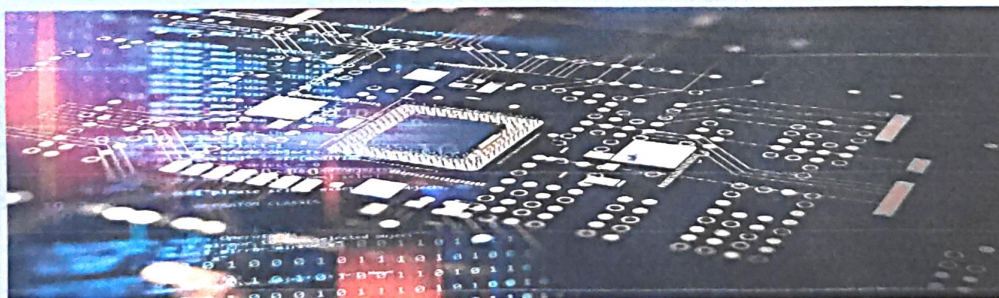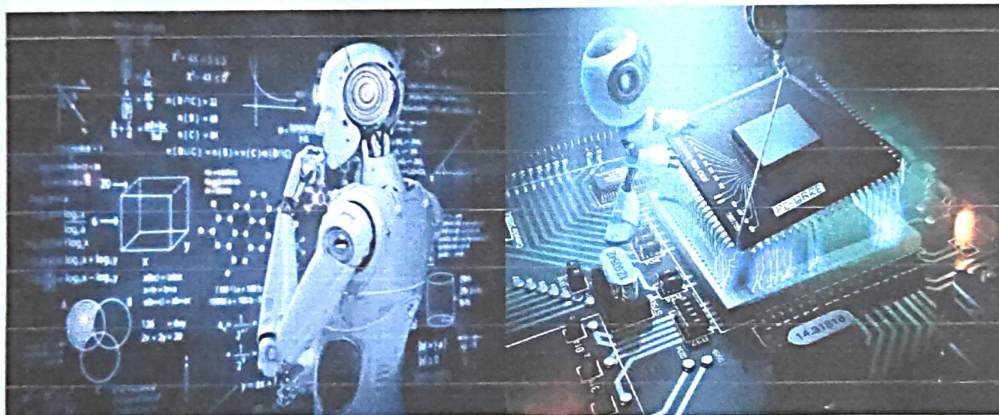# "NATIONAL CONFERENCE ON ADVANCES IN COMMUNICATION ENGINEERING (NCACE-2021)"
25th & 26th August, 2021

PROCEEDINGS

Organized by
Department of Electronics & Communication Engineering

GANDHI INSTITUTE OF EXCELLENT TECHNOCRATS (GIET)
www.gietbbsr.edu.in

Prof. (Dr.) Satya Prakash Panda

M.A., L.L.B., Ph.D.

Chairman, GIET Ghangapatana

MESSAGE

It gives me immense pleasure to know that the Department of Basic Science and Humanities, in GIET Ghangapatana is organizing a two days "NATIONAL CONFERENCE ON ADVANCES IN COMMUNICATION ENGINEERING (NCACE-2021)" during 25th & 26th August, 2021 in GIET Ghangapatana. A large number of national & international experts, delegates, academicians and research scholars are participating in the international conference and will deliberate on the topic "National Conference on Innovations in Science, Technology and Management", which plays a major role in meeting the demands of modern world that seeks continuous improvement in academic performance. The international conference is being organized to facilitate meaningful interaction among the Academician and R&D Institutions.

It is an exceptional platform for all concerned to update their knowledge and share their expertise during the conference and I do hope that the delegates and participants will be highly benefited out of the international conference.

I wish the NCACE-2021a grand success.

Dr. Satya Prakash Panda

Chairman,

GIET Ghangapatana

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Er. Rama Narayan Sabat

B. Tech, MS (Arizona State University)

Vice-Chairman, GIET Gangapatana

MESSAGE

I am glad to know that the Department of Department of Basic Science and Humanities, in GIET Ghangapatana is organizing a two days "NATIONAL CONFERENCE ON ADVANCES IN COMMUNICATION ENGINEERING (NCACE-2021)" during 25th & 26th August, 2021 in GIET Ghangapatana.

