceability is now the primary design consideration is taken into account in the majority of these constructions. It is crucial to have a clear grasp of how seismically vulnerable these buildings are.Safety goals and construction and maintenance expenses must be balanced.The interaction between fluids and these structures is a key issue in the understanding and design of these systems. Andorganisation. It is very difficult to predict the analytical response of coupled field systems. Most of the time, Numerical approaches, such as the finite element method, are at the heart of many research. Concrete water tanks with central shafts are analysed numerically in this work by employing finite elements. Software component that takes into account fluid-structure interaction

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Gaussian Hermite Moments are used for 3D face recognition

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Abstract:
In the subject of pattern recognition, the issue of face recognition is an intriguing one. Using three-dimensional depth data, we provide an approach for face recognition that is both accurate and fast. The goal is to get the absolute minimum of attributes while yet achieving good identification rates for those qualities. Following the extraction of 3D clouds points from the VRML face database, the nose tip of each sample is identified and is used as the new origin of the coordinate system, which is defined as the place where the 3D clouds points intersect. To characterise each person, Gaussian Hermite Moments are employed, and a back propagation neural network is used for the recognition job to finish the extraction process, after which the data is extracted. Following the studies, it was discovered that Gaussian Hermite moments combined with global depth information outperformed another strategy that was based on local depth information. A approach based on local depth information is compared to another method based on ratios of distances and angles between manually chosen facial fiducial sites in this research, and it is shown to perform much better.

Keywords GaussianHermite Moments, 3D Face Recognition, Back Propagation Neural network

1. INTRODUCTION

Given the fact that it is non-intrusive, face recognition is one of the several biometric identication modalities that are now accessible, and it rates highly on the list of subject preferences. However, from the standpoint of the operator, face recognition encounters a number of significant challenges, such as the vast diversity of emotions, ages, positions, lighting, and occlusion that may be seen in the real world. Numerous academics have worked on this problem for years, with the goal of developing a technique that is very accurate at facial recognition. A significant lot of research has been done on it. Several commercial face recognition algorithms are examined in the Vendor Test 2006 [1, which is held every two years and evaluates the performance of several commercial face recognition algorithms. There are three types of face recognition procedures, each of which is classed according to the kind of data that is employed in the recognition process. The first category consists of approaches that are used in two-dimensional space. When applied in a controlled setting, the performance of these technologies is outstanding. Methods that make use of three-dimensional information are classified as belonging to the second category. The integration of both 2D and 3D facial data results in the creation of the third kind of face data. There is a general summary of various techniques offered in [2][3, which is separated into two sections]. Because of the rapid development of 3D collecting technology in recent years, 3D capture has become easier to do, faster to complete, and more resistant to fluctuations in lighting conditions.

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Using Different Types of Moment Resistant Steels to Develop Lightweight Cold Formed Steel Structures with Improved Seismic Performance Assembled using steel

Nuvushettu Kranthi Kumar[1],Dr.T.G.K.Vasista[2],

Abstract:

Because of its tremendous strength and ductility, structural steel offers several benefits over other building materials. When compared to concrete, it has a greater strength to cost ratio in tension but a slightly lower strength to cost ratio in compression. We will use moment-resistant connections such as stiffened, un-stiffened, and splices to experimentally test the beam column rolled and cold-formed steel connection in this study. To save money while still getting the highest seismic performance, different cross-sectional shapes and a variety of connections are now being employed in the majority of nations. Cold-formed steel sections with varied moment resistance connections were studied for their earthquake performance. Compared to other forms of connections, splice connections have the best moment resistance connection, seismic resistance of buildings, high load bearing ability, and minimal weight, according to the final report's findings. Because of the great load bearing capability of the splice connection, we are able to lower the section size and thereby avoid the base shear. A splice connection made of cold formed steel, a strengthened connection, and a deflection of the load

INTRODUCTION

A moment-resisting connection is utilised in multi-story unbraced structures and one-story portal frame constructions. JEROME F. (etal). In multi-story frames, bolted, full-depth end plate connections or extended end plate connections are the most common methods of connecting the end plates. A hunched connection may be employed if a deeper connection is needed to offer a bigger lever-arm for the bolts. This circumstance, however, should be avoided if at all feasible due to the additional fabrication it would need. Almost often, in portal frame constructions, hunched moment resistant connections are employed at the eaves and apex of a frame since the haunch boosts the rafter's resistance in addition to giving greater connection resistances Designing a stiffening connection for seismic-resistant web yielding and local flange bending was also addressed in the article. Seyed Mohammad Mojtabaei (etal) showed that local buckling of cold formed steel beam sections at the first row of bolts was the primary failure mechanism for bolted moment connections made of cold formed steel. When the flange channels are bent and folded, arching action may be used to provide stiffness in plane and move the local buckling to web, delaying local buckling. Only a 10% increase in moment capacity is possible when employing bent flange channels (folded and curved). Square bolt connections have a 32% greater maximum moment capacity than other types of connections, while the narrowness ratio has improved by roughly 55%, with higher ductility levels of 45%, 30%, and 40%, respectively, when compared to the curvature of the fat and stiffening of the fat. a bolt connection with a diamond- or circular-shaped bolt arrangement that has a high degree of ductility. M. Dundu (et al.) reported that the cold formed steel sections and hot rolled angle section. Buckling in cold produced channels sections and bearing distortion in the substantially loaded flange were found. A simple connection may be made using bolted angle cleats. There are now a number of new methods for constructing steel buildings that are resistant to earthquakes. The splice connection, which was recently invented, is the best method for controlling vibration forces

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DETECTION AND PREDECTION OF AIR POLLUTION USING ML MODELS

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Abstract

Governments in both developed and developing countries are fully aware that air quality control is a crucial responsibility that must be completed. Conditions such as weather and traffic congestion, fossil fuel burning, and industrial features such as power plant emissions all have a substantial impact on environmental contamination and are thus considered to be environmental polluting factors. In terms of influence on air quality, particulate matter (PM 2.5) is the most significant of all the particulate matter that can be measured, and it deserves more attention than it now receives. Human health may be negatively affected when there is an excess of ozone in the air, which is conceivable when the amount of ozone is high in the atmosphere. No amount of emphasis can be placed on how vital it is to monitor its concentration in the atmosphere on a regular basis in order to effectively control it. In this study, logistic regression is used to determine if a data sample is contaminated or not polluted, based on the distribution of the data sample data. It is possible to estimate future levels of PM2.5 using authoregression, which is a statistical method that is based on previously gathered data. Being aware of the amount of PM2.5 that will be present in the air in the following years, months, or weeks allows us to work toward lowering its concentration to levels lower than those considered to be hazardous. Based on a data collection that includes daily atmospheric conditions in a certain city, this technique was developed to attempt to anticipate PM2.5 levels and identify air quality in a given place.

Keywords — Pollution detection, Pollution Prediction, Logistic Regression, Linear Regression, Autoregressio

INTRODUCTION

Throughout the history of our planet, air has been regarded as the most important characteristic asset for the survival and existence of all life, and it is absolutely necessary for the survival and presence of all life. Today, air is considered the most important characteristic asset for the survival and existence of all life. Aerial oxygen is required by all forms of life, including plants and animals, for their essential endurance and presence in order to live and to be present in their surrounding environment. As a result, in order to thrive, all living things require a large amount of clean, fresh air that is free of harmful gases in order to sustain their existence. An alarming amount of pollution is being released into the atmosphere by an expanding global population, its automobiles, and commercial enterprises all over the world. Depending on the conditions, being exposed to a polluted environment can have a variety of long- and short-term repercussions for a person's health.

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The Osteogenic Potential of Titanium Dioxide Nanoparticles of Different Sizes and Shapes.

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Introduction

For example, nanoparticles (NPs) are increasingly being used in healthcare, antimicrobial materials, optical and electrical devices, and medication delivery systems [1, 2]. NPs have a greater specific surface area than tiny particles, which increases their reactivity, making them more attractive to researchers. Nanoparticle bioactivity is considered distinct from that of its fine-size equivalent because of surface features such as energy level, electronic structure and reactivity [3]. As a result, several studies [4–10] have examined the possible effects of NPs on cells and tissue. Because TiO2 NPs are NPs, they have the same surface characteristics as the rest of the NPs. TiO2 NPs are extensively employed as a photocatalyst in solar cells, a pigment in paints, a corrosion-protective coating on bone implants, and more because of their unique physicochemical features [11–14]. TiO2 NPs have recently come under scrutiny for their potential impact on human health. A study by Ferin et al. [15] found that ultrafine TiO2 (20 nm) reached the pulmonary interstitium in the rat lung and produced inflammation compared to fine TiO2 at the same mass burden. In vitro and in vivo, Kumazawa et al. [16] found that neutrophils phagocytized Ti par ticles (1-3 m) and concluded that the cytotoxicity of Ti particles was size dependant. After then, TiO2 NPs have been extensively studied to identify their potential toxicity to different cells, including human fibroblasts, macrophages, and cutaneous microvascular endothelial cells [17, 18]. Particle sizes, surface coatings, crystal shapes, and dosages were all used in these research to highlight the cell toxicological effects of TiO2 NPs. It is unknown how TiO2 NPs affect osteogenic differentiation in cells. The human body's bone tissue is one of the most active and versatile types of tissue there is. Trauma, damage, infection, and loss of bone extracellular matrix are among the most serious health threats to humans [22]. [23] Bone tissue engineering is a novel strategy to repairing bone abnormalities and designing bone tissue transplantation. It's been shown in several research on bone tissue engineering that a variety of materials, stress or other variables may impact bone tissue cell proliferation, differentiation or mineralization. Osteoblasts, in particular, populate the bone defect during bone repair. It is the Golgi apparatus of osteoblasts that allows them to release a huge number of proteins onto the surface of the bone matrix [34]. Research into whether or not TiO2 NPs may promote osteogenic differentiation in cells is significant since osteoblasts are critical in bone production. By coculturing MC3T3-E1 cells with TiO2 NPs, we investigated how the concentration, shape, and size of NPs affected the proliferation and osteogenic differentiation of preosteoblasts. The CCK-8 kit is used to monitor MC3T3-E1 cell proliferation. Flow cytometry is used to study cell death and reactive oxidative species (ROS). Analysis of ALP, OCN, and Alizarin Red staining of mineralized osteoblast nodules helps determine the differentiation and proliferation of osteoblasts.

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Applications of non conventional energy sources

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Abstract— *This paper reviews the potentialities of available renewable strength resources in conjunction with numerous private and authorities future mission plans to include renewable power assets and its potentials in angle of Bangladesh. In an arising u . s . Like Bangladesh call for energy might be burgeoning. Modern, in Bangladesh dearth of power is ubiquitous and close to about 70% of its populace is excluded from access to power and bulk of the people are dwelling in rural areas. Among several renewable power resources, the utility of sun photo Voltaic (PV) is renowned despite the fact that the largest plant based on renewable energy goes into hydroelectricity. Additionally, wind, biogas, mini hydro and tidal are also well known. A plan has been initiated by the authorities of Bangladesh (GOB) to generate five% of the total strength from renewable strength assets inside 2015 and 20% with the aid of the yr of 2020. through the authorized renewable strength coverage, the GOB is dedicated to facilitate funding in both public and private sectors in renewable energy initiatives to substitute contemporaneous non-renewable strength assets and increase the contributions of renewable electricity primarily based electricity technology. With this context, evaluate of latest activities on concurrent renewable electricity assets is imperative in addition to to discover potentials of the resources. but, no longer all renewable energy sources are suitable to install indiscriminately in all areas, as a substitute there are sure parameters to select a source of RER for efficacy. After analyzing this paper, an investor gets large statistics about modern-day situation and guidance for destiny involvement of renewable electricity resources in Bangladesh. moreover, this paper could be instrumental to pick greatest efficacious renewable electricity assets for a particular place.*

Keywords— solar PV, biogas, renewable energy, rice husk.

I. INTRODUCTION

Geographically Bangladesh is situated in the north-eastern part of South Asia between 20.840 & 26.8380 North Latitude and 88.8010 & 92.8410 East Longitude. The total population is about 160 million with an average population density near about 1050 per sq. km (among the highest in the world) [1]. 70% of the population live in the rural areas of Bangladesh is seriously deprived of the access to electricity. As because the expansion of grid is inordinately expensive in the rural areas; already initiatives have been taken to popularize the use of renewable energy sources. The prospect, trend, utilization and its technology as well as reviews of the policy, institutions and opportunities based on renewable energy technology towards sustainable development and climate change mitigation has been investigated in paper [3]. A contemporary scenario of the renewable energy associated activities in Bangladesh is presented in this paper [4].Furthermore comparing with other countries of Asia, energy consumption level is lower in Bangladesh although crisis is intense. Due to perpetual failure of power, development and welfare of the citizens have been inhibited, so the government is compelled to move into contractual agreements at high cost and adopt expedient solutions of purchasing rental power and small IPP on an emergency basis based on diesel or liquid fuel. In Bangladesh the per capita energy consumption is one of the lowest in the region. On an average in Bangladesh per capita energy consumption is 160 kg oe (Kilogram oil equivalent) compared to

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GROUND WATER LEVEL PREDICTION USING MACHINE LEARNING

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Abstract – *This Paper introduces the implementation of different supervised learning techniques for producing accurate estimates of ground water, including meteorological and remotely sensed data. The models thus developed can be extended to be used by the personal remote sensing systems developed in the Center for Self-Organizing Intelligent Systems (CSOIS). To analyze these data and to extract relevant features, such as essential climate variables (ECV), specific methodologies need to be exploited.. The new algorithm enhances the temporal resolution of high spatial resolution of soil moisture observations with good quality and can benefit multiple soil moisture-based applications and research.*

Keywords – Soil Moisture, SVM, ANN, Machine Learning

Introduction

Surface soil suddenness is usually the water content inside the upper 10 cm of soil. Despite the way that such water is a little piece of the overall water content, it is on a fundamental level basic to various hydrological, biochemical, characteristic, green and various strategies. Various applications also incorporate surface soil clamminess as a key variable, including improvement building, meteorology, ecological change watching, characteristic science and country illustrating. On account of these real factors, it is basic to screen soil moistness conditions, especially to secure spatial and short lived assortments in soil clamminess. To get whatever number soil sogginess recognitions as could sensibly be normal with as high a quality as could be normal considering the present situation, much effort has been applied. Their discrete discernments measure soil suddenness exactly at express regions and are thusly insufficient to address the earth clamminess spatial transport, notwithstanding the way that they give fleetingly relentless recognitions SM is as a general rule a key state variable that impacts both overall water and essentialness spending plans by controlling the redistribution of precipitation into attack, flood, penetration in soil. SM

Over the top SM conditions that are addressed by submersion and the unchanging shrinking point (whose characteristics depend upon soil surface and structure) can propel flood events or show dry seasons. Exactness agribusiness is a developing the board technique that remembers the examination of the spatial assortments for a gather field using mechanical gadgets, for instance, Global Positioning Systems and airborne pictures. This examination can be helpful in assessing manures and other data needs by studying the close by affliction and soil

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The River Pamba in Kerala and Thottappally: Flood Mitigation Insights and Measures

Dr.Krishna Reddy[1],Jella Anil Kumar[2]

ABSTRACT:

In Kerala's Pathanamthitta and Alleppey districts, the Pamba River has considerable cultural and historical value. Kuttanad, Kerala's rice bowl, gets its water from this river. Thottappally and other settlements were destroyed by the 2018 floods on the Pampa River. Thoothappally spillway connects Vembanad Lake to the Arabian Sea through the waterway. Historically, Thottappally and the surrounding Kuttanad region have experienced seasonal as well as unseasonal floods. Proper procedures and processes must be put in place in order to offset this Last but not least, having the ability to accommodate an influx of new clients is critical. As a consequence of the recent flooding in Thottappally, there are a number of concerns that need to be addressed.

These include Kuttanad Lake and paddy cultivation, as well as rain and monsoons.

INTRODUCTION

Flooding is common in Kuttanad and the surrounding region. These conditions warrant the use of the word "waterlogging," not floods. Kuttanad is vulnerable to flooding because of its low height. As a result of heavy rainfall in the Kuttanad area of Kerala, a water spillway was built in 1955. Just 600 cubic metres per second of discharge capacity was discovered upon its commissioning, a far cry from the projected 19,500 cubic metres per second that was expected. The Thanneermukkom bund was built to keep seawater out of Kuttanad during the rice harvest season. Only in Kumarad can you find rice being grown below sea level.

Due to the devastation caused by the monsoons, Kerala's rice bowl, Kuttanad, is often in the news. These rivers both bless and harm Kuttanad. Keeping their enterprises afloat requires a careful balancing act between drowning in the floodwaters and keeping afloat on land. Thottappally and Thanneermukkom are home to four rivers that empty into the Arabian Sea: the Pampa, the Manimala, the Achankovil, and the Meenachil. The Thottappally spillway allows the Muvattupuzha River to enter Vaikkom Lake at the same time. More rain than the Vembanad Lake can hold during the monsoons, as shown by a study conducted lately in the area between Thottapally and Thanneemukkom. Flooding in Kuttanad was spurred by a recent flood in Kerala and an examination of Thottappally, a community in the area. Long-term planning necessitates the implementation of flood control systems.

Kuttanad Kumarakom, a region in Kerala, is the state's primary rice-growing area. Only a handful of areas on the planet are home to a sizable population that cultivates rice below sea level. You may be 12 feet below sea level, depending on where you are. Vembanad Lake's paddy fields are a popular tourist destination in India. Kuttanad is divided into three distinct regions: Lower, Upper, and North Kuttanad.

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A SURVEY OF LOCATION PREDICTION ON TWITTER

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ABSTRACT

Places such as countries, states, cities, and points-of-interest play an essential role in news coverage, emergency situations, and people's daily activities. They are also crucial in politics. Researchers have been experimenting with automated recognition of locations that are related to or referenced in documents for several decades. Because of the vast number of users that send millions of tweets every day, Twitter has risen to become one of the most popular social media platforms available today. Geographic prediction has gained a great deal of attention in recent years, owing to Twitter's global reach as well as the real-time freshness of the information included in tweets in real time. The majority of the research is devoted to identifying and solving the new challenges and opportunities given by the loud, quick, and contextually rich nature of Twitter messages. In addition, we hope that this survey will give a more comprehensive picture of location prediction on Twitter than we now have. To be more specific, we're looking for user home location forecasts, tweet location predictions, and mentioned location predictions. We begin by identifying the three tasks and going over the assessment criteria one more time. When we summarise and analyse the Twitter network as well as the tweet content and context as possible inputs, we can more systematically explain how these inputs have an impact on the issues in question. Detailed analyses of the solutions that have been implemented in current best practises are offered for each dependency to support the point being made. In addition, we provide a high-level description of two related challenges, semantic location prediction and point-of-interest recommendation, which are treated in further depth later in this section. We then draw a conclusion based on the facts and offer some suggestions for further research.

1. INTRODUCTION:

It is estimated that the number of online social networking sites has expanded at an unparalleled rate since 2000, outpacing the number of people on the world at one point. In addition to Twitter and Facebook, there are a variety of additional social media platforms, including location-based platforms such as Foursquare and Gowalla, photo-sharing sites like as Flicker and Interest, and other domain-specific platforms such as Yelp and LinkedIn. Individuals can build online relationships with others who share similar interests as their own by making use of the services offered by these companies. Users may also share information about their regular activities with their online friends by sending messages, uploading images, uploading videos, and checking in at certain areas, among other methods. Its ability to allow users to follow friends and exchange messages with one another distinguishes it from the rest of the crowd of other online social networks. Even while Twitter relationships aren't always mutually advantageous to both sides, users have the option of "following" celebrities without having to reciprocate. On Twitter, textual submissions, often known as tweets or microblogs, are limited to a maximum of 140 characters,

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CHANGING PARADOX OF STREET VENDORS AND VENDOR ZONES IN INDIA

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ABSTRACT

The number of hawkers and street sellers in major urban areas is steadily rising every day. Unauthorized commerce is being conducted indirectly by sellers on sidewalks and in marketplaces, posing a threat to malls, superstores, and other legitimate retailers. The opposite side of the coin Globalization and healthy competition in the global market encourage manufacturers to provide high-quality products at competitive prices, and they invest in malls, super markets, big bazaar and other retail locations, as well as purchasing furniture and other amenities like seating arrangements, lighting, lifts, advertising and cleaning. But street vendors have posed a challenge to retail malls for the last forty years. The Street Sellers (Protection of Livelihood and Regulation of Street Vending) Bill, 2014, was enacted in the Rajya Sabha, ensuring the protection of street vendors' rights and social security. Creating a "conducive" climate for street sellers and designating specific locations for them to operate was the goal of the legislation enacted by the House. The purpose of this working paper is to gather information from many perspectives and to provide recommendations to municipal corporations, the government, and sidewalk vendors on how to regulate the footpath market. The findings of this study will be used to form a strategy for bringing ecological, administrative, and economic development marketplaces as an engine for economic growth in India.

Keywords: Hawkers, Street Vendors, Vendor Zones, Conducive.

PREAMBLE

Globalization, privatisation, and liberalism are all made possible by the LPG concept. The notion of a global market is introduced, and the market, marketing, customer service, and production system have all been altered as a result. Marketing research has a new method, and the market's mission has also altered. Product quality, cheap pricing, timely delivery, and suitable location are all priorities for manufacturers when it comes to reaching out to customers. To that end, shopping centres of different shapes and sizes have been established around the country. When it comes to finding a space to put a vendor on a public sidewalk, there is no shortage of options. Every city has a sidewalk market that springs up in a matter of days, and it's a booming industry. Vendors on the sidewalk use a variety of techniques to draw in customers. Ladies go to footpath for stylish items; men favour footpath because of cheap rates; and youngsters are drawn to footpath because of the trendiest and most appealing toys. As a result, the researcher is also attempting to find answers to the following questions via their study. What's the reason a consumer walks down the street? Footpath salespeople use a variety of techniques and expertise. How did sidewalk vendors arrange their

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UNDERWATER WINDOW BAND ANTENNAS - ESSENTIAL PROPERTIES AND DESIGN PRINCIPLES

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Abstract

Right present, fundamental ultra-wide-band (UWB) radiation standards are being shown and evaluated. The discussion begins with an overview of how recovering wires affects UWB transmission. In time and in the recurrence field, the parameters characterizing the radio wires are computed. Because the number of potential receiving apparatus structures is almost limitless, the emphasis would be on characterisation as shown by various radiation standards. With each of these instruments, the standard points of significance and limits are discussed, as well as a sample radio wire and its properties. For a distant architect, the primary problem is the appropriate construction of a receiving device with optimal radiation characteristics. The conclusion of this article is that although there are many UWB radio wires available, not all of them are appropriate for every application, especially in terms of radar and communication framework requirements.

KEYWORDS | Ultra-wide-band (UWB); UWB antenna characterisation; UWB relationship; UWB switch functionalities

1. Introducing

Thin band radio wires and engendering are frequently portrayed in the recurrence area. Over a band width of two or three thousand, the mark qualities are thought to stay stable. For super wide-band (UWB) frameworks, the recurrence subordinate attributes of the recieving wires and the recurrence subordinate exercises of the channel should be considered. In a motivation based innovation, then again, UWB structures are constantly delivered, in this way time-space impacts and attributes should likewise be perceived [1]. Therefore, both a recurrence area and a period space portrayal of the gadget's understanding are required. The recurrence space and worldly area portrayals of these portrayals are displayed beneath. All standards are reliably used all through the article, despite the fact that they may not really match to the meaning given in the writing referred to. The facilitate framework utilized in this examination is displayed in Fig. 1.

A. The UWB Frequency-Domain Signal Relationship is Characterized

For the recurrence area definition, the communicate radio wire ought to be animated with a constant wave sign of recurrence f. Coming up next are the

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Maximizing the pre-engineered construction market

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ABSTRACT:

The use of pre-engineered structures has increased significantly in recent years. The main benefits are speedy construction and high quality control. On the other hand, its economy is mostly unknown. The building's cost is affected by the gable's slope, spans, and bay spacing. Keeping these characteristics in mind while building gable frames for typical loads like those listed above is essential, since they are updated throughout time in this article. Once the amount is known, the most cost-effective option is shown in each case.
To avoid confusion, "pre-engineered building" refers to prefabricated structures that are assembled in a factory.

INTRODUCTION

It is possible to create a steel structure of exceptional quality and accuracy by manufacturing framing members and other components in a factory and then shipping them to the construction site for use as bolts and nuts in the final assembly process. The nut-bolt system eliminates the requirement for on-site welding in traditional steel fabrication. These constructions use hot rolled tapered sections and cold rolled sections (usually "Z" and "C" sections) as per the internal stress requirements, resulting in less steel waste and lighter foundations owing to the reduced weight and self-weight of the structure.. Standard standards for metal building manufacturers Association (MBMA) allow the use of built-up sections with a 3.5 mm thickness, rather than six millimetres required for typical steel sections. The use of high-strength steel (345MPa) and tapered profiles demonstrate that steel may be more effectively used for increased strength. Tapered section theory was established in America by use of the bending moment diagram. At larger bending moment values, resistance increases, while depths decrease. PEB's Moment of inertia (I) varies with depth, which makes it different from ordinary steel sections. When it comes to PEBs, expanding their depth has an exponential power of three, therefore it's a no-brainer to either lessen or boost their strength.

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DEEP NETWORK OPTIMIZATION UTILIZING ADAPTIVE RATES

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***Abstract:** -The developing complexity of deep learning architectures results in weeks or maybe months of schooling time. This sluggish education is due to "vanishing gradients," in which the gradients once again used by propagation are rather massive for weights connecting deep layers (layers near the output layer) and quite small for shallow layers (near the input layer); this results in slow learning within the shallow layers. In addition, it has been confirmed that low curvature saddle factors may proliferate during particularly non-convex disorders, including deep neural networks, which dramatically slows down learning [1]. On this paper, through the presentation of an optimization method for education of deep neural networks, we strive to overcome the two above problems by using study prices that may be specific to each layer in the network and adaptive to the curvature of the feature, developing the knowledge of load at low curvature elements. This allows us to hurry up to learn in the network's shallow layers and short break out excessive-errors of low curvature saddle components. We look at our approach to large image magnificence datasets that include MNIST, CIFAR10 and Image Net, and show that our method will further boost accuracy to reduce the required time for schooling over giant algorithms.*

I. INTRODUCTION

Over the past few years, deep neural networks have been exceptionally effective, achieving state-of-the-art results on a wide variety of tasks, such as picture classification [2], face recognition [3], feeling analysis [4], voice recognition [5], etc. In these articles, one can note a general trend: outcomes appear to get stronger as the volume of training data grows, coupled with a rise in the sophistication of the design of the deep network. Even with high-performance hardware, increasingly complicated deep networks can take weeks or months to train, however. Therefore, for training deep networks, there is a need for more powerful approaches. By performing a sequence of non-linear transformations, deep neural networks learn high-level features. Let the training data set A consist of n data points a1, a2, an x Mr and corresponding labels B = {bi} n i=1. Let us assume the activation role of a 3-layer network with f. Let X1 and X2 denote the weights that we are attempting to learn on - line, i.e., X1 denotes the weights between the first and second layer nodes, and X2 denotes the weights between the second layer and third layer nodes. The learning problem can be formulated as the following optimization problem for this particular example:

$$\underset{X_1,X_2}{\text{minimize}} \quad \left\| f(f(A \cdot X_1) \cdot X_2) - B \right\|_2^2 \qquad (1)$$

Any non-linear mapping may be the activation function f, which historically is a sigmoid or tan function. Recently, rectified linear (Relook) units (f (z) =max {0, z}) have become common since, for certain issues, they appear to be simple to train and deliver superior results [6]. Using iterative approaches (such as back-propagation) in the hope of converging to a good local minimum, the non-convex objective (1) is usually reduced. Most iterative schemes produce additive changes to the parameter set x (weight matrices, in our case) of the shape.

$$x^{(k+1)} = x^{(k)} + \Delta x^{(k)} \qquad (2)$$

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What you need to know about flexible AC transmission systems controllers (FACTS)

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ABSTRACT

As a result of FACTS controllers' actual installations, advantages and utility applications, this paper provides a wide range of information. Detailed details on the development of these devices and the first utility installation/demonstration of FACTS devices are provided. Then, a thorough list of important FACTS installations across the globe is shown. Additionally, the article examines how these gadgets might benefit the user and how much they will cost. Various FACTS devices may be used in a deregulated market, according to the report. The FACTS controllers are likewise the subject of discussion. Advanced FACTS controllers have higher losses than their traditional counterparts, and thus must be taken into consideration when designing future power systems. FACTS controller examples and analysis are provided for each major controller in the study.

INTRODUCTION

Classes [1-3] describe the AC transmission system's static and dynamic limitations. With these limitations, transmission resources cannot be used to their full potential. A typical practise in the past was to fix or physically switch shunt and series capacitive, reactive, and synchronous generator faults. Restriction on how these gadgets may be used is in place, though. Efforts to meet expectations were unsuccessful. The mechanical components were wearing out and responding slowly, which was causing issues. Solid-state electronics that were able to react fast were in high demand. Obtaining licences and rights of way for overhead transmission lines was a challenge due to the global reorganisation of electric companies, increased environmental and efficiency regulations, and the difficulty of obtaining these permissions and rights of way. Since then, a new class of power electronics devices known as FACTS controllers has emerged, using a technology known as the Thyristor switch (a semiconductor device). High-power semiconductor devices have made it feasible to transition from Thyristor-based FACTS controllers to today's ultramodern voltage source converters [1-3]. There are FACTS monitors. Static Var Compensator (SVC) has been used by utilities worldwide since 1970, when it was the first FACTS utility to be shown. In the years afterwards, a lot of research and development has taken place on FACTS controllers.

HISTORY OF DEVELOPMENT AND STATUS STATIC VAR COMPENSATOR

The Static Var Compensator, the first FACTS controller, is a simple implementation. The Electric Power Research Institute (EPRI) first made the world aware of this technology about two decades ago. Using a fast-thyristor switch, you may control the reactor or the shunt capacitor bank to compensate for shunt effects in real time as they occur. Around the globe, more than a thousand SVCs have been deployed in utility and industrial settings to date (most notably in electric arc furnace and rolling mills). SVCs have been widely used since their inception, even in less developed nations. The Asia-Pacific region only accounted for 13% of ABB's global installation total when the company pioneered SVC. In 1974, General Electric (GE) demonstrated and commercialised SVC for utility usage for the first time [1].After deregulation in the UK in 1990, it became more difficult to manage the voltage in the country. Because of the ever-changing power system circumstances and unknown future, the United Kingdom decided to use relocatable SVC (RSV). Apiece of the NGC's 12 RSVC (60 MVAr each) are now in use [5].

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DESIGN AND IMPLEMENTATION OF LOW POWER VLSI DESIGN CIRCUITS USING CAD TOOLS

D.Rupa Kumar[1],B.Laxman[2],

ABSTRACT

In this technology, an power densities is measuring into watts per square millimetre as a raises to alarm rates, power managements are become an importance aspects of nearly each categories of the designed & applications. Reduces the power consumptions & in excess of on chips power managements is the key challenging into deep sub-micron meters nodes as increases complex. Power managements required at a consider into extremely in the early hours designed stage. Too lower power methods will be employs at every each designed stages, for RTL (Register Transfer Level) and GDSII. These are review papers is described in the different strategy, methodology & power managements technique form lowpower VLSI circuit. In expectations challenged in that may be meets through designs as to designing lowpower higher performances circuit is also discuss. Stateof theart optimized into method at various abstractions level in those targeting designs to lowpower digitals VLSI circuit is verified.

KEYWORD: Optimizations, LowPower, PowerDissipation, Power Managements

INTRODUCTION

energy dissipation has emerge as an essential layout parameter inside the format modern-day microelectronic circuits, particularly in portable computing and private conversation programs. on this paper, we survey optimization approach that concentrate on low strength dissipation in VLSIcircuits. Optimization at the circuits, commonplace sense, architectural and tool tiers are considered. sources power dissipation in CMOSgadgets are summarized via the following expression:

P = 1 2 C V 2DD f N + QSC VDD f N + Ileak VDD (1)

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Evaluation of Enterprise Group Financial Company Efficiency in China by use of quantitative analysis

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Abstract

When you think about it, financial institutions have a ***big influence on both financial markets and the actual world. Consequently, more research into the banking sector's efficiency is of critical importance. Essentially, China's financial corporation serves as a "internal bank" for its parent company. As a result, this article relates to the quantitative analysis and assessment approach of the banking industry, which is integrated with data characteristics of the financial company's sector. For the period from 2011 to 2016, the DEA model and the Malmquist index were used to analyse and evaluate the efficiency of 79 Chinese business group financing organisations. Here are the results: According to the DEA model, the overall efficiency of Chinese financial institutions is low, and the effect of scale efficiency is less pronounced than the effect of pure technical efficiency. However, oil processing, steel, and nonferrous metal financial institutions perform better than their counterparts in the rest of the industry. There has been a slight improvement in overall financial company efficiency from 2011 to 2016, based on the Malquist index model, and the efficiency is easily influenced by the change of scale efficiency; from industry category, military financial companies have seen a faster change in overall financial company effectiveness; and the technical progress in auto financial companies has been optimal.***

Keywords: financial institution, efficiency, DEA model, and the Malmquist index model

Introduction

General Bank Finance was established in 1716 as the world's first financial institution, while the US Financial Finance Company was established in 1878 as the world's first non-bank financial institution. For international financial firms, there are two types: enterprises and non-enterprises that are associated with a financial institution. There are a variety of non-bank financial organisations that specialise in consumer lending, corporate finance and financial counselling, but they all fall into one of two categories: those that concentrate on the sale of products and those that don't. Financial businesses have grown in size and breadth as economic globalisation has progressed and financial reforms have been implemented in many nations.. More essential in the global financial market, this new mix of business and finance is becoming increasingly common. Financial businesses are an essential aspect of China's financial sector since they are the non-bank financial entity that is most closely linked to the actual economy. The number of Chinese business group finance firms has grown steadily over the last several decades as the market economy has grown and the appropriate legal structure has been improved. The industry is progressively expanding as a result of the company's constant innovation. Financial enterprises in the Chinese enterprise group total 244 at the end of the third quarter of 2017, whereas service companies total 79,000 or more.

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Research, testing, and design of AISI code-compliant cold formed sections

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ABSTRACT

Hot-rolled steel members have been used in the building sector for a long time. Light or moderately loaded structures can't benefit from hot rolled steel parts since they add weight. This issue has been solved by the development of cold formed steel (CFSS). Metal construction in the United States has relied on Z-purlin and other cold-formed steel products like it for more than 40 years because of the broad variety of applications, low cost and ease of production, as well as good strength-to-weight ratios. Z purlins are prevalent in roofing systems with low stress and modest spans. The literature review covers both stiffened and un-stiffened Lip channel portions. The tensile test was carried out using a Z-section test specimen that met with IS1608-2005. Mathematically-created cold-formed object.
Sections created via channelling, cold forming, and lip forming are all included in this category.

Introduction

Hot Rolled structural parts are widely used in construction. "Hot rolled members" are referred to as such becauseof the high temperature at which they are formed. After decades of improvement, hot rolled steel is all but extinct. Cold-formed steel members first appeared in American and British construction about 1850. In 1939, AISI supported research at Cornel University conducted by George Winter made steel members widespread. That wasn't until 1940 that steel members became common. George Winter was the primary researcher. Cold-formed steel sheets with a thickness of 1 to 3 mm are often used, and they are fabricated at room temperature. For the same reasons, it is also known as a light-gauge steel member. Due to the production method, these components are separate from hot rolled steel sections. Cold-formed sections manufactured from steel sheets typically need a yield strength of 280 N/mm2. Steel plates, sheets, and strips are often used in the fabrication of cold-formed steel structural parts. The material is pressed or cold rolled into shape during the production process. These fundamental forms are often made using the press-braking procedure. Panels for walls, floors, and ceilings are most often made using the cold roll forming process. Zees and Cees are two instances of structural components that were created. Sheets and coils up to 1.5 metres wide and 1,000 metres long may be used to make sections.

Component Rigidity

An element that is sufficiently supported in the longitudinal directions by two adjacent components is considered stiffened in the stress direction. Due to the existence of flange supports, the web serves as a compression stiffening element in a channel segment. At least one-fifth of its full width is required for an element to be strengthened. The lowest moment of inertia between neighbouring parts for stiffened components has been calculated by AISI.

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Implementation of Transient Current Testing for Faults in SRAM

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Abstract:

In recent years, as memory devices have risen in popularity, a higher quantity of memory has been packed into each chip, and fierce market competition has upped the quality standards that are expected of the memories that are produced. The notion that failure analysis and device testing methodologies are becoming increasingly important as a result of the rising demand for dependability has been emphasised repeatedly. It has been more popular to study and research memory devices in recent years, particularly in the context of novel failure models, fault detection methodologies, and new memory architectures that have all been developed and implemented. A direct effect of this experience is that the March test is now frequently used to identify and avoid similar problems from occurring in the future. The organisation believes that some vulnerabilities in SRAM cells may go undetected during the normal March testing. In order to determine whether or not there are defects in the CMOS SRAM, a time-consuming procedure has been implemented. It is as a result of this decision that the most recent testing process is selected for usage. As part of this research effort, IDDT is being used to test for faults and issues in CMOS SRAM cells, and it is also being used to test for flaws and issues in CMOS SRAM cells as part of a separate study of the same name. In either case, a transient current pulse generated during a transition write operation or a transition read operation may be monitored for system failures, allowing them to be discovered and remedied. For the purpose of detecting and measuring the transient current pulse, it is required to design a circuit for monitoring current.SRAM, memory testing, the March algorithm, the IDDT, and the current sensor circuit are just a few of the terms that appear in this document.

I. INTRODUCTION

In order to get higher performance in order to meet the demands of today's and tomorrow's applications, today's systems on chips (SoCs) are changing from being dominated by logic to being dominated by memory. [1] [2] Memories are expected to account for 90 percent of all semiconductor chip area by 2013, according to the International Technology Roadmap for Semiconductors (ITRS), with static random access memory (SRAM) accounting for the vast majority of this space. This means that the yield of the memory has a significant impact on the total yield of the SoC. Figure 1: Memory yield. Figure 1 shows a diagram of a compass. The concept of memory yield is introduced. Devices whose sizes have been drastically reduced are witnessing an increase in the number of failures they experience. Because it has a higher number of hardware components than other circuits, the memory unit is frequently the component in a computer system that has the lowest level of dependability, according to industry standards. The SRAM memory cell has the highest density when compared to other logic circuits because of its high density; yet, due of its high density, it is also the most prone to failure when compared to other logic

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Present and future lithium-ion battery materials

Dr. SanjeevKumar,Mr. Vavilala Jitendra Murthy

Abstract

Key technical and scientific breakthroughs and problems for a wide variety of Li-ion battery electrodes are discussed in this paper. Suitable materials may be compared using the periodic table and potential/capacity charts. Intercalation materials such as lithium cobalt oxide (LCO), lithium nickel cobalt manganese oxide (NCM), lithium nickel cobalt aluminium oxide (NCA), lithium iron phosphate (LFP), lithium titanium oxide (LTO), and others have their performance characteristics, current limitations, and recent breakthroughs compared to those of conversion materials such as alloying anodes (Si, Ge, Sn etc.), chalcogenides (F, Cl, Br, I). Polyanion cathode materials are also explored in this paper.. Electrode materials are detailed in detail, including their cost and availability as well as their ability to conduct electricity, their ability to expand, and their ability to dissolve. Strategies for dealing with the present difficulties are classed into general and particular ones.

Introduction

Portable devices, power tools, and hybrid/fully electric vehicles all rely on Li-ion batteries because of their unbeatable combination of high energy and power density [1]. Electric vehicles (EVs) may cut greenhouse gas emissions by up to 80% if they take the place of gasoline-powered cars in the transportation mix [2]. Li ion batteries' high energy efficiency may also allow them to be used in various electric grid applications, such as improving the quality of energy harvested from wind, solar, geo-thermal, and other renewable sources, thus contributing to their greater use and building an energy-sustainable economy. As a result, both private sector and public funding organisations have devoted considerable attention to Li-ion battery development in the last several years. Despite this, there are those who believe that Li-ion batteries will not be able to meet the world's energy storage demands in the long term. A limited life span of Li and several transition metals now utilised in Li-ion batteries may one day become a concern in various applications (such as transportation and the grid) [3]. Li-ion batteries, on the other hand, offer a number of basic benefits over other chemistries. There are a number of advantages to using lithium ion batteries, including the lowest reduction potential of any element. As an added bonus, Li is the third-lightest element and possesses one of the most compact charged ions' ionic radiuses of any single charged ion. Li-ion batteries benefit from their high gravimetric and volumetric capacitance and power density as a result of these features.

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1,1-Bi-2-naphthol Solutions Under UV-Near-Resonance Raman Scanning

Ms. K Krishnakumari[1,2], Ms. G Sreedevi[1,2]

ABSTRACTS

Measurements of the normal and UV near-resonance Raman spectra of BN in basic solution were made and analysed, and the results were published. Ground state geometry, vibrational frequencies, off-resonance Raman intensities and depolarization ratios of 1,1-bi-2-naphtholate dianion were studied using density functional theory (DFT) computations (BN2-). The observed Raman bands were allocated in detail based on the estimated and experimental findings of ĩ, I, and F. UV resonance Raman spectra showed a substantial increase in the 1612 cm-1 Raman band of BN compared to the conventional Raman spectrum. According to depolarization ratios for the 1366 and 1612 cm-1 bands, it is clear that both transitions polarizabilities contribute to the 1366 cm-1 band, whereas onlytransitions polarizabilities contribute to 1612.

