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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.

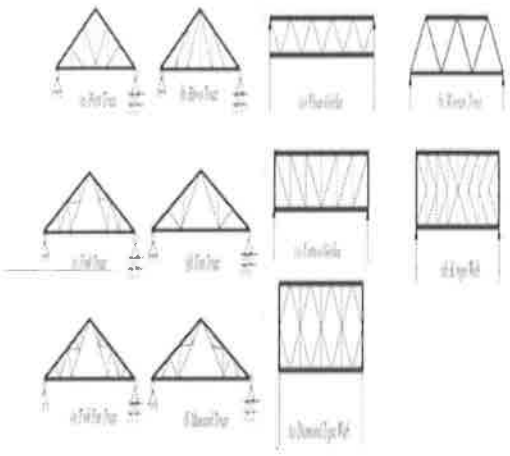

Figure 1.1 Pitched roof trusses Figure 1.2 Parallel chord trusses

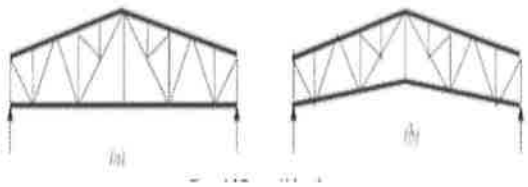

Figure 1.3 Trapezoidal roof trusses

STRUCTURAL MODELING STEPS & DETAILS

The step by step procedure for this study is as under:

1) Generate Geometry of Standard truss configuration

2) Calculate Dead load, Live load and Wind load.

3) Create Staad file from basic input and perform analysis.

4) Create steel design command to perform steel design.

5) Call Staad result and result interpretation.

Our main objective is to find out the truss configuration which has minimum weight for the same loading. In this work the rise and section vary

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Experimental and analytical investigation of ferrocement water pipe

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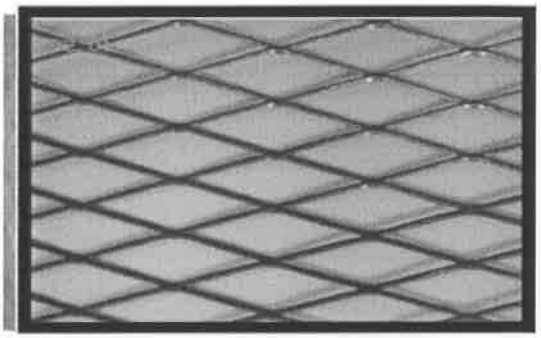
INTRODUCTION

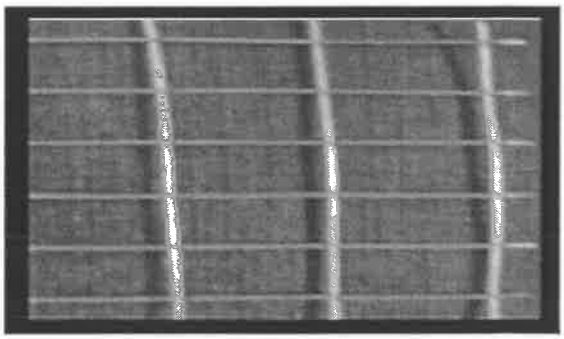
Ferrocement is kind of reinforcing concrete. It generally comprised of hydraulic cement mortar reinforced with closely spaced layers of continuous and very tiny size wire mesh. The mesh may be composed of metallic or other appropriate materials (Blake, 2001). (Blake, 2001). It is cheap cost, robust, weather-resistance, lightweight and notably its adaptability compared to the reinforced concrete (Ali, 1995). (Ali, 1995). Robles-Austriaco et al. (1981) revealed that ferrocement is an effective material for home building. Also Al-Kubaisy and Jumaat (2000) explored the feasibility of utilizing ferrocement cover in the stress zone of reinforced concrete slab. This material is also utilized in mending the reinforcing element such as beams, slabs or walls (Fahmy et al. 1997; Elavenil and Chandrasekar, 2007; Jumaat, 2006). (Fahmy et al. 1997; Elavenil and Chandrasekar, 2007; Jumaat, 2006). Mourad and Shang (2012) employed ferrocement jacket in restoring reinforced concrete column.

Their test findings suggested that employing the ferrecement jacket enhances the axial load capacity and the axial stiffness of repairing reinforced concrete column compared to the control columns. Kaish et al. (2011) and Xiong (2004) explored the possibilities of employing ferrocement jacket in strengthening of square reinforced concrete short column. Their findings suggested that utilizing this way of strengthening enhanced the column behavior. Various investigations were carried out to explore ferrocement elements (beam, slabs and column) to evaluate its behavior under applied stresses up to failure. Ibrahim (2011) and Hago et al. (2005) examined the ultimate capacity of wires mesh-reinforced cementations slabs and simply supported slab panels; respectively using various kinds of reinforced wiring mesh. Nassif and Najm (2004) studied an experimental and a theoretical model for ferrocement–concrete composite beams. Various kinds of reinforced concrete beam superimposed over a thin sheet of ferrocement (cement paste and wire mesh) were tested

a-Polypropylene fiber



b- Expanded steel mesh



c- Welded steel mesh

Figure 1. Reinforcement steel meshes and fibers used.

under a two-point loading mechanism, till failure. They found that the suggested composite beam

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

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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%.

Table 1: Properties of Materials

Material	Young's Modulus (GPa)	Strength (MPa)	Poisson Ratio
Concrete	30±2	33,2±2 (f_c)	0,25
Steel bar	200±1	610±10 (f_y)	0,30
Adhesive	4,1±1	36±1 (f_u)	0,41
UCFC sheet*	86±1	1035±63 (f_u)	0,45
BCFC sheet**	87±1	720±50	0,35

Note: * UCFC sheet: Unidirectional Carbon fiber composite sheet; ** BCFC sheet: Bidirectional Carbon fiber Composite sheet

The unidirectional and bidirectional fibers are used. The experimental results obtained for carbon composite unidirectional are showed in Table 1. The yield strength corresponds to the tensile strength. The carbon composite sheets have a linear elastic behavior up to failure. The high elongation at failure is 0.8% for the unidirectional carbon fiber sheet and 0.5% for the bidirectional carbon fiber sheet. Table 1

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

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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. A second-order differential equation can describe the link between longitudinal forces transmitted from the concrete slab and the applied bending moment. Yam was the first to adopt the approach that would subsequently be developed by Newmark et al.

Studies of the shear connection behaviour of non-linear materials were carried out by Yam (1968) and by Chapman (1970). (1968, 1971). (1981). The ultimate flexural strength of composite beams was obtained by solving non-linear differential equations repeatedly.

Newmark's calculations were used to refine and update Johnson (1975, 1981). For short-span composite constructions, these equations were utilised to examine the loss of contact.

Partially contact composite beams, according to Roberts, may be analysed in a new approach (1985). Layer displacements are used to model the equilibrium and compatibility equations in this method. Differential equations derived from FDEs, as well as their derivatives, may be solved

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Extreme Burden Conduct Of Steel Shafts With Web Openings

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ABSTRACT

The paper also includes an examination of the ultimate load behavior of steel beams having web holes. ISMB 100 hot rolled steel beams with web holes have seen a great deal of testing. Because of this, there was a concentrated load placed on the center of the beams' span. Research on the failure of these particular beams was comprehensive in order to determine the optimal ratio of aperture span to diameter. Conventional finite-element analysis software, such as ANSYS, was used to study all the beams and the findings were compared to those acquired via test.There is a direct correlation between opening size and carrying capacity, according to the testing findings. The simulation and experiment findings are in excellent accord. In the parametric analysis, the ideal placement for the web opening is in the center two-thirds of the span.

1. Introduction

For the first time in structures during World War II, open web expanded steel beams were used to reduce steel construction costs. These beams were selected by the designers in order to improve the original beam's stiffness and strength.One section of the root beam web is cut to a certain shape before being joined with another piece by welding. Consequently, the entire beam depth grows, increasing the original section's capacity by a factor of two. For decades, structural engineers have sought for castellated beams' excellent strength to weight ratio in their drive to produce lighter and more cost-effective steel structures.

Currently, the design principles and criteria for these beams are either inadequate or difficult to implement (2009). Because the I-Beam behavior with web apertures is difficult to understand and evaluate, simulating the design process has proven problematic. This means that further study is needed to collect enough data to provide a clear design strategy. Few experimental and analytical studies have been conducted on steel beams with web holes until this point. Using Redwood's proposed equivalent rectangular hole with altered proportions for steel beams with circular web apertures, the bulk of the design criteria are still appropriate (1969). Steel beams might be overestimated due to a simple loading method. According to

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Finite Detail Modeling Of Metallic Concrete Beam Thinking About Double Composite Movement

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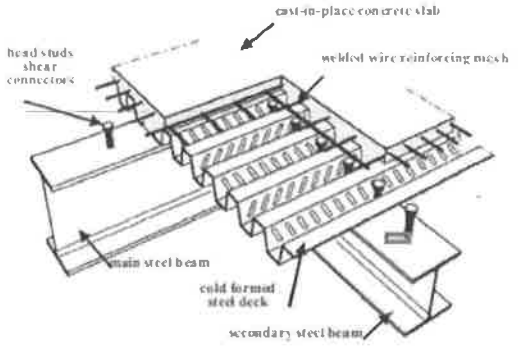
Abstract :

Steel concrete composite production has gained huge popularity as an opportunity to natural metallic or concrete creation. Ansys 11 laptop program has been used to increase a 3-dimensional nonlinear finite detail model in order to analyze the fracture behaviors of non-stop double steel-concrete composite beams, with emphasis on the beam slab interface. 3 beam fashions with various quantity of the pinnacle studs have been addressed. The related constitutive outcomes consisting of the remaining hundreds, the most deflections, the interface slip and slip strain values are supplied. A parametric look at has been completed so as to research the effect of some parameters on their fracture abilities, such as metallic beam top, lower slab thickness and period, studs diameter and arrangement technique. Through comparing these consequences with the to be had experimental records, the proposed version is discovered to be capable of reading steel-concrete composite beams to a suitable accuracy.

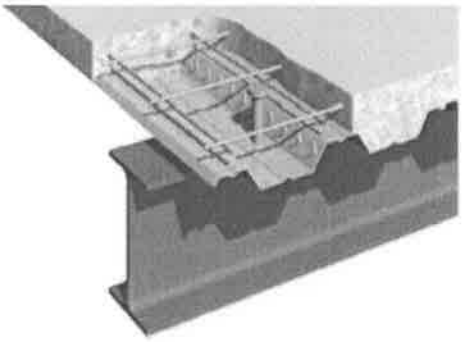
1. Introduction

The use of composite structures is increasingly present in civil construction works. Steel-concrete composite beams, particularly, are structures consisting of two materials, a steel section located mainly in the tension region and a concrete section, located in the compression cross-sectional area, connected by metal devices known as shear connectors. One type of these connectors is called head studs as shown in Fig. 1. The main functions of these studs are to allow for the joint behavior of the beam-slab, to restrict longitudinal slipping and uplifting at the elements interface and to take shear forces. Double steel-concrete composite continuous beam is a new structural system developed on the basis of single steelconcrete one, in which there is also a bottom reinforced concrete slab connected to a steel profile in the negative moment regions through the head studs, therefore with two interfaces.

Comparing with the traditional single steel-concrete composite continuous beam, its advantage is that effectively limits the crack width of the negative moment area, and also improves the stress state of section, so that it is suitable to the composite continuous beam with a larger span. The mechanical properties of the double composite beam obviously depend on their respective properties and interactions. In the negative applied.



(a) Illustrative sketch of roof slab with composite



(b) Composite beam system with head studs shear connectors.

Figure 1 Steel-concrete composite section with studs shear connectors.

bending moment area, the concrete slab cracks under tension and then the interface slip occurs between steel profile and concrete slab, with non-linear features, it makes great impact on the structure of the internal forces and deformation. Therefore, it is necessary to present a finite element model to study the mechanical properties of the double steel-concrete composite beam in negative moment regions. Although many experimental and theoretical studies for the traditional single steel-concrete composite beam have been done, few research studies have been found in references to the double steel-concrete composite continuous beam. Rozsas [1] investigated the plastic reserve of composite plate girder bridges due to the synergetic combination of the concrete and steel. The plastic design in the framework of the

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Cold-formed steel section building design

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ASTARCT: A relatively recent idea in India, cold formed steel sections are widely employed in industrial and non-industrial projects across the globe. In the 1990s, when the Indian economy opened up and a number of multi-nationals built up green-field projects, these ideas were brought to the Indian market. Local marketing agents and licenced builders have helped Global Cold formed steel create a footprint in India. There is no need to worry about compatibility issues since the whole building package is provided by a single vendor. There are several advantages to using the Cold formed construction technology, such as this: Because only bolted connections are employed, a structure may be dismantled, stored, or relocated to a new place and reassembled when no longer required. The stiff structure is sturdy despite the lack of field riveting or welding. The project may be completed in a shorter amount of time thanks to the use of a Cold formed system. In this study, an in-depth investigation of a cold-formed industrial building is conducted. Parametric investigations are taken into consideration as well. Hot Roll steel Industrial building and Cold formed Industrial building have been compared and a conclusion produced.