In today's technical scenario the importance of Engineering, Management, Science and Technology& their advances need to be over emphasized. In such conferences the students and faculty members get a wonderful opportunity to come across the latest technologies through deliberation of experts from reputed institutions.

I wish the international conference a roaring success.

Er. Rama Narayan Sabat

Vice-Chairman, GIET Gangapatana

Prof. (Dr.) Sudhansu Shekhar Khuntia
Ph.D. (Engg.)
Principal, GIET Ghangapatana

MESSAGE

I am extremely happy and also it gives me immense pleasure that the Department of Basic Science and Humanities, in GIET Ghangapatana is organizing a two days "NATIONAL CONFERENCE ON ADVANCES IN COMMUNICATION ENGINEERING (NCACE-2021)" during 25th & 26th August, 2021 in GIET Ghangapatana.

I hope and wish that this international conference will be a platform for knowledge transfer from a number of quality papers from student's community, research scholars, industry and academia from various regions of the state and across the country. GIET Ghangapatana., with the mission of producing quality engineers, is making every effort to impart state-of-the-art engineering education to its students. The output of the international conference will definitely throw light on the latest technologies.

I congratulate and convey my good wishes to the Convener and the team members of the international conference for the success of this great event.

Prof. (Dr.) Sudhansu Shekhar Khuntia
Principal, GIET Ghangapatana

NATIONAL CONFERENCE ON ADVANCES IN COMMUNICATION ENGINEERING (NCACE-2021)
[25ᵗʰ & 26ᵗʰ August, 2021]

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A study on the areas of sustainable development for SSI Units and the generation of employment through outsourcing

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Abstract

Reevaluating is the demonstration of one organization contracting with another organization to offer types of assistance that may somehow be performed by in-house representatives. Frequently the errands that are rethought could be performed by the organization itself, however by and large there are monetary points of interest that come from re-appropriating. Numerous enormous organizations currently reevaluate occupations be it in help area or assembling. These positions are dealt with by independent organizations that work in each such administrations or activities.

1. Introduction

Small firms, with limited opportunities, limited markets and limited resources, must use every means available for improving performance and insuring survival. Although many human resource management (HRM) practices are advocated as leading to firm improvement and/or survival, little research in this area pertains to small businesses.

The future success of any organization relies on the ability to manage a diverse talent that can bring innovative ideas, perspectives and views to their work. The challenge and problems faced of workplace diversity can be turned into a strategic organizational asset if an organization is able to capitalize on this melting pot of diverse talents.

When Total Quality Management (TQM) first broke onto the management scene, it was hailed as a revolutionary idea that would speed up production, increase efficiency, and generally bring success to any organization that pledged allegiance to it. TQM was supposed to bring quality to the whole organization, changing cultures and breaking down departmental barriers.

And for some organizations, this did indeed turn out be the case. TQM was introduced, adopted and sustained to create tangible business results. However, for many more this concept simply failed to deliver. Why? Because in their haste to introduce this culture or mindset to their businesses, senior managers forgot about the key factor that would make or break this initiative; people.

Many executives simply did not grasp the fundamental ethos behind TQM – that you could not introduce systems and procedures to overcome resistance and that diagrams or flow charts would not equate to culture change. TQM is all about empowering people to make the necessary changes towards quality and to incorporate this way of working into their everyday tasks. Whilst it is relatively easy to introduce TQM to a business, the real test comes in sustaining these practices and making them part of a culture rather than something people feel they "have to do". In other words moving from obligation to willful participation.