Introduction[=

Chemists and biochemists depend heavily on chiral compounds. Because of their very stable chiral conformation, chiral 1,1-binaphthyl compounds have become more popular. Asymmetric organic synthesis and catalytic processes have previously used them extensively as chiral inducers. 1,2 1,1-bi-2-naphthol (BN) and its derivatives, which are optically active, are particularly important C2-symmetric molecules. 1,1-bi-2-naphthol is widely used as a starting point for the production of chiral binaphthyl compounds, on the other hand. It has been frequently employed as ligands for asymmetric metal complexes and has proven excellent performance in chiral recognition with this particular type of chemical. 3-6 Using chiral binaphthol-derived titanium complexes, Ishii et al. studied asymmetric catalysis of the Friedel-Crafts process with fluoral. 5aThe steric and electronic characteristics of the chiral BN ligands influence the result of a specific asymmetric transformation. It has been extensively researched using several spectroscopic approaches, including as electronic absorption, IR, and Raman spectroscopies, to determine its structure and characteristics. The VCD spectra of BN were measured by Setnicka and coworkers, who then used density functional theory (DFT) computations to assign the observed VCD bands. 7 Calculations based on DFT were used to investigate the mechanism of BN isomerization. 8 BN adsorbed on silver colloids was examined by Nogueira and coworkers for the first time using surface-enhanced Raman (SER) spectroscopy, and empirical assignments for the observed Raman bands were provided. 9 Due of its near-UV absorption, the UVRR spectrum of BN in diverse solutions is likely to be observed and may give information on both the ground and excited states.

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AN INTRINSIC APPROACH TO LAYERED SECURITY FOR APPLICATION LAYER

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Abstract - Application Protection's present condition represents the reality that security has been an afterthought. The primary problem was the security of data in transit and storage, and cryptography successfully resolved this question. The challenges to systems have, however, grown beyond those addressable to the device itself through protocols and cryptography. This lack of cyber foresight has cost billions in missed sales and is now disrupting the infrastructure of information technology that the global economic engine is dependent on. The defense of an application against security attacks, Application Security, is a challenging challenge. To integrate the need for Software Safety, Application Security must now expand beyond conventional network and data security. A consistent and detailed view of the possible threats at each stage in the device or network must also guide the approach to Application Protection.

Keywords-application security, threat models, software principles.

I. INTRODUCTION

Protecting an application from security risks is Application Security. This is a daunting challenge, since the program builder or corporate protection planner must have protections to any threat possible, while in order to survive, an intruder must only locate one flaw or point of attack. Past device security strategies have definitely been minimal; however modern technology has been introduced to overcome this difficult issue [1].

- Network Security, Data Security and Device Safety consist of Program Security:
- Network Protection typically tackles foreign threats against infrastructure inside a firewall that delivers a network-wide utility. Using firewalls, intrusion prevention devices and malware scanners, network security has historically been dealt with.
- The preservation of data used locally by an application or transferred between users and servers is Data Security. The key approach here is cryptography, since it is incredibly successful in preserving data during transmission and storage by maintaining its privacy and secrecy.
- Software Security is the protection from assaults on the software or resources offered by the software, thereby avoiding misuse of proprietary property and approved material and ensuring that the software continues to work as expected. These attacks usually involve reverse engineering, tampering, copying, and automatic types of attacks that can be launched by comparatively unsophisticated attackers around the network or on a desktop.

II. THREAT MODELS Network threat model

Network protection professionals have historically seen the hardware and the operating system as trustworthy. This is a Network Vulnerability Paradigm, where the intruder is distant and external. The application is attacked through network ports, so the first and most prevalent method of perimeter security was firewalls that filter external packets from the untrusted environment. The downloaded code still posed a hazard, so to guarantee the security of this code, code signing was invented. Other kinds of threats were malware and worms, so reactive protections such as virus scanners and intrusion detection systems [2] were added. The bugs that occur in application software enabling attacks such as viruses and worms, however, remain a top concern.

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MPPT FOR HYBRID PHOTOVOLTAIC/WIND/FUEL CELL POWER SYSTEM USING ARTIFICIAL NEURAL NETWORK

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Abstract: Hybrid power systems new energy management approaches are covered in this article. An Artificial Neural Network (ANN) is used in the suggested management system in order to govern the flow of power between the hybrid powersystem to meet the demands of the system. To accomplishmaximumpowerpointtracking(MPPT) from a variety of energy sources, including photovoltaics (PV), wind turbines, fuel cells the neural network controller is used. Hybrid systems with PV panels, wind turbines (WTs), and fuel cells for hybrid system support with DC-DC converters are used to test the developed ANN-based approach. A control strategy is implemented with the ANN controller for smoothing the power fluctuation. Different operating conditions are used to test the proposed model's dynamic behavior. The proposed hybrid system provides more power than PV, WT, and FC systems atdifferentloads,accordingtotheanalysis.Forboth the stand-alone system and the grid, this research can be applied. For PV panels, wind turbines, and Fuel Cells with DC-DC converters for DC loads, the ANN performs better than Fuzzy in the MPPT approach. MATLAB/Simulink is used to simulate the results of the Fuzzy and ANNanalysis.

Keywords:- MPPT, Artificial Neural Network (ANN), Photo Voltaic(PV) cell, Wind Turbine (WT), Fuel Cell, DC link

I. INTRODUCTION

Renewable energy sources are showing enormous promise as we go into the next decade and toward a greener energy. In terms of renewable energy generation, Solar and wind energy are two of the most promising renewable power generation technologies among these renewable energysources.Eventhemostoptimisticpredictions of the growth of photovoltaic and wind power generation systems were exceeded. Using a renewable energy source in a dynamic way might also cause stability and power quality issues thatare uncommon in conventional power systems. As a result, the management of the hybrid system's energy flow is critical to the membrane's long-term viability and to the continuous flow of energy. In order to spur the development of alternative energy sources, it is essential to overcome this obstacle. Solar photovoltaic (PV) and wind turbine (WT) are two examples of non-conventional energy sources that have been established in the recent decade. Because of their abundance, cleanliness, and cost-effectiveness[1,2] they have become an essentialpart of everyday life. To meet the growing need for power, fuel cells (FC) are also being deployed. There are a few research papers on energy management in hybrid power systems provided in the literature [2]. Wang and Nehrir [3] suggested a DC-linked hybrid wind/PV/FC energy system power management approach. A power management method for a hybrid PV/wind turbine/FC system was given in this study by the author. In [4], Ahmed et al. a hybrid PV/wind/FC power system with an ultra-capacitor bank was studied in detail by Onar et al. [5] and a power management strategy algorithm was created. The fluctuating nature of renewable energy resources power generation from renewable energy systems are intermittent. These circumstances motivated to combine two or more energy sources with storage system to make Hybrid Renewable Energy System [1–3]. An isolated hybrid system gives a higher efficiency with a low cost of energy production, compared to the system with a single source [4].

Conventional approaches to hybrid power system control, such as the linear PI controller (which has been shown to be unstable in the face of a varietyof changes in weather conditions), were utilized in all of the earlier methods. It's a fantastic chance for distributed power generation with the hybrid renewable energy system (HRES). In addition to Wang and Nehrir [3], Ahmed et al. [4] and Onar et al. [5] presented power management strategies for AC-linked hybrid wind/PV/FC energy systems, respectively,whileOnaretal.[5]proposedapower management strategy algorithm for a hybrid PV/wind/FC power system with an ultra-capacitor bank.

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Decomposition and reconstruction of medical images in MATLAB using various Wavelet parameters

Anjaiah Nethala[1],B.Laxman[2],

Abstract:

Med-Im-Fusion is the process of extracting meaningful information from medical photos, which may include data that is of major clinical significance for doctors to use in their everyday practise.analysis. Picture fusion is a concept that is based on the concept of combining two pictures into a single image.enhance the amount of information included in a picture by combining two pictures, as in an MRI scan(Magnetic resonance imaging) and computed tomography are two types of imaging (Computer tomography)Photos are used to provide physicians with useful and precise information about their patients.In this research, the term "Discrete Wavelet" is used to refer to their medical treatment method.Directed Wavelet Transforms (DWT) have been utilised to integrate two medical pictures in this case study.Images to be utilised in the deconstruction of functional and anatomical images will be represented by pictures.TheWhen the two images are combined, they include both functional information and extra information.Spatial features are retained since there is no colour distortion. There's a lot to think about while you're in the thick of it all.task that has been proposed by others Several different fusion experiments are carried out in this experiment.with the use of seven distinct wavelet transform algorithms applied to medical imagesA few of the names are bior, coif, db, dmey, haar, rbio, sym, and a few more are not. analyses the matter in further detailthe measuring tool is used to compare all of the fused pictures togetherparametersThere are two crucial characteristics to consider: entropy and standard deviation. ExperimentalThe data reveal that the best fusion performance is achieved by the use of theSymlets (sym) are a kind of wavelet transform that may be applied to data.

Keywords- Image fusion,Frequency,CT,MRI,Entropy, 2-D Discrete wavelet transform Fusion metrics,Phase information.

I.INTRODUCTION

Photographs are fused to create a more aesthetically attractive picture by integrating two or more photographs in order to extract the most significant information from these images [1]. The process of integrating two or more images is called image fusion. Combination of two picturesapproaches, as well as their combination and integrationanything that is complementary to the otherVarious image sensor data are combined to make the information that is utilised to build theimproved visual perception and comprehension by the use of a more favourable imageprocessing. The picture fusion process extracts all of the relevant information..making it possible to eliminate redundancy and misunderstanding by giving informationpictures that were taken from the original source photographs [2] Image fusion may be used to combine two or more images.creating a single document by merging the information from two or more photographscreating a composite image that grows more instructive and interesting as time passesthan before, they are more adapted to computer processing and visual perceptionin order to facilitate further research and diagnosis However, it is very necessary to do so.To properly fuse two photos together, they must be accurately aligned first [3, 4].BeforeWhen combining photographs, it is critical that all of their qualities be retained.It is important that the photographs do not introduce any discrepancies or conflicts.items, in order to keep the viewer's attention from being drawn elsewhere.

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Brick Manufacture using Waste Rocket Propellant: Characterization and Utility

Dr.G.V.Madhava Rao[1],Lakkaraju Mounika[2]

Abstract

Waste Rocket Propellant is used in manufacture of Fire-clay Brick to neutralize twin-problems of waste propellant disposal and scarcity of raw materials for Brick manufacture. Waste rocket propellants, containing Ammonium Perchlorate (AP), Aluminium powder (Al) and hydrocarbons, as major ingredients, is processed as granular powder of 300 micron and mixed up to 2.5% by weight in the green mix of brick, containing clay, silica and soil. Impregnated Brick is characterized by XRD and SEM. Water absorption, compressive strength and thermal conductivity are determined following suitable standards and equipments. XRD revealed presence of alumina in the propellant impregnated brick without formation of any secondary phase. SEM indicated higher porosity with hardened surface around pores. Compressive strength is comparable and water absorption is favorably improved on an average, from 29% to 20%. The thermal conductivity is found to reduce from 0.72 W/m.K to 0.68 W/m.K. Overall, the effect of pollution reduction, waste utilization and property enhancement can pave way for a sustainable and eco-friendly solution in construction domain

Keywords: Bricks; Waste propellants; Microstructure; Water absorption; Compressive strength; Additives; Rocket; Composite propellant

Introduction

Asian countries contribute to 87% of the total global demand of the bricks, out of annual global consumption of around 1500 billion bricks. To meet this exorbitant demand, the used raw materials are getting consumed very fast and attempts are regularly made to explore possibility of incorporating alternate available waste materials, leading to their utilization and disposal, simultaneously. Different types of raw materials including organic combustible waste materials like cigarette butts [1], Charcoal [2], sugarcane bagasse [3-7], husk [2,3,7], Paper [4,5], ground nutshell [6], orange peel [7], Plastics [8], dung [9], etc are used as additives. Combustible materials are consumed during baking of bricks and this result in increase in porosity of brick. Density reduction, high water absorption, and reduced compressive strength are contemplated for such additions. One more concern due to high porosity of combustible material impregnated fire clay brick is loss of structural integrity.

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A New Method for Solving Fuzzy LinearProgrammingbySolvingLinearProgramming

Mr. Dhananjay Rao Kodaly[1],Md. Jahangir Pasha[2]

ABSTRACT

Engineering design is typically plagued with inaccuracies due to the complexity of many real-world engineering systems. Fuzzy linear programming issues play an important part in fuzzy modelling, which is able to express uncertainty in the real world. Dubois and Prade's LR fuzzy number is one of the most practical themes in recent research, with several useful and simple approximation arithmetic operators on it. Fuzzy vectors occur as a vector of triangular fuzzy integers in various vector calculations. To begin, we are looking for a nonnegative fuzzy vector x in this situation fuzzy numbers. Here, our main scope is finding some nonnegative fuzzy vector ~x in which maximizes the objective function ~ ~ z = c x so that ~ ~ A x = b , where A and ~b are a real matrix and a fuzzy vector respectively, and n c 1× is a real vector too.

Keywords: Fuzzy arithmetic, Fuzzy linear programming, Fuzzy number

1 Introduction

A wide range of fields have benefited from fuzzy set theory, including control theory, management science, mathematical modelling, and industrial applications. Tanaka et al. [6] initially suggested the idea of fuzzy linear programming (FLP) on a general-level. This was followed by a large number of writers considering different FLP difficulties and coming up with a variety of solutions. Fuzzy numbers may be compared using ranking functions [1,4,5]. In particular, these approaches are the most convenient. Many writers employ this approach by defining an analogous FLP issue and then using the optimum solution of that solution as the FLP solution. To solve the linear programming issue with fuzzy variables and its dual, fuzzy number linear programming problem directly, we used a generic linear ranking function in [4]. A linear programming issue using triangular fuzzy integers is the focus of this research. New methods for addressing FLP issues without ranking functions have been developed by our team. In addition, we provide an example to demonstrate our strategy.

2 Preliminary

In this section we review some necessary backgrounds of the fuzzy theory inwhich will be used in this paper. Below, we give definitions and notations takenfrom[2].

Fuzzy numbers

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A COMPACT DESIGN OF WI-MAX APPLICATION FOR CPW BASED FED KOCH FRACTAL ANTENNA SLOT

Anam Srinivasa Reddy[1],K.Nithin Kumar[2],

Abstract

The double large band CPW-took care of adjusted Koch fractal space recieving wire proposed in this article is sensible for WLAN and Wi-MAX errands. The running repeat of a three-sided opening radio wire is obscured here using the Koch new conveyance system, achieving flexible recieving wire tests the impedance and radiation instances of the proposed radio wire, showing that an invigorated Koch fractal space recieving wire has an impedance information transmission of 2.38 to 3.95 5 GHz and 4.95 5-6.05 GHz cautious 2.four/5.2/5.eight GHz WLAN gatherings and the 2.five GHz WLA. In the whole working band, the recieving wire composed radiation incorporation has an increment of more than 2.0 dBi. The disclosures are found and connected with accurate people from their own families.

CPW-dealt with opening radio wires, printed fractal space recieving wires, wide-band recieving wires, and WLAN recieving wires are cases of document terms.

1. INTRODUCTION

The fundamental for low-profile, lightweight, and insignificant cost broadband radio wires has extended actually as short distance far away frameworks relationship, for instance, far away district, has gotten more norm (WLAN). WLANs are planned to work in the 2.4 GHz (2.4-2.48 GHz) and 5 GHz repeat social affairs (5.15-5.35 GHzand 5.725-5.825 GHz in the United States and 5.15-5.35 GHzand 5.47-5.725 GHz in Europe). Wi-MAX (Worldwide Interoperability for Microwave Access) is a quick deployable, inconsequential cost broadband far off structures affiliation standard that works in the 2.5-2.69/3.4-3.69/5.25-5.85 GHz get-togethers. Since these standards may be used in different relationship at the same time, a singular radio wire that covers the two social affairs is required. A co-planar waveguide (CPW) feed is better sensible for lightweight distant constructions affiliation applications because to its portions, for instance, uni-planar turn of events, fast assembling, and circuit joining. Specific opening evaluations like square shape, rectangular, three-sided, trapezoidal, underhanded, contorted, and others have been seen in literature[2]-[11] in blend in with either a rectangular, fork-like, or round tuning stub, invigorated for wide-band working. Using a multipleresonance-

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Copper slag and eggshell powder were used to experiment with the attributes of concrete strength and durability for M30 and M40 concrete grades.

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Abstract:
Concrete is always expected to be stronger and more durable than in the past while beingcost and energy efficient. Moreover the major advantages that concrete possesses over theconstruction materials have to be conserved. The possibility of being fabricated practicallyanywhere, the ability to make the form imposed by the shape of a mould and a low cost ofcomponents and manufacture. These factors have driven advances in improving the performance of concrete over years and continue to do so the need for improving the performance of concrete and concern for the environmental impact arising from the continually increasing demand for concrete has lead the growing use of alternative material components.
An experimental investigation will be conducted to study the properties of concrete containing copper slag as a partial replacement of fine aggregates in the concrete mix design. Various durability tests will be conducted on such concrete of M30 grade and M40 grade to know the compressive strength, split tensile strength by varying proportions of copper slag (CS) with fine aggregates by 0%, 5%, 10%, 15%, 20% and 25% and Egg shell powder(ESP) as cement by 0%, 5%, 10%, 15%, 20%, 25% by weight. The obtained results will be compared with the conventional concrete, there by knowing the changes in the properties of concrete containing copper slag as a partial replacement of fine aggregates.

Key words: Copper Slag,EggshellPowder,Compressive Strength, Split Tensile Strength

Introduction

Throughout the field of construction, cement and concrete production is facilitated by the use of industrial waste or secondary materials. Different companies produce new by-products and waste materials. Waste materials processing or disposal is causing environmental and safety issues. Recycling waste materials in the concrete sector therefore represents a great opportunity. By-products like fly ash, silica fume and slag have been considered waste materials for many years. Concrete prepared with these materials demonstrated improved workability and durability over normal concrete and was used for fuel, chemical plants and underwater structures. Intensive research to investigate all possible forms of recycling have been undertaken in recent decades. Building waste, explosive furnace, steel slag, ash of coal fly and low ash, as alternative aggregates in soil, highways, flooring, foundations and building, as raw substances for development of the ordinary Portland cement, as pointed out by Teikthyeluin et al (2006) have been accepted in many areas.

Copper slag is a material from an industrial by-product created by the copper process. About 2.2 tons of copper slag are produced for each ton of copper output. The copper industry in the world is estimated to produce about 24.6 million tons of slag (Gorai et al 2003). While copper layer is widely used in the sand blasting and abrasive tool manufacturing, the rest is disposed of without further recycling or reuse. The copper layer is mechanically and chemically defined as a component replacement for portland cement or as a substitute for aggregates for the material that is to be used in concrete. Copper slag for example has a variety of favourable mechanical characteristics for combined use, such as good soundness, good abrasion resistance, and recorded stability (Gorai et al 2003).

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Examining expressive attribute-based encryption with lattices

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Apstract

Encryption based on attributes Using the internet to store data is known as cloud Expressiveness Control of access at the granular level Cryptography based on lattices Fine-grained access control over encrypted data may be enforced using Attribute Based Encryption (ABE). ABE schemes are presently used in cloud computing and storage systems because of their expressiveness. Quantum cryptanalysis can break down conventional ABE systems based on bilinear pairing, whereas ABE methods based on lattices are impervious to quantum assaults. Using the lattice framework, we investigate the expressiveness, complexity assumptions, efficiency, and security of a wide variety of attribute-based encryption algorithms in great detail. Also discussed are lattice-based attribute-based encryption algorithms that need additional investigation in order to outline future paths for cryptographers.

Introduction

A classic public key encryption system encrypts data before it is sent to a specified recipient who can decode it and retrieve the plaintext message, which is suitable for sensitive information transmissions and storagecapable in the event that the recipient's identity is knownwhen the data are encrypted, by the sender However, there are exceptions to this rule.situations in which the data owner may choose to disclosethe users according to a predetermined policythe qualifications of those involved.It was suggested by Sahai and Waters [1] in 2005 that Attribute Based En-Encryption (ABE) to satisfy the above-mentioned needsinitially. The private key and the public key are the same in this system.Attribute sets and private ciphertext are linked to each other.the ciphertext can only be decrypted by the key if and only if there is a matchwith respect to private key characteristics and ci-phertext. Error-tolerant encryption may be achieved using this method.May be used to implement finely grained access controls using biometricscontrol of encrypted data access as well. In spite of this, the absenceThe scheme's capacity to articulate itself restricts its use to a singlesystems. Cryptographers have devised methods to increase the expressiveness oftwo different types of attribute-based encryptionA private key or a public key is related with the access policy.key policy attribute-based encryption (KP-ABE) is the method used to encrypt this data.As well as Ciphertext Policy Attribute Based Encryption (CP-ABE)In the first case, the attribute set is linked to a ciphertext,Access policies are related with a private key's use. Notwithstanding this,the situation is inverted in the latter: It is linked to the private key.access is granted to the ciphertext with the attribute set.policy. If and only if the decryption is successful in both

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AN ANALYSIS OF ENERGY CONSUMPTION MODEL FOR INTERNET CONNECTIVITY IN MANETS

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Abstract:- *Multi-hop ad hoc wireless networks do not have a fixed network system. Such a network consists of many nodes which sustain network connectivity through wireless connections. In addition, these nodes can be mobile and thus the network's topology can shift over time. If the nodes in this network may interact with the Internet, it is useful; this is achieved through gateways that link with the Internet. This feature demands that the ad hoc network nodes discover the gateway by means of a gateway discovery protocol. A limiting factor (especially for mobile nodes) however is their small battery energy supply. This study discusses two main issues to explain the possible effect: internet networking between a handheld ad hoc network with multihops and the Internet, and energy consumption based on the number of gateways and the mobility pattern of nodes. By simulating different mobility trends and the density scenarios of networks, we demonstrate that increasing the amount of ad-hoc network gateways dramatically boosts mobile node power efficiency and thereby avoids death nodal network separation*

Keywords:- *Power, Portal, MANET, AODV, Range of Transmission.*

1.Introduction

Since the first invention of the cellular networks, significant success has been made. Many citizens already expect to be linked anywhere, wherever and wherever. These networks are very effective both in everyday life and in emergencies. The price and installation of the equipment are declining, which makes wireless networks much more common. While the benefits and convenience of wireless networks are significant, people still want more. The majority of the mobile devices forming the wireless (mobile node) networks are built on a limited battery capacity which limits the time of use. It is ideal to have longer battery life; it is not always realistic, inexpensive or feasible[1][3].

Reducing energy usage is a key goal in multiple multi-hop ad hoc networking environments, especially when the network's individual battery nodes are powered.

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Study on Probabilistic Demand Models of Tunnel Linings Subjected to Transverse Seismic Load

Dr.B.Arun Kumar[1],Mutyala Manoj Kumar[2],

Abstract—*Since there have been cases of severe damage or even collapse of tunnel structures in recent major earthquakes, the seismic safety of tunnel structures has attracted widespread attention from scholars. In the performance-based seismic design, it is essential to establish a universal and practical demand model. In this paper, to facilitate the use in practice, the probabilistic demand models are developed by adding linear correction term and random term to the commonly used deterministic models. Two types of demand measures, the bending moment and the axial force of the lining to transverse seismic load are considered. The uniform design method is used to generate the samples to calibrate the model parameters, and the uncertainties of ground motions, site properties, and tunnel dimensions are considered. The parameters of the demand models are estimated by the least square method. The probabilistic demand models established in this paper can accurately and reliably evaluate the seismic demand of the tunnel and obtain the probabilistic distribution of the demand, which is of great significance for the seismic vulnerability analysis of tunnel structures. Index Terms—tunnel, demand model, quasi-static analysis, uniform design, least square method.*

INTRODUCTION

It is generally believed that the seismic performance of underground structures is better than that of surface structures. Therefore, the seismic resistance of underground structures has not received sufficient attention for a long time[1]-[2]. However, many tunnel structures have suffered severe damage [3]-[4] in recent earthquakes. In order to improve the seismic safety performance of tunnels, it is necessary to evaluate the seismic vulnerability of tunnels. The seismic demand is one of the main contents in the research of seismic vulnerability and structural reliability. In the performance-based earthquake engineering (PBEE), system models should incorporate not only modeling uncertainties but also the inherent uncertainties in geotechnical and structural material, component and system properties [5]. Wang [2] and Penzien [6] established the analytical models for the transverse seismic response of tunnels through different analysis procedures, which are calleddeterministic models in the field of reliability. However, the prediction results of such models are conservative. Nguyen et al. [7] took the ratio of bending moment demand to bending moment capacity as the damage index and studied the vulnerability of rectangular open-cut subway tunnels through quasi-static numerical simulation. Huang et al. [8] considered four uncertain factors of rock tunnels, including ground motion, tunnel buried depth, surrounding rock and lining, and used the uniform design

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Development of a modified Z-source integrated PV/grid/electric vehicle DC charger and inverter

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Abstract:

Based on the sun's rays For residential and semi-commercial uses, energy has been the most common source of sustainable power. Storage structures may be used to mitigate fluctuations in the amount of sunlight-based vitality that can be harvested due to meteorological circumstances. Solar power may also be used to recharge electric car batteries, reducing the need for a network. Such applications need a converter that has fewer alterations organised and provides solitude. Using the Z-source inverter (ZSI) design, many stages are eliminated, allowing for single-stage voltage raise and DC-AC power conversion. Latent sections may also be used to integrate energy storage systems (ESS) into the system. In order to charge the batteries of electric cars (EVs), this study shows how a modified Z-source inverter (MZSI) works in conjunction with a split essential secluded battery charger. The notion of the suggested converter's activity has been shown by reenactment and exploratory results.

Energy storage, photovoltaic (PV) power production, single-phase systems, and transportation electrification are only a few of the topics covered in the index of articles on qZSIs..

I. INTRODUCTION

The use of alternating current power infrastructure is now heavily reliant on charging electric automobiles. Wireless charging and plugging in, even though they are more efficient topologies, may still pollute the environment since they simply use the AC grid. When you know how much fossil fuels are utilised to generate the power required to charge the vehicle, it's much simpler to assess an electric vehicle's carbon impact. One way to reduce carbon footprints is to include renewable energy sources into a charging infrastructure. In order to build an EV battery charger, isolation transformers are a must since they provide galvanic isolation between the user and the rest of the high voltage (HV) system [1]. On the AC grid or on the charger, galvanic isolation may be implemented. Grid-side isolation transformers tend to be larger than charger-side isolation transformers. [2] High frequency switching has made it possible to reduce the size of galvanic isolation transformers owing to semiconductor technological developments. Solar grid-coupled systems [3] have been employed in commercial charging infrastructure in the past. The AC grid benefits as a consequence of these technologies. Using a solar and grid-interconnected charging system for electric vehicles (EVs) at home may be advantageous. Household applications up to 10 kW may be powered by single-phase inverters [4][5]. Home solar PV may be connected to the grid in a variety of ways, including isolated and non-isolated topologies [4]- [6].

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Quality/Quantitative Financial Analysis

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ABSTRACT

Using as much information as possible, we provide a strategy for doing financial analysis. We are tasked with evaluating potential investment opportunities in order to decide whether or not they will turn a profit. If there's a lot of data, we may accomplish the work at the qualitative, semi quantitative, or quantitative levels. Using this strategy, you may get some results even if you have very little knowledge regarding amounts. Order of Magnitude Relations (omrs) between model variables are the bare minimum of information that the system can operate with. These omrs can inform us whether an investment idea is good or not by disambiguating the outcomes of our model. If we just have a few omrs to work with, the conclusion of our investment project analysis may or may not be determined. We will be able to fine-tune the findings in the future by providing the algorithm with more information (perhaps imprecise). The more exact the findings are, the more precise the information presented is. Traditional analysis will provide the same answers if all of the variables presented are accurate at the conclusion of the process.

Keywords: reasoning in terms of size, approximation, quality, calculation across intervals, and financial analysis

INTRODUCTION

The Benefit-Cost technique is often used in financial analysis to analyse whether or not an investment project will be successful (see [González99]). Using this metric, you may see how much money you'll make on a specific project compared to how much it will cost you. The analysis is carried out within a certain timeframe. Equation shows the

$$\frac{B}{C} = \frac{\sum_{t=0}^{n} FF_t^+ \Big/ (1+i)^t}{\sum_{t=0}^{n} FF_t^- \Big/ (1+i)^t}$$

benefit-cost rate formula (1).

There are two types of cash flow: positive cash flow and negative cash flow. I is the investment cost, and t is the

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Grid-Connected Wind Energy System Control Scheme for Power Quality Enhancement

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Abstract

The addition of wind power may have an impact on the quality of the energy generated by a system. The efficiency of wind turbines and, therefore, the quality of the power they generate are assessed using measures and criteria that correspond to the International Electro-technical Commission standard IEC-61400. When a wind turbine is installed on a power grid it affects the quality of energy by influencing voltage fluctuations and flickering as well as harmonics and switching operations. A decline in power quality has been shown to be a consequence of wind turbines being added to the system, according to this report. A battery energy storage system (BESS) is connected to the STAT COMpensator (STATCOM) at one common connection point in order to minimise power quality issues. Battery energy storage is used to sustain the grid's power supply during times of fluctuating wind output. MATLAB/SIMULINK is used to model the grid-connected wind energy producing system's STATCOM control approach for enhancing power quality. The induction generator is utilised as the principal power source in the proposed design because of its efficiency in providing reactive power. Coordination control and a strategy to improve power quality have been shown.

Static command and control, or STATCOM, is a crucial concept. Static quality measure compensator implemented in Matlab and SIMULINK.

INTRODUCTION

The corporation must be successful in all of its markets to guarantee long-term profitability and social progress. Speed wind turbine operations express all variations in renewable energy resources such as wind and biomass as fluctuations in generation in the fixedis necessary to supply the energy demand. Voltage changes in a sustainable energy system are mostly controlled by factors such as mechanical torque, grid power, and the conservation and use of renewable energy sources. As part of everyday activities. Wind turbines generate a fluctuating but constant stream of wind energy, which must be fed into the electrical grid in order to function. In addition to [1] and [2], these power variations are caused by turbulence, wind shear, and tower-shadow effects [1]. Wind power may be integrated into the present power control system. These oscillations must be dealt with in the network's technical features. Wind power generation challenges such as voltage control, stability, and power may be examined in connection to the quality of the power supply. Transmission and distribution networks must include customer-focused voltage quality controls in order to function properly. Several different kinds of transient events have a negative influence on voltage quality and other similar metrics. On the other side, a distribution and transmission network may be powered by wind. Generators cause havoc with distributed generating. The quality of the electricity

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Human Health Risks from Water Contamination with Heavy Metals

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Abstract:

Soil, surface, and mechanical assembly water all exhibit varying levels of toxicity due to the presence of a wide range of heavy metals, including lead, arsenic, cadmium, chromium, and mercury. There are several ways in which heavy metals are emitted into the atmosphere, some of which are harmful. With international connections like WHO (2008), USEPA, EUC, EPA, split and national, the centres selected were more than the most remarkable and interactive cutoff. Waste water from rapidly growing mechanical areas, mine tailings and high metal waste products and tainted gas may be counted on to contaminate the water supply. Critical metal destructiveness, which has been connected to a slew of new dangers, has emerged as a major concern. Despite the fact that these metals do not have patents, their detrimental effects on the human body and its proper functions endure..

Introduce

Consumers are frightened to the point of paralysis by the frequent degradations of the dangerous chemicals. Toxins brought in by industrialization, technological change, and the exploitation of common things, agricultural waste, and surrounding squanders are constantly contaminating the land and water-gifted planet. Large metal bags will be the most harmful if these new compounds are not biodegradable due to their predictable character, harmful tendency, and affinity to accumulate in living things. Because of their long-term stability in the environment and their documented potential for causing harm, toxic metals such as arsenic, arsenic, lead, cadmium, and mercury may represent a major concern. Control may be disrupted by metal embryos, gastrointestinal (GI) and cardiovascular (CV) processes, lungs, kidneys, liver, adrenal glands, and bones. The ability of the mind to maintain a clear distinction between reactivity and potentially dangerous metals is severely constrained. People, even those who are not exposed to professional threats, continue to express their metals in their body via a variety of sources, such as fuel or incentives. Dietary rules that let heavy metals stay in the body, such as those seen in the Mediterranean diet, may minimise the risk of metal damage trends (Rajeev Kumar et al., 2014). Another way to say it is: There is a risk that contaminated water and other food items will be burned through in an attempt to reach or bridge a bank of water resources. The enormous metal invasion referred to in the text is only one of numerous instances from throughout the globe. There may be certain limitations or terminations due to the large number of sources collected via the game plan. Indonesian producers have attempted to cover the most ludicrous number of features, some of which are instantly split down as follows: a For two unique metals, Zn and Cu, there has been a significant drop in lead fixation patterns on creature size formation, with metal fixation patterns in urban surges eliminated.

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SUSTAINABLE POWER MANAGEMENT THROUGH SOLAR INTERGRATION.

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Abstract:

Today, solar energy is being used to power a diverse variety of commercial applications, including solar water heaters and pumps, as well as standalone solar-powered dwellings and structures. As solar cells collect the sun's rays, they may be utilised to generate electricity. Power consumption in our nation is at an all-time high and expected to rise more in the coming days as a consequence of these factors. In order to alleviate the country's power shortfall, this initiative primarily focuses on the conversion of extra solar energy into useful electricity. Solving the problem of power shortages is as simple as converting solar energy into electricity and connecting it to the grid. Solar cells may be used to collect solar energy, which can then be used to create direct current voltage. An IGBT-based three-phase six-pulse inverter will be utilised to convert this direct current power to an alternating current voltage. Signal inverter output signals may include higher order harmonics, which may create interference if they are not removed by filtering. Using a Phase Locked Loop (PLL) base control system, the filtered alternating current voltage may be synchronised with the power grid power grid.

Keywords— Solar cells, Grid, Dc chopper, Phase Locked Loop.

INTRODUCTION

It's because solar energy is such a crucial source of renewable energy that it's divided into two kinds of technologies that are defined by the way they absorb, distribute, or convert solar power into electricity. Despite the fact that both passive and active solar technologies collect and distribute sunlight, active solar technologies convert the sun's rays into electrical currents. Renewable solar energy sources include photovoltaic systems, concentrating solar power systems, and solar water heating systems. Solar energy is the primary source of most of the world's energy, and it comes in numerous forms. Orienting a structure toward the Sun, choosing materials with suitable thermal mass or light dispersion capabilities, and creating regions that circulate air in the surrounding environment are all components of passive solar architecture, which reduces energy demand.

It is the photovoltaic (PV) technology that converts sunlight directly into electricity in the solar energy conversion area. In addition to the fact that this method produces no noise or pollution, it also makes them strong, reliable, and long-lasting in nature. Using photovoltaic (PV) technology, collecting the sun's rays is a simple and elegant technique of doing so.

As a second option, Grid Tie Systems (sometimes referred to as grid tie systems) (also known as grid tie systems)

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FLOWGAURD APPLICATION IN FLOODLIGHT FOR SECURED AND RELIABLEECURED SOFTWARE DEFINED NETWORKS

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Abstract: - Software-Defined Networking (SDN) provides network-wide access to programmers and direct control from a theoretically centralized controller over the underlying switches. SDN proposes a positive path for the Internet to grow in the future. However, SDN has several modern protection problems as well. How to develop a stable firewall programme for SDN is a vital task for them. Since the stateless property of the Open Flow-based SDN firewall lacks audit and monitoring mechanisms, current SDN firewall implementations may also be easily bypassed by rewriting the switch flow entries. Focusing on this hazard, by testing flow space and firewall authorization space, we implemented a novel approach for dispute detection and resolution in Open Flow focused firewalls. Unlike Fortnum, based on the whole flow paths inside an Open Flow network, our method will verify the contradictions between the firewall rules and flow policies. Finally, for flow tables and firewall guidelines, we introduced intra-table dependency testing.

Keywords: - Networks Identified Applications, Firewalls, and Space Analysis Header.

I. INTRODUCTION

It is an arduous process to run and manage a computer network. Network operators need to configure each individual network system separately from a heterogeneous set of switches, routers, middle boxes, etc., to communicate the appropriate high-level network policies, utilizing vendor-specific and low-level commands. Networks are dynamic in addition to configuration complexities, and operators have little or no tools to react automatically to network incidents. In such a constantly evolving climate, it is often difficult to implement the necessary policies. Network switches become basic forwarding machines with the isolation of the control plane from the data plane that lays the foundation for the Software Specified Networking model, and control logic is applied in a logically centralized controller.

An innovative network architecture implemented at Stanford University is Software Based Networking (SDN). This helps programmers, by machine engineering, to monitor and identify networks, which makes it known as advancement in the field of networking. As the central SDN technology, Open Flow (OF) [1] is a modern paradigm of network transfer that distinguishes network access and flow features. Users can monitor the activity of packets on networks in this model by integrating flow inputs into the switches. Switches and routers are implemented in a conventional network data plane and control plane, while SDN decouples those two flights. In an SDN, the control plane monitors the flow tables in the switches by utilizing a modern technique named the Open Flow protocol. The control plane, in this sense, understands the unified control over the whole network. For specialized work, a controller can compute the shortest flow paths and monitor the forwarding actions made by the switches. A device, a virtual machine, or a physical server might be the controller [2].

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A Study on Fly Ash Core Sandwiched Composite Material Flexure Behavior and Compressive Strength

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ABSTRACT

This article's core material is comprised of a woven glass cloth and an epoxy matrix/adhesive component." Three different combinations were used to assess the flexural and compressive strength of epoxy and fly ash sandwiched composites. It's not uncommon to see composites with 65-35 percent fly ash with epoxy resin, 60-40 percent fly ash with resin, and 55-45 percent epoxy resin in use (fly ash and epoxy resin). The 60-40 percent composite specimen performed better than the 60-40 percent metal specimen in flexure and compression tests. This paper presents and discusses the investigation's results.

Some of the parameters used to assess this product are epoxy resin, compressive strength, and flexural strength.

Introduction

When two or more chemically different materials are macroscopically united, they form a functional entity known as a composite. Composite materials may have an interface between two or more separate materials. Composites' electrical, thermal, tribological, and environmental qualities must also be taken into account. Composites may be defined as materials that contain a continuous matrix element binding together and forming an array of stronger, stiffer reinforcing elements. Generally speaking, the fibre or particle phases of composites are stiffer and stronger than their matrix phases. Several types of reinforcement have a lower coefficient of thermal expansion (CTE) than the matrix, as well as high wear resistance. Two thin yet sturdy face sheets sandwich a lightweight, substantial core. The most essential attribute of these materials is their lightweight core, which reduces the sandwich structures that have been widely employed in aviation during the last several decades. There are numerous methods to characterise these materials. The material used to construct a structural sandwich has an impact on the final design. An integrated approach to material selection must be taken into account rather than depending just on geometric design.

As their flat surfaces may bear extraordinarily high compression stress without buckling, glass-fibre skins and eco-cores are often employed in aerospace sandwiches because to their high specific stiffness structures. As a general rule, control surfaces should maintain their smoothness even when exposed to high amounts of stress. Over the course of its service life, the sandwich structure will be subject to stress fluctuations regardless of the applied tensile or compressive force. The face-sheet of the sandwich construction is being tested to see how it responds to various loading situations. The major goal is to fulfil ASTM requirements in order to better understand the mechanical characteristics of glass fibre face sheet with an eco-core sandwich composite.

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A Review on Image Processing

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Abstract:

Image processing is the act of modifying the nature of a picture in order to improve its graphical information for human interpretation or for autonomous machine perception, among other things. Image processing is also known as image enhancement or image enhancement processing. In the electronic domain, image processing using digital technology is a subset of the process in which a digital image is converted into an array of small integers, known as pixels, that represent some physical quantity such as scene radiance, and then stored in digital memory before being processed by a computer or other digital hardware. According to the authors, the interest in digital image processing methods is primarily driven by two primary application areas: the enhancement of pictorial information for human interpretation, as well as processing of image data for storage, transport, and representation in order to enable autonomous machine perception. In image processing, edges are used to discern boundaries, and edge detection is one of the most difficult issues to solve. As a result, it is considered to be a subject of fundamental importance within the area of image processing. In this research, we will take a look at the many techniques that are involved in digital image processing. For example, a non-linear Adaptive median filter implementation with high speed is detailed in depth in the next section. Once the picture has been cleaned up, the Adaptive Median Filter achieves the twin purpose of eliminating impulse noise from the image while also decreasing distortion in the image as a result of clearing away the impulse noise from the image. Images are processed with the help of the Image Processing Toolbox programme, which is a collection of functions that extend the capabilities of the MATLAB numeric computing environment, which is utilised to do so. The toolbox is capable of conducting a wide range of image processing operations on the picture that is now being shown in the window.

Keywords - Image Enhancement, Feature Extraction.