Stad Pro 2008 and the IS Code

INTRODUCTION

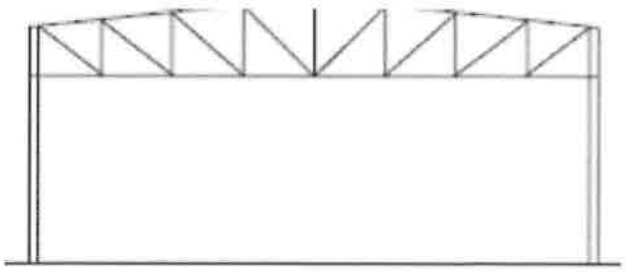
GENERAL Function and construction cost efficiency are the two most important considerations in industrial building design. A warehouse or aircraft hangar may need a building with a bigger span than a factory or assembly plant. Conversely, a factory, assembly plant, maintenance facility, or packaging plant may require a building with a lower span. Structural designer's advice on optimal spans and the selection of acceptable cross-sections profiles may have a significant impact on attaining overall economic efficiency in the design process. The longitudinal dimensions of the structure, i.e. the bay lengths, are an area in which the structural designer may have a greater impact. As a general rule, bigger bays need fewer, heavier components like as columns and trusses as well as a higher number of these components at a lower mass per square foot. As fewer columns mean cheaper foundation expenses, that's a crucial factor to keep in mind while making this decision..

CLASSIFICATION

I. Hot-Rolled Steel Industrial building.
II. II. Cold-Form Steel Industrial building.

HOT-ROLLED STEEL INDUSTRIAL BUILDING

Cross sections for a single-story Hot-Rolled Steel industrial structure are many, but experience has proven that just a few designs are the most practical and cost-effective options. Figure 1 depicts several of these cross-sections. The yield strength of the cross-sections utilised in industrial buildings made of hot-rolled steel is 250Mpa. The cross-section of a hot-rolled steel industrial building is shown in the image below..



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Flood Mitigation and River Pamba in Kerala– Insights and Measures with Special Reference to Thottappally

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ABSTRACT:

Pathanamthitta and Alleppey districts in Kerala are enriched by the cultural and historical importance of the Pamba River. The rice bowl of Kerala, Kuttanad, relies on this river to meet the state's needs. The Pampa River caused devastation in and around Thottappally and the surrounding areas during the floods of 2018. The Thottappally spillway connects the Vembanad Lake to the Arabian Sea in a two-way exchange. The Kuttanad region and Thottappally have historically been on the receiving end of both seasonal and unseasonal rainfall. Despite this, though, Proper systems and methods must be in place in view of these considerations In addition, the ability to deal with an increase in inflows is critical. Flooding at Thottappally has caused a number of problems, and this article examines those difficulties and provides recommendations for preventing further losses.

Monsoon, Kuttanad, Vembanad Lake, and paddy agriculture are among of the topics covered in this article.

INTRODUCTION

Flooding is common in Kuttanad and the surrounding regions. The phrase waterlogging is more accurate here than floods. Kuttanad is prone to flooding because of its low height. A spillway was built in the Kuttanad area of Kerala in 1955 in order to divert surplus water from the region towards the Arabian Sea. This is a far cry from its anticipated 19,500 cubic metres per second discharge capacity, which was discovered to be barely 600 cubic metres per second after commissioning. Thanneermukkom bund was also built as a seawater barrier to keep saltwater out of Kuttanad during the rice harvest season. One of the few places on Earth where paddy is grown below sea level is Kuttanad.

Every time the monsoons unleash their wrath on Kerala, the rice bowl of Kuttanad finds itself in the spotlight. These waterways are both a blessing and a curse for Kuttanad. Local farmers and fisherman must maintain a fine balance between drowning beneath the floodwaters and keeping dry if they want their livelihoods to survive. Pampa, Manimala, Achankovil, and Meenachil are the four rivers that flow into the Arabian Sea at Thottappally and Thanneermukkom, respectively. Additionally, the Muvattupuzha River connects with Vaikkom Lake at Thottappally spillway. The Vembanad Lake, which covers the area between Thottappally and Thanneemukkom, receives more rain than it can hold during the monsoons, as recently shown. Considering the recent floods in Kerala, this research explores the many aspects of flooding in Kuttanad, with a particular emphasis on Thottappally. Taking a long-term perspective, it is advised to implement flood prevention measures.

Kuttanad

Kumarakom, located in the districts of Alappuzha, Kozhikode and Pathanamthitta, is Kerala's most important rice-growing area. People live and produce paddy at Kuttanad, one of the few sites below sea level in the globe where considerable numbers of people reside and farm rice. Altitudes in this area fall between 12 and 3 feet below sea level. The Vembanad Lake's paddy fields and the culture that developed around them are world-renowned. There are three distinct regions of Kuttanad: (a) Lower, (b) Upper and (c) North Kuttanad.

South India's polder-farming system, which is situated near the Vembanad Ramsar region, has been recognised as an FAO-designated "Globally Important Agricultural Heritage System" (GIAHS). As a result of the heavy use of diesel and engine oil by tourist diesel-boats, toxic residues have built up in Kuttanad's waterways and paddy fields. Despite the destruction of Kuttanad's fish and other aquatic biodiversity-richness, farming remains exceedingly uneconomical. Kuttanad's designation as a GIAHS (Globally Important Agricultural Heritage System) gives it a chance to reestablish its natural equilibrium (Jacob et al., 2018).

Paddy is grown in two kinds of polders in this wetland, Padashekaram and Kayal Nilams, both of which were recovered from the Vembanad backwaters. The recent floods in Kuttanad have kept the area in the news, mainly because they disrupted the everyday lives of the locals. Construction of the Thottappally spillway and the Thannermukkom bund, among other things, was undertaken to make farming

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Supply of Potable Water in Kuttanad and Regulation of Water Salinity

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ABSTRACT

The Thanneermukkam bund has various problems, including water pollution and the spread of submerged aquatic plants like sea weeds, which were erected to ease the salty concerns faced by Kuttanad's farmers. Thanneermukkam Bund's principal objective is to lessen the salinity level of Vembanad Lake during the summer season, which is the period of the check (TMB). The problem can be fixed easily if the following guidelines are followed. A controller transports Muvattupuzha River water to the Kuttanad area where it is diluted and maintained at 2ppt salinity; in times of severe shortage, water is collected in the pazhnilam and sent to Lake Girding through a pump. Kuttanad's colourful operating techniques and controller design are also thrown about as a way to execute the concept. A plan to use Kuttanad's volume and saltiness of the natural water system is under consideration.Kuttanad, salinity, and add-ons are some of the terms in this section.

INTRODUCTION

Kuttanad, Kerala's rice bowl, is located in the district. For the most part, farming is done at or below sea level in this area. The Vembanad Lake in Kerala is fed by four main rivers, the Meenachil, the Manimala, the Pampa, and Achenkoil. From -0.6 metres above sea level to -2.2 metres below sea level, it has a wide variety of altitudes. Between May and November, the region has a rainy season and a dry season, respectively. During the summer, the most prevalent issue for tourists to the area is a shortage of clean drinking water. Drinkable water is transported from the highlands to Kuttanad year-round via rivers and the seashore thanks to the monsoon rains. However, owing to the low sea level in the region, the salt content of the water in Kuttanad during the summer months makes it unsuitable. In 1968, the Indian government proposed the Thanneermukkam Salt Barrier project, which would see a barrier erected across the lake at Thanneermukkam to prevent saltwater from returning to Kuttanad. the length of summer, enabling farmers to grow one extra year-round cycle. Salt from the Thanneermukkam Water quality deterioration and the growth of aquatic vegetation were unintended consequences of Kuttanad's water barrier, which was intended to keep saltwater away. On rare occasions, the salinity of the water does not rise over the 2ppt limit for paddy i.e. (elements according to thousand).

There is an increase in pollution from agricultural waste and pesticide and fertiliser residues pouring into the lake owing to the barrier being closed during the dry season because of the enormous water withdrawals for agriculture and home usage. Since Kuttanad's rivers flow into a dry environment, their closure resulted in a considerable decline in water levels.

Literature Review

One of the three options offered by the Netherlands to improve Kuttanad's water balance in summer was to redirect the outflow of the Muvattupuzha River from the Idukki project, which now flows into the ocean, to a different river. After the Muvattupuzha split at Kuttanad's northern border, it recommended building two go regulators, one on each branch. The water might be directed to the Thanneermukkam barrior through existing waterways in Vaikom and along the eastern edge of the Cochin lagoon. It was also claimed that low drift augmentation measures were more cost-effective and easier to undertake than protection activities.

Methodology

Small hydrologic system modifications are shown to be effective in Kuttanad during the TMB shutdown period, according to the study.

Vembanad Lake and Muvattupuzha River are separated by the Thanneermukkam Salt-water Barrier in Kerala (TMB). An average of 1700mm3/year is discharged into this river from the tailrace of the Idukki hydroelectric dam. Idukki Hydroelectric Mission has a larger summer tailrace discharge since it is a peaking plant. From December to May, the 1700mm3 total tailrace discharge may be released. The closing water is released into the lake below the TMB after the MVIP, HNL, GCDA, and KWA

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Green and Sturdy Lightweight Total Cement The Job of Waste and Reused Materials

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Abstract: Lightweight aggregate concrete manufactured from solid waste or recycled byproducts is a hot new issue in construction and building materials. Making Portland cement using this additive offers significant advantages in terms of lowering the impact on the environment and decreasing the amount of natural resources used in the production process. This article discusses the use of agricultural and industrial wastes as cementitious materials or artificial lightweight aggregate concrete. Advanced microstructure characterization methods and mechanical properties were also examined. Future research will evaluate if it is possible to improve lightweight aggregate concrete manufactured from recovered solid waste and by-products in order to solve environmental issues or boost environmental advantages.

Keywords: lightweight aggregate concrete; waste; recycled materials; durability

1. Introduction

Normal conditions have resulted to LWAC's extensive usage in construction [1] because to its benefits such as light weight, heat retention, fire resistance, minimal shrinkage, and creep resistance The fundamental benefit of LWAC is that it reduces the weight of its components. LWAC may be an advantage to high-rise and long-span constructions. Many factors go into the calculation of the LWAC density, including the kind and grade of aggregates and cements used, the amount of water in each component and other additives, the compaction technique used, and the curing conditions. Low, medium, and high densities of LWAC are defined as densities ranging from 400 to 800 kg/m3, 800–1350 kg/m3, and 1350–1850 kg/m3, respectively, depending on their relative levels of density. Nonstructural applications may use the low density LWAC, while structural applications can use the high density LWAC. Structural and non-structural applications may be met by the medium density LWAC if necessary.

Expanded clay, slate, shale, and blast furnace slag were claimed to be the primary ingredients

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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].

SDN has two critical functions. Next, an SDN distinguishes the control plane from the data plane (which determines how to manage the traffic) (which forwards the traffic according to decisions that the control plane makes). Second, the control plane is consolidated by an SDN, meaning different data plane components are managed by a single machine control programme. The SDN control plane maintains direct control over the state of the data plane elements (i.e., routers, switches, and other middle boxes) of the network using a well-defined application programming interface (API). A popular example of such an API is Open Flow. An Open

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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

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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 conditions in a predominant way, hence hindering inflexible practices in developing. The upsides of precision cultivating are genuinely critical in agronomical, characteristic, particular and down to earth perspectives. For the meteorological strategies, SM is the "memory of precipitation" since it stores water and transmits it by methods for disappearing or overflow with some delay. On account of these credits and to the mind boggling sway externally imperativeness exchange, SM substance may emphatically influence ecological change components

DATA PROCESSING:

Fig.1. Data process in ML

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HUMAN ACTIVITY RECOGNIZATION USING CONVOLUTION NEURAL NETWORK

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ABSTRACT

Human improvement confirmation fuses mentioning times strategy information, assessed at inertial sensors, for example, accelerometers or whirligigs, into one of pre-portrayed works out. Beginning late, convolution neural system (CNN) has created itself as a surprising methodology for human improvement attestation, where convolution and pooling tasks are applied along the transient part of sensor signals. In the majority of existing work, 1D convolution development is applied to individual univariate time plan, while multi-sensors or multi-framework yield multivariate time game- plan. 2D convolution and pooling assignments are applied to multivariate time game-plan, so as to draw nearby reliance along both normal and spatial zones for uni-specific information, so it accomplishes predominant with less number of parameters stood apart from 1D activity. At any rate for multi-estimated information existing CNNs with 2D development handle various modalities similarly, which cause impedances between attributes from various modalities. In this paper, we present CNNs (CNN-pf and CNN-pff), particularly CNN-pff, for multi-separated information. We utilize both halfway weight sharing and full weight sharing for our CNN models with the objective that method express attributes likewise as common qualities crosswise over modalities are found from multi-detached (or multi-sensor) information and are unavoidably assembled in upper layers. Primers on benchmark datasets show the world class of our CNN models, stood apart from condition of enunciations of the human experience frameworks.