In today's era of outsourcing it has been more important to see whether outsourcing has helped to increase the job opportunities as number of tiers involved in the process increases. Small units in developing economics are known for technologically backwardness and India is not an exception. In majority of Indian SSIs there is lack of competitive strength which is due to use of outdated technology. It is observed that Indian industries are almost the last imitator when it comes to adaptation of technology. And due to low technology and small scale units the machines and no hi-tech machines and thus it requires large number of labour force hence the researcher had decided to probe into this that whether multi tier outsourcing increased employment

Micro-EDM accuracy and high removal rate using electrostatic induction feeding

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ABSTRACT

With conventional relaxation pulse generators used in micro-electrical discharge machining, due to the difficulty in keeping the minimum necessary discharge interval between pulse discharges, localized discharge and abnormal arc occur frequently. In contrast, with the newly developed electrostatic induction feeding method, only a single discharge occurs for each cycle of the periodic pulse voltage. As this realizes sufficient cooling of the discharge gap between pulses, thermal stress on the machined surface is less and duty factors can be increased, resulting in higher accuracy and machining speed compared to the relaxation pulse generator.

1. Introduction

Electrical discharge machining (EDM) is one of the most effective methods for micro-machining [1]. In conventional micro- EDM, the relaxation pulse generator shown in Fig. 1(a) is generally used because short pulse duration with low discharge energy can easily be obtained. In this circuit however, since capacitor charging takes time, discharge can occur even before the capacitor is fully charged, resulting in lower discharge energy per pulse. Therefore, even if the tool electrode is fed forward to decrease the gap width for increasing the discharge frequency, the machining speed cannot be increased. Thus to decrease the charging time, the time constant of the RC circuit should be decreased. But because charging starts immediately after the end of the previous discharge, the gap voltage begins rising without any interval. Consequently, if the extinction of the plasma generated by the previous discharge is not complete, discharge is reignited at the same place, further increasing the local temperature. For this reason, shorter time constants are likely to cause machining instability such as localized discharge and abnormal arc, resulting in heat damage on the machining surface and decrease in the machining speed.

The transistor type pulse generator can resolve these problems

because it can keep the discharge energy constant and provide the required interval time between pulse discharges. It is however difficult to obtain discharge durations shorter than several tens of nanoseconds because of the delays in the circuits which detect discharge occurrence and generate a signal to switch off the power transistor, and in the power transistor itself [2].

Therefore, to obtain minimal discharge energy with high material removal rate, the authors have developed a new pulse generator using the electrostatic induction feeding method [3,4].

With this pulse generator, as stray capacitance in the circuit does not affect the discharge energy, a tungsten carbide micro-rod of 1.3 mm in diameter and 15 mm in length was obtained successfully [5]. Moreover, since discharge occurs only once for each half cycle of the periodic pulse voltage, the discharge gap can be cooled regularly during the discharge interval. Hence, neither localized discharge nor abnormal arc occurs easily despite the high duty cycle. In this study, machining speed and heat damage using the electrostatic induction feeding method were therefore investi- gated and compared with the relaxation pulse generator.

2. Principle of electrostatic induction feeding EDM

Fig. 1(b) shows the equivalent circuit of the electrostatic induction feeding method, and Fig. 2 shows the principle of this pulse generator. The pulse power supply is coupled with the working gap by capacitance C_1. C_2 is the capacitance of the working gap between tool electrode and workpiece. A pulse voltage E_0 is applied with a constant pulse duration. In this example, C_1 is assumed to be 10 times as large as C_2, and the electric charges shown with ⊕ and are 10 times as large as those shown with + and

— respectively. When the voltage of the pulse power supply becomes E_0, both C_1 and C_2 are charged (i). In the working gap, the tool electrode and workpiece are charged positive and negative respectively, creating a high electric field. As this method does not require the resistance used in the relaxation pulse generator, the charge time of the capacitance is very short, resulting in a significantly quick rise in the gap voltage. Accordingly, discharge occurs always at the same gap voltage (ii). Subsequently, the discharge energy per pulse is kept constant regardless of the frequency of the pulse power supply. During discharge, electrons are conducted from the workpiece to tool electrode. The discharge duration is very short, several ns to several tens of ns, depending on the capacitance of C_1. After the discharge, there is no current flowing through the circuit and the working gap voltage is kept constant at a low voltage equal to

Using a steel kerb, the railroad crosses the road

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Abstract-

Road crossing railways, some results in accidents causing death and injuries. To help solving this problem and reducing the losses we think about automatic alarm and control system which force the traffic to stop while the train is passing through the roof using storing steel kerbs to close and open the gate. Visual and audio able alarms are used. Microcontroller, hydraulic system and sensors are used to result in a fast operation and timesaving.
Keywords: Microcontroller, Infrared Switch, Pneumatic System Kerbs.