I.INTRODUCTION

Since the creation of the electronic medium, and notably the computer, society has been more dependent on computers for the processing, storage, and transmission of information, and this need is only expanding in the coming decades. Computers have an important part in all elements of current life and civilization, and they are ubiquitous in today's society and daily life. Man becomes increasingly linked to the computer as technology advances, and the computer has emerged as the leader of this contemporary period as a consequence. As a result, the technological revolution has swept the world, with the United States leading the way. That event has signalled the beginning of a new age, one in which humans may go on a trip into an entirely new planet, known as the technological world, to which it has been renamed. Today's society is increasingly reliant on computer vision for many tasks. One of the most essential goals in computer vision is to achieve visual recognition skills that are comparable to those of humans [1, 2, 3]. Numerous researchers have been drawn to the field of face recognition over

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EVALUATION OF DEEP LEARNING METHODS IN TWITTER STATISTICS EMOTION EVALUATION

Erugu Krishna[1],M.Arya Bhanu[2],P.V.Sarath Chand[3],Dr.M.Sreenivasulu[4]

ABSTRACT:*This looks at offers an evaluation of numerous approaches used for measuring emotions in Twitter statistics. Deep learning (DL) techniques in this area have gained traction among academics, who participate on an equal footing to solve a broad range of issues. Two groups of neural networks, CNNs are used to find images, and recurrent neural networks (RNNs), which could be applied in natural language processing (NLP) effectively. Explicitly two forms of neural networks are used for this reason. These photos are used to evaluate and compare CNN ensembles and variations and long-term memory (LSTM) RNN category networks. In addition, we equate the kind phrase embedding structures Word2Vec and the worldwide phrase representation vectors (Glove) with apparel. To test these techniques, we have used knowledge given by the Seminal (Seminal), one of the most well recognized foreign workshops on the web. Various experiments and combos are applied, and the better outcomes for each variant are correlated with their average efficiency. This research contributes to the field of sentiment analysis by evaluating the results, blessings and challenges of these approaches by means of an assessment approach utilizing an unmarried testing system for the same dataset and machine setting.*

KEY WORDS:*Emotion estimation, in-depth learning, neural network convolution, LSTM, phrase embedding models, Twitter statistics.*

INTRODUCTION:

Owing to the boom in the usage of social media in recent years, emotion appraisal has been recognized by a broad variety of human beings with diverse hobbies and motives. When consumers around the world are able to share their opinions on roughly specific subjects relevant to governance, education, travel, subculture, commercial products and issues of well-known concern, extracting information from these documents is becoming a matter of considerable importance. In addition to the details related to visited places, purchasing decisions, etc. for consumers, understanding their feelings as they convey themselves by their communications in various structures has turned out to be valuable information for estimating the perception of people regarding a particular issue.

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Impact of Frequency Control ReserveProvision by Storage Systems on Power System Operation

G.Venkata Subbaiah[1],Mahesh Manuvanna Kumar[2],Beemagani Mahender Goud[3],

Abstract:

Ancillary services, such as main frequency response, may be provided by batteries. However, they have a limited amount of energy. Because of this, it is required to alter the temperature set-points, and the energy for this must be given by power plants that are not constrained by energy. When ancillary service markets enable energy-constrained units to participate, this article examines several elements of and possible advantages for power system stability and operational efficiency.

Key Words: Battery Energy Storage Systems; Ancillary Services; Frequency Control Reserves (BESS).

INTRODUCTION

Production and consumption of electric energy must always be in balance in any electric power system. Automatic control systems that modify the output of certain power facilities to match current demand typically ensure this. Contingencies, such as a plant failure or a line outage, must be accommodated by these control techniques. Power mismatches may cause generators to either accelerate or decelerate, causing the system frequency f to rise or fall depending on the amount of electricity being generated or consumed. When there is a power mismatch, the rate of frequency shift is determined by the inertia of the spinning mass of generators. As long as the power imbalance persists and rotational inertia is not used, the system frequency will diverge until it reaches an uncontrollable point, which will then result in a blackout due to frequency fluctuations.Three layers of control are used in the European electrical transmission system to avoid this. 1) Primary control, a distributed control technique that adjusts power plant output according to the departure from the nominal system frequency and thereby restricts the frequency change in the power plant. Although the divergence from the nominal frequency persists in a steady state, This kind of secondary control utilises a central controller with an incorporated portion to restore frequency to nominal valuers. 3) Manually triggered tertiary control for re-dispatching production to alleviate secondary control as needed. All major electrical networks have similar systems in place, although with distinct nomenclature.

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Incorporating sentiment analysis and deep learning into a knowledge-based recommendation system

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Abstract—*Using online social networks (OSNs), you may get a sense of what people think about a wide range of topics. As a result, applications like monitoring and recommendation systems (RS) may gather and evaluate this information. An emotional health monitoring system is included in the Knowledge-Based Recommendation System (KBRS) described in this study, which may help identify users who may be suffering from depression or stress. According to the monitoring data, the sentiment analysis-based KBRS is triggered to deliver messages that are calming, relaxing, or energising to users who are experiencing mental health issues. In addition, if the monitoring system detects a depressive disturbance, the solution contains a way to notify authorised individuals. A Convolutional Neural Network (CNN) and a Bi-directional Long Short-Term Memory (BLSTM) - Recurrent Neural Networks (RNN) were used to detect depressed and stressed users, respectively, with an accuracy of 0.89 and 0.90, respectively. The experimental findings demonstrate that the suggested KBRS achieved a rating of 94% of extremely pleased users, compared to an RS without the usage of sentiment metrics or ontologies, which achieved a rating of 69%. It has also been shown that the suggested method utilises little memory, processing and energy from existing mobile electronic devices via subjective test findings.*

Index Terms—Deep learning, sentiment analysis, recommendation systems, social media networks, and personalization and modification of knowledge

INTRODUCTION

According to some estimates, there will be 2.95 billion active OSN users by the year 2020 [1], a significant increase in the number of people using these services. The rise in the number of Internet-connected mobile devices, such as smartphones and tablets, is largely to blame for OSN's large user base. Today, OSN are a rich and ubiquitous method of expressing one's thoughts and emotions, and they reflect the poor habits or healthy behaviours of each user. In recent years, numerous applications in the health care informatics business have employed the analysis of messages posted on OSN. For instance, phrases containing words with negative connotations may convey unhappiness, tension, or dissatiisfaction [4], depending on their context. On the other hand, a person's self-confidence and emotional stability can be improved if they are in a positive mood state [5]. If the sentiment intensity value of uploaded words remains low, or if it regularly swings from high to low and vice versa, these facts may suggest some emotional problem, such as depression or stress events [6]. They found that when people were depressed, they wrote shorter sentences than when they weren't depressed [7, 8]. Additionally, these people speak in the first person and have trouble sleeping. Because of this, their actions may be seen in the OSN phrases. As a result of monitoring and analysing particular terms in the sentences, it is possible to identify individuals who are at high risk of committing suicide and to provide an appropriate intervention. In all locations and cultures of the globe, depression is one of the most common mental health conditions [10]. Unfortunately, the prevalence of depression is still underrecognized. Sensors are used in most research on health systems [11–13] to identify mental illnesses.

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Improvements in Steel Truss Structures

Nuvushetti Kranthi Kumar[1],Dr. Krishna Reddy[2],

Abstract-

It's becoming increasingly common for structural analysis and design software programmes that employ the finite element technique to ease complicated calculations by allowing users to input data simply. Rather, it relies only on the data provided, with no consideration given to the project's viability or feasibility at all. Steel is a popular choice for skyscrapers, commercial buildings, and residential complexes because of its strength and capacity to handle larger weight.. It is possible to use structural steel for the roof and ceiling joists to ensure the project's long-term sustainability. Higher levels of protection may be provided by steel-based structures, which can withstand both heavier loads and more powerful winds. Any construction project may benefit from using steel as a building material. You may be able to save money on the project's budget since time is money. With the sound of steel, your door will ring in the not-too distant future. Once you've done your measurements and cutting, you'll save time and work. If anything goes wrong, there's no need to start again. Because of the pace at which steel can be worked, a project's completion date may be accelerated.

This study uses concepts like structural efficiency, steel trusses, and optimization. Remarks to get the ball rollin. In the building of trusses, composite materials have been extensively employed because of their remarkable features and low cost. In civil engineering projects, composite trusses have been used because of their superior strength and performance. When it comes to truss bridge building, the most common materials employed are concrete and steel.

Introduction

All aspects of structural component design, manufacturing, and assembly have been thoroughly researched. Composite trusses, which differ from civil structures in terms of materials, strength, stiffness, and weight, have been studied by engineers since the 18th century [1-3]. It was determined that prestressed cables had an influence on structural composite systems. A number of recent studies have studied the use of prestressed steel cables and concrete compression members in the building of composite space trusses. Composites have been thoroughly studied in terms of their overall performance and features. Both of these statements are true at the same time. More study is required in the design and analysis of composite trusses with pretensioned cables, despite the fact that multiple studies have been published. Background

The most helpful structure has a vague time span. Because certain parts of a building are better than others in terms of quality, this is the case. Unique characteristics, such as weight, feel, and rigidity, are examples of what we refer to as "objectives." Structure quality may be assessed in terms of its weight, value or stiffness if a certain target attribute is chosen. No solution can be found as long as optimization is done within predetermined parameters. First and foremost are design limitations, such as a finite geometrical extension or a lack of access to particular materials.

What make up the building blocks The structure's response to a stressful environment may be seen in the structure's behavioural limits. Pressure and displacement limits, dynamic reactivity, and tensions and tensions might be handled. All constructions must maintain far kinematic equilibrium in order to avoid becoming just mechanical gadgets. Restricting someone's freedom of action is one example of this. Good candidates for implementation are structures that fit inside the parameters of the optimization issue. Motivation

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Alkali-activated Fly Ash-based Mortars for Green Applications in Architecture and Civil Engineering

Dr.T.G.K.Vasista[1],Jella Anil Kumar[2],

Abstract

Waste recycling is a compelling topic worldwide, especially in construction whose development is becoming highly unsustainable. Production and characterization of novel eco-composite alkali-activated mortars are reported. Specimens consist of a geopolymeric binder that uses biomass fly ash from a kraft pulp industry admixed with traditional construction silica sand in various proportions. Mix design is studied to investigate the effects of sand incorporation on mortars characteristics. Moreover, the effects of age and water addiction are analysed. Finally, a sustainable and reproducible manufacture is followed. The performed analyses indicate that the novel mortars can be used as structural material in construction and represent an efficient solution to reduce the environmental footprint associated with waste disposal.

Index Terms—Construction, mortar, geopolymer, waste, sustainability.

INTRODUCTION

Until the industrial revolution, construction was the principal human activity and still today it is one of the most active industrial sectors. As well as all the manufacture processes, also construction is subjected to specific restrictions and requirements that have occurred during time in various forms such as raw materials availability, technological overcoming imposed by obsolete techniques, or specific events. Recently, strict requirements are spreading out: novel market demands, regulations, sustainability issues, etc. [1]. Indeed, people are becoming highly sensitive to environmental and socio-economic issues such as depletion of natural resources, climate change, atmospheric pollution, etc.. One of the historically most common and efficient strategies to improve the constructive system was the selective reuse of disposed materials. Only after the 1973 Oil Crisis, with the accompanying 1973–74 stock market crash, people started to become aware of a real possible depletion of natural resources that, associated with the catastrophic forecasts for the planet "health", has led the public conscience to a more accurate evaluation of the problem [2]-[3]. Finally, from the 1990s, some industrial sectors began to consider a viable and

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A Buck and Boost Grid-Connected PV Inverter that maximises power output from two PV arrays under mismatched environmental conditions is described herein.

G.Venkata Subbaiah[1],Mahesh Manuvanna Kumar[2],Beemagani Mahender Goud[3]

Abstract:

For maximum power extraction from two serially linked subarrays, a single phase grid-connected transformerless photovoltaic (PV) inverter, which may work in either buck or boost mode and can extract the maximum power concurrently from both subarrays, is presented in this study. When employing an inverter that can function in buck or boost mode depending on the application, it is much less limiting to use a minimum number of serially linked solar PV modules to construct a subarray. Because of this, when each subarray is exposed to a new set of environmental factors, the power yield from each subarray grows. For the leakage current associated with PV arrays to stay within a given range of values, the topological configuration of the inverter and its control technique must be such that high-frequency components are not present in the common mode voltage. On top of that, a high level of productivity is maintained during the whole working range. In order to determine whether or not a project is feasible, a detailed study of the system is carried out, leading to the creation of a mathematical model of the system. A 1.5 kW laboratory prototype is needed to show the design's correctness via extensive testing..

Index Terms—Buck and Boost based photovoltaic (PV) inverter, grid connection, maximum power point (MPP), mismatched environmental condition, series connected module, single phase, transformer less.

INTRODUCTION

For solar-electric (PV) array design, one of the most critical issues is making sure that individual PV modules function at their optimum capacity even when exposed to varying external circumstances because of variances in insulation level and/or operating temperature. The output of a solar-electric array is significantly reduced when the operational parameters of the modules are incompatible. Solving the issue of MECs (mismatched environmental conditions) gets more difficult as the number of PV modules in a solar PV array increases. To meet the voltage requirements of an inverter in a grid-connected transformer-less (GCT) PV system, a high number of series-linked modules are necessary. A GCT PV system requires a certain number of series-linked modules, as shown in Figure 1. The MEC substantially reduces the power output of a GCT PV system, such as a single phase GCT (SPGCT) inverter based system produced from H-bridges or a neutral point clamp (NPC) inverter based system. As a result of the MEC in a PV system, a variety of solutions have been proposed in the literature. Each of these strategies is thoroughly examined in this paper, which provides a detailed description.

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Multimodal Medical Image Fusion Simulation Based on Matlab

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Abstract:

It is a prominent research topic in the area of medical image processing to explore medical image registration and fusion technology, which is based on medical image registration. Aside from being able to overcome the limitation of just using a single photo, it properly depicts the medical image information of the patient.more organically, and it provides a plethora of information, such as human anatomy, about the different image settings.Anatomy, physiology, pathology, and other related subjects are all addressed in this course. As a consequence, more detailed image information for clinical applications is provided.an approach to diagnosing and treating that increases the effectiveness and accuracy of diagnosis and therapy in the realm of medicine.in order to make clinical diagnosis and treatment easier to understand Multimedia medical image fusion is a relatively new method that was developed in the 1990s.A system that combines medical image processing and medical image diagnostics into a single package is known as medical image fusion. It's a rather short process.The growth of medical imaging technology and clinical practise is significantly influenced by developments in the field of development.The importance of diagnosis and treatment cannot be overstated. It is described in this study how typical techniques to multimedia medical image fusion might be improved upon.Incorporated into the Matlab environment to carry out simulation studies; this acts as a reference for other simulation investigations.Professionals and non-professionals in related areas are both invited to participate.

1. Introduction

In recent years, the rapid advancement of computer technology, along with the onset of the information age, has led in medical imaging becoming an increasingly significant component of current medical technology. In addition, In part due to the fact that the imaging principles used by different types of imaging equipment are varied, the images generated by different modes have their own individual properties.There are pros and cons to doing business online. When working in this environment, it is critical to make full use of the present imaging equipment to its fullest capacity.Image fusion technology, which can combine visual information from a range of disparate sources, should be investigated.It has long been acknowledged that the capacity to visualise items and represent them as a whole is highly valued by those working in related fields. The objective of this research is to find out more aboutThis section contains an examination of common multimodal medical image fusion methodologies, as well as simulations of real-world medical picture fusion scenarios.For the purpose of conducting the search for professionals in relevant areas, a Matlab environment was employed. A reference has been provided by a member of the staff.as well as fans who are not professionals

2. A strategy for merging multimodal medical images in a single image.

There are three layers to the technique used in medical picture fusion: at the pixel level, at the feature level, and at the decision-making level. AtPixel-level fusion is currently widely used in a variety of applications. At the same time, it acts as a basis for the two fusions that come after it.methods. As the name implies, the major emphasis of

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Emotion Recognition And Drowsiness Detection Using Python

G.Harika [1],B.Venkateswarlu [2],Dr.K.Venkata Ramana[3],Dr.M.Sreenivasulu[4],

Abstract:*The natural expressions of human emotions are those that individuals enjoy making without exerting any conscious effort, and which are followed by the reflexing of face muscles rather than any deliberate effort on the part of the individual. Among the most basic feelings that a human face might express depending on the scenario in which one finds himself or herself are: happiness, grief, surprise and wrath, to mention a few examples: stability, joy, and stability, among others (normality). As part of this work, we present software that detects and recognises faces, as well as providing a wealth of additional information about that individual. This information can be used to solicit feedback from customers, or to determine whether a person requires an incentive to engage in certain behaviours. The ultimate goal of the project is to build a product that is both cost-effective and efficient in terms of operation and maintenance. AI and DIP technologies were employed in the development of the system, which was written in Python and implemented using Artificial Intelligence. When it comes to avoiding an accident or tragedy, the ability to recognise eye blinking is vital in a variety of situations, such as driving or in security vigilance scenarios. The fact that the system also recognises the identification card makes this a fundamental function. As a result of the training provided, the camera that has been installed initially focuses on the card and recognises its form and colour before going on to the next item.*

1. INTRODUCTION

A growing number of people are becoming involved in the fields of artificial intelligence (AI) and digital image processing (DIP) all over the globe. The usage of deep learning-based artificial intelligence (AI) methods and applications is increasing across a broad variety of industries, with many of them relying on deep learning as their foundation. The project might be performed for marketing and improvement purposes, as well as with the objective of creating a completely new item from the ground up. Please let us know if you have any product development projects that we should be aware of that you would want to share with us. Because of this, it is able to offer an accurate and detailed assessment of the implications. While the features of artificial intelligence technologies are simple to implement and understand in the most common systems, they can also be installed in a cost-effective and efficient manner in schools, colleges, and any other area where surveillance is required; however, a lack of funding is the most significant factor causing difficulties in the development of artificial intelligence technologies. Monitoring might be included into the project, which would aid in the maintenance of a regular health check, identification of a person's mental state while at work, and other tasks. This statement may also be used to criticise employees who have made significant contributions to the growth of the organisation in which they work, even after they have been recognised for their efforts.

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MULTI-TRAFFIC SCENE PERCEPTION BASED ON SUPERVISED LEARNING

B.Venkateswarla[1],Dr.M.Bal Raju[2],G.Harika[3],Raju Anthotil[4],

ABSTRACT

Wet days, evenings, rainy seasons, rainy seasons, ice, and days without street lights are all high-risk traffic accident scenarios. The Present Situation The support systems are intended to be employed in ideal weather conditions. Classification is a method for identifying the optical characteristics of more effective vision expansion procedures. Improve computer vision in the most unpleasant way possible Weather contexts, a multi-class weather categorization system, many weather features, and supervision made learning possible. The first step is to extract basic visual properties. When additional traffic images are taken, the function is revealed. The team has eight different dimensions. There were also five supervisors. Instructors are educated in a variety of ways. According to the extracted features, the image accurately portrays the maximum recognition of etymology and classmates, based on the accuracy rate and adaptive skills. The suggested technique of promoting invention through prior vehicle innovation is laid forth here. The night light alters on an ice day, and the view of the driving field expands. Picture feature extraction is the most efficient way for simplifying high-dimensional image data, and it is the most important step in pattern recognition. Because it's tough to extract specific information from the M N 3-dimensional image matrix. As a result, crucial information from the image must be obtained in order to evaluate a multi-traffic scenario.

INTRODUCTION

As a consequence of automotive accidents on the highway, a significant number of lives and properties are lost. The deployment of modern driver assistance systems has the potential to decrease traffic accidents by a substantial amount (ADAS). In the case of extreme weather, a multi-traffic display of the circumstances might be valuable to humanitarian organisations. When it comes to increasing visibility, there are a variety of options available, each of which is based on the situation.This will aid in the acceleration of the implementation of ADAS. Until recently, little attention was devoted to the difficulties that car cameras have while operating in adverse weather. The contrast between images taken on the inside and photographs taken on the outside is distinguished by the intensity of the edges. Concentration curves are utilised to produce four various degrees of fog, which are generated using a neural network. It is necessary to develop a novel way to discriminating between different climates. This collection of towns includes Milford as well as a plethora of smaller communities. View-based mapping and localization are currently being employed in external environments that are constantly changing. Continue to keep a watchful eye out for any significant developments. When using a driving assistance system, it is essential that you maintain control of the car at all times. To address the problem of picture brightness discrepancies, Fu and Al propose a skyline-finding technique that relies on sight in order to fix the situation. There is a wide range in the amount of data that is automatically collected from one system to the next.

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BIG MART SALES USING MACHINE LEARNING WITH DATA ANALYSIS

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ABSTRACT

Machine Learning is a category of algorithms that allows software applications to become more accurate in predicting outcomes without being explicitly programmed. The basic premise of machine learning is to build models and employ algorithms that can receive input data and use statistical analysis to predict an output while updating outputs as new data becomes available. These models can be applied in different areas and trained to match the expectations of management so that accurate steps can be taken to achieve the organization's target. In this paper, the case of Big Mart, a one-stop-shopping-center, has been discussed to predict the sales of different types of items and for understanding the effects of different factors on the items' sales. Taking various aspects of a dataset collected for Big art, and the methodology followed for building a predictive model, results with high levels of accuracy are generated, and these observations can be employed to take decisions to improve sales.

Big Mart is online one stop marketplace where you can buy or sell or advertise your merchandise at low cost. The goal is to make Big Mart the shopping paradise for buyers and the marketing solutions for the sellers. The ultimate goal is to prosper with customers. The project "BIGMART SALES DATASET" aims to build a predictive model and find out the sales of each product at a particular store.

1.1 INTRODUCTION

With the rapid development of global malls and stores chains and the increase in the number of electronic payment customers, the competition among the rival organizations is becoming more serious day by day. Each organization is trying to attract more customers using personalized and short-time offers which makes the prediction of future volume of sales of every item an important asset in the planning and inventory management of every organization, transport service, etc. Due to the cheap availability of computing and storage, it has become possible to use sophisticated machine learning algorithms for this purpose. In this paper, we are providing forecast for the sales data of big mart in a number of big mart stores across various location types which is based on the historical data of sales volume. According to the characteristics of the data, we can use the method of multiple linear regression analysis and random forest to forecast the sales volume

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EXPERIMENTAL STUDY OF LOCAL BEHAVIOR OF STRENGTHENED REINFORCED CONCRETE SHORT CORBEL BY BONDING CARBON FIBER FABRICS

Mutyala Manoj Kumar[1],Dr.B.Arun Kumar[2],

INTRODUCTION

Most of the structures in civil Engineering, after 50 years old, meet the current safety standards or have excessive cracks. Steel corrosion may also cause the occurrence of high deflection or instability of the structure itself. It is generally manifested by poor performance under service loading in the form of excessive deflections or cracking. The introduction about 34 years ago of composite materials in the field of Civil Engineering allows other strengthening orrepair of reinforced concrete structures by bonding composite carbon fiber fabrics (Abdul Wahab, 1989; ACI, 2000; Chris, 2007). Carbon fiber materials have many advantages (Ivanova, 2013): their weight, flexibility, implementation easier and also their physicochemical properties (corrosion) interesting. This technical of strengthening compensate the loss of rigidity and resistance to cracking due to the strengthening and improving performance and durability of structures.Corbel is one important element of structureto support the pre-cast structural system such as pre-cast beam and pre-stressed beam (Anis, 2012 and Rejane, 2005). The corbel is cast monolithic with the column element or wall element. It is interesting to study the local mechanical behavior of this very short element of the structure using carbon fiber materials (Mohammed, 2005; Futtuhi, 1987; Gampione, 2005; Erfan, 2010). This paper is mainly interested in the study of three types of reinforcement: by bonded carbon fiber fabrics, wrapping of carbon fabrics and by bonding plate in shear area, under flexural bending. Local deformation using strain gauges to measure strains in the steel, concrete and carbon fiber sheets of strengthened reinforced concrete short-corbel, is also investigated. In this investigation, deformations, cracking modes and collapse mechanism are studied.

EXPERIMENTAL PROGRAM

This technic for carrying out such improvement was that which involved bonding of steel plates to structure surfaces. An effective way of eliminating the corrosion problem was to replace steel plates with corrosion resistance materials such as fiber composite materials.Many advantages are: low density, corrosion, mechanical properties, good resistance to fatigue and ease of handling. Materials Normal strength concrete materials are rolled gravel dried sand and ordinary Portland cement. The cement:sand:gravel proportions in the concrete mix were 1:1.73:2.93 by weight and the water/cement ratio was 0.50. Portland cement type CEM II was used and the maximum size of the aggregate was 12.5 mm. Four 200 x 200 x 200 mm3 concrete cubic were also cast and are tested when each short corbel is tested to determine the compressive strength of the concrete at 28 days of age. The glue used for the CFC sheet bonding technique are generally two part systems, a resin and a hardener, and when mixed. The elastic modulus and yield stress are presented in Table 1. Steel bars, S500 are used of different diameters: 6, 10, 14 mm. The steel specimens are characterized by simple testing tensile. The stress fu and the modulus of elasticity Es values are in Table 1. The high deformation of this steel at the failure is 11.04%.

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Shear Stress in a Cantilever Beam: Analytical and Numerical Methods for Determination

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Abstract

Shear stresses are measured in a three-meter-long cantilever beam with a focused load at its free end. Three cross sections are addressed in this study: the rectangle (R); the I; and the T. Collingnon's conventional analytical equation and the finite element method (FEM) software are compared in this work to determine the maximum shear stresses. It was necessary to make use of ANSYS and SAP2000. An analytical equation and a computer programme have different conclusions when it comes to maximal shear stresses. There were 12.76 percent and 11.96 percent average discrepancies between ANSYS and SAP2000, regardless of the cross-section used to calculate them. To account for these discrepancies, cross-sectional correction variables were added to the standard analytical formula. Regardless of the cross section form, after rectification, the average discrepancies reduce to 1.48 percent and 4.86 percent.

Finite Element Methods; Analytical Equations; Comparison Analysis; Correction Factor are all terms associated with this paper.

Introduction

Beams have been employed widely in a variety of industries, including architecture, mechanics, chemistry, aerospace, and ocean engineering [1]. For structural purposes, the beam is mainly designed to withstand loads applied laterally to its axis. There are two forces operating on the cross section of a beam when it is sheared or bent: a shear force and a bending moment. Stresses in beam constructions are the subject of many introductory courses in materials and structural mechanics.There is a great deal of complexity in studying beams since the forces and moments may change across the length of a loaded beam. Axial forces and bending moments provide normal stresses in the element, whereas shear forces and torsion moments cause shear stresses [2]. Both forms of stresses are a consequence of internal forces acting on the element's transverse section. The basic analytical equation established by Collignon [3] is often used to calculate shear stresses (). (Equation 1). Prisms of homogeneous material that exhibit linear elastic behaviour and have an internal resultant shear force that is oriented down the axis of the cross-sectional area [2] may be modelled using this equation. Calculating shear stress in this manner is done by using Collignon's formula as well as its shear force (V), as well as its cross-sectional area's neutral axis-relative initial moment of area and moments of inertia, t and I. (Q)

$$r = \frac{V \cdot Q}{I \cdot t}$$

Shear stress was first calculated in the late 19th century by Collingnon. When computer sciences advanced and finite element techniques (FEM) were used in structural analysis, this formula had to be re-examined. It is possible to accurately solve complicated engineering issues using the FEM numerical approach [4]. An FEM model may quickly discover the combination of material attributes or the size of pieces that best suit a structure's needs, depending on specified criteria. Utilizing FEM-based calculations, current design models are able to take into account all of a design's inherent flaws, which are not evaluated when using analytical formulae.Analytical equations and the finite element technique (FEM) are used to evaluate the stresses in a structure. Depending on the approach used, the results may differ. It's important to recognise this variance since it's possible that both techniques will be employed at the same time while designing the same structure.

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A Big Data Mining Approach of PSO-Based BP Neural Network for Financial Risk Management With IoT

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ABSTRACT

In recent years, the technology about IoT (Internet of Things) has been applied into finance domain, and the generated data, such as the real-time data of chattel mortgage supervision with GPS, sensors, network cameras, mobile devices, etc., has been used to improve the capability of financial credit risk management of bank loans. Financial credit risk is by far one of the most significant risks that commercial banks have to face, however, when confronting to the massively growing financial data from multiple sources including Internet, mobile networks or IoT, traditional statistical models and neural network models might not operate fairly or accurately enough for credit risk assessment with those diverse data. Hence, there is a practical need to establish more powerful risk prediction models with artificial intelligence based on big data analytics to predict default behaviors with better accuracy and capacity. In this article, a big data mining approach of Particle Swarm Optimization (PSO) based Backpropagation (BP) neural network is proposed for financial risk management in commercial banks with IoT deployment, which constructs a nonlinear parallel optimizationmodelwithApacheSparkandHadoopHDFStechniquesonthedatasetofon-balancesheetitem and off-balance sheet item. The experiment results indicate that this parallel risk management model has fast convergence rate and powerful predictive capacity, and performs efficiently in screening default behaviors. In the meanwhile, the distributed implementation on big data clusters largely reduces the processing time of model training and testing.

INDEX TERMS

Big data, artificial intelligence, financial risk management, Internet of Things, particle swarm optimization,BPneural network.

INTRODUCTION

With the growing utilization of Internet of Things technology, many IoT-based applications have been developed and deployed in a broad range of fields, such as finance, healthcare, resource management, industry, etc [1]–[3]. For banks and financial organizations, IoT solutions can help them to gain real-time data on their own and their clients' assets, which would lead to more effective evaluation algorithmThe associate editor coordinating the review of this manuscript and approving it for publication was Tie Qiu.of financial risk management [4], [5]. For example, chattel mortgage loans based on traditional financial data and real-time data from IoT equipments like GPS, sensors, network cameras, mobile devices, etc., and relative financial risk evaluation services, have been developed into management standards in many countries like China and South Korea.When confronting to the massively growing financial data with mixing-structured or unstructured formats from multiple sources including Internet, mobile networks or IoT, the risk management and prevention has become more important on research and operation in commercial banks [6]. Before the 1990s, commercial banks mainly evaluate the credit risk of enterprises applying loans based on financial indicator ratios. Commonly used analytical methods are Z-score model, Lgit model, Probit model, etc. In these methods, analytical models are constructed based on various key financial ratios to find out the mapping relationship between financial ration data and credit risk, then the critical value of the financial ratios is obtained according to the occurrences of credit risk so as to decide whether a loan has risks. After the 1990s, many commercial banks use mathematical methods and financial theory to construct statistical models for quantitative analysis of credit risk.

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Vehicle Cloud Computing Resource Allocation Using SMDP

E.Muralidhar Reddy[1],.B.Venateswarlu[2],Dr.T.Sreenivasulu[3],Erugu Krishna[4],

Abstract—*Autonomous vehicle networks are expected to improve traffic flow and safety while also enhancing the driving experience for drivers. As a result, Intelligent Transportation Systems (ITS) cannot fully take use of the existing communication, storage, and computing capabilities of linked vehicles (ITS). Through Vehicular Cloud Computing, cloud computing's advantages may be used to vehicle networks (VCC). We propose an efficient allocation of computing resources to maximise the long-term anticipated reward of the VCC system. When determining the incentive for the VCC system, both income and expenses, as well as fluctuations in resources, are taken into account. An infinite-horizon Semi-Markov Decision Process (SMDP) is utilised to solve the optimization problem, using the provided state space, action space, reward model and distribution of transition probabilities of the VCC system as inputs. The best way to describe what has to be done is to utilise a state-space iteration technique. Numerically, the dramatic improvement in performance may be shown by*

Index Terms—in Vehicular Cloud Computing, Semi Markov Decision Process (SMDP) and resource allocation

INTRODUCTION

Recent attention has been given to vehicle networks by both academics and industry. In order to collect and analyse data, cars are equipped with a wide range of smart sensors and gadgets [1, 2]. There are a variety of wireless technologies available for inter-vehicle networking, as well. V2V and V2I communication paradigms are the two most common forms of vehicle service communication paradigms (V2I) Revisions were made in March and May; the manuscript was approved on June 13, 2015. IEEE is the copyright holder of this work. It is okay to use this content for your own personal purposes. This content may only be used for educational purposes, and permission must be requested by emailing pubs-permission@ieee.org. China's National Key Technology R&D Program, China's National Science Foundation, and the Fundamental Research Funds for Central Universities are among the sources of funding for this research project (No.2014ZD03-02). Beijing University of Posts & Telecommunications, Beijing, China, 100088, is home to the Key Lab of Universal Wireless Communications, which includes Kan Zheng and Hanlin Meng. P.O. Box 141, 57400 Sindos, Thessaloniki, Greece, Alexander TEI of Thessaloniki (ATEITHE) Department of Informatics. Lei Lei works at Beijing Jiaotong University's State Key Laboratory of Rail Traffic Control & Safety, Beijing, China, 100044. At the University of Waterloo in Waterloo, Ontario, Canada's Department of Electrical and Computer Engineering, Xuemin (Sherman) Shen works as a researcher. The 3G1 network of N2L companies [3]. A roadside base station, such as a DSRC or a cellular network, may be used to link automobiles to the Internet through V2I communication [4] [5]. Vehicle networks can significantly improve transportation security, alleviate traffic congestion, and enhance the driving experience by allowing the collection and processing of vehicle-related data [7]. [9] [8] Vehicles equipped with significant processing capabilities should be seen as service providers rather than service consumers, according to the authors [6].

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The MATLAB GUI is used to do wavelet-based analysis of medical image fusion.

A.Venkataramana[1],J.Praveen[2].

Abstarct:

Medical image fusion is a technique for combining two or more medical images into a single image that contains information from both of the recorded medical images. It is used in the field of imaging to treat patients. It is used in medical imaging to increase the accuracy of the images. The majority of the time, this strategy is employed in the diagnosis of disorders. In the field of medical imaging, MRI and CT scans are often used as source images. Medical image fusion is implemented using the Discrete Wavelet Transform (DWT), which is a discrete wavelet transform. This study analyses the use of numerous fusion algorithms to medical images that make use of wavelets such as db, coif, sym, dmey, bior, rbio, and haar, among other types of wavelets. These fusion procedures are assessed based on a number of performance criteria such as entropy, standard deviation, PSNR, NAE, and RMSE in order to identify which method is the most successful in terms of fusion efficiency.

KEYWORDS:Imagefusion,DWT, PSNR, NAE, RMSE, IDWT,CT,MRI,Entropy, Fusion rules, GUI.

I. INTRODUCTION

A technique known as image fusion is the process of combining information from many photographs into a single image that combines elements of information from each of the various photos [1. Pictures from numerous photos are merged into a single image that has the information from each of the multiple images. Image fusion is a process in which the information from many images is combined into a single image that contains the information from each of the multiple images. As a consequence, the final image should include far more information than the original images. Through the extraction of important information from the source picture, the image fusion technique reduces redundancy and uncertainty [2], and hence improves accuracy. Prior to image fusion, it is vital to undertake proper alignment of the images in order to produce a fused image that is more clearly viewed [3].

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DUAL AXIS SOLAR TRACKER

A.Vaani[1],P.Jyoti[2],

ABSTRACT

Abstract- As population is increasing globally; we are very concerned for Electricity. There are various ways of electricity generation like Hydro power plant, Nuclear power plant, Windmill plants and also Solar power plants. The former two are Non Renewable source of energy; hence we cannot depend only on such technology. Also Harnessing Energy from Hydro and Nuclear is equally difficult. The latter two are Renewable source of Energy; nowadays we have lots of power plants established on Solar and Wind Technology. Our project aims at Dual axis or Dual direction tracker. The Solar panel usedin this system can adjust its direction both in X-Y co-ordinates. This helps better directivity with Sun rays, thus increasing the efficiency of the solar system.

Keywords- ***Dual Axis, Stepper Motor, LDR Sensors, Declination Angle***

INTRODUCTION

Electrical energy from solar panels is derived by converting energy from the sun rays into electrical current. The main challenge is to maximize the capture of the sun rays upon the solar panels, which in turn maximizes the output of electricity. There are two possible ways to enhance output power from solar energy based systems. Either one can use an efficient material in the manufacturing ofthe photo voltaic cell or use a solar tracker to follow the sun.Why is it practically possible to install solar panel in India? The Earth is an obligated sphere, meaning that it is a sphere that is flattened at the poles and bulges around the equator. For solar power calculations it is sufficient to consider the Earth as a simple sphere with a diameter of approximately 12800km.Points on the Earths surface are defined in terms of longitude and latitude.The Earth rotates around its axis every 24 hours and orbits the sun every 365.25 days (Approximately).The axis of rotation is tilted at an angle of 23.45Â° with respect to the plane of the orbit around the Sun. The axis is orientated so that it always points towards the Pole Star .This accounts for the seasons and changes in the length of day throughout the year. The angle between a linejoining the centers of the Sun and the Earth and the equatorial plane is called the declination angle (). Because the axis of the Earths rotation is always pointing to the Pole Star the declination angle changes as the Earth orbits the Sun [3].India lies in the Tropic of cancer region .This makes it practically possible for implementing solar panel in our country compared to the countries located beyond23.45Â°.The dual-axis solar tracker tracks the angular height position of the sun in addition to following the suns east- west movement. The dual-axis works similar to single axis but it captures the solar energy more effectively by rotating its axis along vertical and horizontal axis [1]

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TIE INTERGRATION FOR EFFICIENT POWER MANAGEMENT BASED ON SOLAR.

Budida Harikanth[1],B.Raju[2],Saidulu Valampatla[3],

Abstract:

Today, solar energy is being used to power a diverse variety of commercial applications, including solar water heaters and pumps, as well as stand-alone solar-powered homes and buildings. Solar cells, which capture the massive quantity of energy emitted by the Sun, have the potential to be used to create electrical power. As a result, the demand for power in our country has hit an all-time high and is projected to continue to increase in the coming days. This project is mainly concerned with the conversion of excess solar energy into usable electricity in order to ease the issue of power shortage in the country in question. It is possible to convert solar energy into electricity and then connect it to the power grid in order to solve the issue of power shortage. It is possible to generate direct current voltage by using solar cells to gather solar energy, which is then utilised to generate direct current voltage. In order to convert this direct current voltage into alternating current voltage, an IGBT-based three phase six pulse inverter will be used. Filters are used to remove the higher order harmonics that are present in the output signal of the signal inverter, which might cause interference. With the help of a Phase Locked Loop (PLL) base control system, it is possible to sync the filtered alternating current voltage with the power grid power grid.

Keywords— Solar cells, Grid, Dc chopper, Phase Locked Loop.

INTRODUCTION

For this reason, and due to the fact that solar energy is such an important source of renewable energy, it is separated into two categories of technologies, which are distinguished by the manner in which they absorb, distribute, or convert solar energy into electricity. Although both passive and active solar technologies gather and distribute sunlight, active solar technologies transform the energy absorbed by the sun into electrical current. In the case of solar energy, active solar technologies such as photovoltaic systems, concentrated solar power, and solar water are examples of renewable sources of energy. Most of the energy generated on the globe is derived from solar energy, which is available in many forms. Passive solar architecture entails orienting a building toward the Sun, selecting materials with adequate thermal mass or light dispersion properties, and designing areas that circulate air in the surrounding environment to reduce energy use.In the solar energy conversion field, photovoltaic (PV) devices are solar energy conversion devices that directly convert incoming solar radiation into electricity. In addition to completing this technique without causing any noise or pollution, it also makes them robust, trustworthy, and long-lasting in nature. Energy harvesting using photovoltaic (PV) technology is a simple and elegant method of capturing sunlight's radiant energy.B. Grid Tie Systems (also known as grid tie systems) (also known as grid tie systems)

A grid-connected power system is a solar photovoltaic (PV) system that is connected to a utility grid and generates energy for the grid. All of the components of a grid-connected system are included: the solar panel, the power conditioning unit, electronic converters, and a grid synchronizer, among others.

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Facts about Flexible AC Transmission Systems (FACTS) Controllers: Practical Installations and Benefits

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ABSTRACT

As a result of FACTS controllers' actual installations, advantages and utility applications, this paper provides a wide range of information. Detailed details on the development of these devices and the first utility installation/demonstration of FACTS devices are provided. Then, a thorough list of important FACTS installations across the globe is shown. Additionally, the article examines how these gadgets might benefit the user and how much they will cost. Various FACTS devices may be used in a deregulated market, according to the report. The FACTS controllers are likewise the subject of discussion. Advanced FACTS controllers have higher losses than their traditional counterparts, and thus must be taken into consideration when designing future power systems. FACTS controller examples and analysis are provided for each major controller in the study.