INTRODUCTION

Picture Processing and Machine Learning, the two hot cakes of tech world. Did you comprehend that we are the most archived age in history of humanity? Dependably a troublesome 1.78 million GB information gets made on the web. That is a great deal of information and a critical projection that of information is pictures and annals. This is the spot robotized picture preparing and AI comes in. There is never has been an evidently incredible time to be a nerd. A great deal of lanes is opening up for those with aptitudes in Machine realizing if all else fails and picture dealing with unequivocally. After we are finished with the instructional exercise, you would have the choice to pass a data picture to our program and our program ought to have the decision to check the measure of social orders showing up in that picture. Other than we would in like way be making a skipping box around each of the perceived person. This post of mine is an unassuming exertion to get individuals intrigued by this zone and by utilizing a basic model, show how essential it to begin is. All we need would be working information on Python and a little foundation of Open CV. Convolution neural systems. Sounds like an odd blend of science and math with a little CS sprinkled in, yet these systems have been probably the most prevailing headways in the field of PC vision. 2012 was the standard year that neural nets made to irrefutable quality as Alex Krizhevsky utilized them to win that year's Image Net rivalry (in a general sense, the yearly Olympics of PC vision), dropping the solicitation bungle record from 26% to 15%, a shocking improvement at the time. Ever beginning now and into the not so distant, a colossal social occasion of affiliations has been utilizing critical learning at the point of convergence of their associations. Face book utilizes neural nets for their adjusted checking calculations, Google for their photograph search, Amazon for their thing recommendations, and Interest for their home feed personalization, and Instagram for their advantage structure. In any case, made by craftsmanship, and plainly overall understood, use event of these structures is for picture dealing

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HYBRID ERA ON BIG DATA ANALYTICS PLATFORMS

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Abstract: - *The key purpose of this paper is to provide an unbiased assessment of different systems appropriate for vast processing of facts. Numerous technological systems available for broad knowledge analytics are analysed in this paper and comprehensive reviews are addressed on their strengths and limitations. Similarly, a broad collection of guidelines for adapting knowledge mining for massive statistical research was addressed wart its suitability to cope with actual-global computing problems. Through the successful introduction of these well developed and commonly utilized knowledge mining algorithms, the destiny patterns of big information processing and analysis can be anticipated to focus on the strengths of the technological frameworks and platforms available. Hybrid strategies (integration of or broader structures) can be best adapted for a chosen knowledge mining algorithm which can be well adaptable and can be processed in real time. Keywords huge facts; mass data analytics; cloud computing; mining statistics; computer research; systems of large facts;*

1. INTRODUCTION

This is an era of big, complicated numbers, that is to say massive figures. Altering almost all conventional platforms for data evaluation plays a dominant function. Hardware computer scale is an advanced analysis of large quantities. It is very challenging to select the right hardware/software platform for big data evaluation as all the requirements are to be met within a given time span. Various large factual constructs with an exclusive set of characteristics are available, and a thorough comprehension of the expertise of these application categories is needed to choose appropriate frameworks. In fact, the key feature of the adaptability of the framework to handle enhanced statistical analysis needs when generating empirical answers on a selected platform [1]. In this view, the most widely applied analysis of mass recording systems is conducted and their capabilities and weaknesses are addressed. Although the decision on the correct platform is normally significant, the user must take care of its software/algorithms favourites, time for results, scale of process information, the crucial version design: iterative or unique releases, enlarging data processing capability in future, speed of log switch, kind of facts, management of hardware catastrophes A large range of high-speed, high-speed and very wide datasets are available. The use of common tools, methods and hardware/device programs is an outstanding business to work with such vital statistics. Great facts refer to the large number of diverse databases of several heterogeneous properties that are increasingly growing. Rapid network expansion, record storage, data collection limitations in almost all fields of study, biological science and engineering are now growing at a good price. These data sets are currently supplied and used with the support of distributed frameworks, which store record factors in several places and collects them via the programming framework [3], through creating large numbers of statistics. In certain situations, statistics should not be stored immediately in a database since this modern age enables the data to be analysed as it is being generated [4]. The big intelligence span currently involves numerous sources of knowledge, such as tweets, photographs, interactions between social networks, tool numbers, video/voice records and capture with more traditional, dependent performance. Facts. Information. Production of this kind of fact is the easiest conceivable because of the characteristics of the present vast mathematical and computational era [5]. The paper is as follows: In the chapter "Scaling," the basic scaling theory, forces and disadvantages of scaling alongside different platforms are addressed. The chapter "huge data

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Classification of Blood Cell Types Using CNN

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Abstract

White blood cells, commonly referred to as leukocytes, play a critical part in human immunity development and maintenance. Classifying White Blood Cells plays a critical function in diagnosing sickness in a person. Using the classification, disorders including infections, allergies, anaemia, leukaemia, cancer, and the Acquired Immune Deficiency Syndrome (AIDS), which are caused by aberrations in the immune system, may be more accurately identified and treated as a result. To help haematologists identify the kind of White Blood Cells present in the human body and uncover the root cause of disorders, this categorization is necessary. There is now a lot of study being done in this area. A deep learning technology called Convolution Neural Networks (CNN) will be used to classify WBC pictures into four subtypes, namely neutrophil, eosinophil, lymphocyte, and monocyte, since classifying WBCs has enormous potential. In this work, we'll present the results of a number of experiments on the Blood Cell Classification and Detection (BCCD) dataset, which we used to train CNNs.

Keywords:Basophils, Eosinophil, Monocytes, Lymphocytes, and Neutrophils are all types of blood cells. A framework for deep learning called TensorFlow In the name of Keras function of softmax The Relufunction's. a kind of leukocyte Google's joint venture

Introduction

The human body's immune system relies heavily on white blood cells. Red Blood Cells (RBC) provide oxygen, White Blood Cells (WBC) are the immune system's face, and platelets are responsible for clotting in injured tissues [1]. [2] A healthy adult's white blood cells make about 1% of their total blood volume. In the human body, each kind of white blood cell has a specific purpose and protects against different infections or disorders, which is why they are found throughout the body. As a result, if they detect any of these in the blood, they assault them to offset any possible harm these elements may do in the body. WBCs are distinguished from other blood cell types by their large, lobed nucleus, which is the primary feature of the WBC structure. WBCs have cytoplasm and a cell wall, but no nucleus.

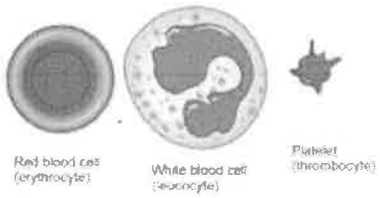

Fig. 1. Types of blood cells.

The human body has five primary types of WBC. There are only four categories: Basophils (0.4 percent roughly), Eosinopoiel (2.3 percent approximately), Monocytes (5.3 percent approximately), Lymphocytes (30 percent approximately), and Neutrophils (62 percent approxAQ3 imately) owing to data set limits (Fig. 1).

Eosinophil

Every day, depending on the season and the stage of life, one's body's Eosinophil count fluctuates somewhat. Two to four per cent of the total WBC count, Eosinophil may remain in circulation for eight to twelve days. The medulla, brain, gastrointestinal tract, and lymph nodes all contain these [2]. The bi-lobed nucleus and skin-red hue of the cell make it easy to identify as an Eosinophil. The nucleus's two lobes are linked by a thin thread of filament. 1.2 percent of the population is composed of monocytes. Monocytes make about 6–9% of the body's total WBC count in a healthy individual. Monocytes have

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Implement of Smart Health Care Monitoring System using Mobile IoT and Cloud Computing Technologies

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ABSTRACT: ***Recently, many research works were interested in combining cloud computing and IoT to design systems for smart health care. Many authors have highlighted the benefits of using cloud computing with IoT and proposed a cloud infrastructure to extend the limited resources of the sensors and to facilitate the management of the sensor-centric applications in many domains. However, about MCIoT convergence, there are fewer research works. One of the projects is about a developed platform based on MCIoT where sensors can interact with a mobile device which has access to the cloud via Internet using Bluetooth. Based on restful web services, the framework is feasible on resource constrained devices. Our work aims basically to come up with a general service architecture for smart healthcare monitoring application, that combines the features of mobile devices, sensors, and cloud computing to offer to the user the enhanced services that are accessible anywhere while guaranteeing scalability and security. Our general service architecture to build a network for health care applications that generated data is stored in the cloud our mobile application will show the accurate results on user dashboard of their smartphones.***

Keywords: MCIoT, Cloud Computing, sensors, smart phone, healthcare networks.

I. INTRODUCTION

Internet of thing is being popular now a day. It is being interconnected with many devices like physical devices and smart devices. The growth of the internet is going to change the world with the IoT devices which allows the innovative of a person ideas presenting to this world. The Internet of Things (IoT) is a structure which between relates the contraptions which figures and the machines. People that gives the unique identifiers and it has the limit of moving the data in a framework that does not obliges human to human and human to PC collaboration. Kevin Ashton is a kindred advocate besides the official of Auto-ID Center at MIT and he at first decided the Internet of Things in a presentation in 1999. In spite of the way that the IoT was not showed in early years and the Internet of Things has been being created from various years. The main web are given an outline, a Coke machine at Carnegie Melon University in the 1980s. The product designer will take up with the machine. Since, the IOT has being huge from the guest remain with the commonplace development, for instance, Radio Frequency Identification (RFID), Wireless Sensor Network, Bluetooth. They are misusing the availability in Cloud Computing. The Cloud Computing giving us a Smart City with various machines. In 2015, the improvement in web of things had machine to machine classes. per Gartner Research: "4.9 billion related things being utilized as a part of 2015 … and will accomplish 20.8 billion by 2020." In any cause the world doesn't extensions to the 50 billion devices by 2020. By then there will be different devices will be come to 2.5 billion devices that shows around 5% of all devices are related. The data will interface various contraptions which will generate 10 million terabytes for every month. Here after the 5% data which is related the things will create.

Distributed computing could be a general term for the conveyance of expedited administrations over the net. Distributed computing could be a style of computation that depends on sharing registering assets rather than having neighborhood servers or individual gadgets to handle applications. Distributed computing is analogous to matrix computation, a kind of registering wherever unused getting ready cycles of all PCs during a system area unit outfits to tackle problems overly serious for any stay solitary machine. In distributed computing, the word cloud (additionally declared as "the cloud") is employed as Associate in Nursing illustration for "the net," that the expression distributed computing signifies "a quite net based mostly computation," wherever distinctive administrations, as an example, servers, reposition Associate in Nursing applications area unit sent to an association's PCs and gadgets through the net.

The quantifies for interfacing the PC systems and the item anticipated that would make conveyed processing work are not totally described at present time, leaving numerous associations to portray their own specific circulated figuring advancements. Appropriated processing structures offered by associations, like IBM's "Blue Cloud" progresses for example, rely on upon open benchmarks and open source programming which interface together PCs that are used to pass on Web 2.0 limits like mix or compact exchange. Cloud-based applications can be up and running in days or weeks, and they cost less. With a cloud application, you just

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EXCEPTIONALLY EFFICIENT AND MULTIPACTION-FREE P-BAND GAN HIGH-POWER AMPLIFIERS FOR SPACE APPLICATIONS

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Abstract— *on this paper, the authors file upon the improvement of multipaction-loose P-band (UHF) GaN high-power amplifiers (HPAs) with goal RF output power values of a hundred and forty W and electricity-delivered performance beyond 70%. initially, two exceptional 80-W magnificence single-ended energy modules have been designed, synthetic, and examined the usage of GaN devices from different producers. Load–pull strategies had been used in each designs to achieve the fine tradeoff in terms of RF output energy, performance, and balance. Secondly, two equal energy modules had been blended in a balanced architecture as a way to attain the specified level of RF output strength. Multipaction analyses and assessments have been completed to assure dependable operation in area. The HPAs had been characterized over temperature from 15 C to fifty five C in pulsed and regular-wave situations, displaying negligible drifts over temperature and multipaction-free operation. RF output power in extra of one hundred eighty W at 70% drain performance is also verified.*

Index terms—Balanced amplifier, GaN, excessive performance, excessive-power amplifier (HPA), multipaction, satellite, stability.

I. INTRODUCTION

BIOMASS is the 7th eu space-borne Earth Explorer mission. the overall objective of the undertaking is to reduce the uncertainty in the international spatial distribution of the forest biomass and to reveal its dynamics from space for you to enhance cutting-edge exams and destiny projections of the global carbon cycle [1]. since the spacecraft is planned to be launched in 2020, pre-trends for the crucial components are currently ongoing the principle device of the spacecraft is a P-band (UHF) completely polarimetric synthetic aperture radar (SAR) this is extensively utilized for appearing interferometry [2]. preliminary system studies found out the need to produce an RF output power in excess of 100 W (50 dBm) at the output of the RF amplifier [1]. but, although most of the required passive microwave devices inclusive of filters, switches, and couplers are already industrial off-the shelf, no commercial product is to be had for the highpower amplifier (HPA) function. due to the provider frequency at 435 MHz, a vacuum tube device could be very large and heavy for its lodging on the spacecraft, and consequently, solid-nation technology are considered for amplifying the radar sign. There are few semiconductor technologies qualified for excessive RF electricity operation in space. For years, GaAs has been the workhorse for this sort of programs. however, the desired RF output energy requires greater powerful semiconductor technology on account that using GaAs strategies would require complex energy combination schemes and more hard thermal management. GaN generation alternatively appears to be better acceptable for this application. for example, the paintings in [3] and [4] demonstrates the competencies of GaN generation to satisfy those necessities.

The need to perform RF hardware at this frequency and RF electricity degrees in space makes the device very at risk of suffer from Multipaction and Corona discharges, as defined in [5]–[7]. those phenomena are widely discussed in the literature for the layout of filters, diplexers, and waveguides. on this paper, the paintings in [4] is improved with a deep research on multipaction discharge inside the layout of stable-nation power amplifiers (SSPAs). To the authors' information, it's far the primary time such analysis and studies is mentioned.