1. Introduction

In our country (Sudan) where there vide areas and tong distances, they are thinking to increase the railways network services because of cheapest cost. So increasing in railways this creates an increase the level crossing points.

Now there are no gates except manual ones at cities, but some signs and labels exists just warn the road user. Therefore we expect the increase in accidents. Our project is to use automatic controlled gates (kerbs) at the level crossing points. In searching and comparing some similar projects ahmedsalih1 and AciM.katalil in their system used infrared sensors as train arrival and motor drive (step motor and servo motors) for the detection and gate actuating. Karthik Krishnamurthi used infrared, magnetic and vibration sensor and servomotor with microcontroller we add some modification and development to increase the efficiency and performance. So we used microcontroller Atmega16, limits Switches, infrared, hydraulic, pump and cylinders to raise and lower the steal kerbs gales which force the traffic tostop.

2. Review

Whenever a train approaches from one of the two directions of the cross point, the train arrive sensor on, input signal will be fed to the microcontroller which sends a command to alarms of the gate, after a certain time which is enough to clear the crossing level. Two steel kerbs (Gates) raise up to block the road against traffic. After the last car of the train passes the cross point and a safety time passes the gate will open and a green light will lit instead of the red stop one. Show bellow to fig.1 (Road crossing railwaydiagram)
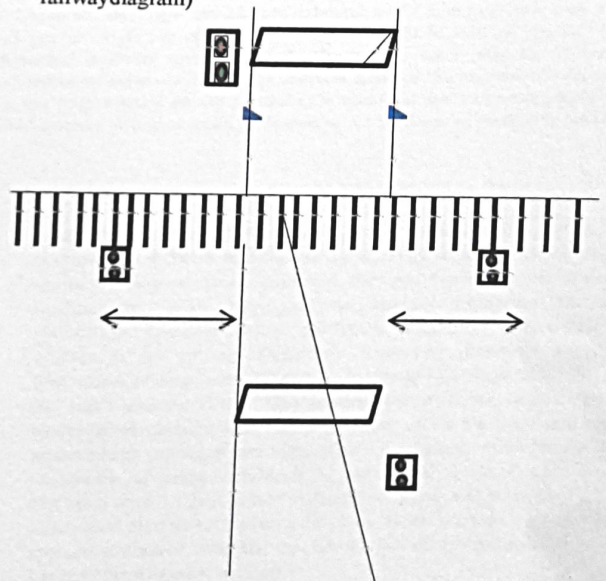
Utilizing micro-EDM, reversible machining technique is used to create microstructures

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Abstract

A new micromachining method for the fabrication of micro-metal structures by using micro-reversible electrical discharge machining (EDM) was investigated. The reversible machining combines the micro- EDM deposition process with the selective removal process, which provides the ability of depositing or removing metal material using the same micro-EDM machining system. From the discharge mech- anism of micro-EDM, the process conditions of micro-EDM deposition were analyzed firstly. Using the brass and steel materials as a tool electrode, the micro-cylinders with 200 μm in diameter and height- to-diameter ratio of more than 5 were deposited on a high-speed steel surface. Then the machining procedure was transformed easily from deposition to selective removal process by switching the process conditions. Different removal strategies including micro-EDM drilling and micro-EDM milling were used in the machining. Micro-holes with 80 μm in diameter are drilled successfully in the radial direction of the deposited micro-steel cylinder. Also, a brass square column with 70 μm in side length and 750 μm in height, and a micro-cylinder with 135 μm in diameter and 1445 μm in height are obtained by using micro-EDM milling. Finally, the characteristics of the deposited material were analyzed. The results show that the material components of a deposited micro-cylinder are almost the same as those of the tool elec- trode, and the metallurgical bonding has been formed on the interface. In addition, the Vickers-hardness of 454Hv of the steel deposited material is higher when compared to the hardness of 200Hv of the raw steel electrode.