INTRODUCTION

Static limits and dynamic limits are two classifications for the limitations of the AC transmission system [1-3]. As a result of these built-in restrictions, transmission resources aren't being used to their full potential. Many of the issues were traditionally addressed using fixed or mechanically switched shunt and series capacitors, reactors, and synchronous generators. However, there are limitations on how these traditional gadgets may be used. Efforts to meet expectations were unsuccessful. Mechanical component wear and reaction time were the root causes of the issues. Solid state devices with quick reaction capabilities were in growing demand as an alternative technology. Overhead transmission line building permits and right-of-way were difficult to get because of the global reorganisation of electric companies, increased environmental and efficiency rules, and the difficulty of obtaining these permits and rights of way [4]. Since then, a new class of power electronics devices called as Flexible AC Transmission Systems (FACTS) controllers has emerged thanks to the discovery of the Thyristor switch (a semiconductor device). As high-power semiconductor devices advanced quickly [1-3], they enabled the transition from traditional Thyristor-based FACTS controllers to the current, ultramodern versions based on voltage source converters. Controllers of FACTS havesince the 1970s, when the first utility demonstration of the first FACTS family, the Static Var Compensator (SVC), was completed, has been used in utilities across the globe. A lot of time and energy has been devoted to the study and creation of FACTS controllers since then.

HISTORY OF DEVELOPMENT AND STATUS STATIC VAR COMPENSATOR

The Static Var Compensator is a rudimentary FACTS controller from the first generation. The Electric Power Research Institute (EPRI) first introduced this technology to the market almost a quarter of a century ago. With this compensator, you may dynamically compensate for shunt effects by manipulating the reactor and/or the shunt capacitor bank through a fast-thyristor switch. A total of more than 800 SVCs have been deployed across the globe, in utility and industrial settings (most notably in electric arc furnace and rolling mills). Since its inception, SVCs have been used by utilities in undeveloped nations as well. Despite being a pioneer in the deployment of SVC, ABB only provided 55% of the total installations, with 13% of those installations taking place in the Asia-Pacific region. In 1974, General Electric (GE) established the world's first demonstration of SVC for utility use and marketed it [1].

Voltage control got more challenging in the UK after deregulation in 1990.

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Thermal analysis of cantilever beam

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Abstract—

This study focuses on the structural and modal analysis of carbon steel members subjected to heat loading. Calculations for both the cantilever and the fixed-end components are performed. For members with various cross sections but a same cross section area, deflection and stress were studied. A lack of mechanical forces may lead to heat stresses and deformations in structural components. Temperature variations may have an effect on mechanical components. These findings provide light on how temperature changes affect structure.. The material expands as the temperature rises, which may have an impact on its structural integrity. It's possible that you'll create hazardous designs if you don't consider the implications of constrained parameters. This has a substantial influence on the structural performance of structures exposed to high temperatures. The investigation's primary objective is to measure the deflection and stress in the beam. Analyses are done by using ANSYS, which is followed by real-world testing. ANSYS is used to explore how the structure's mode shape and frequency change as the temperature increases.

INTRODUCTION

Deflection, Mode, Mode shape, and Modal analysis are all included in the index. The expansion of a material due to thermal stress is called thermal expansion.

Temperature variations have an impact on almost all mechanical components. Components expand and contract as a result of temperature changes. Thermal stresses are caused by the restriction of the member's expansion. Temperatures over a certain threshold weaken the structure's elasticity and stiffness. Studying how various sorts of restrictions affect a member's response to temperature and mechanical stresses has helped researchers better understand mechanical structure behaviour. Mechanical and thermal stress are applied to a component, and the results are analysed. It was shown that mechanically loaded members with varying restraining support conditions (ASME SA36) were affected by heat loading [9]. Cantilever and supported beams with a point load under thermal loading are studied in this study. When the temperature changes, researchers examine how a loaded beam deflections and slopes in response.

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DETECTION OF EYE DISEASES(GLAUCOMA & ARMD)

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ABSTRACT

As population aging has become a major demographic trend around the world ,patients suffering from eye diseases , such as Glaucoma, ARMD are expected to increase. Early detection and appropriate treatment of eye diseases are of great significance to prevent vision loss and promote living quality. Conventional diagnosis methods are tremendously dependent on physicians, professional experience and knowledge, which lead to high misdiagnosis rate and huge waste of medical data.

In this project, a deep learning model based method which is inspired by the diagnostic process of human ophthalmologists is proposed to automatically classify the fundus photographs into 2 types with or without ARMD categories also, with Or without Glaucoma. The project consists of two different neural network models developed to recognize the diseases, Glaucoma and ARMD.Better accuracy is obtained as we use deep learning. This project will be an aid to eye specialists in giving an efficient treatment. Eyesight is one of the most important senses, the developed project can help people all over to maintain eye care.

This project uses Kaggle Glaucoma and ARMD datasets. This model predicts Glaucoma with 90% accuracy and ARMD with more than 70% accuracy.

1. INTRODUCTION

The rising prevalence of age-related eye diseases, particularly age-related macular degeneration, places an ever-increasing burden on health care providers. As new treatments emerge, it is necessary to develop methods for reliably assessing patients' disease status and stratifying risk of progression. The presence of drusen in the retina represents a key early feature in which size, number, and morphology are thought to correlate significantly with the risk of progression to sight-threatening age-related macular degeneration. The damage of optic nerve which is especially responsible for the proper eyesight, if damaged causes Glaucoma. Glaucoma is not only caused for elderly people, but also can affect people of any age. Manual labeling of drusen or any damage in the eye, on color fundus photographs by a human is labor intensive and is where automatic computerized detection would appreciably aid patient care.

This project aims to develop appropriate algorithm to detect these diseases. The retinal or fundus images of eye, are processed to recognize any symptoms of diseases, such as Glaucoma, ARMD(Age-related macular degeneration).

Based on the symptoms, the disease is identified, if any. This project will be an aid to eye specialists in giving an efficient treatment. Eyesight is one of the most important senses, the developed project can help people all over to maintain eye care.

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Variable methods of data acquisition are used to study the electrical and magnetic properties of high temperature superconductors

Ch. Vijaya Babu,Dr. SanjeevKumar

Abstract:

Mercury's superconductivity was discovered in 1911 by physicist Heike Kamerlingh Onnes. 1 The absence of electrical resistance below a certain threshold temperature characterises superconductivity. A current of electricitya superconducting wire loop may last endlessly without any external power.source.Magnetic characteristics of superconductors are very intriguing. The Meissner Methodin 1933 Meissner and Ochsenfeld2 discovered the ejection effect.when the superconductor is cooled below the superconductor's magnetic fieldTemperature at which a person's body can no longer There is no electricity beyond this point.The superconductor's surface generates resistance and electrical currents.As a means of shielding the superconducting material a metal object with an attractive forcea superconductor's surface electrical currents allow it to hover above it.oppose the magnet's magnetic field by generating a magnetic field of my ownFigure 1 depicts the two main kinds of superconductors currently in use

1. Introduction

today. Idiopathic Spontaneous Hyperthermnormal and Meissner phases are seen in superconductors.The superconductor's magnetic field is totally discharged. The second kindThe normal and Meissner phases are also present in superconductors. Nonetheless,magnetic fields and temperatures are in a condition of muddled equilibrium.Vortices (normal cores) are formed by the magnetic field as it penetrates the material.A superconducting current field is around it.

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Effect of Aero Disc on Drag and Heat Flux on Supersonic Vehicle Using Computational Method

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Abstract

A forward facing aero-spike attached to a blunt body of a missile and re-entry model changes its flow field and has the potential in drag reduction and wall heat flux. An aero-spike replaces the strong bow shock wave into weaker oblique shock waves and reduces the dynamic pressure in the recirculation region which created upstream of blunt body. In this paper, a blunt body re-entry model represented by hemisphere cylinder placed axis-symmetrically with an aero-disk aero-spike at the stagnation point of blunt body was numerically simulated for different shapes of spikes. The spike consist of 4mm diameter with different aero-disk (hemispherical, flat, flat triangular and inverted flat triangular disk) of varying positions of inner disc(0.2L,0.4L,0.6L and 0.8L) which were numerically simulated. The scaled down geometry has hemisphere cylinder of Diameter (D) 40mm, an overall length 50mm.Numerical simulation has been carried out for single and double aero-disk spike by varying the aero-disk positions.

1. INTRODUCTION

In today's advanced world, time is everything. Space travelers travelling deep into space face biggest challenge of high aero thermal environment. Most Hypersonic vehicles are made to overcome time. Hypersonic vehicles are those man-made devices which move five times more than the speed of sound (Mach number>5). These kinds of aircrafts are generally used in Defense or space related projects in vehicles like missiles, space shuttle and aero planes. Among the variety of design requirements, reducing the drag and aero heating on hypersonic vehicles is the most crucial one. Drag is an aerodynamic force that opposes aircraft motion through air. Unfortunately these two objectives are often conflicting. On one hand, sharp slender fore-bodies design reduces the drag and ensures longer ranges and more economic flights. However, they are more vulnerable to aerodynamic heating which can cause the melting of nose cone. Most of the sensors like accelerometer, balance sensor, payload, communication system and GPS are placed at the front of the vehicle means very near to the nose point. These sensors can melt because of high temperature of nose during flight.

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ADAPTIVE RATES FOR DEEP NETWORK OPTIMIZATION

P.V.Sarath Chand[1],Dr.M.Bal Raju[2],Dr.T.Sreenivasulu[3],B.Venkateswarlu[4]

Abstract: - *Profound learning structures are turning out to be more confounded, bringing about weeks, if not months, of tutoring time. This drowsy schooling is brought about by "evaporating inclinations," in which the angles utilized by engendering are gigantic for loads interfacing profound (layers close to the yield layer) and little for loads associating shallow (layers close to the information layer), bringing about sluggish learning inside the shallow layers. Besides, low arch seat factors have been displayed to create during non-raised illnesses, like profound neural organizations, which essentially eases back learning [1]. In this paper, we present an advancement technique for profound neural organization training that plans to tackle the two issues referenced above by utilizing study costs that are explicit to each layer in the organization and versatile to the ebb and flow of the element, permitting us to foster burden information at low curve components. This empowers us to learn quicker in the organization's shallow layers and break out extreme mistakes of low shape saddle parts in a short measure of time. We utilize our procedure to huge picture gloriousness datasets like as MNIST, CIFAR10, and Image Net, and exhibit that it further develops exactness while diminishing the measure of time required for preparing over immense strategies.*

I. INTRODUCTION

Profound neural organizations have demonstrated to be exceptionally effective lately, accomplishing cutting edge results on a scope of errands, for example, picture grouping [2], face acknowledgment [3], feeling investigation [4], voice acknowledgment [5], etc. A typical inclination can be found in these articles: as the measure of preparing information increments, so does the intricacy of the profound organization engineering. Notwithstanding, even with superior equipment, preparing progressively complex profound organizations might require weeks or months. Therefore, more remarkable techniques are needed for preparing profound organizations.

Profound neural organizations learn significant level qualities by executing a progression of non-direct activities. Leave An alone a preparation informational index with n information focuses a1, a2, and x Mr, just as related marks B = bi n i=1. Expect that f is the initiation job of a 3-layer organization. Allow X1 and X2 to address the loads we're attempting to learn on the - line, i.e., X1 connotes the loads between the first and second layer hubs, and X2 implies the loads between the second and third layer hubs. For this model, the learning issue might be expressed as the accompanying streamlining issue:

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Designing of Circular Micro-Strip Patch Antenna by WI-MAX

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ABSTRACT: *Micro strip antennas have become very popular in the fields of cell and cell communications, following RFID programs with the appearance of various simulation devices. Novice MSA prototypes are being practiced in considered one-of-a-kind patch configurations, thought at known microwave frequencies of interest regarding exceptional substrate or high-quality strate mixtures. The overall efficiency patterns of the 3.5 GHz round patch micro strip reported antenna suitable for Wi MAX packages are investigated in this research.*

Antenna, Microstrip, Mobile, and so forth.

1. INTRODUCTION

In propagation, the antenna acts as a transducer by converting electric power currents to em-waves, and when a sign is acquired, the antenna works as a transducer by converting em-waves to electric currents. Antennas are very important in the function of contact. Antenna types include the parabolic reflector, patch antenna, slot antenna, folded dipole antenna, and others. Each antenna type is suitable for its intended purpose and location.

There are several various kinds of antennas in use these days, including the spherical micro strip patch antenna. CMP A is made up of a circular shape that radiates information on one portion of the substrate with an amazing aspect of the floor plane. CMPA has been fed with a rich resource of methods such as feeding elements and feeding coaxial probe. CMPA has been developed to utilize Rogers RT/duroid5880 (r= 2.2, h= 1.588 mm), Rogers RT/duroid5880 (r= 2.2, h= 2.87 mm), and FR4 epoxy substrates (r= 4.4, h= 2.87 mm) independently for each feeding method. The round patch antenna cavity model is evaluated in text books[1-4], and Anders G. Derneryd[2] backs it up. At 10 GHz, Manoj singh et al[6] used a substratum material with a relative permittivity (r) of 3.02 and a thickness (h) of 0.762 mm in a micro strip line feed (place feed) spherical patch antenna design. The constructed antenna has a crossover absence of -24 dB (measured) at 10 GHz. The antenna recorded a return deficit of -29.29 dB at 10.022 GHz after being designed and simulated using an HFSS method using comparable measurements, as stated in the literature[6]. F.A bound et al[8] presented a hole position model assessment of the circular patch antenna supplied by coaxial probe method, CMPA resonant frequencies found utilizing substrate material with.65 relative permittivity and 1.5875 mm thickness, and remarkable radius values. DebatoshGuha[9] reported theoretical and experimental values of CMPA resonant frequencies (supplied by probe feed) using a substrate material with a relative permittivity of.65 and a thickness of one.5875 mm with remarkable radius values.

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A Comparative Study on HSV-based and Deep Learning-based Object Detection Algorithms for Pedestrian Traffic Light Signal Recognition

Erugu Krishna[1],M.Arya Bhanu[2],Dr.M.Sreenivasulu[3],Dr.Palla Karunakar Reddy[4]

Abstract*—Small object detection has been a challenge in many image analysis applications. One such application is the ability to detect the status of Pedestrian Traffic Light (PTL) signal to allow decisions to be made by an intelligent system. The challenge is becoming more complex due to the increased complexity of urban environment, where objects of close similarity would confuse the detection mechanism. In this research, a study is carried out to compare two methods for the detection of small objects within large-sized images. The first method is a classical color-based segmentation approach while the second uses an intricate Deep Learning (DL) object detection algorithm. In the classical approach, objects within the selected range of Hue, Saturation and Value (HSV) composition are identified and extracted from the large-sized images. For DL approach, a Mask R-CNN was used where traffic light-like objects are identified by object instance segmentation process. From this research, it is shown that a two-tier approach, a hybrid HSV-DL model can detect the PTL signal directly and accurately from large-sized images in real-time on smart devices at an accuracy of 92.75%.

***Keywords*-deep learning, mask R-CNN, image segmentation, object detection, object classification**

INTRODUCTION

Deep Learning, a subset of Machine Learning, within the field of artificial intelligence has been developed at an unprecedented rate. Complex tasks such as recognition and detection of objects are now achievable to a large extent due to the revolution of deep learning: neural networks that rely on automatic feature extraction through convolutional layers. The applications of this field extend from classifying different types of animals [1, 2] to autonomous vehicles [3, 4] as well as diagnosing stages of cancer [5].

However, despite the high success rate of the abovementioned applications as well as the progress of the deep learning field, the detection of small objects within a largesized image ranging from 4,096×3,072 pixels to 7,680×4,320 pixels in ultra-high-definition frame remains a challenge. One such example is the accurate detection and classification of pedestrian traffic light (PTL) signals. A typical 2D colored image consists of three channels – Red, Green and Blue (RGB), made up of pixels that range from 0 to 255 within each channel. These pixels make up the input layer of deep learning neural networks where with each progressing layer, it goes through feature extractions and non-linearity functions. The images are usually normalized and resized to a smaller dimension such as 300x300 pixels [SSD model] or 1,024x1,024 pixels [Faster R-CNN or R-FCN]. In the case of pedestrian traffic light signals which are relatively small objects, it may become unrecognizable if the source image is overly compressed, making the detection of PTL signal a near impossible task. In addition, the existence of objects similar to the shape or form and colors of PTL further complicate the detection process.

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Comparison of the Performance of MacroPolymeric Fibers and Steel Fibers in Controlling Drying Shrinkage Cracks of Concrete

Dr.G.V.Madhava Rao[1],Mangalagiri Santhosh Kumar[2]

Abstract

When concrete element is exposed to the environment, it undergoes volumetric contraction due to the drying shrinkage, which when restrained can lead to cracking. Crack width is controlled by the ability of fibers in transmission of stress across the crack opening. In this study the effect of Macro polymeric fibers in controlling drying shrinkage cracking of concrete was investigated and compared with that of steel fibers. The results of restrained ring tests show that at low and medium rate of utilization (0.25 and 0.5%) the effect of macro synthetic fibers are similar to steel fibers. However, at a higher dosage of 1%, steel fibers clearly outperform the polymeric fibers. The shape of macro polymeric fibers (multi-strand or singlestrand) was not found to significantly affect their performance

Index Terms—concrete, drying shrinkage, macro polymeric fiber, steel fiber, restrained ring

INTRODUCTION

Concrete is the most widely used material in civil engineering due to its numerous technical and economical benefits however, concrete also has shortcomings which have to be considered in its application. Upon exposure to environment, it undergoes volumetric contraction due to the drying shrinkage, which when restrained can lead to cracking [1, 2, 3]. Drying shrinkage cracking control is an important factor for concrete structures such as slab on the ground. Concrete slabs include industrial floors, pavement and so on [4, 5, 6, 7]. Contraction joints have to be provided spacing of, which depends on concrete shrinkage, slab thickness and ground restraint degree. With the use of reinforcement such as steel mesh, the spacing of joints can be increased [6, 8]. By development of fiber concrete technology, it is now possible to replace the mesh with the fibers and achieve benefits such as avoiding mesh placement operations and increased construction speed. This has attracted the designers and particularly contractors to consider the use of fibers.

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FBI CRIME DATA ANALYSIS USING MACHINE LEARNING

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ABSTRACT

Crime is one of the biggest and dominating problem in our society and its prevention is an important task. Daily there are huge numbers of crimes committed frequently. This requires keeping track of all the crimes and maintaining a database for same which may be used for future reference. The current problem faced are maintaining of proper dataset of crime and analyzing this data to help in predicting and solving crimes in future. The objective of this project is to analyze dataset which consist of numerous crimes and predicting the type of crime which may happen in future depending upon various conditions. In this project, we will be using the technique of machine learning and data science for crime prediction of Chicago crime data set. For this supervised classification problem, Decision Tree, Gaussian Naive Bayes, k-NN, Logistic Regression. This approach involves predicting crimes classifying, pattern detection and visualization with effective tools and technologies. Use of past crime data trends helps us to correlate factors which might help understanding the future scope of crimes. In this work, various visualizing techniques and machine learning algorithms are adopted for predicting the crime distribution over an area. In the first step, the raw datasets were processed and visualized based on the need.

Keywords: crime analysis, prediction analysis, machine learning, decision trees, pattern detection.

INTRODUCTION

1.1 Introduction Of FBI Crime Data Analysis

Crimes are the significant threat to the humankind. There are many crimes that happens regular interval of time. Perhaps it is increasing and spreading at a fast and vast rate. Crimes happen from small village, town to big cities. Crimes are of different type – robbery, murder, rape, assault, battery, false imprisonment, kidnapping, homicide. Since crimes are increasing there is a need to solve the cases in a much faster way. The crime activities have been increased at a faster rate and it is the responsibility of police department to control and reduce the crime activities. Crime prediction and criminal identification are the major problems to the police department as there are tremendous amount of crime data that exist. There is a need of technology through which the case solving could be faster. The objective would be to train a model for prediction. The training would be done using the training data set which will be validated using the test dataset. Building the model will be done using better algorithm depending upon the accuracy. The K-Nearest Neighbor (KNN) classification and other algorithm will be used for crime prediction. Visualization of dataset is done to analyze the crimes which may have occurred in the country.

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GRID CONNECTED SOLAR PHOTOVOLTAIC USING ANFISWITH BATTERY STORAGE, FUEL CELL INTEGRATION FOR POWER CONDITIONING

B.Raju[1],R.Shankar.[2],M.Venkateshwar Rao[3],B.Raju[4],

Abstract: Global energy demand is accelerating daily which is resulting very hugeenergy crisis and environmental pollution has to make focus to move towards integrating renewable energy sources like solar photovoltaic (SPV), wind, fuel, etc. SPV is intermittently overcome by Battery Energy Storage System (BESS) along with fuel cell. The hybrid generation with DC-link is integrated with the SPV, Fuel cell, and battery energy storage system to maintainconstant DC link voltage. To capture maximum available solar power using an adaptive Neuro-fuzzy information system (ANFIS) based maximum power point tracking technique (MPPT). Battery Energy Storage System which is activated based on the state of charge. PI controller monitors the state of charge through a bidirectional converter. DC link is integrated with the grid through a Three-phase voltage source converter. A three-phase voltage source converter adaptive Neuro-fuzzy information system (ANFIS) is used to control volatile changes in grid parameters rising by its variable demand. Grid synchronization can be achieved when dynamics variation of load. MATLAB/Simulink software simulated under different dynamic variations in load and volatile changes in a grid linkedto the hybrid system under different supply conditions.

Keywords: Solar photovoltaic (PV), Voltage Source Converter, Battery energy storage system, Fuel cell, Power conditioning

I. INTRODUCTION

Future substantial growth and unexpected challenges in energy production, transmission, and utilization technologies are to be witnessed. Awareness of people about the pollution due to the usage of fossil fuel for energy production and initiatives by many countries to scale back environmental pollution has increased the use of green energy sources for power generation [1]. Despite this, India faces a 929MW shortage in order to meet the power demand. The discovery of renewable energy sources such as solar, wind, and tidal power, could reduce the problem. The intermittent nature of the solar photovoltaic system is overcome by adding more renewable energy sources. A hybrid generation is one that draws its power from a combination of two or more different power sources. The behaviour of the PV module is nonlinear in nature and hence exhibits nonlinear PV curves. There exists only a unique point of maximum power in each PV curve, which needs special techniques called maximum power point tracking (MPPT) techniques to track it. Therefore, MPPT can be used to increase the system efficiency by fully utilizing the PV modules. Artificial intelligence-based techniques such as the fuzzy logic controller (FLC), artificial neural networks (ANNs), and adaptive neuro-fuzzy inference systems (ANFIS) can be used as a controller to extract the maximum power that the PV modules are capable of producing under changing weather conditions. This is because they have advantages such as they are robust, relatively simple to design, and they do not require the knowledge of an exact model [2, 3]. The intermittent solar power has extracted the usage of unique kinds of MPPT The conventional MPPT is tracking the most power from the SPV and these techniques are green however gradual in convergence, constantly oscillating the electricity. These drawbacks are averted using a smart controller for tracking the maximum power from the SPV. The sensible strategies are nicely monitored and it is used for solving nonlinearity. The SPV modeling, solar irradiance, and temperature are relatively nonlinear and dynamic in nature. The fuzzy logic controllers (FLC), particle swarm optimization (PSO) based MPPT strategies are used for extracting the smoothening strength [6-7].

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Modified Z-source Integrated PV/Grid/EV DC Charger/Inverter Modeling, Design, Control, and Implementation

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Abstract— *Sun based Energy has been the most well known wellsprings of sustainable power source for private and semi business applications. Vacillations of sunlight based vitality gathered because of climatic conditions can be moderated through vitality stockpiling frameworks. Sun oriented vitality can likewise be utilized to charge electric vehicle batteries to lessen the reliance on the network. One of the prerequisites for a converter for such applications is to have a decreased number of changes organizes and give seclusion. Z-source inverter (ZSI) topology can expel various stages and accomplish voltage lift and DC-AC power transformation in a solitary stage. The utilization of latent parts additionally exhibits a chance to coordinate vitality stockpiling frameworks (ESS) into them. This paper presents demonstrating, plan and activity of an altered Z-source inverter (MZSI) incorporated with a split essential secluded battery charger for DC charging of electric vehicles (EV) batteries. Reenactment and exploratory outcomes have been displayed for the evidence of idea of the activity of the proposed converter.*

Index Terms—quasi-Zsource inverter (qZSI); Z-source-inverters; Active filter; energy storage; photovoltaic (PV) power generation; single-phase systems; transportation electrification; Solar energy; distributed power generation, inverter.

I. INTRODUCTION

Charging of electric vehicles at present heavily involve the use AC grid. The various methods of charging exclusivey use AC grid, such as wireless charging or plug-in charging can still cause pollution irrespective of how highly efficient the topology is. The amount of fossil fuels that are consumed to generate the energy to charge an electric vehicle gives a clearer picture of the carbon footprint that is left behind while charging an electric vehicle. To achieve lower carbon footprints, one of the ways is to integrated renewable energy sources into a charging infrastructure to reduce the dependency on the AC grid. A major requirement for designing an EV battery charger isthe use of isolation transformers in the converter topologies, to provide galvanic isolation at the user end from the rest of the high voltage (HV) system as a safety measure [1]. The galvanic isolation can be provided either on the AC grid side or on the charger side. The size of the isolation transformer on the grid side is usually much larger than the one on the charger side [2]. Due to the improvement in semiconductor technology, high frequency switching facilitates the use of smaller size transformers for galvanic isolation. Photovoltaic grid interconnected systems have been used in the past for commercial charging infrastructure [3]. These systems reduce the dependency of the charging infrastructure on the AC grid. The use of solar and grid interconnected system is an attractive solution for residential charging systems for EVs. For systems upto 10 kW, single phase inverters can be used for residential applications [4][5]. For interconnection of the residential solar PV to the grid, various isolated and non isolated topologies are available with multiple stages [4]- [6]. Residential photovoltaic systems for EV charging require features such as isolation and voltage boost capability to match the solar PV array voltage to the grid voltage requirements. The ZSI topology was first introduced in [7]. It has an ability to buck or boost and invert the input DC voltage in a single stage.

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According to this study, an efficient and low-power architecture for fuzzy picture merging has been studied.

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ABSTRACT

When it comes to image fusion, the wavelet transform is the most generally used method. It combines the information included in the source photos' information in the wavelet domain according to a set of fusion rules, and it is the most widely used method. It is, however, difficult to develop a fair fusion rule because of the uncertainty in the contributions of the source images to the fused image.The capacity to include as much information as possible into the fused image becomes the most difficult problem. ThisWhen developing an image fusion algorithm in this study, the wavelet transform and fuzzy reasoning were applied to aid in the process. In this case, the corners are rounded.The source photographs are identified via the application of a set of fuzzy criteria that are applied to each image. This paper describes in detail the hardware architecture used for fuzzy-based photo fusion.is put forth as a possible solution. Using the recommended hardware design, resource usage may be reduced, making it especially well suited for low-end computer systems.applications that need a large amount of power There are just two line memory buffers in the design, and they each have a limited amount of computing capability.It minimises complexity, resulting in cheaper hardware costs, and it is suited for a broad variety of real-time applications, including gaming and medical applications. TheIt is estimated that the hardware design will use 4179 gates and will demand a total of 203.27 milliwatts of power.

Keywords: *Fuzzy Reasoning, Fuzzy Rules, Image Fusion, Low Power.*

1. INTRODUCTION

Images are fused together using image fusion, which is a way of integrating multimodal images that makes use of image processing technologies to do this. Its particular purpose is the integration of a variety of data sources that are complimentary to one another.to gather information in order to increase the quantity of information visible in thephotographically improving the overall quality of the images while also boosting their reliabilityinterpretation. This leads to the production of more accurate data.an increase in the usefulness Furthermore, it has been asserted that fused is a kind of fusion.Data allows for steady operational performance, for example, by permitting the use of a database.improved self-assurance, reduced doubt, and improved performanceImproved classification and reliability are two benefits of this enhancement. Image fusion is a method that combines two or more images.a way for bringing disparate and unconnected pieces of information togetherthe provision of information that is complementary to the information currently accessibleIn order to increase the reliability of the source images as well as the overall quality of the photographs,in terms of the meaning of the phrase More accurate findings are obtained as a consequence of this process.The interpretation and use of informationA fusion process is nothing more than the bringing together of two or more components in single process.in order to create a composite image that contains the most crucial informationThe picture has more information than the individual photographs, and it is a synthesis of the images.When it comes to visual perception, the image outperforms the written word.

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CFD Analysis of Heat Exchanger for Exhaust Gas Heat Recovery in a Gas Based Power Plant

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ABSTRACT

Energy is one of the most important components of economic growth. But day by day the existing energy resources are depleting at alarming rate. Hence it is necessary to introduce alternate techniques to conserve the energy effectively. With this an attempt has been made to introduce a ceramic heat exchanger with different cross sections.Early Heat Exchangers provide the foundation for numerous applications in process intensification subjected to un satisfactory mass distribution , thermal stresses arising from uneven heating and cooling etc. In order to overcome the difficulties mentioned above, Ceramic materials have been introduced in place of existing materials. Since ceramic materials offer many benefits including high temperature capacity and corrosion resistance. Special and specific design of the heat exchanger surfaces in ceramic heat exchanger surfaces provide equal distribution of inlet flows.

In this project Ceramic heat exchanger of varying tubes were simulated by computational fluid dynamics method(CFD).The multi shaped structure was imported in to fluent 18.2 versions as a physical model. A ceramic monolith heat exchanger is designed to find out the performance and effectivenessof heat transfer. The numerical computation was performed throughout the domain including fluid region in exhaust gas side, ceramic core and fluid region in air side. The entire computation was carried out by using different cross sections viz., Rectangular, Elliptical and Cylindrical duct with air and exhaust in cross flow direction. After comparison of theoretical and numerical computation it is observed that the estimated heat transfer rate in numerical analysis is 15% more than the theoretical analysis

1. INTRODUCTION

Now a day's energy is more consuming .There is limited supply of energy due to the deficiency of fossil fuels and they are one of major important factors which produce energy. Oil, natural gas and so many resources are there which the factors of energy are. In present days energy is consuming more in transportation. At current rates of production oil reserves will expire soon. However, an even more important factor is that as production rates start to decline, the limited supply of fossil fuels will become increasingly problematic.A second more important factor is to develop energy efficient vehicles relates to emissions of greenhouse gases. The combustion of fossil fuels generates CO_2 emissions, which absorb re-radiated heat from the earth's surface and thereby contribute to global warming. This greenhouse effect alters natural marine and carbon cycles, reducing the environment's capacity for CO_2storage. The largest share of the globe's CO_2 emissions (45 %) originated from fossil fuels burned for energy generation. Overall CO_2 emissions have increased by 80% since 1970 (and those from the transportation sector have increased by more than 100 %), contributing to an average atmospheric temperature increase of around 0.8°C over the same period . While this may sound small in absolute terms, the long term effects of this trend are predicted to be devastating for life on earth.

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A Study on Surface Roughness when Milling C45 Steel

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ABSTRACT

C45 steel is put through its paces with a research on face milling cutters in this article. The Box-Behnken approach was used to generate an experimental matrix for an experiment. Cutting speed, feed rate, and depth of cut were all altered in each trial. To assess the milling process, surface roughness has been used as a metric. Cutting parameters and their interactions on surface roughness have been studied experimentally and shown to have a significant impact. There have been two suggested regression models for surface roughness. The Johnson transformation is used in this case. Models for surface roughness prediction were utilised in conjunction with the experimental data. Johnson's transformation offers a better degree of accuracy than other data transformation methods. Surface Roughness, Johnson Transformation, P6M5 Insert, C45 Steel Milling

INTRODUCTION

It is widely accepted that milling is the most efficient way of cutting [1]. There are several criteria that may be used to assess the machining process while using the milling technique, much as with other cutting and machining procedures. As a result, the workpiece's surface roughness is often used as an indicator of milling quality. Because surface roughness directly influences the product's workability and durability, it's clear to see why this is important. On the other hand, measuring surface roughness is a straightforward process that may be used in a variety of manufacturing and research settings. In milling, adjusting the cutting parameters is the easiest way to evaluate surface roughness since the operator of the machine may readily change the cutting parameters. The cheap cost and superior machinability of C45 steel make it a popular choice in the industrial sector. A wide range of items, including shafts, forks, and gears, may be made from it. Because of its cheap cost, thermal resistance, and high hardness, P6M5 (the Russian standard) is often used to create cutting tools in mechanical processing. Turning, milling, and drilling bits are all made using this sort of cutting tool in the cast iron and steel industries, respectively.

Milling C45 steel with a P6M5 cutting tool was used in this research to examine the effect of cutting parameters on surface roughness. Among the variables studied in this research include cutting speed, feed rate, and depth of cut, among others. Additionally, a surface roughness regression model has been presented. Additionally, the Johnson transformation approach has been used to enhance the accuracy of the regression model. A C45 steel milling test was conducted. The investigation made use of C45 steel samples. The steel sample has dimensions of 200 mm in length, 60 mm in width, and 20 mm in height. Machine 6H82 (Russian Federation) was utilised in this experiment. An electronic frequency changer, also known as a frequency converter, is attached to the machine's main shaft motor to allow it to be set to the required cutting speed. An alloy of grade P6M5 was employed in the experiment's cutting inserts. For mounting, they use two symmetrical cutting components installed on the face milling cutter's main frame. To mill the whole surface of the steel sample, a diameter of 80 millimetres is required for the tool body. Each cutting component is used just once to minimise the impact of tool wear on surface roughness.

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Big Data Environment Patient Treatment Time Prediction Algorithm for Hospital Queuing-Recommendation

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Abstract— *One of the most difficult problems hospitals confront is effectively managing the patient queue in order to decrease patient wait times and congestion. Patients' irritation is exacerbated when they are forced to wait for lengthy periods of time for no good reason. The amount of time a patient must wait depends on how long the line behind him is. Patients would find it more convenient and preferred if they could get real-time information about expected wait times and the most efficient treatment plans through a mobile application. Because of this, we have developed a Patient Treatment Time Prediction (PTTP) method to estimate how long a patient will have to wait before receiving treatment. For each job, we develop a patient treatment time model based on real-world patient data collected from multiple hospitals. The treatment time for each patient in the current queue of each job is anticipated based on this large-scale, realistic dataset. A Hospital Queuing-Recommendation (HQR) system is created based on the estimated wait time. HQR determines the most cost-effective and time-saving treatment option for each patient. The PTTP algorithm and HQR system are required to respond quickly and efficiently because of the vast, realistic dataset and the need for real-time reaction. The National Supercomputing Center in Changsha (NSCC) uses an Apache Spark-based cloud solution to meet the aforementioned aims. Patients' wait times in hospitals may be reduced by recommending an appropriate treatment plan based on extensive testing and simulation findings.*

INTRODUCTION

Motivation

In most hospitals, there is now an overcrowding problem and no efficient way to manage the patient queues. Waiting time forecast for patients is a hard task since each patient may need a variety of procedures, such as a blood test or glucose level check or an ultrasound, throughout their treatment. Treatment tasks or tasks are used in this work to refer to each of these stages and processes. It is very difficult to forecast how long a certain therapy job will take for each individual patient, making time estimation and recommendation extremely difficult. According to their health, a patient is often obliged to undertake various types of exams, inspections, and tests (together referred to as chores). In this instance, each patient may be forced to do more than one activity. If one job is reliant, another may have to wait until that work is completed. Most patients are

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A STUDY ON FINANCIAL INVESTORS IN IIFL'S AWARENESS OF MUTUAL FUNDS

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ABSTRACT:

Indian investors have a variety of options for investing their money. Individual investors have a variety of investing alternatives, including mutual funds. Despite the fact that mutual fund investments are riskier than post office savings and bank fixed deposits, they provide investors with the benefits of stock market investing. Mutual funds collect money from a variety of investors and invest it in stocks and shares of various companies through the stock market, based on the mutual funds' investing objectives. A typical investor may lack the resources and expertise necessary to invest in the stock market. This is where mutual fund companies come into play. They combine the funds of a large number of small investors, and skilled fund managers strive to provide the best possible return to these investors. Mutual funds come in a variety of shapes and sizes. Equity funds, debt funds, balance funds, tax-saving funds, index funds, and so on are examples of these. Index funds are mutual fund schemes that invest in the same shares indexed in a certain index at the same weightage of the shares that make up the index. The research investigates investors' awareness of mutual funds and their preference for them over alternative investment options. The survey goes on to look at how well-informed investors are about various mutual fund schemes, including index funds. Mutual funds, index funds, investor awareness, and investor preference are all key words.

INTRODUCTION

The project dealt with the study of economic investors' knowledge of the mutual budget in Hyderabad. A design of analytical and descriptive research is used in this examination. Data have been collected via surveys and interviews. The length of the sample collected for the business was 43. The greatest number of responders having access to the mutual budget was found. Nevertheless, they were more interested in doing business afterwards with mutual funds. Some had previously worked and carried out a business insurance firm as a part-time job.

Therefore, they have no time to create a successful mutual budget business in this distressing timetable. Some other people who were interested in conducting joint-price activities did not wish to submit the review of the Mutual Fund Association in India (AMFI) in writing today. While 72 percent of the respondents had access to mutual financing, the AMFI test was passed by the 3 percent most effective. The responders must thus be persuaded to write the AMFI examination. A wider range of mutual fund operators may thus be needed to conduct business.

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IOT BASED EFFICIENT FARMING TECHNIQUE

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I. ABSTRACT

In our country, an agriculturist is never paid his deserving pay and a consumer always has to buy vegetables from the market in a much higher price than the actual price of farmers. There is a huge gap between the farmer and consumer, as the consumer needs to go to market to buy vegetables. It is to be noted that farmers growing the vegetables in rural areas, may not have an idea about where and whom to sell the vegetables due to lack of exposure to outside world, which results in wastage of most of the harvest.

The main objective is to create an IoT based automation system that monitors the growthofthevegetablesandfruitsande-marketthesameusingapp.Theworkisdivided into two parts. One part of the work is a hardware which is placed in the farm tomonitor the soil parameters and environmental parameters of the farm. The hardware is enabled withthefeaturesofanalyzingthestatusofthefarmwithouttheinvolvementofthe farmer. The technique helps the farmer to predict the growth and development of the yield so that he knows the right time of the harvest. IoT device can connect the network and also it is interlinked with server to update the data directly into the app and also farmer can know the status of the plant by messages through GSMshield.

The second part of the work is a software application which helps the farmers to monitor the farm and fix price of the vegetable in farm. This application is used to fix a price, can check the sensor values and also can control the motor when crop is dry from anywhere and anytime. The technique is used to communicate the farmer and consumer to estimate the harvest via android app.

KEYWORDS: Unified platforms, sensors, Arduino controller, Wi-Fi (IOT devices), GSM shields, Android application.

II. INTRODUCTION

In the main purposes of the projects are automates in the growing monitors systems to the plant & helps farmer's to the increases in the productivity. These days' farmers are not unable to the fixed into the prices of the vegetable grown between it will get enough income on the agricultures that lead to the economic problem. It is solves in this problem, when it is an unique ideas with the measured in the plants growthstage between the estimations of the yields among the sensors. The project is divided into two parts. One part of the project is a hardware which is placedinthefarmtomonitorthesoilparametersandenvironmentalparametersofthefarm. To implement this project, five sensors are used to detect the parameters of thecrop.

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Electromagnetic braking system

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ABSTRACT

A non-contact braking system was proposed to solve the shortcomings of standard braking systems. Upright magnetic braking methods get very little mention in the extensive literature, which is good news for businesses. To build an upright magnetic system, determining the magnetic flux is a critical step. Fluctuating magnetic flux induces eddy currents in the conductor. These currents burn energy in the conductor and generate drag force in order to slow down the movement. Thus, a finite element model is utilised to examine the impacts of air gaps and track materials on magnetic flux density. The model's predicted magnetic flux is within the permissible range, according to the test findings. Based on the results, it will be simpler to develop magnetic braking systems. Conventional braking methods, friction, heat, and so forth all fall under this umbrella.

Introduction

For heavy-duty vehicles, standard friction brakes may not be enough. There are many techniques to reduce the distance it takes for a vehicle to come to a complete stop, including the use of standard brakes. In the next section, we'll discuss the foundations of electromagnetic brake operation and design. We're working on a method to slow things down for this project. A two-wheeled vehicle may be used in certain situations As a result of its fast speed and cheap maintenance needs, electromagnetic brakes have been deployed as a supplemental slowing mechanism. A plunger and an electromagnetic coil are used in this experiment. The plunger is pushed in the direction of braking by an electromagnetic force. Only electricity can create a magnetic flux in a magnetic field. A hysteresis disc across the field collects the resulting flux. There is a hysteresis disc on the braking shaft. The output shaft may be dragged indefinitely using a magnet attached to the hysteresis disc. Electro-mechanical brakes (also known as EM brakes) use electromagnetic force to create mechanical resistance and slow or halt motion (friction). Although they were first referred to as "electric-mechanical" brakes, they have now been renamed "electromagnetic brakes" because of the method in which they work. There has been a tremendous rise in the number of applications and brake designs since the mid-20th century when they were extensively utilised in trains and trolleys. Despite these alterations, the system's essential functionality has remained constant. The magnetic force of eddy current brakes, as opposed to the friction of electromagnetic brakes, is used directly to stop the vehicle.

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Full-Bridge PWM Converter with Auxiliary Active Clamp for Zero-Voltage and Zero-Current Switching

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AbstractAn improved presentation of the previously presented ZVZCS FB PWM converters has been offered with the development of a new ZVZCS FB PWM converter. It is possible to achieve ZVS (for driving leg switches) and ZCS (for slacking leg switches) without the use of lossy components or the saturable reactor by integrating an optional dynamic cinch and managing the brace switch properly. The novel converter is attractive for high-voltage and high-power (>10 kW) applications because of its many advantages, such as its fundamental circuit architecture, high efficacy, and simplicity. The rules of action are explained and analysed. A 1.8-kW 100-kHz shielded entryway bipolar transistor (IGBT)-based exploratory circuit is used to demonstrate and test the novel converter's features and design considerations.