This paper is organized as follows. section II describes, in a more distinctive way than in [4], the design of 80-W GaN power modules by using RF power transistors from two different manufacturers. Simulated and measured results of the RF energy modules are given and as compared. segment III tackles the design of excessive-energy sections for the SSPA, wherein multipaction phenomenon is

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How to Use IQPSO for Optimal Trajectory Planning of a Backup Space Robot to Cause the Least Amount of Base Disturbance

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ABSTRACT

Practical use of a free-oating redundant space robot has grown in popularity as aeronautical technology has advanced. The issue of how to reduce disturbances at the base has received attention from academics. The position of a base might be altered if the space robot moves. Reducing the base interference that has been causing problems thanks to the space robot's kinetic actions. The article lays forth the simplified idea of a redundant space robot, which includes a stand and a manipulator with 7 moving parts.

Introduction

The free-oating redundant space robot's practical applicability has grown in recent years along with aeronautical technology [1, 2]. The issue with among the many concerns of base operators, one of the most scientists in the academy [3] Strategy development has has been crucial to the work of the obsolete space robot [4, 5]. They had a manipulator and a govern the base. These include nondependent, movable, freely flying, and swimming [6]. In the foundation of There was no one in charge of the redundant space robot. A non-homonymic limitation applies to the redundant space robot. Eventually, it will come to an end. Posture was associated with the articulation at the moment and its past transition [7]. More and more academics have spoken in on the the issue of the base's instability [8]. A procedure called it was suggested that the interference diagram be improved. It could lessen the emotional upheaval. However, its memory was enormous and its processing performance slow [9]. That's the word from due to its nonholonomic nature, Vafa and Dubowsky developed a self-correcting motion technique back in 1993. Is technique could only tweak their starting stance, not their joints' final condition. Was unalterable [10]. For their part, Shi et al. a strategy for planning based on swarms of quantum-behaved particles application of quasi-particle swarm optimization (QPSO) to the global route 2010 is the target year for the release of the planned mobile robot. Not only could it search, but it the quickest route that takes into account existing impediments [11]. Path planning for a soccer robot is a challenge that must be conquered. A strategy was developed by Meng et al. It addressed issues with the sluggish reactions of earlier soccer robots [12]. In 2015, Hu et al. proposed a strategy based on Particle swarm optimization (QPSO) that is quantum-friendly Base

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Implement of Smart Health Care Monitoring System using Mobile IoT and Cloud Computing Technologies

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ABSTRACT: Starting late, many research works were excited about joining appropriated registering and IoT to design systems for splendid social protection. Different creators have incorporated the advantages of utilizing coursed figuring with IoT and proposed a cloud foundation to broaden the bound assets of the sensors and to engage the association of the sensor-driven applications in different domains. Regardless, about MCIoT mixing, there are less research works. One of the endeavors is about a made stage dependent on MCIoT where sensors can interface with a remote which advances toward the cloud by techniques for Internet utilizing Bluetooth. In context on tranquil web benefits, the system is realistic on asset obliged gadgets. Our work directs in a general sense toward think of a general assistance planning for gifted social assurance checking application, that joins the highlights of telephones, sensors, and scattered figuring to offer to the client the improved associations that are available any place while ensuring adaptability and security. Our general assistance design to make a structure for social insurance applications that made information is dealt with in the cloud our smaller application will show the distinct outcomes on client dashboard of their telephones.

Keywords: MCIoT, Cloud Computing, sensors, smart phone, healthcare networks.

I. INTRODUCTION

Internet of Things is because the same antique maximum possibly located now grade by grade. It is being interconnected with one in each of a type devices like bodily devices and sharp devices. An improvement of an internet goes to trade an international with an IoT gadgets which permits an ingenious of a character mind performing to this international. An internet of things (IoT) is the form which among relates a gadgets which wirelessgures and a machines. humans that gives an top notch identiwirelessers and it has an issue of conwi-finement of transferring an data inside the shape that does not obliges human to human and human to pc made attempt. Kevin Ashton is the associated sponsor other than a professional of car-identity middle at MIT and he from a starting picked an internet of things in the advent in 1999. Regardless of how an IoT come to be now not seemed in early years and an internet of things has been being created the use of particular years. a popular net are given the framework, the Coke device at Carnegie Melon university in the course of a Eighties. A component modeler will absorb with a machine. due to the reality, an IOT has being beast from a tourist live with a favored development, as an instance, Radio Frequency identiwiwireless (RFID), c084d04ddacadd4b971 ae3d98fecfb2a Sensor community, Bluetooth. They will be abusing an accessibility in Cloud Computing. A Cloud Computing giving us the smart metropolis with wonderful machines. In 2015, an development in internet of things had device to tool instructions. In keeping with Gartner research: "4.nine billion associated topics being used because the little bit of 2015 ... and could advantage 20.eight billion thru 2020." In any explanation a worldwide does now not expansions to a 50 billion devices thru 2020. by way of the use of manner of then there may be numerous units may be come to two.wiwireless billion gadgets that indicates spherical wi-five% of all devices are associated. A statistics will interface precise devices for you to deliver 10 million terabytes for dependably. Right right here after a wi-five% records that is associated a things will make.

Appropriated figuring may be the general term for a car of quickened relationship over an internet. Orbited figuring can be the fashion of take a look at that is based upon in the wake of sharing enrolling property instead of having community servers or individual gadgets to supervise applications. Dispersed getting geared up is eagerly searching like shape estimation, the type of enlisting any area unused arranging cycles of all pc systems at some point of the framework region unit clothes to manipulate problems too much valid for any stay unique tool. In handed on figuring, a phrase cloud (moreover stated as "the cloud") is applied as accomplice in Nursing plot for "the internet," that a verbalization scattered deciding on recommends "a net based totally sincerely with the resource of and large estimation," any region first-rate courting, as an example, servers, reposition associate in Nursing applications region unit sent to the association's laptop systems and devices through a internet..

The surveys for interfacing a pc systems and a factor anticipated that would make surpassed on getting organized artwork are not certainly depicted at present time, leaving severa dating to depict their very non-public unusual precise circled figuring traits. Appropriated making ready structures supplied through affiliations, similar to IBM's "Blue Cloud" drives as an example, rely on open benchmarks and open deliver programming which interface together computers that are implemented to skip on internet 2.0 cutoff elements like combination or faded exchange. Cloud-based totally packages can be getting into days or even weeks, and that they rate an entire lot less. With the cloud software program, you essentially open this device, test in, change a software, and start the use of it. Affiliations are on foot the giant aggregate of jobs in a cloud, just like consumer courting connection (CRM), HR, bookkeeping, and absolutely greater. A phase of a global's maximum outstanding affiliations moved their packages to a cloud with salesforce.com after fine attempting out a protection and strong nature of our shape. Scattered getting prepared and internet of factors (IoT), truely one-of-a-kind degrees of development, are every starting now a remarkable touch.

Their large department and use is needed to growth activate, making them boss portions without limits cowl internet of

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Clinical Image Fusion Based on Sparse Representation and Feature Extraction

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Abstract

As a story multi scale geometric assessment contraption, meager depiction has shown various focal points over the standard picture depiction systems. Regardless, the standard deficient depiction doesn't take characteristic structure and its time multifaceted design into thought. At this moment, new blend segment for multimodal clinical pictures reliant on deficient depiction and decision direct is proposed to deal with these issues at the same time. Three decision maps are arranged including structure information map (SM) and essentialness information map (EM) similarly as structure and imperativeness map (SEM) to make the results spare greater essentialness and edge information. SM contains the local structure incorporate got by the Laplacian of a Gaussian (LOG) and EM contains the essentialness and imperativeness movement feature distinguished by the mean square deviation. The decision control is added to the common lacking depiction based methodology to improve the speed of the computation. Proposed approach furthermore improves the idea of the joined results by redesigning the distinction and sparing more structure and imperativeness information from the source pictures. The test outcomes of 36 social events of CT/MR, MR-T1/MR-T2, and CT/PET pictures display that the procedure subject to SR and SEM outmaneuvers five top tier methodologies.

1. Introduction

Medical imaging attracts more and more attention due to the increasing requirements of clinic investigation and disease diagnosis. Owing to different imaging mechanisms, medical images of different modals provide a variety of complementary information about the human body in a limited domain. For example, the computed tomography (CT) images provide better information on dense tissue, the positron emission tomography (PET) images supply better information on blood flow and tumor activity with low space resolution, and the magnetic resonance (MR) images show better information on soft tissue. Moreover, the MR-T1 images give more detailed information about anatomical structures, whereas the MR-T2 images contain a greater contrast between the normal and abnormal tissues [1–4]. However, single multiple modality cannot satisfy the demand of images with high resolution and visualization for disease diagnosis.

In this regard, medical image fusion is a useful and powerful technique for integrating complementary information from multimodality images to improve the diagnostic accuracy. Besides, the fused images are more suitable for assisting the doctors in diagnosis and treatment planning [5]: fusing MR and CT images can generate the images which can describe the soft tissue and bone in order to concurrently represent anatomical and physiological features of the human body [6, 7]. MR-T1 and MR-T2 images are fused to segment white matter lesions and guide neurosurgical resection of epileptogenic lesions [7, 8]. In oncology, the combined PET/CT imaging is helpful to view the anatomical, physiological characteristics and the tumor activity [9, 10]. More than that, medical image fusion not only helps in diagnosing diseases but also reduces the storage cost [8]. As the most popular technique of the image fusion, the Multi scale decomposition methods have developed quickly in recent years, such as discrete wavelet transform(DWT) [3, 7],

The main contribution of this paper is as follows:

(1) To add the local structure and energy information of the source images into the SR algorithm for medical
image fusion, we design three decision maps to extract the local energy and structure features of the source images.

(2) It is good to use the decision to reduce the number of image blocks to sparse representation, so that we can
get the results in much shorter time. Using the maps to remain more structure and energy information in

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Methods for discovering the underlying community structure of massive networks exploring the social structure of massive networks

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ABSTRACT

Recently, the physics community has shown a lot of interest in the problem of discovering and analyzing community structure in networks, but most of the approaches that have been developed are too computationally expensive to be practical for very large networks. Here, we show a cluster that grows in a hierarchical fashion. Method for community structure detection that is far quicker than its competitors. When d is the depth of the network and m is the number of edges, the running time on a network of size n is O (md log n). Community organization as shown by a dendrogram. In many cases, real-world networks are under populated and if the data structure is hierarchical, with m > n and d > log n, then our technique executes in linear time. O (n log2 n).

INTRODUCTION

The scientific community has found that network representations are beneficial for many of the systems of current interest [1-4]. Examples include the Internet [5] and the world-wide\swab [6, 7], social networks [8], citation networks [9, 10], biochemical networks [12, 13] and food webs [11]. Each of these networks consists of a collection of nodes or vertices representing, for instance, computers or routers on the Connected, as on the internet or amongst friends in a social network via means of connections between data points, which are represented by links or edges computers, friendships between individuals, and so on. One network aspect that has been highlighted in among the most significant developments in recent separation of vertices into clusters where the number of edges inside a cluster is greater than the number of edges between clusters [14]. There has been much research on the challenge of discovering these groups inside networks. Initial attempts, Spectral partitioning [16, 17], Hierarchical clustering [18], and the Kernighan-Lin algorithm [15] are all effective methods for difficulties of a certain kind (most notably those involving graph bisection or (issues with well specified measurements of vertex similarity) however they fall short in more generic applications [19]. Multiple new methods have been developed to address this issue. Have been put out as a possibility recently. In [20, 21], Girvan and Newman suggested a partitioning technique that distance from the edge as a measure of proximity with relation to groups of people. This approach has been successfully used to many different kinds of networks, like: electronic communications, social webs (both human and animal), scientific and musical consortia, networks of genes and metabolic pathways [20, 22-30].

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Only the Malaysian Journal of Computer Science was analysed in this one-journal study.

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ABSTRACT

Measures employed in the research are emphasized, and reviews of single-journal studies are presented. Analysis of 272 articles published in the Malaysian Journal of Computer Science uses the following quantitative measures: (1) the observed and expected authorship productivity tested using the Author Rank Productivity Model, (2) the article productivity of the journal from 1985 to 2007, and (3) the article productivity of the journal's editors. Authorship, co-authorship, and Lotka's law of production; pattern by authors' nationality and place of employment; (4) research fields; (5) institutional connections journals cited, age and half-life of citations, and a citation analysis of the resources cited Bradford's law of journal scattering for zonal distribution; the breadth of web citations; (6) the Impact factor of MJCS based on the number of citations received by its articles and the total number of citations received by all papers published in the Journal. Data on author and journal self-citation from Google Scholar.