1. Introduction

Micro-machining has been gaining popularity due to the recent advancements in Micro-Electromechanical System (MEMS). The fabrication of 3D micro-parts plays a critical role in the micro- manufacturing field. At the present time, several micro-fabrication technologies are available with their specific application domains and relative merits. Silicon substrate micromachining technology is one of the key processes to fabricate the microstructure as it is well integrated with microelectronics technology. However, there are some limitations in this process, including its quasi-3D struc- ture, its low aspect ratio and limitation of the working material. LIGA (Lithographie, Galanoformung and Abformung) process is another powerful technology in micro-machining. It enables the highly precise manufacture of high aspect ratio microstructures with large structural height ranging from hundreds to thousands of micrometers thick (Malek and Saile, 2004). But in this process, it is extremely difficult to fabricate a micro-3D structure with a slop- ing or freeform surface. Moreover, the very expensive and special facilities in LIGA have become another limitation for its application. Micro-electrical discharge machining (micro-EDM) process is one of the alternative machining processes for the fabrication of com- plex 3D micro-structures (Rajurkar et al., 2006; Ho and Newman, 2003). This process can machine almost every electrical conductive material, regardless of its hardness and can achieve high precision and high quality machining. With the recent progresses of micro- EDM, it is easy to fabricate a micro-tool electrode with 0.1 mm or less in diameter. Then with a simple shape micro-tool electrode, scanning layer by layer according to the 3D numerical control code for the fabrication of 3D micro-structures has become a popular method.

Since EDM method used in the micromachining, it has been con- sidered as a removal process of electrical conductive material for a long time, it is well used in hard-to-cut material removal, micro- holes machining, and micro-3D structures with freeform surface. In general, extremely low discharge energy of single pulse in micro- EDM is required, which results in a very small discharge gap in the machining. The distribution of discharge point will be restricted in

AODV, DSDV, and DSR Protocols for Malicious Node in MANET Review

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ABSTRACT

Mobile Ad-hoc Network(MANET) is a collection of wireless mobile nodes forming a self-configuring network without using any existing infrastructure. It is an autonomous and decentralized wireless system. Routing is a significant issue and challenge in ad-hoc networks. In order to attain the effective performance and reliability may Routing protocols have been. This paper describes the overview characteristics of all the routing protocols based on the different performance metrics like packet delivery fraction, Average delay, Normalized Routing load and Throughput under low mobility and low traffic network as well as under high mobility and high traffic networks presence of maliciousnode.

Keywords : MANET, Routing Protocols, Attacks, Simulators etc.

I. INTRODUCTION

MANET belongs to wireless communication network area of ad hoc network. MANET is the not new area in the research in which mobile as the mobile node with in the network. The basic target of MANET is to increase to connectivity of node in the scenario. In MANET, mobile nodes work in two forms; as a node to send and receive packet as well as a router to route a packet. Nodes movement in MANET environment is mainly random, and the uniform movement is seen rare. MANET mainly used in areas where infrastructure based communication cannot be used such as areas, mall, campus, airport, station, business meetings etc. Nowadays numbers of wireless ad-hoc networks are available one of the popular is MANET, also called a mobile mesh network, is a self-configuring network of mobile devices connected by wireless links. Wireless devices operate within the range of each other to discover and communicate in peer-to-peer network without any central access points. MANET have dynamic frequency because eachnodeisfreetomoveindependentlyinanydirection, and will therefore change its links to other node frequently, they also generally gather loads of nodes evolving in large areas. MANETs usually has a routable networking environment. There are different Routing protocols works in the source needs to transmit and delivers the packets to the destination. MANET is the self-organizing network. It does not really on any fixed networkinfrastructure.