Index Terms—DC–DC power conversion.

INTRODUCTION

IGBT's are commonly utilised in switching power conversion applications because of their specific benefits, such as their ease of driving and high frequency switching capabilities. The newest IGBTs can function at 10–20 kHz without a snubber circuit because to ongoing improvements in their performance. It's also being replaced by IGBT's for applications that need several or a few kilowatt of power since IGBT's are more suited to handling high-voltage and high-power applications than MOSFET's. Due to IGBT's tail-current characteristic, their maximum working frequency is restricted to 20–30 kHz [1]. It is necessary to lower the turn-off switching loss in IGBTs in order to operate them at high switching frequencies.

An external snubber capacitor or zerocurrent switching (ZCS) may be a solution to this problem. If you're looking for an efficient way to get rid of a carrier, you'll want to go with ZCS. It's no secret that ZVS full-bridge pulsewidth modulation converters have garnered a lot of attention [2–5]. The ZVS conditions for the switches are provided through a phase-shifted PWM approach that utilises all of the bridge's parasitic parts. For high-frequency, high-power applications, ZVS with no extra components and low-device voltage/current stresses make it a highly appealing alternative to MOSFETs. It's unlikely that IGBTs would work well with the ZVS FB PWM converter because to the relatively small ZVS range, unless the leakage inductance is really big.

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New Clustering Algorithm Development Using Firefly Optimization

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Abstract:

In a data set, clustering is a method for assembling sets of data that share characteristics. Compared to other clusters, similarities within a cluster tend to be high, while those between clusters tend to be low. Prior knowledge is not required for clustering methods that use unsupervised learning. Using the firefly method, the best cluster centres have been identified in this article For the most part, this algorithm is employed for the most difficult problems because of its global search capability. 12 datasets from the UCI data warehouse were used to test the proposed clustering algorithm. The suggested clustering method is compared with twelve different clustering algorithms in order to assess its effectiveness (SFLA, ABC, PSO, Bayes Net, Mlp ANN, RBF, KStar, Bagging, Multi Boost, NB Tree, Ridor and VFI). Because of this research, numerous clustering methods have fared worse than the suggested methodology in various datasets.

INTRODUCTION:

There is no class attribute connected with clustering, which is the unsupervised categorization of data pieces or observations. Data sets have never been categorised in a cluster. Clustering is an essential part of exploratory data analysis. Using these approaches, it is possible to discover previously unknown pattern classes. For the purpose of categorising data into sets of related items, clustering is used. Separate groupings are used for items that aren't comparable. It is possible to have many clusters for a single data item, depending on the measure specified [1]. Clustering algorithms have been created in a variety of fields, including data mining, statistics, biology, and machine learning, to name a few. Firefly Algorithm was used by Dekhici et al. (2012) to improve power dispatching in a grid (FA). The authors used the Particle Swarm Optimization (PSO) to solve the identical issue as FA in order to evaluate it. IEEE-14 and two thermal plant networks were the focus of their attention. FA algorithms outperform PSO in terms of efficiency and may get the lowest

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Solar energy conversion properties and defect physics of ZnSiP2

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Introduction

Group IV, II–VI, and III–V semiconductors are the most common materials used in optoelectronics because of their tetrahedral coordination. II–IV–V2 (e.g.–ZnSiP2) has received less attention for optoelectronic devices than the ternary II–VI analogues such as I–III–VI2 (e.g. CuInSe2), which have been widely studied. 2–9 Many unary and binary semiconductors may be included into the lattice of II–IV–V2-chalcopyrite compounds, as shown in Fig. 1, which displays the wide variety of band gaps and lattice constants that can be found in II–IV–V2 chalcopyrite compounds. As a result, many of the II–IV–V2 compounds are especially suitable for large-scale applications such as photovoltaics since they are generated from very affordable and non-toxic elements (eg. Zn and Mg) (PV). 10–12 Wide range of frequencies There has been very little research on the II–IV–V2 materials, despite the potential for tandem PV, LEDs, photonic circuits, and lasers. 13–15 It has been a challenge to work in tandem PV.

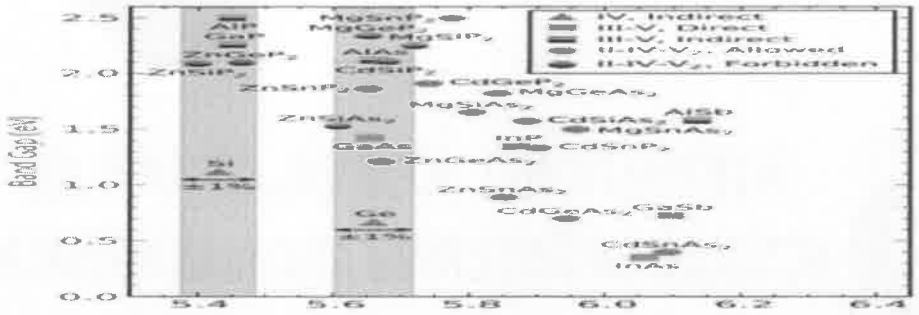

Fig. 1 Theoretically determined band gaps versus lattice constants for some of the more earth abundant II–IV–V2 chalcopyrites. Also shown are III–V materials along with Si and Ge from group IV. The gray vertical bars overlaying Si and Ge highlight materials with similar lattice constant, within 1%

Find materials with large band gaps that can be used in tandems, especially those that are compatible with Si. 16,17 There are two compounds that are particularly interesting as epitaxial top cell materials on a silicon substrate: ZnSiP2 and ZnGeP2. Si PV's supremacy may be leveraged by using these materials as low-cost, readily available top cells (490 percent market share). 18 ZnSiP2 characterization for PV purposes is the subject of this paper

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It is possible to assess the dynamic dependability of mechanical additives using comparable electricity usage. The Decline's Paths

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Abstract:

In mechanical systems, determining the precise direction of energy loss is very challenging. False reliability estimations may also be caused by ignoring the connection between residual energy at each load application along an electrical deterioration route. A dynamic reliability model for mechanical additives, which is defined by the distribution of material attributes and load in this work, may be used to address these issues. The models offered may be used to analyse statistical fabric qualities, such as failure rate and dependability. For a successful launch of a spacecraft, consultants may employ samples of explosive bolts to verify that their designs are both possible and accurate. Large mistakes in estimating dependability have also been identified when energy distribution software is used at each load. Both the dynamic dependability and mechanical additive failure rate of a material are controlled by its particular properties.

part-to-part correlation and dynamic dependability of mechanical parts

INTRODUCTION

There must be a safety margin built in to mechanical components so that they can withstand environmental and material changes. They rely on their experience and industry expertise to ensure mechanical components are safe. Empirical safety factors do not account for mechanical design uncertainty and risk. As a consequence of this expansion, mechanical product reliability analysis has expanded [1–3]. That which can perform its intended functions without interruption for an extended period of time is referred to as a product's dependability. The LSI model is used for mechanical component reliability analysis. Traditional LSI models employ models with a fixed level of stability. There are several reasons that contribute to mechanical components breaking down over time in real-world applications. Further research on generalised approaches for mechanical component dynamic reliability analysis, according to Martin, is required.

Traditional LSI models have their limits, and stochastic process theory reliability models are being investigated as a possible remedy. Two stochastic procedures are used to deal with the load and strength. It's one out of two; LSI and Markov models for time-dependent behaviour were used by Lewis[5] to study G redundant systems. Geidl and Saunders[6] used time-dependent elements in the reliability equation to quantify dependability. Using the generalised formula proposed by Somasundaram and Dhas[7], a dynamic parallel system in which the load is uniformly distributed may be evaluated. To ensure reliability, Noortwijk and Weide [8] developed a model that accounts for both load and strength. [9] Dynamic platform dependability was developed by the laboratory and its collaborators. Zhang et al. [10] employed Monte Carlo simulations and dynamic event trees [10] to calculate the dynamic dependability of nuclear power plants. Cutting tools and material flow were part of his research, as was industrial capacity. [12] A statistical process planning model developed by Barkallah and his colleagues was used to calculate production margins.

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ANNOTATION OF BREAKING NEWS ARTICLE USING IMAGE AND TEXT PROCESSING

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ABSTRACT

Building upon recent Deep Neural Network architectures, current approaches lying in the intersection of Computer Vision and Natural-Language Processing have achieved unprecedented breakthroughs in tasks like automatic captioning or image retrieval. Most of these learning methods, though, rely on large training sets of images associated with human annotations that specifically describe the visual content. In this paper we propose to go a step further and explore the more complex cases where textual descriptions are loosely related to the images.

We focus on the particular domain of news articles in which the textual content often expresses connotative and ambiguous relations that are only suggested but not directly inferred from images. We introduce an adaptive CNN architecture that shares most of the structure for multiple tasks including source detection, article illustration and geolocation of articles. Deep Canonical Correlation Analysis is deployed for article illustration, and a new loss function based on Great Circle Distance is proposed for geolocation. Furthermore, we present BreakingNews, a novel dataset with approximately 100K news articles including images, text and captions, and enriched with heterogeneous meta-data (such as GPS coordinates and user comments).

We show this dataset to be appropriate to explore all aforementioned problems, for which we provide a baseline performance using various Deep Learning architectures, and different representations of the textual and visual features. We report very promising results and bring to light several limitations of current state-of-the-art in this kind of domain, which we hope will help spur progress in the field.

INTRODUCTION

In recent years, there has been a growing interest in exploring the relation between images and language. Simultaneous progress in the fields of Computer Vision (CV) and Natural Language Processing (NLP) has led to impressive results in learning both image-to-text and text-to-image connections. Tasks such as automatic image captioning [8], [16], [37], [41], [75], [82], image retrieval [21], [31], [45], [48] or image generation from sentences [6], [88] have shown unprecedented results, which claimed to be similar to the performance expected from a three-year old child1. One of the main reasons behind the success of these approaches is the resurgence of deep learning for modeling data, which has been possible due to the development of new parallel computers and GPU architectures and due to the release of new large datasets, used to train deep models with many parameters.

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CREDIT CARD FRAUD DETECTION USING RANDOM FOREST

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Abstract

Real-world credit card fraud detection is the primary emphasis of the project. Credit card fraud has lately increased dramatically as a result of the amazing surge in the number of transactions. The goal is to get something without paying for it or to get money out of a bank account without authorization. All credit card issuers must now have effective fraud detection systems in order to reduce their losses. Making the business is a major difficulty since no cardholder or card must be present for a transaction to be completed.. Merchants are unable to determine if a consumer presenting their card is in fact the legitimate owner. It is possible to increase the accuracy of fraud detection by using the suggested technique, which makes use of a random forest. The random forest technique is used to analyse a data set and the current dataset of the user. Finally, improve the precision of the output data. The accuracy, sensitivity, specificity, and precision of the procedures are assessed. Processed characteristics are used to identify fraud, and a graphical model depiction is presented. The accuracy, sensitivity, specificity, and precision of the procedures are assessed.

Keywords:Fraud Detection, Random Forest, Credit Card.

INTRODUCTION

In credit card transactions, researchers have kept in mind a variety of methodologies to construct models based on artificial intelligence, data mining, fuzzy logic, and machine learning in order to identify fraudulent activity. Detecting credit card fraud is a challenging, but common, challenge. Machine learning was used to develop the credit card fraud detection in our suggested system. Machine learning is becoming more sophisticated. Machine learning has been shown to be effective at detecting fraud. During online transactions, a significant quantity of data is exchanged, resulting in a binary outcome: legitimate or fraudulent. Features are built into the bogus datasets. Customers' age and credit card balance are only two examples of these data pieces. There are hundreds of characteristics, and each one has a different impact on the likelihood of a transaction being fraudulent. Note that the machine's artificial intelligence, which is guided by the training set, generates the level at which each characteristic contributes to the fraud score. This level is not chosen by a fraud analyst. Accordingly, a transaction that is made using a credit card will have the same fraud weighting as one that is made using a debit card. But if this decreased, the contribution level would also decrease at the same rate. These models are self-taught and do not need any further programming, such as a manual review. Classification and regression methods are used for credit card fraud detection in Machine learning. For online or offline fraud card transactions, we employ a supervised learning system such as the Random Forest method. An evolved variant of Decision Trees is Random Forest. Random forest outperforms all other machine learning algorithms in terms of performance and accuracy. A key goal of random forest is to alleviate the problem of feature space oversampling, which was discussed before. De-correlated trees are pruned by setting a stopping point for node splits, which I'll explore in more depth later on in this article

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Applications of Fuzzy Logic to the Transportation Network Design Problem in Multi-Criteria Optimization

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ABSTRACT

This study analyzes the Multi-Objective Transportation Problem using fuzzy decision factors (MOTP). The decision variable in a Transportation Problem is often treated as a real variable. Although this study makes extensive use of multi-choice fuzzy numbers, the decision variable at each node is instead selected at random. When more than one objective must be met in a transportation problem with a nif=fuzzy decision variable, a multiobjective fuzzy transportation problem is posed (MOFTP). Our unique mathematical model of MOFTP includes fuzzy objectives for all of the objective functions. Then, the approach to solving the model is defined using the multi-goal programming technique. An illustrative numerical example is presented to better establish the usefulness of this article.

KEY WORD: Fuzzy Variable; Goal Programming; Multiobjective Decision Making; Multiple-Option Programming; Transportation Problem;

INTRODUCTION

The transportation problem is crucial when making decisions in the real world. For instance, a linear programming model may be used to determine the best course of action for the transportation problem. In order to minimize the overall cost of transportation and the cost per unit of commodities for the buyer, one must calculate how many units of a commodity are to be delivered from each source to different destinations `w5while fulfilling source availability and destination demand.

Hitchcock (1941) originally thought of the problem of mass transportation, and Koopmans (1944) improved it on his own (1949). (1949). A transportation problem with a single objective function is inadequate to meet a wide range of real-world decision-making challenges in today's competitive market. To address such complex real-world scenarios, the multi-objective transportation problem has to be introduced. Scholars like Verma et al. have done a number of studies in this field.

BAD SETTING

For a long time, the primary application of the mathematical model of the transportation issue was cost minimization. However, in recent times, academics have adapted a wide range of real-world decision-making challenges to threaten the existing market structure. Goal programming is often used by decision-makers to lower transportation costs and boost profits. However, modern problem-solving methods are often geared at picking the best option given the decision maker's criteria. This study introduces a novel class of transportation problems in

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Using Finite Element Analysis, the Design, Structural, and Thermal Analysis of a Piston

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Abstract:

There is a certain piston design and its maximum gas pressure that was selected for this project. CATIA V5 solid modelling software will be used to produce a piston model for this project. ANSYS will be used to mesh and analyse the geometry. In order to examine piston input conditions and the analysis method, a comprehensive literature search was done. The crucial region of the piston is subjected to significant stresses while operating at high combustion gas pressures, which act as mechanical loads. A thorough static structural analysis is performed for a variety of loading conditions, such as the maximum gas pressure load. A comparison study is carried out in order to choose the best material. Material is never dominated by a comparative analysis. Pneumatic chambers, for example, use cylinders as mechanical components. Gas blowers, syphons, and motors that react. A cylinder seals up the upward movement inside a chamber, preventing any air from leaking out. The cylinder is a critical component of the engine and is subjected to significant mechanical and thermal stress in the automobile industry. Because the cylinder crown and cooling displays have such a large temperature difference, warm loads are begun in the cylinder. They are made of aluminium because of its low weight and heat conductivity. However, it is not recommended for use in high-temperature applications because to its poor hot strength and high development coefficient. To transfer power from the expanding gas to the barrel-shaped shaft, an interfacing bar and an extra segment pole are used in a motor's section bar or associating bar. For packing or removing liquid stored in chamber, syphons revolve around cylinder capacity and transmit power from driving rod to it. In the first stage, this investigation focuses on the main study of a standard cylinder made from aluminium composite. The next step is to focus research on an aluminium and cast iron cylinder. The third level of piston development should use lightweight, low-cost, and thermally safe materials. Verification of research findings by comparing them to more conventional sources

INTRODUCTION

The piston is a critical part of mechanical engineering because of its many applications. An internal combustion engine, a pneumatic cylinder, a hydraulic cylinder are all examples of mechanical systems that use pistons. Reciprocating pumps, gas compressors, pneumatic cylinders, and reciprocating engines all use pistons as mechanical components. Piston rings are used to keep the moving part of a cylinder gastight, and they are used with a piston. An important part of a motor's crankshaft is the piston rod and/or rod connector, which transfers force from rising gas in the cylinder to the crankshaft. As a result thermal stresses, a research is necessary. Pneumatic and reciprocating engines, pumps, compressors, and gas compressors all use pistons as moving parts.

In an internal combustion (IC) engine, pressure from the expanding combustion gas in the combustion chamber acts on the piston-connecting rod assembly, which in turn transmits motion to the crankshaft. To improve engine performance, one method is to change the material of a component inside the combustion chamber. This is one of the solutions. Engine performance may also be improved by altering the component shapes and sizes. The piston must be able to bear both cyclic gas pressure and inertial forces while working. Pumps reverse the piston's function and transfer crankshaft force to it in order to compress or expel the liquid held in the cylinder.

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Arduino and Sensors: Securing and Monitoring Human Prosperity

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Abstract

Devices that are linked to the internet and used to support basic necessities, health, and the environment are part of the Internet of Things (IoT). The capabilities and storage capacity of cloud computing and the Internet of Things are both at their greatest potential thanks to these technologies. Healthcare technology is quickly evolving, allowing individuals to live better lives via the use of linked gadgets such as smartphones, computers, and wearable devices. The electrocardiogram, or ECG, is a critical tool for keeping tabs on a patient's pulse and activity in the heart. This study presents a concept for a low-cost ECG patient monitoring system that may be used at home by patients or family members without the assistance of a physician. Because Arduino is used as an interface card rather than expensive NI DAQ cards, the price is lower.

I. Introduction

There are still some businesses that use paper medical records and handwritten notes to make choices in the early stages. Using smart gadgets to make their jobs simpler and safer is a natural next step for the medical industry as we enter the next age of medical care. Combining cloud computing with Internet of Things (IoT) is critical in the medical profession. Billions of smart gadgets such as smartphones, tablets, laptops, desktops and wearables are linked together through the Internet of Things (IoT). Cloud and Internet of Things (IoT) technology in healthcare may cut expenses and improve patient outcomes by monitoring, diagnosing, and treating their health. Everybody nowadays uses the internet to exchange material, obtain information, and utilize social media for talking and playing online games. The IoT devices' data is very important to cloud computing. Patients' health status may be monitored and stored in the cloud using IoT healthcare apps.

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IoT-based system for monitoring the health of patients.

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ABSTRACT

New corona viruses have pushed healthcare to the top of national priority lists, and now it's also at the top of the global one. Using an Internet of Things-based health monitoring system is the best way to deal with an outbreak of this kind. Health care is a fast-growing study topic for the Internet of Things, or "IoT," which is the next internet revolution and is known as the "Internet of Things," or "IoT." Wearable sensors and cell phones, both of which are becoming increasingly widespread, are largely to blame for this rapid improvement in remote health care monitoring. The Internet of Things (IoT) may help avoid disease transmission and provide an accurate diagnostic of one's health status, even if the doctor is a long distance away. Here, an example is given of how a portable physiological checking framework may be used to constantly monitor a patient's vital signs. A Wi-Fi Module-based remote communication system was utilised to show a continuous checking and control device that preserved patient information in a centralised database while monitoring the patient's state. We present a remote health monitoring system based on the Internet of Things (IoT) that allows authorised users to access data stored on any IoT platform and diagnose ailments based on the values gathered by physicians working remotely.

KEYWORDS :- Internet of Things, Health, Sensors.

1. INTRODUCTION

As the human species progresses in terms of technology, health is always a major source of concern, and this is particularly true today. With the current corona virus outbreak in China, which has had a substantial negative influence on the country's economic growth, we can see how health care has risen to become a top concern for the Chinese government. Whenever an epidemic has moved to a new location, it is always preferable to monitor the health of those affected via the use of remote monitoring tools. A health monitoring system based on the Internet of Things (IoT) has emerged as the most effective solution as a consequence of this development.A Remote Patient Monitoring arrangement allows for the monitoring of patients outside of typical clinical settings (e.g., at home), which enhances access to human services offices while also cutting expenses at the same time. As the name implies, the major purpose of this project is the design and implementation of a smart patient health monitoring system that use sensors to track patient health and the internet to warn patients' loved ones when there is a problem with their health. The purpose of implementing monitoring systems is to reduce the number of physician office visits, hospitalizations, and diagnostic testing procedures conducted on patients in order to reduce health-care expenses. Throughout the day, our bodies employ temperature and also pulse recognition to regulate to a healthy state of being.

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creation of a modified Z-source integrated DC charger and inverter for PV, grid, and electric vehicles

[1]*Mr. V.Saidulu Assistant Professor,* [2]*Mr. Venkateswar Rao Assistant Professor*

Abstract:

Based on the sun's rays For residential and semi-commercial uses, energy has been the most common source of sustainable power. Storage structures may be used to mitigate fluctuations in the amount of sunlight-based vitality that can be harvested due to meteorological circumstances. Solar power may also be used to recharge electric car batteries, reducing the need for a network. Such applications need a converter that has fewer alterations organised and provides solitude. Using the Z-source inverter (ZSI) design, many stages are eliminated, allowing for single-stage voltage raise and DC-AC power conversion. Latent sections may also be used to integrate energy storage systems (ESS) into the system. In order to charge the batteries of electric cars (EVs), this study shows how a modified Z-source inverter (MZSI) works in conjunction with a split essential secluded battery charger. The notion of the suggested converter's activity has been shown by reenactment and exploratory results.

Energy storage, photovoltaic (PV) power production, single-phase systems, and transportation electrification are only a few of the topics covered in the index of articles on qZSIs..

I. INTRODUCTION

The use of alternating current power infrastructure is now heavily reliant on charging electric automobiles. Wireless charging and plugging in, even though they are more efficient topologies, may still pollute the environment since they simply use the AC grid. When you know how much fossil fuels are utilised to generate the power required to charge the vehicle, it's much simpler to assess an electric vehicle's carbon impact. One way to reduce carbon footprints is to include renewable energy sources into a charging infrastructure. In order to build an EV battery charger, isolation transformers are a must since they provide galvanic isolation between the user and the rest of the high voltage (HV) system [1]. On the AC grid or on the charger, galvanic isolation may be implemented. Grid-side isolation transformers tend to be larger than charger-side isolation transformers. [2] High frequency switching has made it possible to reduce the size of galvanic isolation transformers owing to semiconductor technological developments. Solar grid-coupled systems [3] have been employed in commercial charging infrastructure in the past. The AC grid benefits as a consequence of these technologies. Using a solar and grid-interconnected charging

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creation of a modified Z-source integrated DC charger and inverter for PV, grid, and electric vehicles

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Abstract:

Based on the sun's rays For residential and semi-commercial uses, energy has been the most common source of sustainable power. Storage structures may be used to mitigate fluctuations in the amount of sunlight-based vitality that can be harvested due to meteorological circumstances. Solar power may also be used to recharge electric car batteries, reducing the need for a network. Such applications need a converter that has fewer alterations organised and provides solitude. Using the Z-source inverter (ZSI) design, many stages are eliminated, allowing for single-stage voltage raise and DC-AC power conversion. Latent sections may also be used to integrate energy storage systems (ESS) into the system. In order to charge the batteries of electric cars (EVs), this study shows how a modified Z-source inverter (MZSI) works in conjunction with a split essential secluded battery charger. The notion of the suggested converter's activity has been shown by reenactment and exploratory results.

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I. INTRODUCTION

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Robotic Farming based on Webcasts

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[3] LAXMAN BAVANDLAPALLY ,M.Tech
4 CHEEKATYALA ANJAN KUMAR ,M.Tech

Abstract:

Webcast-based Farming Robots are being developed on the Raspberry Piboard using Python. Unlike humans, this robot's primary function is to watch the field 24 hours a day, or "24-Hour Monitoring Robot." In order to remove weeds and bugs from crops while using fewer pesticides, it employs multiple sprays to kill the pests, and it can detect the temperature in the surrounding area.

We employ a variety of sensors to get information about the environment and soil moisture levels. For internet monitoring live stream, we utilise a Raspberry Pi camera. Every individual on the planet may utilise this way of farming to play a role in agriculture. For frequent watering, use a Driver Board with several sensors, such as soil sensors, servo motor, an auto-seeding kit, buzzers, temperature sensors, and humidity sensors. Agriculture may benefit greatly from the use of this technology since it allows everyone in the nation to become involved. Robots may be controlled manually or autonomously. The growing of robots may be transformed into a game for youngsters by creating an internet console for their control. A satisfactory yield may be achieved if plants are monitored on a regular basis.

Introduction

Even in the modern day, farmers in India continue to employ ancient agricultural methods. Agriculture is heavily influenced by the natural world. In addition, farming requires a substantial increase in manpower. It's common for the children of farmers to pursue different careers since farming is so physically and emotionally demanding. If India's estimated 1.2 billion people are to be fed in the future, the country's diminishing agriculture productivity must be increased. Precision farming may help with this problem. Using information technology, precision agricultural methods ensure that crops and soil get the exact nutrients they need for optimal growth (PA).

Farming has been around for a long time and is commonly recognised as the norm. In the course of our daily activities, it becomes more important It's impossible to deny the importance of food in our lives. In order to feed such a large population, a great amount of food must be produced. Farming is a major source of income for rural Indians. Agriculture generates the majority of the country's income. Consequently, we now have a compelling need to improve the quality of our service. Control of plants and crops must begin at the seedling stage. The process includes all of the following steps: planting, fertilisation, irrigation, disease detection, pesticides (including fungicides), harvesting, and storage [1].

Literature Survey

At the Internet of Things Irrigation Model Symposium in 2016, Professor NR Kale and Arzeena Khan presented their findings. Moving water from one area of the crop to another is a common irrigating technique. Crops may be affected if water levels fluctuate. It may be possible to enhance water management by linking multiple timed irrigation systems to the cloud-based irrigation network Monitoring and control of the IoT in the glasshouse Kirankumar Y. Bendigeri and Pallavi Jayashree D are the most recent graduates of Mallapur. Communication and computing in the future will be facilitated by the term, "IoT," which stands for "Internet of Things" (IoT).

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Analyzing the cantilever beam's temperature

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Abstract—*This study focuses on the structural and modal analysis of carbon steel members subjected to heat loading. Calculations for both the cantilever and the fixed-end components are performed. For members with various cross sections but a same cross section area, deflection and stress were studied. A lack of mechanical forces may lead to heat stresses and deformations in structural components. Temperature variations may have an effect on mechanical components. These findings provide light on how temperature changes affect structure.. The material expands as the temperature rises, which may have an impact on its structural integrity. It's possible that you'll create hazardous designs if you don't consider the implications of constrained parameters. This has a substantial influence on the structural performance of structures exposed to high temperatures. The investigation's primary objective is to measure the deflection and stress in the beam. Analyses are done by using ANSYS, which is followed by real-world testing. ANSYS is used to explore how the structure's mode shape and frequency change as the temperature increases.*

INTRODUCTION

Deflection, Mode, Mode shape, and Modal analysis are all included in the index. The expansion of a material due to thermal stress is called thermal expansion.

Temperature variations have an impact on almost all mechanical components. Components expand and contract as a result of temperature changes. Thermal stresses are caused by the restriction of the member's expansion. Temperatures over a certain threshold weaken the structure's elasticity and stiffness. Studying how various sorts of restrictions affect a member's response to temperature and mechanical stresses has helped researchers better understand mechanical structure behaviour. Mechanical and thermal stress are applied to a component, and the results are analysed. It was shown that mechanically loaded members with varying restraining support conditions (ASME SA36) were affected by heat loading [9]. Cantilever and supported beams with a point load under thermal loading are studied in this study. When the temperature changes, researchers examine how a loaded beam deflections and slopes in response.

ANSYS [5] is used to do the FEA analysis. Mechanical stresses are common in real-world constructions because of applied loads and constrained thermal expansion. Structural mechanics theories were used in the development of all analytical formulations. Temperatures may influence the behaviour of structures when they are linked to one another. This basic relationship affects everything in life.

$$C_{Total} = C_{Thermal} + C_{Mechanical} \quad (1)$$

Structural member strain is the sum of the thermal and mechanical strains in the material. Mechanical strain is the single factor that determines the stress in a structure. When thermal stresses are completely restricted, thermal stress will be generated. The member's cross-sectional area will influence its mechanical stress. The bending stress of rectangular and I-section members with the same cross sectional area of 80 mm2 are compared to determine the influence of cross section.

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Home Automation and Security over the Internet

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ABSTRACT;Security and automation of one's home are major concerns for the general public. Convenience and security are both enhanced by installing a home security system. When it comes to making a home more energy efficient, nothing beats having a home automation system installed. In this article, we'll talk about how to build a home automation and security system that works over the internet. The PIR motion sensor in this system will catch would-be intruders red-handed. To transmit a notification to the house owner in the event of an intruder, the microcontroller feeds the GSM module. The LDR light sensor, on the other hand, is used to turn on the lights at night and dim them during the day. By monitoring and controlling the sensors and lights at home remotely, a web-based system may conserve energy. There is an answer proposed in this work. Working inside or outside of the workplace, a worker who finds himself in an unsafe position can use the emergency button (or pull a magnetic cable) on his smart safety belt to halt any cars within a 15-meter radius while simultaneously alerting any coworkers within a 250-meter radius through an indication. The results of the initial design phase have been presented in this technical document. To now, we've managed to create a range mechanism that is both dependable and accurate, with an error of no more than 0.3 meters. An established RF TOF approach serves as the foundation for this range system.

INTRODUCTION

In today's fast-paced technological development environment, a wide range of solutions are available for securing one's property. A microcontroller-based home security system is one of the technologies [1]. Doors and windows of a home may be monitored by this device. To alert the police, an alarm system will sound when someone tries to break into a home.

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MASK ENTRY AND TEMPERATURE TRACKING IN THE IOT

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ABSTRACT

As a consequence of Covid-19, which is helping to safeguard public safety, there is an increased need for temperature monitoring and face mask detection at railway and airport gates, office entrances, museum and park entrances, and other public areas and companies. It is now possible to interact with the other person while monitoring the temperature and mask, which may not be the ideal method. An inexpensive Internet of Things-based solution targeted at boosting Covid-19 entrance safety is presented in this research report. This method covers a number of key aspects: Thermal and mask detection are integrated in the sensors. The Raspberry Pi's temperature sensor powers the contactless temperature subsystem, while computer vision algorithms on the Raspberry Pi's camera enable mask identification. Admission will be refused to anybody whose temperature and mask have not been checked. The only people who may enter instantly are those who satisfy the system's conditions; if any of these are not satisfied, a buzzer will sound to alert security to the problem. The simulation results show that the proposed technique has a greater degree of accuracy when compared to existing methods. Consequently, the technique provides a 100 percent automated system for avoiding infection with Covid-19.Contactless temperature sensing, Mask Detection, Raspberry Pi are some of the keywords.

1. INTRODUCTION

The spread of the infectious flu-like respiratory ailment Covid-19, which is caused by the SARS-Cov-2 virus (also known as corona virus), has had a significant influence on almost every aspect of people's lives throughout the globe, including their health, since the latter days of the preceding year. Corona virus disease is characterised by symptoms such as fever, weariness, sore throat, nasal congestion, and a loss of taste and smell. The virus itself is also characterised by these symptoms. Respiratory droplets are responsible for the most majority of transmissions (from person to person), although it may also spread indirectly via surfaces. As a result, the usage of face masks and hand sanitizers has been found to have positive benefits on disease transmission prevention when compared to other methods.

Finding indications of fever is the first step in determining whether or not you have Covid-19. In addition, we must be on the lookout for anybody who is wearing a disguise. Despite the fact that we have temperature-checking equipment at each of our entrances, manual temperature scanning has a number of flaws, and our staff are not appropriately trained in the operation of temperature-checking equipment. It is possible that human mistake will occur during the reading of the values, and it is important to be aware of this possibility. In spite of the fact that they have been diagnosed with excessive temperature readings, many people are authorised to enter the facility, and in some circumstances, they are even permitted to do so without wearing safety masks. It is the personnel who circumvent the scanning procedure while their supervisors are not there. Using a manual scanning approach is not recommended when dealing with large groups of individuals.

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Protocatechuic acid and aldehyde's antioxidant properties are like "new wine in old bottles."

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ABSTRACT

Phenolic compounds are a kind of secondary metabolite found in foods including fruits, vegetables, and spices. Due to their antioxidant, anti-inflammatory, and anti-carcinogenic qualities, they have attracted a lot of interest as a means of protection against a wide range of chronic illnesses. Classed according to their chemical make-up into several categories that include phenolic acids, flavonoids, curcumins, tannins, and antioxidant feature of quinolones..eir structural differences lead to their unique positive benefits on human health. through increasing the production of natural antioxidants, scavenging for free radicals, and generally being all-around good at keeping things from oxidizing too quickly, phenolic chemicals provide protection against oxidative stress. Resistance to apoptosis. 3, 4-dihydroxy benzoic acid, also known as protocatechuic acid (PCA), and protocatechuic aldehyde (PAL; 3,4-dihydroxybenzaldehyde) are polyphenols that grow naturally in produce and plants.

Introduction

Some plant-based foods and drinks include polyphenols, which are believed to have positive benefits on human health. functions in a wide variety of metabolic and physiological activities Some of the benefits of [1] include lowering the likelihood of developing a number of ailments, a variety of cancers, heart disease, dementia, and other neurological conditions type 2 diabetes in people [2, 3]. This acid, known as protocatechuic acid (PCA; and protocatechuic aldehyde (3,4-dihydroxybenzoic acid) The major metabolites are (PAL; 3,4-dihydroxybenzaldehyde). vegetal sources of the polyphenolic compounds [3] produce and greenery. In chemistry, PCA is a benzoic acid derivative that dissolves in water. anti-atherosclerotic (Figure 1), functions as an anti-inflammatory, an anti-cancer, an analgesic, and an anti-bacterial. Protective effects on the liver, antiviral properties and impacts on living organisms (in vivo) laboratory experiments on simulated human cells in vitro [6, 7]. It's crucial in turning around the alterations in biochemistry

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DEEP NETWORK OPTIMIZATION AT ADAPTIVE RATES

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Abstract: - ***Profound learning structures are turning out to be more confounded, bringing about weeks, if not months, of tutoring time. This drowsy schooling is brought about by "evaporating inclinations," in which the angles utilized by engendering are gigantic for loads interfacing profound (layers close to the yield layer) and little for loads associating shallow (layers close to the information layer), bringing about sluggish learning inside the shallow layers. Besides, low arch seat factors have been displayed to create during non-raised illnesses, like profound neural organizations, which essentially eases back learning [1]. In this paper, we present an advancement technique for profound neural organization training that plans to tackle the two issues referenced above by utilizing study costs that are explicit to each layer in the organization and versatile to the ebb and flow of the element, permitting us to foster burden information at low curve components. This empowers us to learn quicker in the organization's shallow layers and break out extreme mistakes of low shape saddle parts in a short measure of time. We utilize our procedure to huge picture gloriousness datasets like as MNIST, CIFAR10, and Image Net, and exhibit that it further develops exactness while diminishing the measure of time required for preparing over immense strategies.***

I. INTRODUCTION

Profound neural organizations have demonstrated to be exceptionally effective lately, accomplishing cutting edge results on a scope of errands, for example, picture grouping [2], face acknowledgment [3], feeling investigation [4], voice acknowledgment [5], etc. A typical inclination can be found in these articles: as the measure of preparing information increments, so does the intricacy of the profound organization engineering. Notwithstanding, even with superior equipment, preparing progressively complex profound organizations might require weeks or months. Therefore, more remarkable techniques are needed for preparing profound organizations. Profound neural organizations learn significant level qualities by executing a progression of non-direct activities. Leave An alone a preparation informational index with n information focuses a1, a2, and x Mr, just as related marks B = bi n i=1. Expect that f is the initiation job of a 3-layer organization. Allow X1 and X2 to address the loads we're attempting to learn on the - line, i.e., X1 connotes the loads between the first and second layer hubs, and X2 implies the loads between the second and third layer hubs. For this model, the learning issue might be expressed as the accompanying streamlining issue:

The enactment work f, which is normally a sigmoid or tan capacity, might be any non-direct planning. Amended direct (Relook) units (f (z) =max 0, z) have as of late been well known since they appear to be not difficult to prepare and give better results to specific issues [6]. The non-raised objective (1) is commonly brought down by utilizing iterative techniques, (for example, back-spread) determined to combine to a reasonable nearby least. Most iterative techniques bring about added substance adjustments to the shape's boundary set x (in our case, weight networks).

Where x (k) is a very much picked alteration. Note that we utilize a fairly unique documentation here than in customary enhancement writing, in that we coordinate the stage size or learning rate t (k) into x. (k). This is done to make it simpler to talk about different streamlining techniques in the following areas. Accordingly, in the boundaries, x (k) shows the update and is comprised of a mission course and a stage size or learning rate t (k), which decides how enormous a stage toward that path ought to be taken. The most well-known refreshing standards are slope plunge variations, in which the hunt heading is given by the negative angle g (k):

The inclination can't be precisely estimated since the preparation information for these profound organizations generally comprises of millions or billions of information focuses. All things considered, the angle is constantly processed utilizing a solitary information point or few information focuses. This is the reason for stochastic slope drop (SGD), the most generally utilized technique for profound net arrangement [7]. SGD should pick an underlying learning rate physically, then, at that point develop a learning rate update law that diminishes it over the long run (for instance, outstanding rot with time). SGD's yield, then again, is exceptionally delicate to this update choice, driving in versatile strategies that consequently modify the learning rate as the machine learns [8], [9]. As these plummet techniques are used to prepare profound organizations, new issues arise. As the quantity of layers in an organization builds, the inclinations that are communicated back to the underlying layers become minuscule. This considerably lessens the pace of learning in the early layers, just as the general organization combination [10].

For high-dimensional non-arched subjects like profound organizations, it has as of late been shown that the event of neighborhood minima with critical incorrectness comparative with the

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Grouping of Nations according to Developmental Factors and Year-by-Year Comparison

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Abstract:

There are a number of factors that might effect a country's growth and economy in today's globalised world. The future of nations depends on a thorough examination of these issues. In this context, nations are categorised as undeveloped, transitional, developing, and developed countries, among other things. Countries that are categorised this manner and are in the same class have a wide range of commonalities. Using elements that influence different degrees of development, this research aims to highlight the changes in the economies of Balkan and former Soviet Union nations during the previous two decades. According to the years in which the socio-economic variables were obtained, missing data imputation techniques were employed to identify the values of the variables that were not present. Cluster analysis is used to identify nations that are comparable in terms of their degree of development, and these countries are then grouped into clusters. For 1995 and 2015, the same processes are used, but the nations' locations are indicated to have changed.

INTRODUCTION

Countries' economic progress has been a central theme in the history of the world. In addition, there are numerous other factors that may be used to gauge a country's social and cultural progress, such as its GDP. Countries may be compared based on these factors. Developing nations, transition countries, and industrialised countries may all be used as examples of literature's degree of development. In this perspective, it is clear that nations with equal levels of development have the same names. As is well known, access to data has become simpler in the modern day. But there are still a few missing numbers in the data Due to the importance of full observations in data analysis, many statistical approaches are utilised to overcome the issue of missing data. A nation cannot be compared to other countries if it does not have all of the necessary facts to do so. The 54 nations included in this research were compared using 14 distinct factors. Comparisons between 1995 and 2015 are the primary objective of this research. Missing value imputation techniques were used to fill in the blanks in our data set. After that, factors were grouped together in a clustering analysis to determine which nations were at different stages of development. For the years 1995 as well as 2015, these trades were made. One of the goals is to track down how each country has evolved over these last two decades. The following steps will be taken to complete this project: Section II reviews past research, Section III defines data and variables, Section IV examines methods, and Section V offers an interpretation of the findings. Section VI will wrap up the research.