INTRODUCTION

Too far, researchers have reported on around 189 individual journal papers in the scientific literature. Tie [1] gathered 102 articles spanning literature published up to the year 1997 in the first publication that tracked and evaluated these investigations. Four types of literature were identified: (a) bibliometric single-journal research (40 items), citation studies (45 entries), and content analyses of journal articles (1 item); further bibliometric research on journal articles (6 items). Research by Tie has shown that the vast majority United States (49%), India (20%), European Union (15%), and international (15%) writers accounted for the bulk of the publications. (31%). The percentage of articles from science,

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Parallel Bookkeeping Path of Accounting in Government Accounting System Based on Deep Neural Network

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ABSTRACT

When it comes to government accounting, "parallel bookkeeping" is a crucial technological solution for achieving the desired moderate separation and connection between the established financial accounting system and the budget accounting system. For most people working in government accounting, this is still somewhat of a novelty. The foundation of deep learning is an extremely complex neural network. Up to The neural network has been used in various fields recently, but its use in the financial sector is more comprehensive. the neural Financial accounting benefits greatly from access to the internet.

Introduction

The Government Accounting System (GAS) and Statements of Administrative Institutions Notice was published and disseminated in 2017 by the Ministry of Finance. In response to questioning from the press, it was first suggested as "bookkeeping." staff of the Department of Finance and Personnel There must be a period of adjustment for administrative institutions. As well as understand the principle of double-entry accounting. Since 2019, a new system of accounting for the government has been put into effect. If you want to help the vast majority of people in their daily lives and in their job, several studies on the topic of financial people, and academics have parallel bookkeeping: an exploratory investigation and started looking at the implementation of "parallel bookkeeping" by combining the Internet of Things and other technologies like the cloud and large amounts of data. However, no scientists have done extensive research on "parallel" and "deep" neural networks, the intersection of bookkeeping and the accounting profession. Despite the new government accounting system's widespread adoption, a parallel bookkeeping system has emerged. Researchers were forced to do extensive research as a result. Among them, Li J created a multitask deep convolutional neural network that can identify the presence of the target and target's coordinates and bearing with respect to the area of interest. For another, the recursive neuron layer is used in the identification of structural features, which increases complexity and the insignificance of various tasks in accounting [1]. Fiscal record-keeping John T.'s research system uses an Oracle back end and a Java front end. Web's supporting software programmed running in the background. It gives you useful for a variety of accounting tasks, both general and specific efficiency and effectiveness of other, analogous, automated procedures safety in the workplace [2]; Durgham M's research on the activity-based costing (ABC)

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Blended Multi-Level And -Section Interleaved LLC Converter With More Advantageous Strength Processing Characteristics And Herbal Modern-Day Sharing

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Abstract- **This paper introduces a new -segment interleaved flying-capacitor LLC converter topology with high output present day applications. as compared to a traditional -section LLC converter, the new converter provides a single capacitor that contributes to lower voltage stress at the number one facet's switches, mechanically balances the modern distribution between the phases and enhances the strength processing abilities. all the attractive features of LLC converters are preserved, which include zero-voltage switching on the number one facet's MOSFETs, 0-cutting-edge switching at the secondary side's power gadgets, slim switching frequency variety and easy layout. full principle of operation and analysis of the converter are defined, as well as the converter's primary characteristics and the impact of non-best components on the modern-day sharing conduct. A 600W, 400V-to-12V experimental prototype is used as a showcase of the appealing functions of the new converter, demonstrating superb current sharing, simple implementation and excessive performance of up to 97.3%.**

Index terms **–Multi-level converters, Resonant power conversion, current sharing, LLC Converters.**

I. INTRODUCTION

TODAY'S power converters are required to deliver more power and achieve high efficiency over a wide load range. The LLC resonant converter topology is able to address such challenges and is advantageous in front-end DC-DC conversion applications as a result of the zero-voltage switching (ZVS) for the primary side's MOSFETs and zero-current switching (ZCS) for the secondary side's power devices [1]-[5]. In addition, it features narrow switching frequency range to facilitate regulation, fast transient response and relatively low cost mainly due to incorporation of the transformer's leakage inductance as the resonant inductor. In particular in its half-bridge implementation, the topology has been widely and successfully applied to flat panel TVs, 80+ ATX and small form factor PCs, where the requirements on efficiency and power density of their switching mode power supplies (SMPSs) are getting more and more stringent.

In high power applications where the current stress in a converter becomes high, paralleling of two (or more) converters, namely multi-phase operation, is a good solution for distribution of the current stress and it has been broadly investigated for both PWM [6]-[10] and resonant converters [11]-[13]. It has been found that multi-phase operation of LLC converters introduces implementation

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.

The main reason for an unbalanced load sharing between converter's phases lays in the difference between the components of the resonant networks. When interleaving phases, since the operation hinges on equivalent switching frequency of the different phases, mismatches in the resonant tank components impact the current distribution between the phases [13]. This is since only one phase operates at the frequency where the required voltage gain is achieved. Even small differences, within the resonant components values' tolerances, can have a severe effect on the current sharing and one phase will deliver most of the load current when other phases deliver a significantly smaller portion of it [19]. Several solutions have been proposed to achieve current sharing [12]-[24]. These solutions are used to match the resonant tanks components' values and can

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Looking for cooperative organic entities in dispersed generators

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Abstract. Distributed Generations (DGs) may be optimally sized, located, and numbered using Symbiotic Organism Search (SOS), according to this research (SOS). The goal of the challenge is to reduce system power loss, taking into account the restrictions of power balance, bus voltage limitations, DG capacity limits, and DG penetration limits. While other meta-heuristic methods need control variables, the SOS technique does not. Based on the LSF, SOS helps determine the best size and location for DG units as part of a larger plan. The proposed technique has been tested on IEEE 33, 69, and 118-bus radial distribution systems, among others. Researchers have compared their findings to other studies using the SOS approach. SOS may be used to locate dispersed generating units in distribution networks, according to research.

1. Introduction

Customers are directly connected to distributed generation (DG) units through the distribution system or the meter. These include induction generators, reciprocating engines, micro turbines, fuel cells and solar photovoltaic as well as wind turbines and other small power sources. It is becoming more frequent in distribution networks for DG units because of its positive impact on the power grid. Power losses may be reduced, voltage profiles improved, pollution reduced, and power quality improved with the addition of DG units to distribution networks. There are a number of challenges with DG installation and operation that have developed because of the above benefits.

This is the typical Ideal DG Placement (ODGP) issue, which deals with determining the optimal placements and sizes of DG units to be deployed in existing distribution systems, taking into account the electrical network operating restrictions, DG operating constraints, and investment limits. ODGP problem [10], a nonlinear optimization problem involving mixed integers, is challenging to solve. Distributed generation units may have a detrimental impact on the distribution system, such as overvoltage, conductor overloading and increased losses, in addition to the correct location and size of DG units. This has led to an increased interest in the location and size of distributed generation units (DG units).

Many approaches to resolving the ODGP issue have been proposed in the past [2–6]. In addition to gradient-based methods, linear and non-linear algorithms, sequential quadratic algorithms, and dynamic algorithms are also on the list of possible methodologies. To solve a small-scale optimization issue quickly, traditional approaches might be employed. For large-scale challenges that may take a long time or never occur, they may not be able to find a solution.

Numerous academics have also examined the ODGP problem from an analytical standpoint. Using an analytical method, it was possible to reduce power losses in radial and mesh systems, according to [7]. The authors of [8] employed an analytical expression

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Modified Voltage Control Strategy for DC Network with Distributed Energy Storage using Fuzzy Logic Controlled

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Abstract

Important new methods for using distributed energy storage (DES) in direct current (DC) distribution networks are presented in this research. Which is the most adaptable voltage control approach for enhancing DC network voltage stability and reliability under a wide range of disturbances? In addition, the shown virtual inertia and capacitances are evaluated briefly, together with the AC and DC network parameters. The suggested control method for DES, which may be found in either the AC microgrid or the network's terminal bus, is built around the interactive qualities that make it possible for DES to react to both the voltage fluctuation of the DC network and the frequency shift of the utility AC grid. To ease the burden of DC network voltage decline, a cascading droop control approach using fuzzy logic is proposed for DES in DC microgrid. When compared to other methods already in use, the simulation results showed that this approach was the most effective for enhancing voltage stability in a DC distributed network.

INTRODUCTION

Key to meeting Europe's lofty renewables goals is the exploration, development, and deployment of effective, cost-efficient connectivity options for offshore wind. High voltage direct current (HVDC) transmission using voltage source converters (VSCs) is a popular topic in offshore wind integration research and practice at present [1]. When compared to the more conventional Line Commutated Converter (LCC), VSC-HVDC has some noteworthy benefits in the areas of control and design. The traditional AC distribution network faces significant hurdles in plug-and-play performance and operational stability as the penetration of renewable resources and microgrids increases. Therefore, medium voltage direct current (MVDC) distribution networks are gaining popularity in the design of future smart grids due to the need of power system operation and the success of DC technology in certain specialized applications, such as massive data centers and shipboard systems [2, 3]. The DC voltage is crucial to the reliability of the system's functioning since it has nothing to do with other variables, such as reactive power or phase synchronization. Master-slave control and voltage droop control are two of the most common types of general voltage control systems used today. If you're using a master-slave control technique, one of your voltage source converters (VSCs) will be designated as the slack terminal and tasked with monitoring DC voltage fluctuations and maintaining a constant reference value

When all power source converters are controlled in accordance with the system's current state, as is the case with this control method, precise functioning is possible [4, 5]. However, high-speed and high-bandwidth communication is necessary to the master-slave control paradigm. Therefore, this control system necessitates a redundancy layout. In addition, the control frame needs to be updated when new generation sources become available, making this approach unfriendly to their use. The droop control strategy [6, 10] regulates the output power of controlled converters without requiring any form of communication. To facilitate proportional power dispatch among grid-side HVDC stations, a coordinated droop control strategy is proposed for MTDC systems in [11]. An adaptive droop control method [12] is studied for its potential to reduce the voltage drop and load current sharing difference via the introduction of a figure of merit index, thus compensating for the

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Neural network controller based a Quasi-Z-Source Cascaded Four-Level Inverter for Photovoltaic Applications

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Abstract: This project's main objective is a Quasi-Z-Source Cascaded Four-Level Inverter for Photovoltaic Applications using a Neural Network (NN) controller. Three Quasi-Z-source (QZS) networks make up the power converter, which also includes a four-level cascaded multilevel inverter. The proposed topology is structurally simpler and has fewer components than traditional multilevel inverter configurations like cascaded H-Bridge inverters and neutral-point clamped inverters. While reducing the voltage stress on the switching devices, the proposed power converter and its modulation scheme increase the boost factor by 50% when compared to topologies. By altering the QZS networks' shoot-through duty ratio, it is demonstrated that the proposed converter can regulate the output voltage in the stand-alone mode. Additionally, it is demonstrated that the suggested converter with neural network control strategy can interface with the grid to accomplish PSO-MPPT (Particle Swarm Optimization Maximum Power Point Tracking) and UPF operation with the grid goals. The suggested simulation results validate the steady-state and dynamic performances of the suggested power circuit configuration and the corresponding control strategy.

Keywords: Photovoltaic (PV), PSO-MPPT, Neural Network (NN), Cascaded H-Bridge inverter, Quasi-Z-Source (QZS)

I.INTRODUCTION

The meaning of nonconventional energy sources is creating as conventional supplies quickly exhaust all through the globe. The regular improvement moved the progression of sun arranged photovoltaic (PV) structures. Sun arranged energy is being used to run all that from water siphons and streetlights to environment control frameworks and coolers. Sun arranged energy systems have become all the more notable as their worth, lifetime, and upkeep essentials have decreased lately. Any Course Age (DG) structure ought to have photovoltaics as a middle part. Medium-sized and more unassuming close by planet gatherings may either work alone or interact with the cross section. Due to the by and large low voltages seen at the sheets' outcome, inverters are as often as possible used in daylight-based PV systems to create AC at the important voltage and repeat. For the most part, this is a two-stage change process. To begin, a DC help converter takes the to some degree low DC voltage yield from the PV sheets and lifts it to the vital DC voltage level. The usable voltage is extended and most outrageous power point following is made possible by this converter, making it an essential piece of any sun based photovoltaic system. Then, a standard voltage source inverter changes the escalated DC voltage into AC power at the predefined voltage and repeat (VSI). In any case, the two-stage change approach generally extends the cost and multifaceted design of the power circuit [1-2], it is still extensively used. By relationship, a standard VSI in a lone stage DC/AC converter prompts an overengineered structure plan [3]. (Which, even with lower PV voltage, should give the essential AC voltage). The Z-source inverter (ZSI) is a single stage power circuit plan that might be used to evade these cut-off points. Low PV voltage over a wide voltage range is maintained, and it has fundamental protection from the shoot-through deficiency [4-5]. qasr inverters address the issue of a discontinuous data current, which plagues ordinary ZSIs [6]. Diverged from standard ZSIs, skis partake in an additional advantage in that one of the capacitors has an impressively lower voltage rating. Anyway, PV systems every now and again consolidate MLIs (multi-layer inverters). Their outcome voltage waveforms are clearer on semiconductors than those of standard two-level VSIs with respect to Amount to Consonant Bending (THD), EMI, and dv/dt. Along these lines, a qasr network with multi-layer inverters could obtain the benefits of the two geologies [7, 8]. Different researches on Source

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Objective Of Multi Highest Quality Power Waft Version For Strength Machine Operation Dispatching

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Abstract—***For the primary requirements of power system operation of protection, excessive , economic system, environmental protection, a multi-intention top of the line energy go with the flow(MOPF) model is hooked up to lessen 3 aim functions of load buses voltage deviations, community lively power loss, pollutants fuel emissions and meanwhile to fulfill the security constraints of energy transmission limits in traces. The everyday boundary intersection approach (NBI) is observed to convert 3-purpose most fulfilling strength waft version into a series of single-objective optimization model, after which the indoors factor technique is used to gain the calmly allocated Pareto frontier in goal capabilities area. according to fuzzy club and entropy weight of numerous goals, the entire compromise foremost answer can be diagnosed from the Pareto frontier floor, that is employed as the operation dispatching scheme of the device. by way of the multi-goal optimization calculation of the IEEE nine-buses tool and the IEEE 39-buses gadget, the effects validate the effectiveness of the proposed model and algorithm, and imply that the complete compromised maximum proper answer can be used as a perfect dispatching scheme of power device operation.***

Index Terms-- ***Pareto frontier, Normal Boundary Intersection method, Multi-objective optimal power flow, optimal dispatching, Power system.***

I. INTRODUCTION

Security, quality, economy and environmental protection are basic requirements of power system operation [1]. To maintain the security, quality, economy, environmental protection of power system operation is an important job for system operators, and it is also a significant driving force for the development of electrical science and engineering technology. Modern power grid dispatching control center is the brains of grid operation. Appropriate dispatching or control strategies executed by operators in dispatching control center contributes to maintain the security, quality, economy, environmental protection operation of power system.