The main characteristics of MANET are dynamic node mobility, limited batter power and rapid power moment. The primary challenge in building a MANET is each device to continuously maintain the information required to properly route traffic. MANET contains various mobility patterns. The routing protocol behavior has to be analyzed using varying node mobility pattern, traffic and network size. The different types of routing protocols are used in MANET. In this paper, simulate AODV, DSDV and DSR protocols are analyzed in terms of packet delivery ratio, throughput, end to end delay and routing overhead in presence of malicious node. TheperformanceofDSRisbetterthanAODV,DSDV in terms of Packet delivery ratio, Throughput, End to End Delay and Routing overhead. As the DSDV is a proactive routing protocol, it is having a less end to end delay as compare to AODV. The performance of AODV, DSDV and DSR gets affected by black hole attack but DSR provide better results in presence of malicious node. Thus the goal is to find the performance comparison of ad hoc routing protocol with mobility patterns. This study helps to improve the performance of MANET.

II. RELATEDWORK

Extensive research work has been done in the field of MANET routing protocols. Different routing protocols were simulated in different kind of simulators. Here we will discuss different research papers about MANET routing protocols performance.

M. K. Jeya Kumar et al. [1] In this paper random way point model the simulation results shows that performance produced by DSR & TORA decreases when the network becomes sparse or the traffic load become high. The performance of DSDV Protocol's is closer to AODV under the network size metric. The Performance of TORA protocol's was not so good under in mobility model. So, AODV Protocol can be chosen as the routing protocol in this type of mobility conditions. In Random walk model, AODV perform better under low & high mobility conditions. Random direction model produces better results than TORA, DSDV & DSR. DSDV Produces better results than TORA & DSR when the network size is large. Its shows the AODV is suitable choice under this mobilitymodel.

Priti Garg et al. [2] In this paper present the compression of Ad hoc routing protocols; in this paper are comparing on-demand and hybrid protocol; like temporally ordered routing algorithm (TORA) and Dynamic Source Routing (DSR). The protocols are analysis their relative performance with respect

WSN's Function in the Healthcare System

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Abstract

Now- a days Wireless Sensor Network(WSN) is widely used in medical applications to monitor the activities of the human body periodically like blood pressure, glucose level, heart rate, sugar etc.There are two types of sensors, one is Wearable and other is Implanted. Wearable units are used on the body surface of a human or just at close proximity of the user. The implantable units are inserted inside human body to measure the needs. The existing system has no facility to update our health condition to our doctors via any applications. It also has a drawback of low speed communication between sensor nodes. This paper presents a monitoring system that has the ability to monitor physiological parameters from patient body. The nodes which are attached on the patient's body will collect the signals from the wireless sensors and sends them to the base station. The sensors can sense the heart rate, blood pressure and so on and updates to the doctor periodically via an application. This paper also provides a mechanism to overcome the issue of communication delay between the doctor and patient, which will be more beneficial and will yield a good performance in the future.

Keywords: Healthcare, Wireless Sensor, application, communication delay.

1. Introduction

T A wireless sensor network (WSN) is a wireless network [15-28] consisting of spatially distributed autonomous devices using sensors to monitor physical or environmental conditions. A WSN system incorporates a gateway that provides wireless connectivity back to the wired world and distributed nodes. The wireless protocol you select depends on your application requirements. Some of the available standards are 2.4 GHz radios based on either IEEE 802.15.4 or IEEE 802.11 standards or proprietary radios, which are usually 900 MHz

The major components of a typical sensor network are

- Sensor Field - A sensor field can be considered as the area in which the nodes are placed.
- Sensor Nodes - Sensors nodes are the heart of the network. They are in charge of collecting data and routing the information.
- Base Station-The base station is a centralized point of control within the network, which extracts information or data from the network and disseminates control information back into the network. It serves as a gateway to other networks, a powerful data processing and storage centre and an access point for a human interface. The base station is either a laptop or a workstation. data is streamed to these workstations either via the Internet, wireless channels, satellite etc.
- User - User is the user of the data or information of wireless sensor network who uses to do desired task or take decision.