PREVIOUS WORKS:

A panel of 23 OECD nations was employed by Carree, Van Stel, Thurik, and Wennekers [1] for their research. The equilibrium points between economic growth and company ownership have been identified. A comparison of GDP Per Capita in developed and developing countries was performed by Maddison, A [2]. Compared to the factor analysis based on the socioeconomic development levels of Turkey and the EU countries, Taş,. K. & zel, S.. [3] We used hierarchical cluster analysis of the welfare regimes in advanced nations to identify the clusters of the welfare regimes based on a set of quantitative social indices. Low technical efficiency has created an economic growth gap between wealthy nations like the United States and low-income countries like China, according to research by Hulten, R. and A. Isaksson [5]. Empirical conclusions based on human capital and foreign direct investment (FDI) in developing countries were discovered by Noorbakhsh, Paloni, and Youssef, A. It was shown that the real exchange rate between developing

Secure voting system using blockchain technology and IoT

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ABSTRACT

A credible election is a critical mission for the survival of democracy, and the voter's trust is fundamental to civil stability. Too often, security, accessibility, verifiability, and transparency of electoral infrastructure have to remain untrustworthy. Preliminary reviews and surveys are made to related e-voting technologies, and comparative analysis conducted on the various authentication techniques used in voting frameworks. Recent security gains of blockchain technology are worthwhile going by the surge of crypto currencies, and as a suite of related protocols, it is distributed, irreversible, anonymous, incontrovertible, open source public asset ledger, where the complete data shared among all participants in the network. This paper investigates the development of an innovative voting model relying upon the use of blockchain and eye technology for verification and authentication of voters, and security of ballots in an anonymous voting scenario. The paper compares different eye technologies for identification and authentication of voters. A proposal is made for a multi-modal approach of both behavioural and physiological eyes techniques and includes a challenge response built within a blockchain voting platform to recognise voters. It highlights the components and prevailing security threats along with a review for the remedial approach. This aims to boost confidence and integrity of national and institutional democracy. Keywords: security; blockchain; smart contract; eye; e-voting; election; electronic democracy

INTRODUCTION

1.1 INTRODUCTION OF BLOCKCHAIN BASED SECURE VOTING SYSTEM USING IOT

In the world of democracy peoples have the fullest rights to decide and select an efficient leader to lead them. That decision is finalized by the process of election. The election is done by voting for the candidates who have opted to join in the election. The person who gets the most votes will win the election and he is decided to be the leader by the people, like Abraham Lincoln said "of the people, by the people, for the people". To maintain the integrity nowadays election commission is formed. In the starting, the election is done by voting to a candidate by the paper and then many vote rigging has been done in this method. But a same person has voted for more than one time and day by day this was increased dramatically in the election process. To avoid this, election commission has made a great change in the voting process by introducing an E-Voting machine. This machine consists of multiple buttons and each of the buttons is allocated for the separate candidate's symbol. When the voters press the button for a candidate, the vote count will be saved in the voting machine. It consists of a memory storage module which stores the data and finally the votes are counted by adding the votes in the machines storage unit. But also in this process, some peoples have done vote rigging by attempting to vote more than one time, and also by hacking the storage module in the voting machine. To over through all this types of problems we are proposing a system with more security, easy for voting and vote counting which set free time and money for next generation voting process. In this system block chain technology is implemented to provide security against the modifying the voting count through hacking, and the fingerprint module is used to evade the multiple appearances of the voters

1.2 INTRODUCTION OF DOMAIN

Machine learning (ML)

Machine learning is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence. Machine learning algorithms build a mathematical model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed to perform the task. Machine learning algorithms are used in a wide variety of applications, such as email filtering and computer vision, where it is difficult or infeasible to develop a conventional algorithm for effectively performing the task.

Machine learning is closely related to computational statistics, which focuses on making predictions using computers. The study of mathematical optimization delivers methods,

linear instability implies nonlinear instability for several kinds of viscous boundary layers

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Introduction

Multidimensional parabolic systems at their "inviscid" limit or the "near-inviscid" limit of the Navier–Stokes equations may all exhibit boundary layers, which are also called "Ekman layers," "mixed Ekman Hartmann layers," or "Ekman Hartmann layers." Reynolds number Re = Ul ν is an important parameter, which is a dimensionally insensitive number derived from three variables: the usual size of velocity outside of the layer (U), the layer size (l), and the viscosity (). A stable boundary layer may be predicted in classical settings where the Reynolds number is less than a predetermined threshold value Rec. Instabilities may arise above Rec. Re Ree, a crucial Reynolds number connected with energy approaches, may be used to show the layer's linear and nonlinear stability. Newer techniques in the spirit of PDE may be found in [2,7] and its references. The difficulty is that in most situations, Ree is less than Rec, with a significant difference between the two numbers. An next project aims to fill up the void. Nonlinear instability implies linear instability in the L norm, if the Reynolds number in the layer is bigger than Rec at some point. In this study, we want to verify this relation. For Ekman layers and Ekman Hartmann layers, we'll provide a general theorem. We believe it may be applied to multidimensional parabolic systems in a simple way. For the incompressible Euler equations, the technique is an enhancement of [7] where instability findings are proved.

A general instability theorem Preliminaries

We study systems of the form

$$\partial_t u + Q(u,u) + \frac{Lu}{\varepsilon} - \varepsilon\Delta u = 0,$$

Q is of the type Q(v1,v2) = (v1)V2 or Q(v1,V2) = P (v1)V2 when u is vector valued.

Constructionof an unstable wavepacket

An unstable wavepacket confined in space and rising in time must first be constructed, and L 2 and L estimates must be derived from this wavepacket. Let us first note that horizontal invariance permits us to limit ourselves to the scenario of xo = yo = zero. Assume that the value of is small enough that it does not exceed zero.

Error terms

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Nano-Biomaterials: A Beginner's Guide

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ABSTRACT

When a medical device is meant to interact with biological systems, the term "biomaterial" should be used. Nano-sized biomaterial particles (1–100 nm) have several uses in tissue engineering, cancer treatment, drug and gene delivery, medical imaging, and more in the biomedical sector. An inert substance, such as silica monolayers, protects the nanoparticle core of a nano-biomaterial. Polymers, metals and alloys, ceramics and composites, as well as other biomaterials, are examined in this article initially. Collagen, a natural biomaterial, is used extensively in medical implants. An implanted synthetic material's effect on a live creature has also been explored. Some uses have been briefly mentioned because of the introductory nature of this article and because the medical applications of biomaterials are thoroughly discussed by top researchers in subsequent chapters of the same book.

Keywords

Biomaterials, Nano-biomaterials, Polymers, and Metals & Alloys, Collagen (HA), Hydroxyapatite (HA), Tissue engineering

1. INTRODUCTION

In the context of biomedical applications, the term "biomaterial" is often used to refer to materials that are not biological, such as synthetic polymers.[1] One definition of a biomaterial is a material that may be used indefinitely to treat, strengthen or replace any part of the body or function[2]. "A synthetic substance used to replace part of a live system or function in close contact with living tissue"[3] is another definition for biomaterial. Nano-biomaterials, such as nano-muscle fibres, nano-apatite grains, nano-membrane, and so on, may be seen as a composite of biological tissue.[4] Tissue engineering, biosensors, bioimaging, drug delivery and gene delivery, wound healing, medical implants and diagnostic systems such as protein- and DNA microarrays are just some of the many biomedical applications for nano-biomaterials that have long been the subject of active study. Researchers have been able to create nanoparticles, nanofibers, nanocoatings, and nanocomposites for biomedical purposes due to the fast rise of nanotechnology. Biological features of a nano-functionalized surface have been postulated by Liu et al.[5]. Thus, nanostructured surfaces may enhance the therapeutic uses of biomaterials.

2. REQUIREMENTSFOR BIOMATERIALS

Because a biomaterial is intended to be utilised in close proximity to live tissues, it must be free of any toxic effects on the host tissues and organs and non-toxic to the body[6]. Therefore, an ideal biomaterial must have a chemical composition that is biocompatible in order to prevent tissue reactions, be resistant to biological degradation in the case of polymers and corrosion resistance in the case of metals, have high wear resistance, acceptable physical and mechanical properties to sustain cyclic loading and aesthetic appeal in some cases.

3. CONVENTIONAL BIOMATERIALS

The biomaterials that are presently being employed in clinical applications are briefly discussed in this section. Polymers, metals, ceramics, and composites are the four main categories of biomaterials used in medicine. Conventional biomaterials are included in Table 1 along with their pros and drawbacks, as well as their medicinal uses. Figure 1 illustrates how these biomaterials may be used in the human body. There are many different types of polymers, and each one has a lengthy chain of repeating units. A single polymer molecule may contain tens of thousands, or even hundreds of thousands, of units. Carbon is the primary building block of most polymers, making them organic.

Table 1: Conventional biomaterials with their medical applications and characteristics[8,9]

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Micro inverter design and analysis for solar power plants

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Abstract:

Renewable energy sources are obviously accepted as clean energy sources of future. The solar energy is the most popular among other renewable energy sources in all over the world. Many studies are performed on photovoltaics (PVs) and solar energy systems. Inverter is the most important power converter section of photovoltaic systems in terms of efficiency in changing weather conditions. This study presents the design and analysis of a micro inverter for PV systems. The proposed micro inverter is designed by using MATLAB Simulink software, and the control algorithms are implemented according to Incremental Conductance method. It consists of isolated boost converter with Maximum Power Point Tracking (MPPT) and H-bridge inverter with PI controller. The reaction of system has been observed under changing irradiation conditions. The implemented micro inverter has compensated the irradiation changes at boost converter stage, and dc-ac conversion process is performed regarding to the designed PI controller. The dc bus voltage is increased to around 300V, and the HF transformer is used to increase inverter input voltage to 420V. The output of inverter is generated with the support of PI controller to track 220Vrms line voltage. The THD rates for both voltage and current are measured at 0.51% in FFT spectrum, and the overall power of the micro inverter is supplied around 315W.

INTRODUCTION

The energy resources can be mainly classifiedinto three categories as nuclear resources, fossilfuels and renewable resources. The renewableenergy resources, which is one of the most widely

researched among others [1]. There are a lot ofrenewable energy sources (RES) in the world suchas hydropower, marine energies, biomass,geothermal, solar and wind where the 14% of the total world energy requirement is provided bymeans of RES [2]. Renewable energy (RE) studies are increasing with each passing day due to fossilfuels depletion and greenhouse effects. Solarphotovoltaic (PV) systems are becoming asignificant RES because of its clean structure, nofuel requirement, sustainability and reliability [3].Electricity is generated from sunlight by convertingsolar light into electricity by solar cells.The solar cells can be classified as first, secondand third generation cells. The first generation cellsare made of polycrystalline and monocrystallinesilicon materials while the second-generation cellsare thin solar cells. The third generation of solarcells consists of a number of thin-film technologies. One of them is monocrystalline cells, which is betterthan others in terms of efficiency. However,monocrystalline cells are more expensive thanothers [4]. The PV system can be sectionalized as

standalone system and grid tied system where thebattery bank is required to store PV energy for

standalone system. Since the grid-tie systems aredirectly connected to the grid, any battery bank isnot involved for them [5]. A regular PV systemconsists of PV panels, inverter and auxiliaryelectronic circuits. The inverters are prevalentlyclassified as string inverter, central inverter and themicro inverter. The central inverter shown in Fig.1.a. has its own Maximum Power Point Tracking(MPPT) algorithm that is used in large PV solarplants. The large PV solar plants consist of strings which are comprised of series and parallelconnected PV panels. Each string of PV panels isconnected to central inverter. High voltage DCcabling is required for connecting central inverterthat causes some disadvantages such as cable lossesin the system. Furthermore, the system can becompletely disabled in partial shading condition ofPV system [5]. Another type of the inverter is thestring inverter that connects one PV string as seen inFig. 1.b. This structure has not diode loss in seriesand provides separate MPPT control for each string.

On the other hand, this is not sufficient toaccomplish shading problems in the PV system [6].

Therefore, a new type of inverter challenging withpartial shading is implemented and called microinverter. Many micro inverters are connected toeach PV panel, and then they are connected to anAC bus bar to improve output power of system, asshown in Fig. 1.c. The MPPT control

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FACTS: Practical Installations and Benefits of Flexible AC Transmission Systems (FACTS) Controllers

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ABSTRACT

As a result of FACTS controllers' actual installations, advantages and utility applications, this paper provides a wide range of information. Detailed details on the development of these devices and the first utility installation/demonstration of FACTS devices are provided. Then, a thorough list of important FACTS installations across the globe is shown. Additionally, the article examines how these gadgets might benefit the user and how much they will cost. Various FACTS devices may be used in a deregulated market, according to the report. The FACTS controllers are likewise the subject of discussion. Advanced FACTS controllers have higher losses than their traditional counterparts, and thus must be taken into consideration when designing future power systems. FACTS controller examples and analysis are provided for each major controller in the study.

INTRODUCTION

Static limits and dynamic limits are two classifications for the limitations of the AC transmission system [1-3]. As a result of these built-in restrictions, transmission resources aren't being used to their full potential. Many of the issues were traditionally addressed using fixed or mechanically switched shunt and series capacitors, reactors, and synchronous generators. However, there are limitations on how these traditional gadgets may be used. Efforts to meet expectations were unsuccessful. Mechanical component wear and reaction time were the root causes of the issues. Solid state devices with quick reaction capabilities were in growing demand as an alternative technology. Overhead transmission line building permits and right-of-way were difficult to get because of the global reorganisation of electric companies, increased environmental and efficiency rules, and the difficulty of obtaining these permits and rights of way [4]. Since then, a new class of power electronics devices called as Flexible AC Transmission Systems (FACTS) controllers has emerged thanks to the discovery of the Thyristor switch (a semiconductor device). As high-power semiconductor devices advanced quickly [1-3], they enabled the transition from traditional Thyristor-based FACTS controllers to the current, ultramodern versions based on voltage source converters. Controllers of FACTS have

since the 1970s, when the first utility demonstration of the first FACTS family, the Static Var Compensator (SVC), was completed, has been used in utilities across the globe. A lot of time and energy has been devoted to the study and creation of FACTS controllers since then.

HISTORY OF DEVELOPMENT AND STATUS

STATIC VAR COMPENSATOR

The Static Var Compensator is a rudimentary FACTS controller from the first generation. The Electric Power Research Institute (EPRI) first introduced this technology to the market almost a quarter of a century ago. With this compensator, you may dynamically compensate for shunt effects by manipulating the reactor and/or the shunt capacitor bank through a fast-thyristor switch. A total of more than 800 SVCs have been deployed across the globe, in utility and industrial settings (most notably in electric arc furnace and rolling mills). Since its inception, SVCs have been used by utilities in undeveloped nations as well. Despite being a pioneer in the deployment of SVC, ABB only provided 55% of the total installations, with 13% of those installations taking place in the Asia-Pacific region. In 1974, General Electric (GE) established the world's first demonstration of SVC for utility use and marketed it [1].

Voltage control got more challenging in the UK after deregulation in 1990. The UK deployed relocatable SVC in order to deal with the uncertainty of the future and the ever-changing power system conditions (RSV). The NGC (National Grid Company) system currently has 12 RSVC (60 MVAr each) in operation [5].

A SERIES CAPACITOR WITH A THYRISTOR IN CONTROL

In the first generation of FACTS devices, a capacitor bank is controlled by silicon-controlled rectifiers through a thyristor-controlled series capacitor (TCSC). TCSC enables utilities to move more electricity over a single line. ABB designed and implemented the world's first three-phase TCSC at Kayenta substation, Arizona, in 1992, which increased the transmission line's capacity by over 30 percent. Seven TCSCs have been set up throughout the globe by the end of 2004. Three TCSCs were established in Asia, two in China and one in India, placing Asia to the forefront of the latest FACTS technology on the continent. Table 1 lists all of the TCSCs that had been put into service as of December 2004 across the globe.

Static Synchronous Compensation (SSC) device

FACTS controllers that use STATCOMs (Static Synchronous Compensator) have a potential future use. Some of STATCOM's benefits are its tiny size, quick reaction time, and lack of harmonic pollution. It was the world's very first business enterprise.
Japan's Inuyama substation was the first to use Mitsubishi Electric Power Products' STATCOM (80 MVA, 154 kV) in 1991. Throughout 20 STATCOMs are now in use around the

A TWITTER LOCATION PREDICTION SURVEY

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ABSTRACT

Places such as countries, states, cities, and points-of-interest play an essential role in news coverage, emergency situations, and people's daily activities. They are also crucial in politics. Researchers have been experimenting with automated recognition of locations that are related to or referenced in documents for several decades. Because of the vast number of users that send millions of tweets every day, Twitter has risen to become one of the most popular social media platforms available today. Geographic prediction has gained a great deal of attention in recent years, owing to Twitter's global reach as well as the real-time freshness of the information included in tweets in real time. The majority of the research is devoted to identifying and solving the new challenges and opportunities given by the loud, quick, and contextually rich nature of Twitter messages. In addition, we hope that this survey will give a more comprehensive picture of location prediction on Twitter than we now have. To be more specific, we're looking for user home location forecasts, tweet location predictions, and mentioned location predictions. We begin by identifying the three tasks and going over the assessment criteria one more time. When we summarise and analyse the Twitter network as well as the tweet content and context as possible inputs, we can more systematically explain how these inputs have an impact on the issues in question. Detailed analyses of the solutions that have been implemented in current best practises are offered for each dependency to support the point being made. In addition, we provide a high-level description of two related challenges, semantic location prediction and point-of-interest recommendation, which are treated in further depth later in this section. We then draw a conclusion based on the facts and offer some suggestions for further research.

1. INTRODUCTION:

It is estimated that the number of online social networking sites has expanded at an unparalleled rate since 2000, outpacing the number of people on the world at one point. In addition to Twitter and Facebook, there are a variety of additional social media platforms, including location-based platforms such as Foursquare and Gowalla, photo-sharing sites like as Flicker and Interest, and other domain-specific platforms such as Yelp and LinkedIn. Individuals can build online relationships with others who share similar interests as their own by making use of the services offered by these companies. Users may also share information about their regular activities with their online friends by sending messages, uploading images, uploading videos, and checking in at certain areas, among other methods. Its ability to allow users to follow friends and exchange messages with one another distinguishes it from the rest of the crowd of other online social networks. Even while Twitter relationships aren't always mutually advantageous to both sides, users have the option of "following" celebrities without having to reciprocate. On Twitter, textual submissions, often known as tweets or microblogs, are limited to a maximum of 140 characters, however photos are not restricted to a maximum of 140 characters. Aside from that, users are encouraged to write about anything they like, on a frequent and informal basis, such as their own thoughts, activities, and viewpoints, as well as local news and a range of other topics. Human beings, internet connections, and tweets have all played a role in the development of Twitter, which is a simulated online world that has gained widespread popularity. Communication between the virtual and the real world is possible at particular points when specific sites serve as intermediary bridges between the two realms. According to Twitter users' claims, they have long-term dwellings in a variety of cities throughout the world. As a result of their daily activity areas, their home locations boost their probability of discovering, getting interested in, and tweeting about news or events that take occurring in their daily activity regions. The usage of GPS-enabled devices, such as smart phones and tablets, can lead to the incorrect attachment of location information to tweets as they are being sent out to the public.

The following three sorts of Twitter-related locations will be studied in this poll: the user's home location, the location of a tweet, and the location of a mention on Twitter. Better awareness of where Twitter users are located allows us to perform a range of things, such as better understanding what is occurring in the real world, bridging the

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Extreme Machine Learning Adaptation Under Supervision

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ABSTRACT

Agreat learning framework is manifold regularization-based semi-supervised learning (SSL). A key factor affecting SSL's performance is the way in which manifold graphs are constructed and the level of safety at which unlabeled samples are tested before encryption can begin. Unlabeled samples are often pre-constructed before classification and corrected throughout the classification learning process due to the building of several graphs and safety degrees. We propose a unified adaptive safe semi-supervised learning (Adap-SaSSL) system to address the aforesaid issues. A manifold graph is adaptively constructed and the safety degrees of unlabeled samples are adaptively calculated using this framework. As a result, the weights and parameters of the manifold graph and its parameters, as well as the safety degrees of unlabeled samples, will be optimised during the learning process rather than being precalculated. Finally, using the Adap-SaSSL architecture, we created and implemented an adaptive safe classification approach known as the adaptive safe semi-supervised extreme learning machine (ASSEM) (AdSafe-SSELM). AdSafe-effectiveness SSELM's and dependability have been shown via testing on a variety of simulated, benchmark, and image datasets.

INDEX TERMS

An adaptive graph, manifold regularisation, and a semi-supervised learning (SSL) machine (MR).

INTRODUCTION

In both theory and practise, semi-supervised learning (SSL) is an effective learning paradigm that has proven successful over the previous decade. Marker samples are typically difficult and expensive to get, yet in many practical situations it is more convenient and cost-effective to collect unmarked samples. When it comes to facial recognition [5–7], voice recognition [8–9], and handwritten digit detection, SSL is commonly used [10–12]. In general, SSL relies on a variety of assumptions, such as smooth, cluster, and manifold assumptions, to establish relationships between labelled and unlabeled samples. It is one of the most common assumptions [1] to make. Manifold regularisation techniques, such as those developed by Belkin et al. [1], may successfully use the information in unlabeled data, as shown by the results of the Laplacian regularised least squares (Lap-RLS) and Lap-SVM algorithms. It is well-known that MR's performance depends heavily on the manifold graph's architecture. As soon as a good-performing graph is built, it may eventually aid increase classification performance [10–13].. The performance will suffer as a result, and the classification will suffer as well [13]. It is also common for the graph to be established in advance and to be retained in place during the training process. It is almost hard for us to tell whether the graph is doing well before we see it. A parameter selection problem remains unsolved in semi-supervised learning with little label information because it is difficult to construct a decent performance graph before classification [13]. It adds even another hurdle to the process of creating MR graphs in advance. Few studies have focused on graph building to date [10]–[13], so far as we know, current MR enhancements either strive to determine the regularisation parameters or increase the efficiency of MR. SSL performance may be negatively impacted by the use of unlabeled samples, according to recent research [14], [15]. SSL's practical applicability will be limited if unlabeled samples are not safe to utilise [14]. A safe semi-supervised learning (SaSSL) approach is thus required, since the SL technique utilising just labelled samples is always poorer than the SaSSL approach. [16]–[20] and [20]–[22] are examples of semi-supervised learning approaches that have been proposed in recent years. ELM is a new SLFNs technique suggested by Huang et al. [23] as a single hidden layer feed-forward network. Some ELM-based alternative algorithms have recently been suggested as a result of the good performance of ELM. Because they are virtually all supervised learning algorithms, they are unable to make use of unlabeled examples in training their models. MR-based semi-supervised ELM method by Huang et al. [30] has been presented as a solution to this issue. Unfortunately, SS-ELM currently lacks the required safe mechanisms when attempting to exploit unlabeled

PREDICTIONS OF CHRONIC KIDNEY DISEASE USING MACHINE LEARNING MODELS

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ABSTRACT

When it comes to clinical disorders, chronic kidney disease (CKD) is an umbrella term that refers to a wide range of illnesses that deteriorate as kidney function degrades over time. It refers to a wide variety of medical conditions. The term "chronic renal failure" is sometimes used to describe this illness in some circles. Various factors, including genetic abnormalities in the kidneys and systemic illnesses that damage the kidneys, can contribute to chronic kidney disease. Depending on the underlying reason, it might express itself in a variety of ways. Worldwide, the number of people suffering from chronic kidney disease (CKD) is growing year after year, according to the World Health Organization. As defined by the World Health Organization, chronic kidney disease (CKD) is a worldwide public health concern with an increasing incidence and a vast geographic reach that affects individuals all over the world. GFR rises in the presence of renal failure needing dialysis, and it is widely regarded to be the most reliable overall indicator of kidney function in the general population. Heart disease (including high blood pressure and anaemia) and a variety of metabolic problems, to mention a few, are among the additional risk factors for kidney failure. Because of a statistical approach known as 10-fold cross-validation, the algorithms of logistic regression, support vector machines, random forest, and gradient boosting have all been trained and tested on real-world data. According on the F1measure gathered by the classifier after training, the accuracy of the Gradient Boosting classifier is 99.1 percent correct. In addition, we discovered that haemoglobin has a bigger significance for both random forest and gradient boosting in the diagnosis of chronic renal sickness than was previously believed to be the case, which is in direct opposition to previous notions.

1. INTRODUCTION

Long-term kidney disease (CKD) is a serious public health concern that affects individuals all over the world, but it is most widespread in poor and middle-income nations. Chronic kidney disease is caused by a buildup of waste in the kidneys. Eventually, it is caused by a buildup of waste products in the kidneys, which leads to renal failure. As with renal failure, one of the characteristics of chronic kidney disease
(CKD) is that the kidney does not function as expected and is unable to filter blood adequately, as is the situation with chronic kidney disease (CKD). Chronical kidney disease (CKD), also known as Chronic Kidney Disease (CKD), is a chronic kidney disease that affects around 10% of the world's population. A scarcity of inexpensive treatment options causes millions of deaths each year, with the number of deaths among the elderly growing in recent years as a result of a lack of available options. As documented by the International Society of Nephrology's Global Burden of Disease 2010 report, chronic kidney disease (CKD) is a significant cause of death around the world, with the number of fatalities increasing by 82.3 percent over the preceding two decades [1, 2]. Increasing the stakes for patients with chronic kidney disease (CKD). The number of patients who have been diagnosed with end-stage renal disease has also increased significantly in recent years, which is a worrying trend (ESRD). In order to extend the lives of patients who are suffering from this illness, either kidney transplants or dialysis are required. One of the primary goals of their project, which is currently in progress, is to use machine learning algorithms to predict chronic kidney disease in diabetics who are at risk of getting the illness in the future. Following the outcomes of this investigation, the study team examined 600 clinical data from a top diabetic research centre in Chennai, India, for the goal of performing this analysis. The scientists utilised a machine learning programme to analyse the dataset, which featured categorization algorithms such as the decision tree and Naive Bayes, both of which were assessed to be efficient by the scientists who created them. Using the decision tree technique, researchers observed that it outperformed the Nave Bayes algorithm by around nine hundred and ninety percent when compared to the later algorithm. Diagnose and forecast the existence or absence of chronic renal disease in a certain patient (CKD). Each algorithm took into account a total of 25 criteria, and it was concluded that four separate algorithms were preferable

DESIGN OF DOUBLE LATCH-MULTIPLEXED OUTPUTS PAR ADIGM BASED POWER GATED DUAL EDGE TRIGGERING FLIPFLOP

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Abstract—**In this paper we introduce a new Power gated dual edge triggering flip-flop circuit based on double latch-multiplexed outputs paradigm with totally 20 numbers of transistors including 8 numbers of clocked loads. Initially, the single latch L1 is constructed in two stages with minimum numbers of transistors. To construct the double edge triggering flip-flop, the latch L1 is duplicated as latch L2 and these two latches are connected in parallel and act as master slave flip-flop.**
The sleep transistor technique is one of the power gating methodologies and it is integrated into the new double latched multiplexed master slave flip-flop, for additional power reduction. The sleep transistor technique dramatically reduces the leakage power during the circuit in the mode of sleep. The performance of proposed flip-flop is analyzed by simulating the circuit at 0.12µm CMOS process technology. The proposed flip-flop design offers a power reduction upto 67.89%with considerable speed improvement compared to conventional flip-flops. Also, the performance of proposed design is evaluated by implementing the 4-Bit parallel input serial output shift register. The evaluation indicates that the proposed design is well suited for clocking systems where power dissipation is major concern with considerable delay.

Index Terms—**Digital CMOS, double edge triggering, flip-flop, Low power.**

I. INTRODUCTION

The clocking system, which is constructed by the clock allocation tree and register elements (latches and flip-flop), is one of the major power consuming components in a VLSI system. [1, 2] In the total power dissipation of the system, it accounts for 30% to 60% of the power consumption. Thus, it is essential to reduce the power consumption in both the clock allocation tree and register elements (flip-flops). As a result a reduction of the power consumed by the register elements will have a deep impact on the total power consumption of the clocking system [3]. Low power design methodologies target to reduce the power consumption, thereby obtaining a power efficient register element with high performance.

Leakage currents are important sources of power consumption in modern

CMOS integrated circuits. International Technology Roadmap for Semiconductors states that "Leakage will become a major industry crisis, threatening the survival of CMOS itself" [4]. Suppressing sub threshold leakage currents in large scale integrated circuits is essential for achieving low power consumption in modern clocking system design which consists of several logical blocks. Logical blocks can operate in two different modes, active mode and standby mode [5.]

Power gating techniques essentially increase the effective resistance of leakage paths by connecting sleep transistors [6] .The PMOS sleep transistor placed between the logical block and power supply VDD is referred as Header switch element. The NMOS sleep transistor placed between the logical block and ground VSS is referred as Footer switch element. The CMOS logic circuit block with real power VDD & real ground VSS is shown in Fig.1. The Fig.2 demonstrates the power and ground gated CMOS logic circuit block with header PMOS and footer NMOS transistor.

If the standard SLEEP transistor technique is directly applied to a register element, the state of the circuit is lost during the SLEEP mode. The design of low-leakage memory circuit with data retention capability is another important factor [7].

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Substance abuse prevention programmes in schools

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ABSTRACT

Background

Drug addiction is a chronic, relapsing illness. Primary therapy should be designed to minimise first use, or prevent the move from experimental use to addiction. School is the best location for preventive interventions.

Objectives

To assess the efficacy of school-based treatments in enhancing knowledge, developing skills, encouraging change, and avoiding or decreasing drug use compared typical curricular activities or an other school-based intervention .

Search strategy

We searched the Cochrane Drug and Alcohol Group trial register (February 2004), the Cochrane Central Register of Controlled Trials (The Cochrane Library Issue 2, 2004), MEDLINE (1966 to February 2004) , EMBASE (1988 to February 2004), and other databases. We also contacted researchers in the region and checked reference lists of works.

Selection criteria

Randomised controlled trials (RCT), case controlled trials (CCT) or controlled prospective studies (CPS) examining school-based treatments meant to reduce drug use.

Data collection and analysis

Two writers independently extracted data and evaluated trial quality.

Main results

32 studies (29 RCTs and three CPSs) were included with 46539 participants. Twenty eight were done in the USA; most research focused on 6th-7th grade pupils, and depended on post-test assessment.

PLAINLANGUAGESUMMARY

Drug addiction is a long-term illness induced by an overpowering drive to obtain narcotics. People may use drugs to seek an effect, to be accepted by their peers or as a technique of dealing with life's challenges. Even after undertaking detoxification to obtain a drug-free condition, many revert to opioid

addiction. This makes it vital to restrict the number of individuals initially consuming drugs and to prevent transition from trial usage to addiction. For young persons, peers, family and social environment are significantly related in early drug usage. Schools give the most structured and effective means of reaching them. School programmes can be designed to provide knowledge about the effects of drugs on the body and psychological effects, as a way of building negative attitudes toward drugs; to build individual self-esteem and self-awareness, working on psychological factors that may place people at risk of use; to teach refusal and social life skills; and to encourage alternative activities to drug use, which instil control abilities. The research authors uncovered 32 controlled studies, of which 29 were randomised, comparing school-based activities focusing at prevention of drug use with the normal curriculum. The 46,539 children participating were mostly in sixth or seventh grade. Programs that focused on knowledge boosted drug understanding to some degree, in six randomised trials. Social skills training were more commonly employed (25 randomised trials) and effectively

Present and future lithium-ion battery materials

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Abstract

Key technical and scientific breakthroughs and problems for a wide variety of Li-ion battery electrodes are discussed in this paper. Suitable materials may be compared using the periodic table and potential/capacity charts. Intercalation materials such as lithium cobalt oxide (LCO), lithium nickel cobalt manganese oxide (NCM), lithium nickel cobalt aluminium oxide (NCA), lithium iron phosphate (LFP), lithium titanium oxide (LTO), and others have their performance characteristics, current limitations, and recent breakthroughs compared to those of conversion materials such as alloying anodes (Si, Ge, Sn etc.), chalcogenides (F, Cl, Br, I). Polyanion cathode materials are also explored in this paper.. Electrode materials are detailed in detail, including their cost and availability as well as their ability to conduct electricity, their ability to expand, and their ability to dissolve. Strategies for dealing with the present difficulties are classed into general and particular ones.

Introduction

Portable devices, power tools, and hybrid/fully electric vehicles all rely on Li-ion batteries because of their unbeatable combination of high energy and power density [1]. Electric vehicles (EVs) may cut greenhouse gas emissions by up to 80% if they take the place of gasoline-powered cars in the transportation mix [2]. Li ion batteries' high energy efficiency may also allow them to be used in various electric grid applications, such as improving the quality of energy harvested from wind, solar, geo-thermal, and other renewable sources, thus contributing to their greater use and building an energy-sustainable economy. As a result, both private sector and public funding organisations have devoted considerable attention to Li-ion battery development in the last several years. Despite this, there are those who believe that Li-ion batteries will not be able to meet the world's energy storage demands in the long term. A limited life span of Li and several transition metals now utilised in Li-ion batteries may one day become a concern in various applications (such as transportation and the grid) [3]. Li-ion batteries, on the other hand, offer a number of basic benefits over other chemistries. There are a number of advantages to using lithium ion batteries, including the lowest reduction potential of any element. As an added bonus, Li is the third-lightest element and possesses one of the most compact charged ions' ionic radiuses of any single charged ion. Li-ion batteries benefit from their high gravimetric and volumetric capacitance and power density as a result of these features. Finally, increased charge capacity per ion is possible with multivalent cations, but the extra charge limits their mobility significantly. Developing such alternative chemistries will be very difficult, because of the fact that ionic diffusion in solid electrodes is frequently the rate-limiting element for battery power performance Li will not be in low supply very soon [4,5]. Similar assertions have been made regarding the peaking of oil, but as prices rise and new exploration and mining methods are developed, the world's oil reserves and resources have yet to materialise. The quantity of Li in the Earth's crust is sufficient to power the whole world's automotive fleet in absolute terms [6]. Increasing costs, on the other hand, might be an issue for Li-ion batteries, since the high cost of these batteries is

Incompressible Viscous Fluid Flow: Boundary Element Method

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Abstract:

The boundary element approach is used to develop an integral equation for the steady flow of a viscous fluid. The flow field is calculated using the continuity, Navier-Stokes, and energy equations. Differential equations regulating a given situation velocity-pressure-temperature is used to generate basic variables. The computation of the solutions that are essential Shown is the tensor. Straightforward flow scenarios are simple to apply to. Such as a driven cavity, step, deep cavity, and channel with several obstructions. Presented. There are indications of convergence issues, which have restricted the applications to which they may be used. Low Reynolds number flows are described here. Fundamental solution, boundary elements, integral equations

Introduction

It was evident from the first day that a set of partial differential equations (PDEs) was needed to simulate fluid flow through pipes, blade passageways, nozzles, and other channels. The flow of fluid was simulated. The challenges that arise in getting information closed solutions, even for simple processes, need the use of only with the use of creative tactics can you produce new ideas. Answers to the equations and various flow patterns Practical considerations were taken into account. A variety of computational methods have been used, including finite-state machines (FSMs). Adding volume and boundary element to a finite difference know who's who in the world in light of the discovery of new algorithms, each of these strategies changed over time as computers became quicker. All regions during the last several years.

FDMs have been around for a while now. Implemented as a solution for flow issues. To put it another way, recent decades; it was still crawling in the 1970s.Both serve as a foundation for business codes that deal with the problem of solving flow problems. Essentially each and every one of them. There has been a limit to how much work may be put into the application in the sense that any new numerical approach that is found CPU time and storage space are claimed to be reduced by the technique of solution the following are some of the prerequisites However, the boundary element approach has advanced. Depending on where it has been used. It's been around for a while now. Solid mechanics and materials science have seen the most progress. Inconsistencies in the sound system Wrobel 1984; Banerjee and Butterfield 1981) and the most sluggish in the literature mechanics of fluids. This work employs a didactical method. The technique used to apply boundary elements to fluid problems is likewise aimed towards educating newcomers to the approach. Input and output According to Kakuda and Tosaka (1988), implementation is based employs a new formulation of the boundary element approach in this case. Velocity components in the Navier Stokes equations for unsteady flow only a technique using the penalty function may be used used with great effectiveness in finite element flow analysis. TheIt was shown by a series of numerical examples. Examples. In 1985 and 1986, Tosaka and Onishi suggested new integrals. Steady-state and dynamic Navier-Stokes equations Problems with erratic flow. legitimacy and efficiency of the method Numerous numerical examples were used to demonstrate the methodology. Results for situations with a constant state of change Osaka and Kakuda (1986); Tosaka (1986)).

Although integral techniques were available several decades ago for \sthe application to flow issues of practical significance, a \comprehensive examination of the formulation and application to flow difficulties are still being examined more lately, since they are intended to ease considerably the storage and hopefully CPU time, Despite this apparent benefit, requiring less computing effort when volume integrals are turned into surface integrals, some drawbacks exist, such as increasing mathematical complexity in needed to acquire an useable computational formulation; the necessity for the computation of singular integrals; dense matrices whose inversion is more time expensive when contrasted with the banded matrices in the finite difference and finite element approaches. In the section Application below the application of the boundary element technique to the following fluid issues are shown: a) stepped channel, b) box with sliding lid, c) channel flow with numerous barriers, d) deep cavity flow e) channel flow with heat transfer

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Chest CT Scan Image COVID-19 Detection Using AI-Based Image Processing

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ABSTRACT

Big data analysts and artificial intelligence experts are paying attention to the COVID-19 outbreak. The classification of computed tomography (CT) chest pictures as normal or diseased necessitates a large amount of data and an unique AI module design. By studying CT chest scan pictures, we present a platform that encompasses various layers of analysis and classification of normal and pathological characteristics of COVID-19. Specifically, the platform augments the training dataset with a reliable collection of photos, segmenting/detecting suspicious portions in the images, and evaluating these regions in order to return the correct classification. We also integrate AI algorithms after selecting the most appropriate module for our research. Finally, we compare the efficacy of our design to other strategies published in the literature. The collected findings indicate that the suggested design is 95% accurate.

COVID-19, corona score, medical imaging analysis, AI medical platform, deep learning, computed tomography, segmentation
Keywords: COVID-19, corona score, medical imaging analysis, AI medical platform, deep learning, computed tomography, segmentation

1 INTRODUCTION

Artificial intelligence has made a significant contribution to medical diagnostics and drug development. Artificial intelligence, according to experts, will have a significant impact by providing radiologists with tools to make faster and more accurate diagnoses and prognoses, resulting in more effective treatment. Because computers will be able to process massive amounts of patient data, big data and artificial intelligence will change the way radiologists work, allowing them to become experts on very specific tasks (Shen et al., 2017a). Artificial intelligence has already been successful in solving problems such as chronic illnesses and skin cancer (Esteva et al., 2017). Scientists now anticipate artificial intelligence to play a significant part in the hunt for a cure for the new corona virus, and therefore in reducing the terror that has gripped the globe.

Due to the COVID-19 pandemic, the health-care system has recently faced significant challenges in terms of supporting an ever-increasing number of patients and associated costs. As a result, the recent effect of COVID-19 necessitates a mental change in the health-care industry. As a result, using current technology such as artificial intelligence in order to build and develop intelligent and autonomous health-care solutions has become critical. When compared to other viruses, COVID-19 is notable for its rapid dissemination, which allowed it to become a global pandemic in record time. The medical and health-care systems are still researching and analysing it in order to get more trustworthy information and obtain a better understanding of this critical issue of rapid spread. As a result, accurately simulating the COVID-19 transmission remains a top goal in the fight against this virus. The detection of viral RNA from sputum or a nasopharyngeal swab using real-time reverse transcription–polymerase chain reaction (RT–PCR) is now the most widely utilised diagnosing approach. These tests, on the other hand, need human interaction, have a low positive rate at early stages of infection, and may take up to 6 hours to provide findings. Thus, quick and early diagnostic tools are needed to speed up the control of this pandemic, particularly in the long run, when lockdowns are entirely removed, testing should be conducted on a broad scale to avoid the pandemic from resuming.

Due to a lack of resources and technology in certain nations, testing has been confined to individuals who have symptoms, and in many instances, several symptoms. It goes without saying that the enormous burden that the situation has placed on national health-care systems and personnel, even in the most industrialised nations, exacerbates the difficulty of recognising and monitoring potential cases.

Artificial intelligence algorithms, which are approaches used to implement AI systems, assist with a variety of pandemic-related questions, ranging from vaccine and drug development to tracking people's mobility and how and whether they follow social distancing guidelines, to evaluating lung CT scans and X-rays for faster diagnosis and tracking the progression of such patients.

COVID-19 is now being diagnosed by a series of

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Bird species identification using deep learning

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Abstract:

Some bird species are becoming more uncommon, and even if they are discovered, it may be difficult to classify them. From a human viewpoint, birds may be seen in a variety of sizes, shapes, colours, and angles. Because of this, it is easier to identify birds by looking at their photos, as opposed to listening to their calls. In addition, it is easier for humans to identify birds based on their appearances in photos. As a result, our technique relies on the Caltech-UCSD Birds 200 dataset for both training and testing. To produce an autograph using tensor flow and a deep convolutional neural network (DCNN), a picture is transformed to grey scale using the DCNN technique. The testing dataset is used to compare the various nodes, and a score sheet is generated as a result. The highest score on the scoring sheet may be used to determine which bird species is needed. Analyses of the dataset (Caltech-UCSD Birds 200 [CUB-200-2011]) have shown that the system is 80-90% accurate in identifying birds. The experiment is run on Ubuntu 16.04 using a Tensor flow library on a laptop.