The multi-objective Optimal Power Flow model will be able to describe the above-mentioned optimal operation problems of power system, and its solution is an portent basis for the decision-making of system operators and dispatchers. OPF is an effective tool to achieve the optimal operation state of power grid, and it has developed into a necessary functional module of the EMS system in modern dispatching control center [2]. And for the studies of MOPF, it has gradually caused more interested in recent years [3-5]. Literature [3] established a MOPF model of minimizing the operating costs and maximizing the static voltage stability margin. Literature [4] set up a MOPF model of maximizing both social benefit and load margin. And literature [5] constituted a multi-objective optimal reactive power dispatch model of minimizing both network loss and the voltage deviation of load buses. However, the MOPF model which can fully reflect the four basic requirements of power system operation (security, quality, economy, environmental protection) has not been reported in literatures.

Since the four basic requirements of power system operation (security, quality, economy, environmental protection) have some conflicting nature, an improvement of a goal may lead to a decline performance of another goal.Terefore, under normal condition, all the goals cannot achieve optimal state at the same time, while we can only get a relatively better compromise solution of all the goals instead. Currently, the strategy implemented to deal with the multi-objective optimization problem is to get a series of Pareto optimal solutions, from which we determine the superior ones. There are three common

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Progressed adiabatic CAES in the powerful framework's administration commitment assessment

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ABSTRACT: The Advanced Adiabatic Compressed Air Energy Storage (AACESS) system may be improved by real-time monitoring that maximizes ancillary services and contributes to its profitability, according to this article (CAES). Using fuzzy logic and a real-time multi-objective supervisor, a system is being created to take into consideration the storage's buy/sell activity and ancillary services (both necessary and optional), such as frequency control and congestion management. The proposed supervisor has been put through its paces. The findings of the simulation reveal that utilizing storage for auxiliary and other services that require real-time administration leads in large financial gains.

1.Introduction

With pumped-storage hydro implemented in hilly places, electric power storage beneath compressed air in subterranean caverns is one of the only viable options in France today, capable of storing several hundred megawatts (MW) [1]. A substantial investment is required, yet the energy efficiency is less than 50%. [2].

Subterranean cavern storage is now limited in France to pumped-storage hydroelectricity built in mountainous terrain, which is currently one of the few viable possibilities [1]. Though only 50% efficient, this approach necessitates a significant financial outlay. SACRE[3] is an ANR-funded research project whose goal it is to determine how much these energy storage devices are worth and whether or not they are beneficial to the grid[7]. Fig. 1 depicts the underlying principle of this storing method. To make advantage of the thermal energy released during air compression, which is then utilized to warm the air entering the turbine, a thermal storage stage is included. There is a 66% gain in energy efficiency.

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Research in Mechanical Engineering Design: A Review.

Part II: Representations, Analysis, and Life Cycle Design

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Abstract:

This is the second of a two-part paper summarizing and reviewing research in mechanical engineering design theory and methodology. Part I included 1) descriptive models; 2) prescriptive models; and 3) computer-based models of design processes. Part II includes: 4) languages, representations, and environments for design; 5) analysis in support of design; and 6) design for manufacture and the life cycle. For each area, we discuss the current topics of research and the state of the art, emphasizing recent significant advances. A final section is included that summarizes the six major areas and lists open research issues.

Introduction

This two-part paper, the first in a series of reviews to be published in Research in Engineering Design, summarizes and reviews the state of research in engineering design theory and methodology, concentrating on mechanical engineering design. Subsequent reviews will concentrate on other areas of engineering design or on special sub-topics. The goal of the series is to inform the community at large of advances in the developments in engineering design research. We also hope that it will enable researchers to place their work in context and thus guide continuing work. The series of papers is also intended to be an efficient starting place for those who wish to become familiar with the engineering design literature relevant to their interests. There are, of necessity, limits to the nature and scope of this review. First, the review is not intended to be a substitute for reading complete papers; it is intended only as a brief summary of, and guide to, the literature. Although we have made every reasonable effort to be complete, omissions are inevitable. There can also be errors of commission caused by misinterpretation or lack of full understanding on our part of papers included in the * Reprint requests: Robotics Institute, Carnegie Mellon Univarsity, Pittsburgh, PA 15213, USA review. We apologize to both readers and researcherrs for these errors. The scope is limited in several ways. We intend only to include research in engineering design, and then only that portion of engineering design broadly called "mechanical," which includes products, machines, structures, and the like. Research in geometric modelling, architectural design, manufactureIng, expert systems, and optimization are included only when the research is directly relevant to design of mechanical systems. We have also not attempted to cover the many new, commercial computeraided design (CAD) systems which have begun to incorporate the research ideas discussed in this review. The research discussed in this review paper has been conducted primarily in the United States. Work outside the U.S. has not been excluded, but is not covered systematically. Finally, research on mechanical design in very specific technical domains (e.g., mechanisms and heat exchangers) is not covered unless it is clearly extendible to other mechanical design domains. This review is organized into six sections based on our current view of the active design theory and methodology research areas. These six areas are:

1. Descriptive models of design processes

2. Prescriptive models for design

3. Computer-based models of design processes

4. Languages, representations, and environments

for design 5. Analysis to support design decisions 6. Design for manufacturing and other life cycle issues such as reliability, serviceability, etc. These six categories are certainly not mutually excollusive, and some research overlaps two or more areas. In such cases, we have done our best to inform readers where research projects have been placed. In Part I, the first three of the above six topics were reviewed. In Part II, we review the last 122 Finger & Dixon: Research in Mechanical Engineering Design three, beginning with languages, representations, and environment for design. 5 Languages, Representations, and Anointments In some areas of engineering design, such as circuit design, formal representations exist for the artifacts being designed which capture their important physiccall, functional, and logical attributes. A fundamenttall concern in mechanical

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SINGLE-LEGGED JUMPING ACTION SIMULATION WITHOUT DISRUPTING THE STRUCTURE

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abstract

There are many different kinds of mechanical and biomechanical systems in people's environments, and they may come into touch with them in many different ways. Here, we use a structure-preserving approach to the simulation of the dynamics of a monopodial jumper, who is modelled as a three-dimensional stiff multibody system with contact. The idea of Lagrange d'Alembert, upon which the applied mechanical integrator is founded, is modified to account for practical constraints. This new variational integrator for multibody dynamics maintains the smecticity and momentum maps. Instead of relying on a smooth approximation of the contact issue through a penalty potential, we address the non-smooth problem, which includes the calculation of the contact configuration, time, and force, to guarantee the structure's preservation and geometric correctness. For this reason, we are also curious in the optimum control of the one-legged high leap, in addition to the formulation of non-smooth issues in forward dynamic simulations. A direct transcribing approach (see [14]) is used to solve the optimum control issue by recasting it as a restricted optimization problem.

Introduction

The human locomotor system is the subject of a great deal of biomechanical literature, with many studies focusing on walking motions [5, 17]. Actions involving leaping, such as those seen in [1], are of particular importance here. In our simulation, the monopodial jumper is modelled as a multi-body system with constraints, and its forward dynamics and optimum control issue are simulated in a non-smooth fashion. Locomotion on two legs, as opposed to four wheels, necessitates simulation approaches to deal with the establishing and breaking of contact between the foot and the ground. The studied contact formulation encompasses the notion of perfectly elastic and perfectly plastic contacts (for example, see [8]), with the latter meaning that the foot maintains contact with the ground for a fixed period of time.

The monopodial jumper model's top half represents the torso, while the lower half is made up of two stiff bodies joined at the knee. When the knee is taken into account, the resulting movement is distinct from the technically oriented jumpers discussed, for example, in [7, 12]. By include both the perfectly elastic and ideally plastic contact formulations in the forward dynamic's simulations, the critical times at which contact is established and broken may be calculated. By minimizing a cost function with a physiologically driven objective, the ideally controlled jumper permits actuation at the hip and the knee. In the numerical solution, the optimum control issue is converted into an optimization problem subject to satisfying discrete equations of motion, boundary conditions, and route restrictions, as shown for example in [10, 18]. To prevent the optimization issue from being artificially constrained by dictating the time at which contact is established or severed, variable time steps are employed, with two scaling factors being part of the optimization parameters.

Configuration and motion of a rigid multibody system

For this study, we use the rotation-free formulation described in [2] for rigid bodies and in [4] for rigid multibody systems to describe the configuration of the simulated bodies and hence simulate their dynamics. The configuration vector q (t) R 12 for the twelfth rigid body is made up of the coordinates for its center of mass (t) and the coordinates for the right-handed director triad d I (t) for I = 1, 2, and 3. The director triad defines the body's spatial orientation and must remain orthogonal while in motion in the space under consideration.

period [t0, TN] ensured by six 'internal restrictions' gINT (q) = 0 R 6. Different kinds of joints, such as revolute or spherical joints, link the rigid bodies in multibody systems. A scleronomic and holonomic constraint function g(q) R m on the redundant configuration variable q R k, where k = 12 times the number of bodies, is generated by the interconnectedness and stiffness of the bodies. Directly acting on the multibody systems is the independent generalized force R km, and the resultant k-dimensional redundant actuation f(q) R k may be calculated using the input transformation matrix B T (q) R k(km) and the formula f(q) = B T (q). Notably, the transformation matrix is dependent on the intercomsection of the rigid bodies, and its specifics are detailed in [14].

Integration while conserving structure in limited mechanical systems

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Taguchi based Grey Relational Analysis and Analysis of Variance of Submerged Friction Stir Welding for Optimization of Mechanical and Metallurgical Properties of AA5083 Weld Bead

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ABSTRACT

Friction stir welding has the potential to improve weld zone mechanical quality (FSW). The purpose of this work is to establish what combinations of FSW process parameters between two AA5083 plates will result in the most robust welds. Tool rotational speed (TRS) and tool transverse speed (TTS) are crucial characteristics in the FSW process, and submerged and normal FSW are two of the most prevalent weld process situations. This research makes use of an orthogonal array of experiments, or L18 Taguchi design. The Grey Relational Analysis (GRA) is utilized in combination with other parameters like as tensile strength, microhardness, and surface roughness to calculate the grey relation grade. The process's most crucial components have been identified, and ANOVA is utilized to maintain their manageability. Our FSW joints are the toughest on the market because we use optimal production parameters. This peculiarity becomes obvious while working with a submerged FSW, a fast-rotating tool, and a slow traversing speed (TTS).

Keywords:

Submerged friction stirs welding; mechanical properties; Taguchi method; Grey relational analysis (FSW).

INTRODUCTION

Welding of nonstandard materials with suitable mechanical qualities and surface quality is required for joint production. There is a connecting method called fusion-seam welding (FSW) that doesn't involve melting the materials being joined. Connecting two butted sides of the same or different metals using a single-use tool is how this method works. Generally speaking, combination welding of aluminium alloys is not recommended due to hot cracking and compound isolation issues. While keeping a constant heat output, submerged FSWs (SFSWs) may control the temperature in the HAZ surrounding the weld joint (Sabari et al., 2016). To a larger degree than if the material were moved from the front to the back of the tool at a lower rate of rotation, the mechanical strength of the weld joints is impacted by the tool's rotational speed (Fuji et al., 2006 and Suresh et al., 2011). Reduced-ultimate-temperature, lower-grain-growth weld joints are employed in the performance and analysis of Submerged FSW investigations. Over time, improved grain structure and superior mechanical characteristics led to increased ductility (Darras et al., 2013; Hofmann et al., 2005; Shanaaz et al., 2018; and Pedapati et al., 2017). At very high temperatures, the FSW undergoes plastic deformation, almost finishing the phase with polished grains (Jata et al., 2000; Liu et al., 1997).

Strong, high-output welds may be achieved by modifying a number of distinct process factors. Lowest hardness was observed at the HAZ on the sidewalls of AA5083 (Koilraj et al.,2012).

EXPERIMENTATION

In this experiment, we use an AA5083 plate that is 250 mm in length, 6 mm in thickness, and 60 mm in width. Table 1 lists the chemical properties, whereas Table 2 lists the mechanical ones. Figures 1 (a) and (b) demonstrate the experimental setup for butt welding AA5083 plate samples using the FSW method

The chemical makeup of AA5083 aluminum alloys is listed in Table 1 below.