IndexTerms:Caltech-UCSD; grayscale pixels; Tensorflow Autograph

INTRODUCTION

There is a lot of interest in bird behaviour and population trends these days. By promptly responding to environmental changes, birds (e.g. the insects they eat) help humans identify other creatures in the environment [2]. However, acquiring and compiling data on birds necessitates a significant investment of time and resources on the part of humans. Researchers, government entities, and the like will need a dependable system that can handle massive amounts of bird data and function as a useful tool in this situation. As a result, the identification of bird species is critical in determining which specific picture of a bird belongs to which species. Identification of bird species is the process of determining which group a particular bird belongs to based only on visual cues. An picture, audio, or video recording may be used to identify a person. Birds may be identified by their sounds according to an audio processing approach. Insects, things from the actual world, and other ambient noises hinder the processing of this information. Generally, visuals are more powerful than audios or videos when it comes to persuading people. As a result, a strategy that relies on a picture rather than voice or video to categorise birds is the favoured choice. People and computer algorithms alike find it difficult to identify bird species, and this is true for both humans and computers. Bird species identification has been a concern for ornithologists for decades. To be an ornithologist, you have to know all there is to know about birds, including where they live, how they live, how they reproduce, how they effect the ecosystem, and so on. For the most part, ornithologists use Linnaeus' categorization system to determine the kind of bird they are looking at [1]. It is becoming easier to categorise items using image-based classification systems like Caltech-UCSD, which have a wide range of classifications. A lot of progress has been made in this area recently. Bird photographs from the Caltech UCSD Birds 200(CUB-200-2011) collection are widely recognised [4]. More over half of the birds in the sample are located in North America. Annotations such as 15 Part Locations and 312 Binary Attributes are included in the Caltech-UCSD Birds 200 dataset, which comprises of 11,788 pictures. There are many different ways to classify birds, but one method is used in this work to focus on the difficulty of classifying a large number of classes within one category. Because of the striking resemblances among bird species, it is particularly difficult to assign them to a specific classification. There is also a great deal of variety within classes since birds are non-rigid objects that may deform in several ways. A modest number of classifications or vocalisations have been used in previous bird categorization studies.

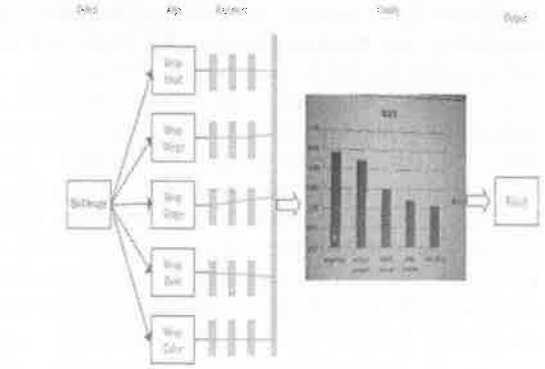

Figure No.1: Process of classification

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The Function of Smartphones in Today's Classrooms

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Abstract

Mobile and wireless technology have advanced to the point where they can be seamlessly integrated into the educational process. This research aims to investigate how much contemporary classrooms have benefited from mobile technologies. This research aimed to answer this question by analysing the perspectives of 204 students from the Faculty of General Education at ADA University who took a Writing and Information Literacy course over the span of two semesters. Students participated in a survey at the conclusion of the school year. We analysed the data using descriptive statistics like averages and variances. The research shows that using a smartphone's note-taking, photo-taking, video-recording, and the WhatsApp application may become standard practice in today's classrooms. Findings from this research also indicate that professors and lecturers should use smartphones liberally in their classrooms, and may eventually cause some shifts in teaching practices.

Key Words

Innovative methodology; mobile technology; mo.bile applications; note-taking; reading; smartphonenest.

Resume:

The development of mobile technology has progressed to the point where it can be seamlessly integrated into instructional and learning activities. The purpose of this essay is to investigate how far modern lecture halls are able to benefit from the use of mobile phones and the many services they provide. During two semesters, we conducted an experiment with 204 students enrolled in Writing and Information Literacy at the University of Arkansas for Medical Sciences' School of Education. A survey was sent to students at the end of the academic year. Descriptive statistics, including the median and standard deviation, were used to analyse the data. Modern classrooms may benefit from using a variety of mobile phone features, as shown by this study. These features include note taking, document photography (both analogy and digital), video conferencing, and the messaging software WhatsApp. In addition, the study hints that educators might benefit from making use of smartphone-related technology, which may help bring about some changes to current teaching practices.

Mots-clues

Innovative teaching approach; mobile technology; smartphone apps; in-class note-taking and recording; on-the-go access to course materials; mobile phone

Introduction

Over the last decade, technology has made a huge inroad into the classroom and had a profound effect on teaching and learning. More tech-savvy educators believe that mobile learning, or m-learning, can improve the teaching process in many ways, but the vast majority of those involved in education (e.g., teachers, instructors, lecturers, heads of educational institutions) still reject the unprecedented role of ordinary computeerrs and laptops in the classroom (Mammadova, 2014). For instance, Ag baton (2013) maintains that the fast development of mobile and wireless technology is having an impact on educational practices. In addition, the use of wireless and mobile technology in the classroom allows for limitless accessibility to knowledge in terms of both time and place, without sacrificing the quality of content delivery (Abagun, 2013; Wawona, Otieno, Simiyu, &Issuing, 2011). When compared to other forms of wireless technology, such as laptops and personal digital assistants, mobile phone technology has had the most pervasive and far-reaching impact on human behaviour (Shahrazad Abdul Karim, Oyebisi, & Mahmoud, 2010). We may now say that "any educational pro vision in which mobile or palmtop devices are the only or dominating technology" is m-learning (Park, Nam, & Cha, 2012, p. 592). Despite the breadth of the term "m-learning," which includes the use of tablets, iPads, mobile phones, and other portable devices, this investigation will focus only on smartphones, which are now the main personal device for the

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FOR VETERINARY HOSPITAL DOCTORS: FINGERPRINT BIOMETRIC ATTENDANCE AND INFORMATION SYSTEM

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Abstract— **In institutions, corporates and establishments presence of employee to be ensured for to increase productivity. It is necessary to avoid unauthorized person to enter on to the premises. In some areas access of unauthorized person should be well-ordered and watched through an automatic structure of presence. Supervision of individuals is a tough task for the most of the establishments and continuing the attendance documentation is a key reason in public administration. When seeing the veterinary hospitals, taking the attendance of doctors on daily basis and maintaining the records is a major task. Physically taking presence and keeping it for a long time adds to the struggle of this task and more time consuming. An effective system is planned in this work to resolve the problematic of physical attendance. This scheme yields attendance automatically with the aid of a fingerprint recognition system, and all the records are protected for succeeding processes. The planned biometric attendance scheme employs an automatic system to compute attendance of doctors in a veterinary hospital and do further designs of monthly attendance swift in order to reduce humanoid mistakes during controls and also the automatic messaging system to the officials and the close to village farmers. In spirit, the planned system can be engaged in curbing the problems of lateness, stamping and absence in any institution, organization or establishment. The planned system will also improve the productivity of any group.**

Index Terms— **Veterinary, Fingerprint recognition, Truancy, Biometric attendance.**

I. INTRODUCTION

India is farming country. 60 percent of India's people dependent on farming. 14 percent of the gross domestic product is based on farming and allied sector like forestry and fisheries. Basically, Indian economy is extremely based on the farming products. Cattles and livestock play an important role in agriculture. They are used to plough the fields and to transport the crops to the nearby villages. The well-being of the cattle's is important for the farming processes. If cattle are sick, the farmer have to take it to the veterinary hospital, away from his house. In the nonappearance of doctor in veterinary hospital during that time, it is embarrassment for the farmer and cattle. If applying biometric attendance and information system are there, which will make the veterinary doctor prompt. The non-presence of doctor, situation can be evaded and farmers has to wait for a long time can be avoided and late coming of doctor is stopped. Biometric system allows the farmers and the establishments to distinguish about the doctor's arrivals and non-arrivals. They can see about doctor's arrival, since an information is passed to all of the authorities as early as possible when the doctor's fingerprint is accepted. It evades unsolicited portable to the hospital by farmers and their cattle's while the doctors are absent or late. This saves time. Moreover, the doctors will certainly keep up promptness. This paper emphases on the efficiency of the biometrics and the way the people get profited by this system and how it marks the veterinary doctors prompt. Fingerprint authentication is a distinguished and exposed biometrics technique. Due to its exclusivity and uniformity over period, fingerprints are in practice for ID for over a period, more lately fetching automatic due to progressions in computed competences. Fingerprint restoration is standard since the intrinsic comfort of acquisition, the many sources (e.g. ten fingers) offered for gathering, and their recognized use and gatherings by law implementation and migration.

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DETECTION OF BREAST CANCER USING MACHINE LEARNING

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Abstract

Accordin to the Breast Cancer Institute (BCI), breast cancer is one of the most dangerous forms of cancers that, if diagnosed and treated early enough, may be successfully treated for women all over the world. It is believed by medical specialists that detecting this cancer in its early stages can help save people's lives by preventing it from spreading. This website, which covers more than 120 distinct types of cancer and the genetic disorders that are connected with them, provides personalised therapy suggestions based on the individual's medical history. Machine learning algorithms are used to detect the vast majority of breast cancers, which accounts for the majority of cases. This paper presents an adaptive ensemble voting approach for newly diagnosed breast cancer that was developed using the Wisconsin Breast Cancer database and is based on a randomised controlled experiment that was conducted using the Wisconsin Breast Cancer database. The Wisconsin Breast Cancer database was used in the research for this paper. The goal of this research is to compare and explain how the ANN and logistic algorithms, when used in conjunction with ensemble machine learning algorithms for diagnosing breast cancer, generate greater outcomes when the number of variables is reduced. The Wisconsin Diagnosis Breast Cancer dataset, which was produced specifically for this study, was used in this investigation. For the sake of comparison, this study is being compared to other comparable studies that have previously been published. When ANN methodology and the logistic algorithm are coupled, they provide a classification accuracy rate of 98.50 percent when compared to another machine learning technique, as demonstrated by a comparison to another machine learning strategy (Figure 1).

1. INTRODUCTION

World-wide, cancer ranks first among all diseases in terms of mortality, with breast cancer ranking first among all cancers in terms of hazard to women. According to the American Cancer Society, breast cancer claims the lives of hundreds of people every year. The physical detection of breast cancer is time-consuming, and it is difficult for the physician to determine what stage of the sickness is being dealt with at any one moment. As a result, in recent years, the detection of cancer through the use of various automated diagnostic technologies has gained growing importance and importance. In order to detect breast cancer, a range of algorithms and techniques are available, including the Support Vector Machine, Nave Bayes, Kernel Neural Network, and Convolution Neural Network, among others. It is the most recent algorithm in deep learning, and it is also the most recent algorithm in deep learning that is also utilised for classification. It is also the most recent algorithm in deep learning. In deep learning, it is the most current algorithm to be developed, and it is also the most recent algorithm to be developed in deep learning. The categorization and identification of objects in photographs is mostly performed through the use of CNN and deep learning algorithms, which are becoming increasingly popular. In this study, we make use of the open database maintained by the University of California, Irvine (UCI), which contains two classes of tumours: one that is benign and another that is malignant, where benign Tumor is a non-cancerous tumour and malignant Tumor is a cancerous tumour, for training and testing purposes. There are still a large number of researchers working on this topic today, with the goal of discovering and diagnosing cancer in its earliest stages as soon as feasible. Early-stage cancer is less severe and expensive to treat than later-stage cancer, which is why many researchers are now concentrating their efforts on developing a reliable diagnostic system that can detect tumours at the earliest possible stage in their progression and treat them as effectively as possible. Therefore, therapy can begin sooner and the rate of remission can be increased as a result, both of which are beneficial to the patient. The primary goal of this project is to conduct a comparative assessment of a variety of different machine learning approaches, which will be accomplished through the use of Artificial Neural Networks. The remainder of the paper may be found in the parts that follow this one: Among the sections of the proposed research that contain a review of relevant literature is Section 2, which is included in the proposal itself. This section describes the

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Using a face recognition system to detect criminals

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ABSTRACT

The face is crucial for human identity. It is the feature which best distinguishes a person. Face recognition is an interesting and challenging problem and impacts important applications in many areas such as identification for law enforcement, authentication for banking and security system access and personal identification among others. Face recognition is an easy task-for-humans but it's an entirely different and difficult task for a computer. Face recognition based on the geometric features of a face is probably the most instinctive approach for human identification. The whole process can be divided into three major steps where the first step is to find a good database of faces with multiple images for each individual. The next step is to detect faces in the database images and use them to train the face recognizer and the final step is to test the face recognizer, if it recognizes the faces it was trained with. There is an abnormal increase in the crime rate and also the number of criminals. This leads towards a great concern about the security issues. Crime prevention and criminal identification are the primary issues that police personnel face. With the advent of security technology, cameras especially CCTV have been installed in many public and private areas to provide surveillance activities. The CCTV footage can be used to identify suspects on the scene. The model will be able to recognize criminals, whose pictures the model is initially trained with, using Convolution Neural Networks, Artificial Neural Networks and OpenCV and further send a message to the cops about the location and other details of the criminal.

Keywords: Criminal Detection, Face Recognition, Artificial Neural Networks, Convolution Neural Networks, OpenCV

1. INTRODUCTION

In recent years, we've seen that there has been a marked and sustained growth in the use of Closed Circuit Television (CCTV) surveillance cameras in order to prevent crimes in public places. With the ever growing installation of advanced CCTV infrastructure, almost entire cities can now be monitored, through the major purpose served by the same is purely evidential. It would only be natural to expect an alert or warning system for ongoing (or about to happen) mishaps and crimes, where timely action can be the difference between life and death. Such scenarios are expected to be monitored and identified by personnel viewing live footage. But as the number of CCTVs per unit is keeping rising, this approach is becoming increasingly impractical. Thus what we require is a surveillance unit capable of thriving in these situations with negligible human input. We shall define a "situation of interest" or a "critical situation" as any sensitive situation that could possibly lead to the afore-mentioned predicaments. Consider the idea of a smart surveillance which would be triggered 'active' only when the statistical chances of the situation being of "interest" are high. The video feed would be recorded only under a "situation of interest" in case it needs to be documented for a legal investigation. In the response to the above trigger could be an alert to be issued to the appropriate authorities along with certain alarms which could help in preventing the situation from escalating further. So, this validates the requirement for a system which could provide smart surveillance, while ensuring privacy and confidentiality.

The surveillance camera activated for recording only when there is a situation of interest. The camera is inactive or it is not recording the video when there is no human presence. The human presence is checked using motion detection algorithm. When a crime is about to be committed, then the human is notified and an alarm system connected to the main system will be activated.

2. Literature review

Choi Woo Chul and Na Joon Yeop: The orders of priority about the intelligent crime prevention technologies & system based on spatial information (e.g. Positioning System, CCTV Technology, and Integrated Management System) are constructed for integrated management in Testbed (Crime-Zero Zone) of Smart City.

[2] Yuchae Jung and Yongik Yoon: In this paper, we propose an abnormal behavioral tracking model for prediction of abnormal situation by using Expectation Maximization (EM) algorithm combined with Viterbi algorithm. The tracking model will detect objects from CCTV image in dynamic environment for the

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Structure-based analysis is used to examine traits.

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ABSTRACT

This article compares and contrasts the many types of computational structural analysis research. Trusses play a critical role in the building process, hence our investigation focuses on this particular component. An active truss design with two piezoelectric devices coupled was studied using the d-SPACE control system. Another way to say it is: The experiments reveal that active and passive trusses work in distinct ways. Two piezoelectric components make it possible to accurately adjust the frequencies, modes, and damping ratios of an active truss. Because of this, an active structure has a larger lower-order damping ratio than a passive one. Structural vibrations may be reduced by increasing the damping ratio of the strut transfer functions. An active truss structure's dynamic performance may be enhanced by correct construction.

embedded steel frames and FTTD experiment mode analysis are discussed. Perovskite Stack Actuator

INTRODUCTION

Truss construction is increasingly turning to composite materials. Composite trusses have found use in construction due to their superior strength and performance. Research has been done extensively on the use of concrete and steel in the building of trusses. Various structural components, such as the materials and truss joints, have been thoroughly examined. These composite trusses, which are distinct from civil structures with regard to their materials and strength, stiffness and weight, were investigated in the seventeenth century.

An investigation was conducted on the impact of pre-stressed cables on a composite structural system. To build composite space trusses, the use of pre-stressed steel cables and concrete compression members has increased recently. [5] For their performance and features, several designs have been analysed [7, 8]. Pre-tensioned cables have been researched in the past, but further research is needed to fully understand its systemic design and analysis. When it comes to aeronautical structures, this research concentrates on composite trusses rather than civil buildings.

Internal activities such as forces and moments, as well as design assessments for acceptable strength, are part of the current steel-design process.. Component-based architecture may be made more efficient by removing unnecessary complexity. It is possible to do both analysis and design validation in a single step using advanced analysis. Structure modelling is made possible by advanced analysis that examines issues like as geometric flaws and residual stresses directly. [*] It is common practise to overestimate the system's ability to sustain larger loads in favour of a more compact design. In the current design code, each component is required to meet a particular level of reliability. System dependability is difficult to compare to that of a single component because of the complexity of the system. In order to meet a certain dependability metric, a system resistance factor must be determined.. Using system dependability, a cost-effective system may be designed to fail at a predetermined frequency.

Inquiry into the Literature

Due to their lack of bulk and damping, truss constructions are difficult to manage for researchers. As a technique to maintain structures safe and secure, an active structural control was developed. The term "active truss structure" describes a truss structure that can be controlled. Control laws, smart materials, and sensor and actuator configuration optimization are all being explored in active truss structures right now [4–7]. In order to have a clear picture of the structural properties of the active truss construction, it is important to analyse it in a certain way. Other than a few research by a few scientists, nothing is known about the active truss structural modes. Additionally, Preumont and Zhang [9–11] have examined how to comprehend the modal principles that underpin active truss designs [8–11]. A combination of theoretical reasoning and computer simulations, however, led to these results.

SAP software is used to do finite element analysis on the structure in this research. Finite element analysis is utilised to calculate the bending, shear, and deflection of beams in this application SAP is used to manually compute the load once the structure's load has been defined. 44 metres long,

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High level Sign Acknowledgment Strategy for Energy Utilization

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Abstract

Recognition of traffic signs is a key component in the most current developments in the area of intelligent vehicle systems. Furthermore, it discusses the latest advancements in driver-supporting technology and underlines the security motivations for cleverly embedded devices. Prototyped hardware logic analyses various symbol categorization candidates to better signal identification algorithms. ' As a software component, the feature extraction and matching technique is used to identify and organize symbols on a computer's screen. Concurrent traffic indicator detection is well-organized thanks to the work presented in this study. For 150 nm technology, we report our findings in this research to see whether employing array-based transistors is better (or worse) than using a traditional technique. As can be shown from experiments using the 150 nm array-based technology and well-known logic gates like INV, NOR3, and NAND3, there is no significant benefit in terms of energy usage when employing the array-based approach (PDP).

I. INTRODUCTION

Resources, engine design and integrated electronics have made autonomous cars an essential technology during the last several decades. Automobile ownership is on the rise, and with it, the associated risks, in developed nations. Traffic symbol recognition is becoming more vital for driver-backing systems.Because it improves road user safety and security, in reality. Many traffic accidents occur as a result of drivers' frustration at not being able to see road traffic signals including stop signs, no-entry signs, and speed limit signs.. A technology that can give drivers with real-time information regarding traffic signals and monitor their car while driving is urgently required and is now being developed to avert these deaths. The development of a system that can identify and categorize road signs in real time has two advantages: first, it can be linked into driver assistance systems to help drivers focus more on their cars' navigation[12].

Using a Fuzzy-PI Controller to Improve Transient Stability in a Grid-Connected Wind Farm

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Abstract: This paper proposed a hybrid (PI and fuzzy logic) controller for pitch angle control system of wind farm. Initially, model control technique is employed to design the PI controller and later on, fuzzy logic technique is adapted to determine the gains of PI controller. Thus, the adaptive nature of fuzzy logic and robust nature of PI controller are combined eventually, which exhibits good steady state and dynamic responses. The performance of the proposed technique is evaluated by considering different disturbances such as short circuit network fault. The simulation results of proposed controller are compared with PI and fuzzy logic controller. It is observed from the results that the proposed methodology can improve the stability when wind farm subjected to different operating conditions. Moreover, a performance index in terms of absolutemaximumdeviationsisdefinedinordertoassesstheeffectivenessoftheproposedcontroller.

Keywords: Fluctuations, Fuzzy logic controller, Hybrid, Pitch angle, Pole-placement, Wind farm.

1. Introduction

Over last two decades, due to the excessive emission of greenhouse gases into the atmosphere, the climate change all over the world has become a major concern for the developed as well as developing countries. Since conventional power plants are the major contributors of greenhouse gases, the efforts are being made to meet out the electrical energy needs, as much as possible, by harnessing the renewable energy sources (e.g. solar and wind).

In recent years, both wind and solar energy have become very popular due to their reproducible, resourceful and pollution-free characteristics. Moreover, wind energy is continuously competing with conventional energy as a result of its cost reduction with technological advancements and incentives for adopting renewable energy since lastdecade.

These inherent power fluctuations have adverse impacts on the power system to which wind-farm connected. Moreover, wind energy is a kind of stochastic energy, implying that wind farm output varies in certain range due to intermittent characteristics of wind speed. Therefore, the operating point of power system changes from time to time when the wind power system is integrated to the power grid. Much of literature addressed the reduction of power fluctuations in wind integrated power system. According to some reports, Braking Resistors (BR) can be employed for stabilization of induction generator [2, 3]. It consumes active power and costlier than pitch angle control. Recently, Superconducting Magnetic Energy System (SMES) has also been employed for grid connected wind generator stabilization [4]. Moreover, in the event of faults, the Superconducting Fault Current Limiter (SFCL) can suppress short-circuit current thereby, it can improve transient stability of induction generator, and it still more complex than BR [5].

Many researchers have advised the hybrid controller in different areas. A hybrid speed controller is proposed in [6] for interior permanent magnet synchronous motor (IPMSM) drives to improve the dynamic and steady state responses. Fuzzy PID type system was proposed for the excitation control of a synchronous generator connected to power grid [7]. In [8], PI plus FLC controller is utilized for the STATCOM damping controller in order to improve the stability of wind farm fed power system. Smoothing of active power of wind turbine generator using PI-FLC for pitch-angle controller was addressed in [9], where the base values of PI controller gains have been considered using trial-and-error method which is not suitable. In [10], hybrid pitch-angle controller for SCIG wind turbine system has been proposed, however the base values of PI controller gains determined using Ziegler-Nichols rules have the severe limitations. One of the limitations of these rules exhibit starting values that will work with many processes but are not generalized to work with all processes. Moreover, the PI controller works for the wind speed above rated speed whereas the fuzzy logic controller works whenever the wind speed is lower than the rated speed to smoothen out power fluctuation as well as track maximum power output. So the PI Controller andthe

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FACTS: Practical Installations and Benefits of Flexible AC Transmission Systems (FACTS) Controllers

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ABSTRACT

As a result of FACTS controllers' actual installations, advantages and utility applications, this paper provides a wide range of information. Detailed details on the development of these devices and the first utility installation/demonstration of FACTS devices are provided. Then, a thorough list of important FACTS installations across the globe is shown. Additionally, the article examines how these gadgets might benefit the user and how much they will cost. Various FACTS devices may be used in a deregulated market, according to the report. The FACTS controllers are likewise the subject of discussion. Advanced FACTS controllers have higher losses than their traditional counterparts, and thus must be taken into consideration when designing future power systems. FACTS controller examples and analysis are provided for each major controller in the study.

INTRODUCTION

Static limits and dynamic limits are two classifications for the limitations of the AC transmission system [1-3]. As a result of these built-in restrictions, transmission resources aren't being used to their full potential. Many of the issues were traditionally addressed using fixed or mechanically switched shunt and series capacitors, reactors, and synchronous generators. However, there are limitations on how these traditional gadgets may be used. Efforts to meet expectations were unsuccessful. Mechanical component wear and reaction time were the root causes of the issues. Solid state devices with quick reaction capabilities were in growing demand as an alternative technology. Overhead transmission line building permits and right-of-way were difficult to get because of the global reorganisation of electric companies, increased environmental and efficiency rules, and the difficulty of obtaining these permits and rights of way [4]. Since then, a new class of power electronics devices called as Flexible AC Transmission Systems (FACTS) controllers has emerged thanks to the discovery of the Thyristor switch (a semiconductor device). As high-power semiconductor devices advanced quickly [1-3], they enabled the transition from traditional Thyristor-based FACTS controllers to the current, ultramodern versions based on voltage source converters. Controllers of FACTS have

since the 1970s, when the first utility demonstration of the first FACTS family, the Static Var Compensator (SVC), was completed, has been used in utilities across the globe. A lot of time and energy has been devoted to the study and creation of FACTS controllers since then.

HISTORY OF DEVELOPMENT AND STATUS

STATIC VAR COMPENSATOR

The Static Var Compensator is a rudimentary FACTS controller from the first generation. The Electric Power Research Institute (EPRI) first introduced this technology to the market almost a quarter of a century ago. With this compensator, you may dynamically compensate for shunt effects by manipulating the reactor and/or the shunt capacitor bank through a fast-thyristor switch. A total of more than 800 SVCs have been deployed across the globe, in utility and industrial settings (most notably in electric arc furnace and rolling mills). Since its inception, SVCs have been used by utilities in undeveloped nations as well. Despite being a pioneer in the deployment of SVC, ABB only provided 55% of the total installations, with 13% of those installations taking place in the Asia-Pacific region. In 1974, General Electric (GE) established the world's first demonstration of SVC for utility use and marketed it [1].

Voltage control got more challenging in the UK after deregulation in 1990. The UK deployed relocatable SVC in order to deal with the uncertainty of the future and the ever-changing power system conditions (RSV). The NGC (National Grid Company) system currently has 12 RSVC (60 MVAr each) in operation [5].

A SERIES CAPACITOR WITH A THYRISTOR IN CONTROL

In the first generation of FACTS devices, a capacitor bank is controlled by silicon-controlled rectifiers through a thyristor-controlled series capacitor (TCSC). TCSC enables utilities to move more electricity over a single line. ABB designed and implemented the world's first three-phase TCSC at Kayenta substation, Arizona, in 1992, which increased the transmission line's capacity by over 30 percent. Seven TCSCs have been set up throughout the globe by the end of 2004. Three TCSCs were established in Asia, two in China and one in India, placing Asia to the forefront of the latest FACTS technology on the continent. Table 1 lists all of the TCSCs that had been put into service as of December 2004 across the globe.

Static Synchronous Compensation (SSC) device

FACTS controllers that use STATCOMs (Static Synchronous Compensator) have a potential future use. Some of STATCOM's benefits are its tiny size, quick reaction time, and lack of harmonic pollution. It was the world's very first business enterprise.
Japan's Inuyama substation was the first to use Mitsubishi Electric Power Products' STATCOM (80 MVA, 154 kV) in 1991. Throughout 20 STATCOMs are now in use around the

Reduction of Mango Fruit Noisiness through the Use of a Mean Convolution Mass Filter

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Abstract*: Communication is increasingly reliant on the transfer of visual information through digital pictures. The noise is the consequence of picture capture flaws that don't accurately represent the intensity of the real scene. Using this picture as a decision-making tool is a possibility. Use the appropriate algorithm to remove the noise to obtain a high-quality picture. Salt and pepper, Gaussian, and Poisson noise all degrade images, thus it is important to know what kind of noise is present in the picture before attempting to remove it. The "Mean Convolution Mass Filter (MCMF)" method was proposed in the publication. Digital images may be de-noised more effectively with this method compared to other current techniques.

Keywords: MCMF, Noise Removal

I. INTRODUCTION

A country's economy relies heavily on the production of fruits. Fruit yields may be increased if disease incidence can be predicted earlier. Digital images are widely used in a variety of industries, including traffic monitoring, improving geographic information systems, and recognising handwritten data. In the categorization of illnesses and their characteristics in fruits, digital photographs may also be employed. This software's precision, however, is largely dependent on the image's quality. During the collection of a picture, there may be a variety of sorts of noise. Image contrast will be reduced and undesired consequences such as damage to edge features, superfluous lines, and a lack of intuitive understanding may result.

The picture's quality may be improved by reducing the amount of noise in the image. Noise may degrade the picture quality in a variety of ways, including impulse noise, fractal noise, speckle noise, and gaussian noise, amongst others. Researchers have a difficult challenge when it comes to removing the noise from a picture without damaging the rest of the data. It is possible to decrease or eliminate noise using a variety of techniques, but the goal of a de-noising algorithm is to retain the image's edges and quality. As a result, the goal of this research is to reduce noise while keeping edge information by using PSNR values that are substantially larger.

TYPES OF FILTERS

A. Mean Filter

The principle behind mean filtering is to replace every pixel value in a picture with the mean (average) value of everything around it, including the image itself. Mean filtering removes pixel values that are not indicative of their surroundings. It is also known as a convolutional filter or a mean filter. In order to calculate the average, it is based on a kernel, which describes the size and shape of the area to be sampled.

B. Median Filter

Image pixels are dependent on their immediate neighbours, who use the median filter to determine whether or not this pixel is indicative of its surrounds. Instead of using the average of the neighbouring pixels' values to replace the pixel value, this algorithm prefers to use the median value.

C. Gaussian Filter

Usually, pictures are 'blurred' using the convolution operator while noise and detail are removed using the Gaussian smoothing operator. The mean filter's workings are identical here, but the kernel represents a Gaussian hump in the form of a bell. The nomenclature for the Gaussian distribution is as follows:

$$G(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{x^2}{2\sigma^2}}$$

D. Adaptive Filter

This filter works exclusively on images that have been distorted by noise. In this case, it is dependent on the size of the mxn window. The mean and variance are the two statistical measurements used. Edges and high-frequency areas of the picture benefit from this filter, making it superior than other filters.

II. EXISTING METHODS

Cao, Wang, Han, G., Yao, J., and Cichocki, A. (2018) [1] The proposed PCA method for restoring hyper spectral images. They included anisotropic spatial-spectral to strengthen the robustness of this method. Afterwards, they merged the Expectation-Maximization method with a different direction to get an optimum output.

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Micro inverter design and analysis for solar power plants

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Abstract:

Renewable energy sources are obviously accepted as clean energy sources of future. The solar energy is the most popular among other renewable energy sources in all over the world. Many studies are performed on photovoltaics (PVs) and solar energy systems. Inverter is the most important power converter section of photovoltaic systems in terms of efficiency in changing weather conditions. This study presents the design and analysis of a micro inverter for PV systems. The proposed micro inverter is designed by using MATLAB Simulink software, and the control algorithms are implemented according to Incremental Conductance method. It consists of isolated boost converter with Maximum Power Point Tracking (MPPT) and H-bridge inverter with PI controller. The reaction of system has been observed under changing irradiation conditions. The implemented micro inverter has compensated the irradiation changes at boost converter stage, and dc-ac conversion process is performed regarding to the designed PI controller. The dc bus voltage is increased to around 300V, and the HF transformer is used to increase inverter input voltage to 420V. The output of inverter is generated with the support of PI controller to track 220Vrms line voltage. The THD rates for both voltage and current are measured at 0.51% in FFT spectrum, and the overall power of the micro inverter is supplied around 315W.

INTRODUCTION

The energy resources can be mainly classifiedinto three categories as nuclear resources, fossilfuels and renewable resources. The renewableenergy resources, which is one of the most widely

researched among others [1]. There are a lot ofrenewable energy sources (RES) in the world suchas hydropower, marine energies, biomass,geothermal, solar and wind where the 14% of the total world energy requirement is provided bymeans of RES [2]. Renewable energy (RE) studies are increasing with each passing day due to fossilfuels depletion and greenhouse effects. Solarphotovoltaic (PV) systems are becoming asignificant RES because of its clean structure, nofuel requirement, sustainability and reliability [3].Electricity is generated from sunlight by convertingsolar light into electricity by solar cells.The solar cells can be classified as first, secondand third generation cells. The first generation cellsare made of polycrystalline and monocrystallinesilicon materials while the second-generation cellsare thin solar cells. The third generation of solarcells consists of a number of thin-film technologies. One of them is monocrystalline cells, which is betterthan others in terms of efficiency. However,monocrystalline cells are more expensive thanothers [4]. The PV system can be sectionalized as

standalone system and grid tied system where thebattery bank is required to store PV energy for

standalone system. Since the grid-tie systems aredirectly connected to the grid, any battery bank isnot involved for them [5]. A regular PV systemconsists of PV panels, inverter and auxiliaryelectronic circuits. The inverters are prevalentlyclassified as string inverter, central inverter and themicro inverter. The central inverter shown in Fig.1.a. has its own Maximum Power Point Tracking(MPPT) algorithm that is used in large PV solarplants. The large PV solar plants consist of strings which are comprised of series and parallelconnected PV panels. Each string of PV panels isconnected to central inverter. High voltage DCcabling is required for connecting central inverterthat causes some disadvantages such as cable lossesin the system. Furthermore, the system can becompletely disabled in partial shading condition ofPV system [5]. Another type of the inverter is thestring inverter that connects one PV string as seen inFig. 1.b. This structure has not diode loss in seriesand provides separate MPPT control for each string.

On the other hand, this is not sufficient toaccomplish shading problems in the PV system [6].

Therefore, a new type of inverter challenging withpartial shading is implemented and called microinverter. Many micro inverters are connected toeach PV panel, and then they are connected to anAC bus bar to improve output power of system, asshown in Fig. 1.c. The MPPT control isimplemented for each PV panel in a PV system withmicro inverter. Hence, partial shading situations aresuccessfully eliminated [6]. The micro inverters

It is possible to assess the dynamic reliability of mechanical additives using equivalent electricity usage. The Decline's Paths

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Abstract:

In mechanical systems, determining the precise direction of energy loss is very challenging. False reliability estimations may also be caused by ignoring the connection between residual energy at each load application along an electrical deterioration route. A dynamic reliability model for mechanical additives, which is defined by the distribution of material attributes and load in this work, may be used to address these issues. The models offered may be used to analyse statistical fabric qualities, such as failure rate and dependability. For a successful launch of a spacecraft, consultants may employ samples of explosive bolts to verify that their designs are both possible and accurate. Large mistakes in estimating dependability have also been identified when energy distribution software is used at each load. Both the dynamic dependability and mechanical additive failure rate of a material are controlled by its particular properties.
part-to-part correlation and dynamic dependability of mechanical parts

INTRODUCTION

There must be a safety margin built in to mechanical components so that they can withstand environmental and material changes. They rely on their experience and industry expertise to ensure mechanical components are safe. Empirical safety factors do not account for mechanical design uncertainty and risk. As a consequence of this expansion, mechanical product reliability analysis has expanded [1–3]. That which can perform its intended functions without interruption for an extended period of time is referred to as a product's dependability. The LSI model is used for mechanical component reliability analysis. Traditional LSI models employ models with a fixed level of stability. There are several reasons that contribute to mechanical components breaking down over time in real-world applications. Further research on generalised approaches for mechanical component dynamic reliability analysis, according to Martin, is required.

Traditional LSI models have their limits, and stochastic process theory reliability models are being investigated as a possible remedy. Two stochastic procedures are used to deal with the load and strength. It's one out of two; LSI and Markov models for time-dependent behaviour were used by Lewis[5] to study G redundant systems. Geidl and Saunders[6] used time-dependent elements in the reliability equation to quantify dependability. Using the generalised formula proposed by Somasundaram and Dhas[7], a dynamic parallel system in which the load is uniformly distributed may be evaluated. To ensure reliability, Noortwijk and Weide [8] developed a model that accounts for both load and strength. [9] Dynamic platform dependability was developed by the laboratory and its collaborators. Zhang et al. [10] employed Monte Carlo simulations and dynamic event trees [10] to calculate the dynamic dependability of nuclear power plants. Cutting tools and material flow were part of his research, as was industrial capacity. [12] A statistical process planning model developed by Barkallah and his colleagues was used to calculate production margins. These models include stochastic process models such as Markov and time-dependent models. The dynamic dependability of electronic components and multi-state systems may be studied using Markov models. The dynamic dependability of a model is evaluated using state transition matrices based on the changing states of components and systems across time using Markov models. In contrast, it is very difficult to precisely characterise and diagnose mechanical components. When external forces are applied to mechanical components, their structural integrity is compromised. Due to the absence of stress and material quality factors in state-based reliability models, mechanical components cannot be further examined. Dynamic reliability analysis of time-dependent models has also gotten a lot of attention in the last several years. Stress and strength degradation processes are assumed to be continuous in time-dependent models employing stochastic process theory. While these reliability models may be used to dynamic reliability analysis for mechanical components that fail due to fatigue, there are numerous limitations. A discontinuous treatment is used to mechanical components that have been exposed to wear and tear due to fatigue. There's no use in trying to figure out how reliable anything is at any one moment here. For further details, please see Section 1. At a certain period and amount of stress, a

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THE CI ENGINE'S DESIGN

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Abstract:

Heavy-duty vehicle cooling systems have not kept up with technological advances in the sector. For both the automotive industry and academic researchers, fuel combustion has been a crucial issue to deal with. When it comes to temperature regulation, internal combustion engines get short shrift. The capacity of this system to manage performance, lubrication, emissions, and fuel efficiency is critical. The temperature and flow rate of the cooling fluid in the engine must be monitored and regulated. Internal combustion engine temperature control is the focus of this study. Inputs to the control system include a DC motor-controlled valve and an electronic coolant pump. Also included is a lumped parameter engine cooling system model. Using exhaust emission data, an engine cooling plan comparison will be performed soon.

Combustion engines, cooling methods, and control systems are among the subjects discussed.

INTRODUCTION:

A reciprocating engine would be incomplete without its piston. System components like pneumatic cylinders and pneumatic valves help convert chemical energy into usable (work) mechanical power. This channel is used by the connecting rod to move the expanding gas from the cylinder to the crankshaft. A piston is used to move the combustion chamber. As its name indicates, the piston is a cylindrical plug. The cylindrical form of the top is cranked up and down. The cylinder wall and piston are well-sealed thanks to piston rings. There has been an increase in interest in using internal combustion engines (IC engines) to absorb the oblique stresses and guide the connecting rod's small end. Creating power and burning fuel accounted for the great majority of engine research published in academic journals and books. Internal combustion engines tend to disregard heat transfer since they are more concerned with generating power. Internal combustion engines with significant heat transfer capacities may provide a variety of advantages. A rise in the use of fossil fuels is due to the growing consumer use of these resources. Fossil fuels' extensive usage and subsequent extraction depleted

underground carbon reserves. An increase in interest in alternative fuels that take into account manufacturing, long-term development, energy efficiency, and environmental preservation has resulted as a result of this increased demand. A global lack of subsurface carbin resources might be replaced by biofuels. The issue is mostly caused by CO2 emissions from SI and CI engines. More

environmentally-friendly alternatives to gasoline and diesel are being researched by scientists from throughout the world. Patents have been issued for Rudolf engine technology. There exists today's present fuel system because of Rudolf's determination to only utilise diesel as a source of fuel. A result of burning fuels is COX emissions. They are inevitable. Trifuel systems that do not need additives are being challenged by C.I. engines in order to create biofuel and reduce emissions pollutants. Discussion of the facts and conclusions is extensive.

The motors' materials prevent overheating.

Fuel consumption is reduced as a consequence of improved engine performance and efficiency.

• The quality of engine lubricant has been upgraded

Emissions from internal combustion engines have decreased.

The controllability, heat transfer capacity, noise and dependability of the engine, as well as the total cost and maintenance of the system, must all be taken into account while learning more about internal combustion engine cooling systems.

Third of the energy generated by combustion is lost to the engine cooling system; a third is lost via exhaust; and the remaining third is released through mechanical energy. (25 percent for gasoline engines, and 38 percent for diesel engines) Consequently, a significant amount of heat is likely to be generated. The engine produces a lot of heat while it is operating. After then, the heat is stored throughout the engine in various locations. Overheating specific engine components may cause significant damage to

The River Pamba in Kerala and Thottappally: Strategies for Preventing Floods

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ABSTRACT:

In Kerala's Pathanamthitta and Alleppey districts, the Pamba River has considerable cultural and historical value. Kuttanad, Kerala's rice bowl, gets its water from this river. Thottappally and other settlements were destroyed by the 2018 floods on the Pampa River. Thoothappally spillway connects Vembanad Lake to the Arabian Sea through the waterway. Historically, Thottappally and the surrounding Kuttanad region have experienced seasonal as well as unseasonal floods. Proper procedures and processes must be put in place in order to offset this Last but not least, having the ability to accommodate an influx of new clients is critical. As a consequence of the recent flooding in Thottappally, there are a number of concerns that need to be addressed.

These include Kuttanad Lake and paddy cultivation, as well as rain and monsoons.

INTRODUCTION

Flooding is common in Kuttanad and the surrounding region. These conditions warrant the use of the word "waterlogging," not floods. Kuttanad is vulnerable to flooding because of its low height. As a result of heavy rainfall in the Kuttanad area of Kerala, a water spillway was built in 1955. Just 600 cubic metres per second of discharge capacity was discovered upon its commissioning, a far cry from the projected 19,500 cubic metres per second that was expected. The Thanneermukkom bund was built to keep seawater out of Kuttanad during the rice harvest season. Only in Kumarad can you find rice being grown below sea level.

Due to the devastation caused by the monsoons, Kerala's rice bowl, Kuttanad, is often in the news. These rivers both bless and harm Kuttanad. Keeping their enterprises afloat requires a careful balancing act between drowning in the floodwaters and keeping afloat on land. Thottappally and Thanneermukkom are home to four rivers that empty into the Arabian Sea: the Pampa, the Manimala, the Achankovil, and the Meenachil. The Thottappally spillway allows the Muvattupuzha River to enter Vaikkom Lake at the same time. More rain than the Vembanad Lake can hold during the monsoons, as shown by a study conducted lately in the area between Thottapally and Thanneemukkom. Flooding in Kuttanad was spurred by a recent flood in Kerala and an examination of Thottappally, a community in the area. Long-term planning necessitates the implementation of flood control systems.