Element	Si	Cu	Fe	Mg	Mn	Zn	Cr	Ti	Al
Wt.%	0.4	0.1	0.4	4.0-4.9	0.4-0.1	0.15	0.25	0.05-0.25	bal

Table 2. AA5083 mechanical properties.

Property	Value
Proof Stress	125 Min MPa
Ultimate Tensile Strength	275 - 350 MPa
Vickers Hardness	81 HV

Using an FSW-3TN-NC equipment, the FSW procedure is carried out routinely in air and under saltwater. Figures 1a and b depict the transformation of the conventional FSW machine

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The mechanical characteristics of human teeth: a literature review

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Abstract

Bronze teeth are a mechanical representation of actual teeth. Similar to the mechanical characteristics of a hard metal, these materials exhibit an internal gradient. Human teeth are able to effectively masticate because of these characteristics. The foundation for the creation of restorative materials is a deep familiarity with the mechanical characteristics of human teeth and dental materials. In order to get a better knowledge of the mechanical characteristics of human teeth, this research analysed the literature on the elastic properties, dynamic mechanical properties (visco-elasticity), and fracture mechanical properties of enamel and dentin.

Keywords:

Dentin, Enamel, Fracture Toughness, Fatigue Crack Growth, Mechanical Property.

INTRODUCTION

Bronze teeth are an approximation of the mechanical qualities of real teeth. A tooth's outside and inside have vastly different mechanical characteristics, with the former resembling those of a hard metal. These atri buttes are what give teeth their formidable biting power. To cut, lacerate, and grind food, natural teeth have the special mechanical qualities necessary for mastication. 2 There is no material that has been discovered that can fully replace human teeth in terms of their biological and mechanical qualities. The structure, mechanical characteristics, and biocompatibility of natural teeth outshine those of any dental restorative material now available, including composite resins, ceramics, and dental metals. Dental restoration materials research relies on a thorough understanding of the mechanical characteristics of natural teeth, which may be used as a benchmark against which novel dental materials can be judged. 3 This article reviews the mechanical properties of human teeth, including their elastic qualities, dynamic mechanical properties (viscos-elasticity), and fracture mechanical prop retires. The structure and content of teeth are what set their mechanical qualities. Enamel, dentin, cementum, and dental pulp are the four main components of a natural tooth. The first three of these make up the hard tissue, and each has its own distinct mechanical qualities. Table 1 shows the chemical make-up and morphology of teeth. The enamel rod, a 'keyhole' structure about 5 mm in diameter, runs perpendicular to the dentinal-enamel junk tion4, and is made up mostly of hexagonal prism hydroxyapatite crystals about 68 nm in length, 26 nm in diameter, and 2 nm in protein thick ness. 5 The hydroxyapatite crystals in the rod's core run perpendicular to the rod's axis, while the crystals on the rod's periphery make a 45° angle with the axis. 6

The rod sheath is formed when two crystals in the enamel meet at right angles, giving the enamel a 'fish-scale' or 'keyhole-like' look. The rod sheath, unlike the rest of the highly mineralized enamel, is hypo mineralized and contains more protein. As a result, the mechanical properties of enamel are anisotropic. Below the enamel is dentin, which protects the pulp chamber and root canals. Dentinal tubules are the microstructure of dentin and extend from the pulp to the cementum or enamel border of the tooth. Rich collagen fibers may be seen in both the peritubular and intratubular dentin. Peritubular dentin envelops the dentinal tubules. Dentinal tubules vary in size, number, and wall thickness from the periphery to the core of the tooth. 7 Cementum's cellular structure is very close to that of bone tissue, yet it's not as hard as dentin. Cementum is made up of collagen and noncollege proteins and apatite's, which are the major inorganic components and include callchum ion. There are two types of cementum, cellular and acellular. Cementum lamina forms the acellular cementum by adhering to the surface of the

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The Role of Clinical Phenomena Evaluation in Mechanical M Turk Studies

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Abstract

The Murk platform on Amazon.com enables rapid, low-cost, and demographically representative data collecting. Multiple articles have praised Murk for its ability to collect high-quality data from an epidemiological sample that is more typical of the U.S. population than conventional in-person convenience samples (e.g., undergraduate subject pools). Because of this advantage, as well as the simplicity and cheap cost of data collection, the number of research use MTurk to probe phenomena in a variety of psychological subfields has increased dramatically in recent years. In recent years, several studies have looked at how MTurk samples compare to the general population. However, there is still a major knowledge gap because of the lack of information about the variability of clinical symptoms among Murk participants. This research argues that identifying clinical phenomena in MTurk samples is crucial, and it backs up these claims with data from a large-scale empirical study of MTurk participants (N = 1,098). Compared to typical non-clinical samples, MTurk users strongly endorse clinical symptoms. This difference was particularly pronounced in regards to the endorsement of depressive and social anxiety symptoms, which were at levels similar to those of those with clinically confirmed mood and anxiety disorders. All of the participants' physiological anxiety, hoarding, and eating pathological symptoms were below clinical levels. The prevalence estimates for 12 months were 3–19 times higher among those who met the verified clinical cut-offs. Researchers should be wary of referring to the MTurk sample as typical of the community at large, it is suggested, since Murk participants vary from the broader population in important ways.

Keywords:

Psychopathology, Signs, Exposure, and Incidence on Amazon's Mechanical Turk (MTurk)

introduction

There has been a recent movement in several subfields of psychology toward the use of non-laboratory research techniques to augment studies undertaken in laboratories, and one such way is the use of Mechanical Turk for the assessment of clinical phenomena (e.g., Reis & Gosling, 2010). Accordingly, Amazon. Om's Mechanical Turk (Mturk) website offers a platform through which registered people from throughout the world, referred to as workers, may conduct surveys and/or automated tasks for a modest money reward. Quick, simple, and cheap access to a large and varied sample of persons are just a few of the methodological features that make Mturk so appealing to the research community (for reviews, see Burmaster, Kwang, & Gosling, 2011, and Polacca, Chandler, &Ipe rotis, 2010). Consequently, a vast number of studies in the fields of social psychology, evolutionary psychology, cognitive psychology, emotion research, and clinical psychology have been undertaken utilizing Mturk (Belinsky, Huber, & Lenz, 2012; Mason & Suri, 2012). The demographics of Murk samples have been the subject of several papers (e.g., Behrend, Share, Meade, & Wiebe, 2011; Goodman, Crider, & Cheema, 2013; Polacca et al., 2010), but little is known about individual variations in clinical symptoms among Mturk participants.

This paper aims to shed light on the question of how similar MTurk workers and the general US population really are by discussing the significance of assessing clinical phenomena in MTurk samples and analysing the similarities and differences between the two groups on a variety of clinical characteristics. A first look towards answering the mystery of "who are MTurk workers?" research has shown that Murk samples are more representative of the broader population than either undergraduate or other Internet samples. One study indicated that Mturk employees were older and more varied in terms of ethnicity than undergraduate participants. The MTurk workforce may also be more varied in terms of race, ethnicity, and socioeconomic status than other representative samples of the Internet population (Casper, Bickel, & Hackett, 2013; Gosling, Vizier, Srivastava, & John, 2004). However, there are still some noticeable discrepancies when comparing them to community samples.

One research indicated that Mturk participants were representative of the overall population in terms of gender, education, and age (Goodman et al., 2013), while another reported that their sample of Mturk participants was more feminine and somewhat younger than the general population (Polacca et al., 2010). Even though they make less money, Mturk employees may have more education than the typical American (Ipe rotis, 2010; Polacca et al., 2010; Shapiro, Chandler, & Mueller, 2013). Based on the findings of this study, it seems that Mturk employees vary significantly from community-based participants, despite the fact that Mturk gives researchers access to a sample that is more

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What happens to heat transmission and pressure loss in a rectangular channel with semi-circular ribs when the ribs are spaced apart is of interest.

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ABSTRACT

However, the effectiveness of ribs for improved heat transmission is highly dependent on their geometrical details and the prevailing flow conditions. This experiment investigates the effect of rib spacing by examining semi-circular ribs spaced at 8, 10, and 12 rib spacing ratios down the bottom of a rectangular channel. The channel blockage ratio (e/Dh) was 0.151, and the Reynolds number ranged from 10,000 to 29,000. More friction is discovered;however, the findings reveal that semi-circular ribs work better than plain plates. There is a 39% increase in average heat transmission for a semi-circular rib with a rib spacing of 50 mm (P/e =10) compared to rib spacings of 40 and 60 mm (P/e=8 and 12), respectively. On average, friction losses were found to be 10% higher for a rib spacing ratio of 8 compared to a ratio of 10 or 12. When compared to alternative arrangements, a semi-circular rib with a spacing ratio of 8 provides the worst thermal performance.

Keywords:

Semi-circular ribs, increased heat conduction, rib spacing, a square cross section.

INTRODUCTION

Gas turbine engines, which must run at the highest possible input temperature in order to maximize efficiency and output, are just one example of a field in which cutting-edge methods are being used to move closer to the ideal of maximum efficiency. The blade material could not withstand the high inflow temperature;thus, cooling is required to prolong the blade's useful life. Pin fin cooling, rib turbulators, dimple, protrusions, etc. are all examples of internal cooling techniques. Ribs are often favoured for cooling, and rib turbulators' efficacy is affected by a number of variables such as rib angle, blockage ratio, pitch ratio, rib shape, inclination of rib, and whether or not the ribs are stationary or spinning. Many studies on rib turbulators, which are used to increase heat transmission, have been published during the last few decades. Friction was shown to be greater than the heat transfer coefficient in a study by Luca Baggett a, who looked at a rib design with 45-degree angles and crossing ribs (Luca Baggett a et al. 2018). After analysing data from a thermal liquid crystal sheet, Kaewchoothong found that the Nusselt number for 600, 450 angled ribs, and 600 V-shaped ribs was 20-30% higher than that of 900 angled ribs (Kaewchoothong et al. 2017). Reynolds number 80,000 was used in Liu's study of truncation ribs, and it was shown that these ribs decreased friction without affecting the heat transfer rate (Jian Liu et al. 2018). While others looked at numerical methods. At Reynolds numbers between 5000 and 50,000, Moon conducted a numerical study of sixteen different rib configurations. Utilizing the Reynolds stress model, it was determined that the boot-shaped rib provided the best performance (Mi-Ae Moon et al. 2014). Zheng uses simulation to determine the impact of rib configurations on the thermal performance of V-type and parallel ribs, and the results revealed that the V-type ribs performed better than the P-type ribs (Zheng et al. 2016). Shukla displayed 900 ribs, thick and thin, joined in a continuous V. It has been shown that the performance of thin ribs is enhanced by thick ribs, and that the optimum ratio of rib spacing to rib thickness is 10.

Nomenclature		
Symbol	Description	Units
A	rectangular duct cross section area	m^2
h	heat transfer coefficient	$Wm^{-2}K$
D_h	Rect. duct hydraulic diameter	m
W	Width of rect. duct	m
H	height of rect. duct	m
L	Test section length	m
p	Rib pitch	m
e	Rib height	m

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Language Test's Prosperity because of the effect of Social and Social Capital

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ABSTRACT

The lack of a language exam at the end of a Hungarian student's academic career impacts a significant number of people. Research suggests this topic is understudied, but there are a number of relevant elements in the literature. My investigation took place in East Hungary. It's because the failure rate of language learners in this region is higher than the national average. I used a survey that was mostly made up of closed-ended questions to conduct an internet survey (alternative, selective and scale). My poll included questions regarding socioeconomic status, education, and language learning. When it comes to language learning, my study report shows that social and cultural elements play a significant impact. The snowball approach and an address list query were both employed throughout the inquiry process. There aren't many components because locating the intended audience has proven to be challenging.

KEYWORDS

Failure to pass a language exam, inability to acquire a foreign language, and a lack of proficiency in that language

INTRODUCTION

It is no secret that teaching foreign languages has long been a top priority in Hungary's educational system. Education, career prospects, and just about every other facet of intellectual life are all impacted by it. When it comes to teaching and learning languages, there is still a lot we don't know. Student motivation to study a foreign language may have an impact on their educational success. Non-linguistic and linguistic elements can have a role in the process of development. However, the dilemma of how to quantify foreign language proficiency may arise. Many criteria have been employed, such as testing, mimicking sentences, checking grammar, listening, reading, and speaking (2), but some criteria are problematic if we consider that the primary goal of language acquisition is to increase communication. In addition, we need to figure out how to account for non-linguistic influences on language acquisition. According to research on the impact of personality, there is no clear approach for quantifying attributes.

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Natural sea salt consumption confers protection against hypertension and kidney damage in Dahl salt-sensitive rats

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ABSTRACT

In spite of the fact that sea salts have become more common, the health advantages of eating them instead of refined salt are not well-known. Natural sea salt (SS) and refined salt (RS) were compared in a well-established animal model of hypertension for their ability to induce hypertension. Diets enriched with varied quantities of salt were provided to five groups of Dahl salt-sensitive rats. For each of the four groups, there were 10 people in the control (CON) group, four people in the RS4 group (n = 4), and four people in the SS4 group (n = 4). Systolic (SBP) and diastolic (DBP) blood pressure were considerably lower in the SS4 and SS8 groups than in the RS4 and RS8 groups after 15 weeks in the study. The SBP and DBP of the RS8 rats were significantly greater than those of the other groups. RS4, SS8, and RS8 hearts were abnormally measured by echocardiography before to sacrifice, but CON and SS4 hearts were normal. Serum renin and aldosterone levels were comparable across groups, however individuals in the high salt group had lower levels than those in the CON group. While the glomerulosclerosis index was elevated in the RS4 and RS8 rats, kidney morphology in the SS4 and SS8 rats was comparable to that of the CON kidneys. In the salt-sensitive Dahl rat, our research shows that natural sea salt causes less hypertension than refined salt.

Introduction

Chronically elevated blood pressure is the most common symptom of cardiovascular disease, and hypertension is the most common cause of this condition. Many cardiovascular and other diseases, including coronary heart disease, stroke, congestive heart failure, peripheral vascular disease and renal insufficiency, have been linked to uncontrolled hypertension [1]. Because high blood pressure is linked to cardiovascular disease and arterial vascular alterations, dietary salt consumption must be regulated to avoid high blood pressure. Sodium, one of the most important electrolytes, is crucial in maintaining a healthy blood pressure.. As a result, sodium homeostasis is necessary for a wide range of cell activities, including excitability, excitability–contraction coupling, energy metabolism, pH control, and heart development and growth [2]. Because most persons with high blood pressure are very sensitive to salt, excessive sodium consumption from dietary sources may be a severe risk factor for the condition. Obesity, diabetes, a lack of physical activity, and chronic alcohol use all have a significant influence in the development of cardiovascular disease [3]. Ambard & Beaujard [4] in 1904, Blackwood [5], Morris [6], and Dahl et al. [7] have all stressed the importance of salt intake in hypertension for many years. This study proved conclusively that a person's salt consumption is linked to their blood pressure. Cutler et al. [8] found that a low-sodium diet reduced

both systolic and diastolic blood pressure (SBP and DBP) for at least one to 12 months (DBP).

It has also been shown that people who eat a low-sodium diet for an extended period of time are more sensitive to the salty taste, which helps them to stick with it. As a result, there is substantial evidence that a low-sodium diet may help prevent and treat hypertension. For hypertension management, the source of salt consumption may be as essential as the quantity of salt consumed. Refined (table) salt, sea salt, floral salt, and processed salt are the most prevalent salt sources for consumers [11]. Sea salt has a lower sodium level than refined salt, but it still includes traces of natural minerals including MgSO4, CaSO4, CaCl2, and KCl. It's becoming more common knowledge that sea salt is good for you; nevertheless, there's no evidence that it has a direct influence on blood pressure management [12]. The goal of this research was to see whether ingesting sea salt may have a positive impact on blood pressure

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Nutrition and Health – The Association between Eating Behavior and Various Health Parameters: A Matched Sample Study

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Abstract

Studies on a large population have repeatedly proven that our nutrition has an effect on our health. As a result, we sought to examine the variations in health-related characteristics across various eating habit groups. Sample that was utilised to The Austrian Health Interview Survey AT-HIS 2006/07 was used in this cross-sectional investigation. Subjects were initially surveyed.matched based on their age, gender, and financial status (SES). The total number of people that were involved in the matching process was The total number of participants in the study (N = 330 for each kind of diet) was 1320.

less meat-heavy and more meat-heavy diets). It was determined that by doing variance analyses, we could eliminate A person's health (measured by self-reported health, functional impairments, number of chronic diseases, and blood vessel Health care (treatment, immunizations, and regular checkups) and general well-being are other important factors to consider. As a result, there are also differences. Chi-square tests were used to examine the presence or absence of 18 different chronic diseases. Overall, 76.4 percent of all individuals were surveyed. we're a group of women. 40% of those surveyed were under the age of 30, 35% were in the 30 to 49 year age range, and 24% were above the age of 50. years. A low SES affected 33.3% of the participants, a medium SES affected 48.8%, and a high SES affected 20.9 percent of the participants. According to our findings, a A lower body mass index (BMI) and less frequent alcohol intake are associated with a vegetarian diet. Furthermore, our findings demonstrate that a greater risk of cancer, allergies, and mental health issues are related with a vegetarian diet. a greater need for medical attention and a worsening of health and well-being. There is a dire need for public health initiatives that might help lessen the dietary variables provide a health hazard.

Introduction

Our nutrition affects our health and well-being. A vegetarian diet has been shown to be connected with a decreased risk of heart disease, according to several studies.hypertension and cholesterol issues are more common than people realise, and some of these issues are long-term. diabetes type II and other degenerative illnesses Stroke, gallstones, and a few types of cancer [1–7]. Vegetarianism is a healthy eating option. diets that do not have a lot of saturated fat low-fat diets that emphasise fruits, veggies, and whole grains Whole-grain foods [3,4,8]. Vegetarians, on the whole, have a reduced mortality rate. A greater socioeconomic position is associated with a lower BMI [1,4,5,7,9–12]. healthier lifestyles, i.e., they are

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Perceiving and adjusting to new functional strategies and methodologies

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Abstract.

Here we discuss the rise of empirical operations management research in Manufacturing and Service Operations (M&SOM). Since its inception in 1999, M&SOM has produced 91 empirical articles that have been categorized by the data they use and the methods they apply in obtaining that data. Even though empirical research in operations management has made significant progress, analytic modeling still leads the way and more work has to be done. When it comes to case and survey research, it is vital that researchers in operations management employ more empirical methodologies and stress the need of filling methodological gaps. "combinative value" is a novel research paradigm that combines these two empirical methodologies (web scraping, big data analysis, and/or analytic modeling) with other approaches (such as web scraping and big data analysis) to better comprehend altering operational strategies and practices.

1. Introduction

To further empirical knowledge in the field of manufacturing and service operations management, we provide our findings in this publication (hereafter, operations management, or OM). Our profession has done a lot over the years, and empirical research has been more prevalent in our publications in the last decade, as seen by the increase in its presence (1). In addition, as the journal Manufacturing & Service Operations Management has documented, the science underlying high-quality empirical research has evolved substantially (M&SOM). However, empirical research still lags behind analytic modeling, despite being an integral element of contemporary OM's toolbox. Boost your speed and extend your horizons as you tackle some of today's and the future's most challenging operational issues to increase your contribution to knowledge development in operations management (OM). Environmental dynamic convergence is occurring at such a rapid, worldwide rate that it necessitates a shift in the way operations and supply chain management research is conducted. New empirical data is crucial as we tackle the uncertain strategic problems that await us in the future.

It is based on Fisher's issue framing, Kuhn's cycle of empirical research, and OM's cycle of empirical research. Teaching and practicing OM are subject to a large range of environmental conditions that are always changing. For example, societal change, the emergence of disruptive technologies with unprecedented scope and reach, the growing need for corporate transparency and social responsibility, political upheavals, generational shifts, and the impact our field has on the global ecological footprint are all factors in play. Although we don't go into great depth about any of these outside influences, they

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Realism And Perceptible Utilization: An Examination On Their Connection

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ABSTRACT

Astonishingly, the Indian population has seen a dramatic growth in materialistic inclinations as a result of increased urbanization and per capita wealth. The purpose of this research is to explore the importance of women's materialistic behavior in today's rapidly expanding consumer cultures. Models of the association between materialism and conspicuous consumption among Indian women consumers are presented in this research using structural equation modeling. However, while all three characteristics contribute to materialism that positively influences conspicuous buying, the distinctive conclusion of this study is that centrality has a greater impact on Indian female buyers than the other two.

Keywords: pleasure, centrality, and success are all characteristics associated with materialism.

INTRODUCTION

After the liberalization changes of 1991, the Indian economy grew at an unprecedented rate, setting the foundation for a fundamental shift in consumer behavior. Over the past decade, financial institutions have been able to cut interest rates on consumer loans, which has resulted in an increase in the middle-class and affluent-class incomes in India, respectively (1). India's populace has become extraordinarily more materialistic as per capita wealth has risen. Researchers hope to learn how materialism affects ostentatious consumption in one of the world's least studied but fastest growing nations.

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Review: difficulties and advancements in the design of integrated protein purification systems and a view

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Abstrac

Successful protein purification relies on selecting the best purification methods and combining them logically in order to achieve the target purity in the shortest possible time. However, rationalising the development of protein purification processes has its difficulties. Among the issues addressed in this work are those related to protein purification. Synthesis and design of protein purification processes are examined, along with the advantages and disadvantages of the most recent approaches. Finally, the future of protein purification process development is discussed in this section. Attribution-Noncommercial-ShareAlike

Keywords : high throughput experiments, expert systems, and algorithmic method to protein purification

INTRODUCTION

In the global economy, the biopharmaceutical sector is one of the fastest-growing industries. 1.2 grammes of protein class of biopharmaceuticals that should not be underestimated foodstuffs and biotechnological goods as well applications. 3 Advancements in technology have occurred throughout the last 25 years. recombinant DNA and hybridoma technologies have revolutionised the field of genetics. large-scale manufacturing of nearly any product protein at higher concentrations by fermentation routes,4 such that the biologic bottleneck may be shifted Process improvement for protein purification feed items derived from living organisms. 5,6 This is what I mean by acknowledged on a broad scale as both technically and economically advantageous difficult, making up a significant portion of the overall cost of production 7 Protein research and development for biopharmaceutical applications Product quality standards must be met by application. Regulatory authorities and the time-to-market are both t ightening their criteria.8 Safe and cost-effective processes need that hence, it is imperative that you can be located fast in a location that is incredibly remote. huge area for design work. 7 As a result, protein purification has become more important. mostly, process design and development Based on heuristics, the results are tested experimentally.

the results of a great deal of experience and trial-and-error experiments, which typically lead to unsatisfactory outcomes feedstock and ancillary processes that are inefficient Utilization of resources. Pharmaceutical companies have been tasked with developing newer (better) products in the face of this background. Faster and cheaper production of high-quality (or safer) items. 9 With this purpose in mind, it's possible to supplement the content investing in the present paradigm of process development analytical and scientific methods that are always being developed. more systematic tools that have been developed methods of design and development that are both logical and efficient. These are some examples of design tools: approaches for high-throughput experimentation and tools for the design of computer-aided processes. 12 to 15 years old It's a fact. incorporating these new design tools is also crucial. from the very beginning of the procedure for creating modifications in the manufacturing process may have both positive and negative effects. Regulatory and technical hazards are both present. 8 But in spite of all that, the FDA, the US Food and

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Synechocystis was engineered to have a green-light-inducible gene expression mechanism.

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Summary

Synechocystis sp. PCC6803's green-light detecting histidine kinase CcaS, the cognate response regulator CcaR, and the promoter of cpcG2 were described in order to build a green-light-regulated gene expression system for cyanobacteria (PcpcG2). Gene expression from PcpcG2 is activated by green-light illumination of CcaS and CcaR, which operate as a genetic controller. Native PcpcG2's ability to respond to green light was studied utilising GFPuv as a reporter gene placed into a broad-host-range vector. The expression of PcpcG2 was clearly induced by green-light illumination, however the amount of expression was much lower than that of Ptrc, which has previously been described to be a constitutive promoter in cyanobacteria. Since the 5′ untranslated region of the cpcG2 gene lacks the ShineDalgarno-like motif, an insertion into this area resulted in enhanced CcaR expression. As a consequence, under green-light illumination, the modified green-light detecting system produced 40-fold greater levels of protein expression than the wild-type promoter did. An designed green-light gene expression system might be used to regulate gene expression in new cyanobacterial bioprocesses.

Introduction

The capacity of cyanobacteria to directly transform carbon dioxide into the desired chemical, needing only sunshine, water, and a few inorganic substances, makes them a perfect host for the manufacture of biofuels or biomaterials. Because most cyanobacteria can be genetically modified, they can be used to produce biofuel and biomaterials more efficiently. There are a number of researchers who are trying to build biosynthetic pathways utilising components from Escherichia coli and other species (Atsumi et al., 2009; Liu and Curtiss, 2009; 2012; Oliver et al., 2013). Though it has been hypothesised that some of the promoters are incompatible with cyanobacteria (Huang et al., 2010), it is unlikely that this is the case due to variations in RNA polymerase between bacteria and plants (Schneider and Hasekorn, 1988). Traditional bacterial gene expression systems use chemicals like isopropyl -D-1-thiogalactopyranoside (IPTG) and metal ions, which are impractical for large-scale cyanobacterial cultivation, as well as the induction of specific genes (Briggs et al., 1990; Geerts et al., 1995; Lopez-Maury et al., 2002). The water recycling technique cannot use chemical inducers since they are difficult to remove from the growth media. The cyanobacterial bioprocess necessitates the development of a new gene expression system. In order to maintain an efficient photosynthesis or prevent photodamage from intense or short-wavelength light, cyanobacteria have a variety of light-sensing mechanisms. A variety of light-sensing systems regulate gene expression, enzymatic activity for the production of second messengers, or phototaxis response upon illumination with varying light, such as UV light; blue light (Yoshihara et al., 2004; Hirose and Yamamoto, 2008; 2010); green light (Terauchi et al., 2004; Hirose et al., 2008; 2010) and red light (Narikawa, 2011; Song et al., 2011). (Yeh et al., 1997; Terauchi et al., 2004). A two-component regulation model underpins the vast majority of sensing systems.