Kuttanad Kumarakom, a region in Kerala, is the state's primary rice-growing area. Only a handful of areas on the planet are home to a sizable population that cultivates rice below sea level. You may be 12 feet below sea level, depending on where you are. Vembanad Lake's paddy fields are a popular tourist destination in India. Kuttanad is divided into three distinct regions: Lower, Upper, and North Kuttanad.

According to the Food and Agriculture Organization (FAO), South India's polder farming system in Vembanad Ramsar has been designated as a "important agricultural heritage system" (GIAHS). Kuttanad's rivers and rice fields have been polluted by the usage of diesel boats by tourists. Despite the loss of Kuttanad's water biodiversity, farming remains very unprofitable. When given the chance to regain its natural equilibrium, the Kuttanad area has been declared a "GIAHS" (Jacob et al., 2018).

Paddy fields that have been restored from the Vembanad backwaters are used to grow the crop. This is mostly because of the recent floods in Kuttanad, which severely disrupted the lives of those who live there. Construction of the Thannermukkom bund and the Thottappally spillway made landscaping simpler. many times each year (Chandran and Purkayastha, 2018).

The Pampa River in Kuttanad

Pampa River: The 176-mile-long River Pampa is inseparable with Kerala's history and culture. It runs through Pathanamthitta and Cochin in Kerala, as well as the state's rice bowl, the Pampa River. Eastern and Western Ghats,

Using Particle Swarm Optimization Power System Stabilizer, increase standard stability

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Abstract-- In this paper the dynamics of a single device related to limitless bus electricity machine is analyzed. Such evaluation calls for a sure degree of gadget modeling. the main gadget components fashions are the synchronous gadget, excitation machine and the strength gadget Stabilizer. The Matlab/Simulink is used as a programming tool to research the gadget performance. in keeping with the device performance a right design for the energy gadget Stabilizer (PSS) using Particle Swarm Optimization (PSO) is achieved. Then the designed PSS is carried out in the model and the dynamic machine reaction is analyzed. for the reason that simulation effects without the PSS showed unacceptable machine response, the gadget response with the PSS has advanced and the PSS succeeded to stabilize an volatile device.

Index Terms—Power System Stabilizer, Particle Swarm Optimization, Dynamic Stability.

I. INTRODUCTION

Power System Stability is concerned as one of the main factors that affect the power system in its three main sectors: generation, transmission and distribution. There are several factors that can affect the stability of the system such as sudden load change, fault and generator shaft speed change. The instability problem is resulting in scillatory behavior that, if undamped may eventually build up. Even undamped oscillations at low frequencies are undesirable because they limit power transfers in transmission lines and induce stress in the mechanical shaft. With proper design and compensation, the excitation system can be an effective means of enhancing stability in the dynamic range as well as in the first few cycles after a disturbance. The compensation by adding damping to the generator rotor oscillations is related to an auxiliary stabilizing signal and the device used to generate this signal is called Power System Stabilizer (PSS). Stability can be controlled by controlling the excitation of the generator or its speed. In addition, the excitation can be controlled using Automatic Voltage regulator AVR. Nowadays, PSS becomes one of the main solutions to the instability behind the AVR. PSS is a device which provides additional supplementary control loops to the automatic voltage regulators system and/or the turbine governing system of a generating unit. It is considered as one of the most common ways of enhancing both small signal (steady-state) stability and large-signal (transient) stability. PSS are often used as an effective and economic means of damping such oscillations. The automatic voltage regulator (AVR) regulates the generator terminal voltage by controlling the amount of current supplied to the generator field winding by the exciter. It is mainly used to damp any oscillations accrued to the power system when load is changing. It keeps the terminal voltage of the generator constant so that the voltage on the load side will remains almost constant even the load is vary with time. Next section will present the motivation on this paper. Section three will discuss the system modeling. Then PSS design will be discussed in section four. Finally implementation and simulation will be discussed in section five.

II. MOTIVATION

The stability problem is concerned with the behavior of the synchronous machines after they have been perturbed. If the perturbation does not involve any net change in power, the machines should return to their original state. If an unbalance between the supply and demand is created by a change in load, in generation, or in network conditions, a new operating state is necessary. In any case the synchronous machine should remain in synchronism with other machines and they should operate in parallel as well as at the same speed. The transient following a system perturbation is oscillatory in nature and such oscillations could affect power generation significantly. Those oscillations differ in magnitude according to the disturbance. Small random changes in the load or generation are an example of small disturbance. However any disturbance small or large can affect the synchronous operation and may lead the machine to run out of stability. Nevertheless those oscillations due to such disturbances have to be damped to improve power system stability. This paper will investigate; how to solve the dynamic stability of the single machine connected to infinite bus during small disturbances using PSS. The main objective of this work is to

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Based on the idea of ecological civilization, the layout integration of sports park construction

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Abstract

***It is the great significance that the construction** layout of sports park caters people's growing demand for physical fitness, improve people's quality of life and promote the strategy of sports power. At present, more and more people take part in physical exercise in everyday, therefore, there is a hot topic toward the question of "where to go for fitness" in the process of China's rapid promotion of national fitness. Based on the needs question of construction layout of sports park, this study proposed the research topic of the layout integration of sports park construction based on the concept of ecological civilization. The Study purpose is to survey the influencing factors of the construction layout of sports park, the second purpose is to investigate how to build a reasonable and feasible the layout integration scheme for sports park construction. Literature research, field investigation and expert interview were used in the study. The study results show that the layout integration of sports parks should be considered in the natural ecology, economic development, population size and local movement habits. At the same time, the principle of construction layout should be followed in green and environmental protection, convenience, and practicality. On the other hand, it is important that the layout plan of sports park should be according to the total living population and space area.*

Keywords: National fitness; Sports park; Layout integration; Ecological civilization

Introduction

Sports park is an important element of sports fitness, integrated with natural ecology, with ecological improvement, beautify the environment, sports fitness, sports leisure, disaster prevention and hedge and other functions of green public space, also is an organic part of the green space system. Promoting the construction of sports parks is of great significance to meet the growing demand of people for physical fitness, improve the quality of people's life and promote the construction of sports power. At present, with the deepening of China's national health plan, more and more people take part in physical exercise. It is particularly important to focus on solving the problem of "where to go for fitness". On October 23, 2021, the National Development and Reform Commission, the General Administration of Sports, the Ministry of Natural Resources and other jointly issued the "Guidance on Promoting the Construction of Sports Parks", the "opinion" proposed that by 2025, the country will build 1,000 sports parks, The proportion of people who regularly take physical exercise reached 38.5%, and the 15-minute fitness circle in the community was fully covered. It is clearly stated in the 14th Five-Year Plan and the outline of the Vision goal for 2035that China will become a sports power by 2035, and sports has become a landmark cause of the great rejuvenation of the Chinese nation. Sports park will become a new carrier of national fitness, an organic part of green space system, an effective way to improve people's taste of life, and an important symbol to enhance urban taste. Based on this, this study based on the literature review according to the convenience of the people, equitable access to the principle. Guided by public welfare, with the focus on building sports parks around the masses, with the goal of serving the whole age population in close proximity, taking measures in accordance with local conditions, diversified fitness facilities will be arranged in accordance with the local exercise habits of the masses, and the level of wisdom will be improved to make it convenient for urban and rural residents to take part in physical exercise at the nearest location. According to the sports park construction guiding ideology, construction layout, construction mode, policy support, operation mode, economic development level, natural ecology, population size and other factors to optimize the construction layout. At the same time, we will adhere to the principle ofcoordinating population, resources and environment, and comply with relevant laws, regulations and construction planning requirements. Reasonable planning and construction layout scale, green environmental protection, convenient and practical [1-5].

Methods

The layout of national fitness park construction should consider public welfare, basic, systematic, natural ecology, economic development, population scale and other factors. Based on the principle of

The Most Recent Techniques and Technology for Retrofitting Reinforced Concrete

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Abstract:

Technology and materials have evolved throughout time to overcome previous limitations. Many reinforced concrete structures are unable to withstand earthquakes because of current coal rules. In addition, the earthquake waves Extra loads and the behaviour of the structure are altered by design or construction flaws. Additionally, additional expectations for performance, etc., are influenced. Several recent earthquakes have made it evident that structural upgrades and strengthening are urgently needed. There are several ways to make a current building more resistant to earthquakes and other environmental forces in the future, such as by making improvements.
The remodelling is less likely to cause structural damage to the building in the near future. It aims to reinforce a framework. It is essential that seismic design guidelines be strictly adhered to. As a result of this endeavour, new solutions for improving building seismic performance have been developed in recent years. For those who are familiar with the technicalities of building. Creative and cost-effective techniques are the subject of this article. Retrofitting of damaged structures to provide additional support. Seismic construction protection is a concept based on the premise that every structure should be more earthquake-resistant. The number of earthquakes will continue to rise in the future. Future earthquakes are inevitable. Several earthquakes of differing magnitudes have recently struck India, resulting in significant damage to people's lives and their homes. New materials and processes on the market may help with structural repairs. Strengthening existing structures that have been damaged by earthquakes is necessary.

The main objective of a structural engineer is to expedite the restoration of damaged structures. The most challenging parts of the project were the materials, techniques, and procedures for mending a particular building. There are several advantages to employing new structural repair technologies instead of standard approaches. Some of the criteria for this study explored the use of steel and fiber-reinforced polymers as repair materials. All of these things are taken into account when deciding on which materials and procedures to use, including how much money is available and whether or not the items can be used for their intended purpose. Repairs to structures that have been damaged. A wide range of repair materials, as well as cutting-edge technologies and manufacturing procedures, are needed. In a refurbishment of a structure, fire safety, geotechnical safety, and other technical issues may all be important factors to take into account. The structural integrity of a building may be affected by environmental variables such as water infiltration and storm damage.
Methods of preventing and treating fractures and corrosion in CAPS LOCK repair using epoxy Reinforced polymer fibre, steel, and beam may all be utilised as jackets.

Introduction

The practise of preserving a historic structure's current form, integrity, and materials is known as preservation. In order to maintain a building's historical, cultural, or architectural importance, rehabilitation is the technique of choice. The term "restored" refers to the process of restoring a structure to its previous splendour. Rebuilding is defined as the act of reproducing a property at a later period. There must be a clear understanding of the rehabilitation goals and existing building information prior to undertaking any restoration methods. Disability-friendly. The current status of the retrofitting method has been selected and is now complete. After a refurbishment, the structure's performance must be assessed. A number of factors must be considered when deciding which refurbishing method to utilise, such as environmental effect, ease of post-refurbishment upkeep, and cost. The effectiveness of various retrofitting approaches, for example, falls within this category. A building's capacity to endure is improved by structural upgrades. There are several applications for it. Transportation and land-keeping buildings and structures, as well as maritime structures, may be found all over the world.

TYPES OF RETROFITTING OF CONCRETE MEMEBRS

For retrofitting the existing building, many retrofitting approaches, including global and local procedures, are used. To find the best option, a parametric analysis was undertaken, taking into consideration several characteristics such as nodal displacement, drifting stowage, and base shear. Implementing Classification Methods in an Old System:
Adding Steel Bracings to Existing Shear Walls
Local Retrofits: Jacketing (Local Retrofits): Base Insulation Assembled insulation
Mass Reduction Retrofitting Technique:
THE WALL Thickening Retrofitting Technique:

Model And Cyclic Pushover Analysis Of Seismic Overperformance Of Buckling Confined Braced Steel Frame

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Abstract :

Buckling-constrained Braces (BRBs) are showed to have nearly the equal yielding stress and remaining strengthbelow tension and compression. The BRBs can undergo fully-reversed axial yield cycles without lack of stiffnessand electricity, whose seismic energy dissipation ability is superior. based on modal pushover analysis, thehave an effect on of better vibration modes of Buckling-confined Braced steel frame turned into taken into consideration. as compared tonon-linear static manner, the results of modal pushover evaluation agree better with that of nonlinear responsehistory analyses. based totally on cyclic pushover evaluation, the hysteretic conduct of Buckling-confined Bracedmetallic frame (BRBSF) changed into researched. After installed with BRBs, the energy dissipation of BRBSF is finishedby way of the hysteretic deformation of BRBs, the seismic responses of the structure may be ubstantially reduced andseismic overall performance could be advanced.

key phrases:Buckling-restricted Braces; Buckling-restrained Braced metal frame; modal pushover evaluation; cyclicpushover evaluation; seismic overall performance

1. INTODUCTION

Steel braces are used as an economic means of providing lateral stiffness to a steel structure. However, theenergy dissipation capacity of a steel braced structure subjected to earthquake loads is limited due to thebuckling of braces, which show unsymmetrical hysteretic behavior in tension and compression, and exhibitsubstantial strength deterioration when loaded monotonically in compression or cyclically. If buckling of a steelbrace is restrained and the same strength is ensured both in tension and compression, the energy absorption ofthe brace will be markedly increased and the hysteretic property will be good. So the Buckling- RestrainedBrace (BRB) is proposed. The capacity of resisting earthquake loads and energy dissipation of Buckling-Restrained Braced Frame (BRBF) is better than the frame with the installation of steel braces [1-3].

Recently, Modal Pushover Analysis (MPA) has been developed to improve conventional pushover proceduresby including higher mode contributions to seismic demands [4]. This MPA procedure offers several attractivefeatures. Developed herein is an improved pushover analysis procedure based on structural dynamics theory,which retains the conceptual simplicity and computational attractiveness of current procedures with invariantforce distribution common in structural engineering practice. In this MPA, the seismic demand due to individualterms in the modal expansion of the effective earthquake forces is determined by a pushover analysis using theinertia force distribution for each mode. Combining these 'modal' demands due to the first two or three terms ofthe expansion provides an estimate of the total seismic demand on inelastic systems [5].

The accuracy of MPA have been evaluated for a wide range of structural systems and ground motions toidentify the conditions under which it is applicable for seismic evaluation of structures. To this end, it has beenapplied to code-esigned buildings [6], and generic frames [7] designed according to the static force distributionspecified in the International Building Code (IBC) [8]. By studying the bias and dispersion of this approximateprocedure, MPA has been shown to be accurate enough in estimating seismic demands for the seismicevaluation of many buildings.

This Cyclic Pushover Analysis (CPA) procedure is that the structure is loaded horizontally and quasi-staticallyunder force or displacement control, the loading history consisted of stepwise increasing force or displacementcycles. The hysteretic behavior and energy dissipation capacity of structures can be researched with CPA, tostudy whether which exhibit substantial strength and stiffness deterioration.The objectives of this investigation are as follows: (1) To study the seismic demands of Bechmark BRBF, toevaluate the accuracy of MPA in estimating seismic demands and document the bias and dispersion of the ratioof the seismic demands on BRBF determined by MPA procedure to their ''exact'' values computed bynonlinear Response History Analysis (RHA), and (2) To study whether the good hysteretic behavior and energydissipation capacity of BRBs reflect on BRBF, the hysteretic behavior of BRBF is researched by CPA.

2. STRUCTURAL SYSTEM

The 9-story structure used for this benchmark study was designed for the SAC Phase III Steel Project. Althoughnot actually constructed, the structure meets seismic code and represents a typical mid-rise building designed forthe Los Angeles, California region. This building was chosen because it will also serve as a benchmark structurefor SAC studies and thus will provide a wider basis for comparison of the results from the present study.The Los

Using a Fuzzy-PI Controller to Improve Transient Stability in a Grid-Connected Wind Farm

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Abstract: This paper proposed a hybrid (PI and fuzzy logic) controller for pitch angle control system of wind farm. Initially, model control technique is employed to design the PI controller and later on, fuzzy logic technique is adapted to determine the gains of PI controller. Thus, the adaptive nature of fuzzy logic and robust nature of PI controller are combined eventually, which exhibits good steady state and dynamic responses. The performance of the proposed technique is evaluated by considering different disturbances such as short circuit network fault. The simulation results of proposed controller are compared with PI and fuzzy logic controller. It is observed from the results that the proposed methodology can improve the stability when wind farm subjected to different operating conditions. Moreover, a performance index in terms of absolute maximum deviations is defined in order to assess the effectiveness of the proposed controller.

Keywords: Fluctuations, Fuzzy logic controller, Hybrid, Pitch angle, Pole-placement, Wind farm.

1. Introduction

Over last two decades, due to the excessive emission of greenhouse gases into the atmosphere, the climate change all over the world has become a major concern for the developed as well as developing countries. Since conventional power plants are the major contributors of greenhouse gases, the efforts are being made to meet out the electrical energy needs, as much as possible, by harnessing the renewable energy sources (e.g. solar and wind).

In recent years, both wind and solar energy have become very popular due to their reproducible, resourceful and pollution-free characteristics. Moreover, wind energy is continuously competing with conventional energy as a result of its cost reduction with technological advancements and incentives for adopting renewable energy since last decade.

These inherent power fluctuations have adverse impacts on the power system to which wind-farm connected. Moreover, wind energy is a kind of stochastic energy, implying that wind farm output varies in certain range due to intermittent characteristics of wind speed. Therefore, the operating point of power system changes from time to time when the wind power system is integrated to the power grid. Much of literature addressed the reduction of power fluctuations in wind integrated power system. According to some reports, Braking Resistors (BR) can be employed for stabilization of induction generator [2, 3]. It consumes active power and costlier than pitch angle control. Recently, Superconducting Magnetic Energy System (SMES) has also been employed for grid connected wind generator stabilization [4]. Moreover, in the event of faults, the Superconducting Fault Current Limiter (SFCL) can suppress short-circuit current thereby, it can improve transient stability of induction generator, and it still more complex than BR [5].

Many researchers have advised the hybrid controller in different areas. A hybrid speed controller is proposed in [6] for interior permanent magnet synchronous motor (IPMSM) drives to improve the dynamic and steady state responses. Fuzzy PID type system was proposed for the excitation control of a synchronous generator connected to power grid [7]. In [8], PI plus FLC controller is utilized for the STATCOM damping controller in order to improve the stability of wind farm fed power system. Smoothing of active power of wind turbine generator using PI-FLC for pitch-angle controller was addressed in [9], where the base values of PI controller gains have been considered using trial-and-error method which is not suitable. In [10], hybrid pitch-angle controller for SCIG wind turbine system has been proposed, however the base values of PI controller gains determined using Ziegler-Nichols rules have the severe limitations. One of the limitations of these rules exhibit starting values that will work with many processes but are not generalized to work with all processes. Moreover, the PI controller works for the wind speed above rated speed whereas the fuzzy logic controller works whenever the wind speed is lower than the rated speed to smoothen out power fluctuation as well as track maximum power output. So the PI Controller and the

A Review of Research on The MSRTC Bus Station Quality Improvement Survey

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ABSTRACT

The MSRTC bus station in Amravati, India, conducts a quality function deployment (QFD) survey in order to better understand and identify the needs and requests of its customers and to enhance the quality of the service provided by the bus station. The survey was done using the prescribed questionnaire and delivered to 5000 users in order to discover the demands of the consumers. In the first stage of QFD, the results of these surveys were utilised as feedback. Taking into account every component of the public transportation system, a total of 20 major features and 17 subfeatures were created. The results of the surveys used in this research show that the ticket prices and frequency of the transportation system should be the primary emphasis of this article in order to enhance public transportation quality. Search terms include: MSRTC; Survey; Transportation Service; Infrastructure; QFD

INTRODUCTION

Poor quality service and unmet expectations have made the Maharashtra State Road Transport Organization (MSRTC) a state-owned corporation that offers transportation services to distant or unreachable rural communities in Maharashtra. As a result, many passengers choose to use private transportation, which offers a higher level of comfort. MSRTC's excellent services and facilities are being advertised, despite the fact that they are claiming otherwise. However, ongoing assessments are required to maintain and monitor the infrastructure at each bus stop, as well as the quality of the services they provide. The level of service given at each bus stop should then be monitored using input from passengers in the form of answers. MSRTC bus station in Amravati, India, was examined in this research for its quality of services and amenities by transforming customer feedback into new offerings that actually meet their requirements. In this article, a survey analysis is conducted using information gathered from passengers via questionnaires, interviews, and observations at bus stops pertaining to MSRTC services and amenities, as well as direct comments from passengers on MSRTC services. As part of this study's research design, the QFD technique (Quality Function Deployment) procedure is employed in order to identify the emphasis that consumers place on their varied expectations, which are then translated into functional design and linked to operational processes.

LITERATURE REVIEW

This research covers a wide range of topics related to the improvement of service quality. In order to improve the quality of service, researchers use a variety of tools, including those developed by Dr. Arvind Chaudhari, who is currently conducting a study to determine the actual location of passenger comfort facilities at bus stations and the degree to which passengers are satisfied with the services provided by these facilities. It was a pleasure working with Dr. Prakash Vishnu. Public and private transportation services are examined in terms of passenger satisfaction and the causes for passenger discontent in the case of MSRTC on the basis of several psychological and physical characteristics. For the Maharashtra State Road Transport Corporation, Madhuri Rahatgoonkar and Mayura Mathankar both attempted to measure the amount of happiness of passengers and the level of awareness of passengers about its services. To improve road passenger transportation services, Pakdil et al. [22] developed a QFD technique that combines traveller feedback with practical information from the transport service provider. As far as meeting customers' voices goes, staff' attention for their customers, technical conditions of buses and error-free facilities were considered to be the most important factors. The sample size of 285 respondents from one focus group was a drawback of this research. In this case study, the QFD technique was used to discover the desires and requirements of urban public transportation users and to improve service quality in Belgrade's urban public passenger transportation. Using QFD to improve public transportation service quality is discussed in this study.

Structure-based analysis is used to examine traits.

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ABSTRACT

This article compares and contrasts the many types of computational structural analysis research. Trusses play a critical role in the building process, hence our investigation focuses on this particular component. An active truss design with two piezoelectric devices coupled was studied using the d-SPACE control system. Another way to say it is: The experiments reveal that active and passive trusses work in distinct ways. Two piezoelectric components make it possible to accurately adjust the frequencies, modes, and damping ratios of an active truss. Because of this, an active structure has a larger lower-order damping ratio than a passive one. Structural vibrations may be reduced by increasing the damping ratio of the strut transfer functions. An active truss structure's dynamic performance may be enhanced by correct construction.

embedded steel frames and FTTD experiment mode analysis are discussed. Perovskite Stack Actuator

INTRODUCTION

Truss construction is increasingly turning to composite materials. Composite trusses have found use in construction due to their superior strength and performance. Research has been done extensively on the use of concrete and steel in the building of trusses. Various structural components, such as the materials and truss joints, have been thoroughly examined. These composite trusses, which are distinct from civil structures with regard to their materials and strength, stiffness and weight, were investigated in the seventeenth century.

An investigation was conducted on the impact of pre-stressed cables on a composite structural system. To build composite space trusses, the use of pre-stressed steel cables and concrete compression members has increased recently. [5] For their performance and features, several designs have been analysed [7, 8]. Pre-tensioned cables have been researched in the past, but further research is needed to fully understand its systemic design and analysis. When it comes to aeronautical structures, this research concentrates on composite trusses rather than civil buildings.

Internal activities such as forces and moments, as well as design assessments for acceptable strength, are part of the current steel-design process.. Component-based architecture may be made more efficient by removing unnecessary complexity. It is possible to do both analysis and design validation in a single step using advanced analysis. Structure modelling is made possible by advanced analysis that examines issues like as geometric flaws and residual stresses directly. [*] It is common practise to overestimate the system's ability to sustain larger loads in favour of a more compact design. In the current design code, each component is required to meet a particular level of reliability. System dependability is difficult to compare to that of a single component because of the complexity of the system. In order to meet a certain dependability metric, a system resistance factor must be determined.. Using system dependability, a cost-effective system may be designed to fail at a predetermined frequency.

Inquiry into the Literature

Due to their lack of bulk and damping, truss constructions are difficult to manage for researchers. As a technique to maintain structures safe and secure, an active structural control was developed. The term "active truss structure" describes a truss structure that can be controlled. Control laws, smart materials, and sensor and actuator configuration optimization are all being explored in active truss structures right now [4–7]. In order to have a clear picture of the structural properties of the active truss construction, it is important to analyse it in a certain way. Other than a few research by a few scientists, nothing is known about the active truss structural modes. Additionally, Preumont and Zhang [9–11] have examined how to comprehend the modal principles that underpin active truss designs [8–11]. A combination of theoretical reasoning and computer simulations, however, led to these results.

SAP software is used to do finite element analysis on the structure in this research. Finite element analysis is utilised to calculate the bending, shear, and deflection of beams in this application SAP is used to manually compute the load once the structure's load has been defined. 44 metres long,

High level Sign Acknowledgment Strategy for Energy Utilization

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Abstract

Recognition of traffic signs is a key component in the most current developments in the area of intelligent vehicle systems. Furthermore, it discusses the latest advancements in driver-supporting technology and underlines the security motivations for cleverly embedded devices. Prototyped hardware logic analyses various symbol categorization candidates to better signal identification algorithms. ' As a software component, the feature extraction and matching technique is used to identify and organize symbols on a computer's screen. Concurrent traffic indicator detection is well-organized thanks to the work presented in this study. For 150 nm technology, we report our findings in this research to see whether employing array-based transistors is better (or worse) than using a traditional technique. As can be shown from experiments using the 150 nm array-based technology and well-known logic gates like INV, NOR3, and NAND3, there is no significant benefit in terms of energy usage when employing the array-based approach (PDP).

I. INTRODUCTION

Resources, engine design and integrated electronics have made autonomous cars an essential technology during the last several decades. Automobile ownership is on the rise, and with it, the associated risks, in developed nations. Traffic symbol recognition is becoming more vital for driver-backing systems.Because it improves road user safety and security, in reality. Many traffic accidents occur as a result of drivers' frustration at not being able to see road traffic signals including stop signs, no-entry signs, and speed limit signs.. A technology that can give drivers with real-time information regarding traffic signals and monitor their car while driving is urgently required and is now being developed to avert these deaths. The development of a system that can identify and categorize road signs in real time has two advantages: first, it can be linked into driver assistance systems to help drivers focus more on their cars' navigation[12].

Autonomous vehicles may one day include RSR systems, though. These days, most cars

TDC-CMOS RESOLUTION INCLUDES ROUGH GAIN CALCULATION pulse decreasing as quickly as feasible.

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Abstract:

It's possible to accomplish a broad range of academic and professional goals all at once by using a computerised converter described in this article (TDC). The first phase of the proposed TDC makes use of a beat contracting (PS) plot and two-advance (TS) engineering in order to attain a more precise goal. An assumed counterbalance beat and balance beat width detection technique are used to alleviate the non-uniform contracting rate issue that affects classic PS TDC. An inference of a mechanism for fine-tuning the coarse increase may be made using only a few methods to nonlinearity in the proposed TS architecture. Targets of 2.0 ps and 16-piece go were obtained in a 0.18 m CMOS invention with an input time interval of 130 ns and an area of 0.08 mm2. To get the best results, you'll need an 18.0-mA supply and an output voltage of 1.8-V.

PS, the transition time to advanced (TTA), and the two-stage transition time to advanced are all included in the software (TS).

1. INTRODUCTION EXAMPLE

It's becoming increasingly common to focus on time rather than voltage as a consequence of recent improvements in Cmos production scale, fast semiconductors, and reduced supply voltage. As of late, the utilisation of a chance to-computerized converter has aided ADPLLs, space logical programming, jitter calculations, and other applications (TDC). As TDC's efficiency rises, so does the frequency with which high-accuracy flying durations are needed..

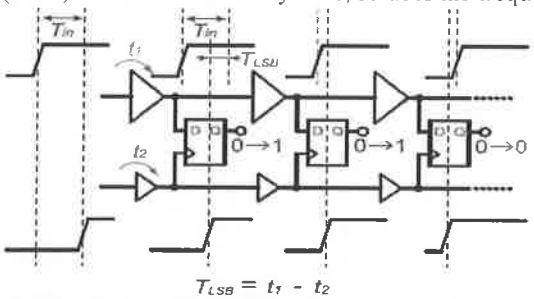

Fig. 1. Simplified schematic of a typical Venire TDC.

The laser range finder and mass spectrometry are two examples of testing applications. Fluorescence lifetime imaging frameworks often use it [5]. As the examination's essential goal applications, these applications need fine-fleeting exactness and a massive unique reach. For PHS time aims, a couple of Low jitter at diverse MS/s samplingrates is a constant need for TDC estimating competence. It has been suggested that time change procedures should strive at sub-door postponed time change processes. [6]-[9] The Venire TDC is commonly used due of its plan concept's flexibility. For a typical Venire TDC, two separate postpone lines are needed, which are commonly coupled as ring defer lines to save space, as illustrated in Fig. 1. Since two postpone lines' defer phases, such as t1 and t2, vary, the time span Tin reduces as the lower defer line catches up to the higher postpone line's change (t2 t1). To meet a certain deadline, we may use TLSB = t1-t2 as a deferred distinction. A problem lurks under the surface of each of this proposal's postponement lines.

The delay hole between rising and lowering cradle advances is used in place of two separate postpone lines in this variant of Venire TDC. There are [10, 11] Figure 2 depicts the TDC of a beating heart (PS).

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Trends in the Concrete-Steel Reinforcement System's Use of PET and Natural Fibers

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Abstract

Due to the nature of the aggregates used in the manufacture of concrete and therefore of the concrete- steel reinforcement system, as well as its growing demand, a negative environmental impact has been caused on the planet. Therefore, at present green alternatives are sought that can reduce the negative impact of the construction industry particularly concrete, some of these alternatives with greater positive impact are: the addition of natural fibers of vegetable origin and the addition of polymers such as recycled Polyethylene Terephthalate (PET), because both materials abound on the planet, they are easy to obtain, and positively impact the environment by reusing them, reducing the use of raw material and energy invested in the elaboration of concrete, which in turn cause the increase in Greenhouse Gases (GHG). Therefore, from this work of review of the state of the art and published trends involving the use of PET and natural fibers in concrete, the effect that the addition of these fibers has on the properties of the concrete-reinforcing steel system, and its impact on the construction industry, was determined. The effect on mechanical properties was mainly reviewed, however, recent studies show that electrochemical properties such as the susceptibility to corrosion of the reinforcing steel embedded in the concrete are also affected, because the presence of oxides on the reinforcing steel causes cracking, weakening the structures, causing a sudden failure of them. However, it is known that this corrosion process mainly affects structures exposed to saline environments such as bridge piles immersed in the sea. Therefore, the study of the concrete-reinforcing steel system and its modification through the addition of natural fibers or polymers partially replacing natural aggregates such as gravel and sand remains of the utmost importance, in order to reduce on the one hand, the environmental impact caused by the exploitation of the natural mantles from which the aggregates are obtained and on the other hand increase the life time of the concrete-reinforcing steel system. This approach is promising especially if one takes into account the results in the literature, which positively point to the addition of PET and natural fibers, since it has been determined that they increase some mechanical and electrochemical properties depending on the form and quantity in which it is incorporated into the concrete mixture.

Keywords: Concrete; Polyethylene terephthalate (PET); Natural fibers; Mechanical properties; Electrochemical properties

Introduction

Currently the construction industry consumes large amounts of raw material and energy, contributing greatly to environmental (atmospheric) pollution, mainly favoring the release of greenhouse gases (GEI) [1]. Furthermore, it is known that the corrosion of reinforcing steel embedded in concrete is one of the main causes of its deterioration, it is also an electrochemical process and for many years efforts and arduous studies have been directed in search of improving the electrochemical and mechanical properties of the concrete-reinforcing steel system. Mainly because these properties are important for their performance and durability, that is, it seeks to increase the useful life of constructions such as: buildings, bridges and houses. In recent years the use of natural fibers in the elaboration of the concentrate has been greatly increased, plants such as Diss [2], hemp [3] have been studied to mention an example. The use of plants of plant origin is based on the ease of access and availability of them as such as PET [4]. Mainly because the use of PET for reuse would generate a decrease in the constant growth of plastic waste (low biodegradability) that is produced in the world. Today more than 13 million tons of plastic go into the oceans, it is estimated as a consequence, that every year more than 100,000 marine mammals die [5]. In the construction industry, concrete occupies more than 85% [6] of the materials used in large constructions and mechanical properties are critical to determining the effectiveness of concrete. Therefore, recent studies on concrete have focused on modifications through different aggregates such as natural fibers seeking mainly to improve their performance in terms of mechanical and electrochemical properties by manufacturing new ecological concretes [3,7]. In 2018, the effect on concrete was studied when hemp fiber is added in different proportions 0.5, 1, 2 and 3% and lengths of 6, 12 and 18 mm. Subsequently, tests of resistance to compression, bending and tensile breaking were carried out. The results showed that specimens at 2 and 3% hemp, 12 mm in length, presented an increase in their mechanical strength with respect to the reference. The results were as follows: reference specimen, compressive strength of 31.14 MPa, bending strength 5.02 MPa, tensile breaking resistance of 2.08 MPa, while specimens with 2%, 3% hemp with 12 mm length reported compressive strengths of 34.28 MPa, 34.67 MPa, at flexion of 5.47 MPa,

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Creating Connecting Rod Designs

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ABSTRACT

Connecting rod is the intermediate link between the piston and the crank. And is responsible to transmit thepush and pull from the piston pin to crank pin, thus converting the reciprocating motion of the piston to rotary motionof the crank. Generally connecting rods are manufactured using carbon steel and in recent days aluminium alloys arefinding its application in connecting rod. The aim of our project is to design a connecting rod for a two wheeler using theoretical calculations, designing withsolid works software.

INTRODUCTION TO CONNECTING ROD

A connecting rod, also called a con rod, is the part of a piston engine which connects the piston to the crankshaft. Together with the crank, the connecting rod converts the reciprocating motion of the piston into the rotation of the crankshaft. The connecting rod is required to transmit the compressive and tensile forces from the piston, and rotate at both ends.

The predecessor to the connecting rod is a mechanic linkage used by water mills to convert rotating motion of the water wheel into reciprocating motion. The most common usage of connecting rods is in internal combustion engines or on steam engines.

The earliest evidence for a connecting rod appears in the late 3rd century AD Roman Hierapolis sawmill. It also appears in two 6th century Eastern Roman saw mills excavated at Ephesus respectively Gerasa. The crank and connecting rod mechanism of these Roman watermills converted the rotary motion of the waterwheel into the linear movement of the saw blades.

In Renaissance Italy, the earliest evidence of a – albeit mechanically misunderstood – compound crank and connecting-rod is found in the sketch books of Taccola. A sound understanding of the motion involved displays the painter Pisanello (d. 1455) who showed a piston-pump driven by a water-wheel and operated by two simple cranks and two connecting-rods. By the 16th century, evidence of cranks and connecting rods in the technological treatises and artwork of Renaissance Europe becomes abundant; Agostino Ramelli's The Diverse and Artifactitious Machines of 1588 alone depicts eighteen examples, a number which rises in the Theatrum Machinarum Novum by Georg Andreas Böckler to 45 different machines

Internal combustion engines

A connecting rod for an internal combustion engine consists of the 'big end', 'rod' and 'small end' (or 'little end'). The small end attaches to the gudgeon pin (also called 'piston pin' or 'wrist pin'), which can swivel in the piston. Typically, the big end connects to the crankpin using a plain bearing to reduce friction; however some smaller engines may instead use a rolling-element bearing, in order to avoid the need for a pumped lubrication system.

Typically there is a pinhole bored through the bearing on the big end of the connecting rod so that lubricating oil squirts out onto the thrust side of the cylinder wall to lubricate the travel of the pistons and piston rings. A connecting rod can rotate at both ends, so that the angle between the connecting rod and the piston can change as the rod moves up and down and rotates around the crankshaft.

Materials

In mass-produced automotive engines, the connecting rods are most usually made of steel. In high performance applications, "billet" connecting rods can be used, which are machined out of a solid billet of metal, rather than being cast or forged.

Other materials include T6-2024 aluminium alloy or T651-7075 aluminium alloy, which are used for lightness and the ability to absorb high impact at the

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Handwritten Signature Recognition Using Neural Networks

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***Abstract*—**This article demonstrates how adaptable neural networks may be used to preprocess handwritten signatures. After interpolating an input signature, a descriptor vector is created to alter the inclination angle. Neurons that are critical for recognition and categorization are preprocessed in a suggested adaptable neural network design. In this study, we present an upgrade to the material-based technique called pseudo coloring. Filling and sharpening color layers on top of the picture is made easier with the addition of edge detection algorithms. For our demonstrations, we use genuine X-ray data from a professional dual energy scanner.

I. INTRODUCTION

Scanners that use X-RAY technology produce pictures depending on the radiation absorption of different materials. For example, scanners are employed in medical tomography and security. Images produced by this process are often shown in grayscale, with the more absorbent regions being white and the transparent ones being black. Many people use the inverted version of this colorspace. This style of presentation, in certain cases, is sufficient for well-trained personnel, but the need to provide additional information to photographs necessitates the inclusion of markings.

A linear color map is a frequent strategy. In the case of [1] and [2,] it is possible to fivefold boost the depth resolution of images by using an artificial colored cube helix. Using mass attenuation coefficient, more sophisticated algorithms may categorize scanned objects or their components as belonging to one of several materials. Based on the material's atomic number, this coefficient is calculated. On the face of it, this method should allow us to categorise the item according to its atomic number, however testing have shown that objects' thickness plays an important role in this. Using a fire extinguisher as an example, this impact may be readily seen.

Computational intelligence (CI) techniques such as pattern analysis and classification have a wide range of applications. Classifying handwritten texts in identity control systems such as branch institutions and remote document verification systems is critical. Dispersed systems require efficient techniques for the collection and retrieval of knowledge. For example, in the situation of missing or partial data [1], [2], and authorship semantic identification [3], many approaches of CI aid. To extract prescriptions and compose robot instructions from normal behavior, the use of Natural Language Processing (NLP) methods might be beneficial. These sorts of systems can benefit from the usage of neural networks (NNs), which are structures that can

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Mechanical and Tribological Properties of [Si3N4/Al2O3]n Multilayer Coatings in Industry

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ABSTACT

With their fascinating features, multilayer coatings [Si3N4/Al2O3]n have attracted much attention in the food and pharmaceutical sectors. They might be used in a variety of operations. Unfortunately, there are no robust tribological investigations on this multilayer system based on [Si3N4/Al2O3]n that might emphatically represent its unique tribological properties. In order to better understand how the mechanical and tribological characteristics of [Si3N4/Al2O3]n coatings change with increasing bilayer numbers, this work focused on the tribological properties in both a dry and lubricated environment for n=1, 10, 30, and 70. A reduction of 33 percent in friction coefficient and a rise of 8.8% in lubrication efficiency were found when the number of bilayers was raised from 1 to 70, while the hardness and elastic modulus rose by 29 and 6.3%, respectively. This research found that the coating [Si3N4/Al2O3]70 has perfect qualities that make it a good option for use as a protective coating for food and pharmaceutical processing equipment.

INTRODUCTION

High-performance materials are needed to keep up with the ever-growing demand for industrial goods throughout the world, as well as to keep up with industry competition [1–2]. As a result, tribologically compatible coatings with high wear resistance and low friction are needed, as are components and tools coated with single layers or multilayers of coatings that can endure harsh conditions and give extended service lives [3-10]. In the literature, many single layer coating materials with the purpose of increasing mechanical properties have been reported, such as Si3N4, which has been used in various metalworking applications due to its high resistance, low thermal conductivity, and inter chemical behaviour in aggressive environments [11, 12]. Al2O3 has also been described as a single layer coating material with high hardness, good chemical stability, and refractory properties. Al2O3 Surfaces subjected to frictional wear and erosion by solid particles, as well as surfaces subjected to high temperatures, are good candidates for this material [13]. Multilayer systems, such as [TiN/ZrN], [TiAlN/TiN], and many more, have been demonstrated to be superior than typical single layer systems, bringing together the best properties of several layers, such as [TiN/TiAlN]. Multilayer structures with symmetry breaches between the layers increase the mechanical and tribological properties of materials by decreasing fracture propagation. Due to its outstanding mechanical, morphological, and tribological qualities, [Si3N4/Al2O3]n has attracted considerable attention as a prospective coating for processing equipment and cutting tools in several sectors. However, there are no comprehensive tribological experiments on this multilayer system to illustrate its potential and unique properties when in interaction with other materials. Similar to this, there is little record of tribological tests conducted in a variety of situations, such as lubricated or high-temperature settings Therefore, the goal of this study was to investigate the mechanical characteristics of [Si3N4/Al2O3]n multilayer coatings as a function of the bilayer number n=1, 10, 30, and 70, as well as the tribological properties in a dry and lubricated environment. As a consequence, the multilayer coating was shown to be a viable material for use in the food and pharmaceutical sectors on a scientific foundation.

EXPERIMENTAL SECTION

Materials The AISI 316 steel substrates were obtained in cylindrical form with a diameter of ½ inch and a thickness of 5 mm. These substrates were then prepared superficially with sandpaper (SiC) in the order 80, 100, 240, 320, 400, 600, 800, 1000 and