WSNs are composed of individual embedded systems that are capable of interacting with their environment [29-35] through sensors, processing information locally, and communicating this data wirelessly with their neighbors. There are different wireless technologies used in medical applications such as WBAN, WPAN, WWSN etc., the Wireless Body Area Network (WBAN) is a technology widely used in medical applications with continuously operating sensors. It measures the patient physiological signals such as mobility, blood pressure, heart rate and sugar levels, etc., This survey is presented with

Defending HVDC transmission systems' MMCs from DC short-circuit faults

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Abstract

This paper deals with the blocking of DC-fault current during DC cable short-circuit conditions in HVDC (High-Voltage DC) transmission systems utilizing Modular Multilevel Converters (MMCs), where a new SubModule (SM) topology circuit for the MMC is proposed. In this SM circuit, an additional Insulated-Gate Bipolar Translator (IGBT) is required to be connected at the output terminal of a conventional SM with a half-bridge structure, hereafter referred to as HBSM, where the anti-parallel diodes of additional IGBTs are used to block current from the grid to the DC-link side. Compared with the existing MMCs based on full-bridge (FB) SMs, the hybrid topologies of HBSM and FBSM, and the clamp-double SMs, the proposed topology offers a lower cost and lower power loss while the fault current blocking capability in the DC short-circuit conditions is still provided. The effectiveness of the proposed topology has been validated by simulation results obtained from a 300-kV 300-MW HVDC transmission system and experimental results from a down-scaled HVDC system in the laboratory.

Key words: Current-fault blocking capability, DC-cable short circuit, HBSM, HVDC, MMC

I. INTRODUCTION

Nowadays, the MMC has been considered as a preferable solution in the application of HVDC transmission systems to integrate distant renewable energy sources with an AC network [1]. With its modular structure, the MMC employs a large number of the SubModule (SM) connected in series, which is easily extensible for applications with different ranges of voltages and powers [2], [3]. The attractive features of the MMC such as its low power losses, small-sized filters, low voltage stress of switches, etc, have been described in previous articles [4], [5].

For MMC-based HVDC transmission systems, the basic building block is a sub-module. A schematic diagram of the MMC-based HVDC is shown in Fig. 1. The half-bridge-based SM is the main configuration of the MMC, which is a loss-effective and cost-effective structure. One of the significant drawbacks of a MMC-HVDC using an HBSM is its lack of DC-fault current blocking capability, where the freewheeling diode operates as a rectifier and produces an excessively high DC fault current from the AC grid through the short-circuit point in the DC link as illustrated in Fig. 2 [6]. So far, there have been three kinds of approaches that theoretically and practically deal with DC-cable faults in HVDC systems [7]-[14].

First of all, a circuit breaker is a classical and simple solution to isolate faults. For fault in an HVDC system, either AC or DC circuit breakers (CBs) may be adopted [9]. With AC circuit breakers, the response of the AC mechanical switchgears is very slow (it takes about 2-3 fundamental cycles). This causes a tremendous fault current, which results in damage to the converter devices as well as the DC cables. In addition, the restarting time of AC circuit breakers after the clearance of a fault is long (around 10s), which is not allowable for wind farms integrated to the grid according to grid code requirements. Meanwhile, DC circuit breakers can provide fast responses for blocking fault current. However, this technology is short in terms of practical field experience and expensive [7], [8]. It is presently under development for high power applications.

The second solution is to utilize thyristors (SCRs) with a higher thermal capability compared to the freewheeling diodes in the SMs, where either an anti-parallel or double SCRs conducting bidirectional current are connected to the terminal of the HBSM [9]. For this installation, the thyristors

Utilizing artificial neural networks to create video games

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Abstract

This paper focuses on, how we can inculcate the modern advancements in the field of machine learning into the video games to model the behavior of expert players into the game AI to give the players a very realistic and natural challenge. Customarily developers would program their game and behavior of the element/characters. There is no fun in playing the game once the pattern in which Artificial intelligence plays is figured out. In a player versus player or multiplayer game, your opponents are real people. These players are not bound by rules and they make mistakes. These mistakes or miscalculations provide a chance or for other players. The challenge and hence the actual fun which comes from such a multiplayer game is the real give and take that comes as a result of human interaction.

Keywords: Artificial Intelligence, Video Games, Neural Networks, Machine Learning

1. Introduction

Almost all modern games especially in the genres of racing, first person shooters, open world and the likes are largely devoid of any realistic artificial intelligence. In most of the shooting games, the enemies simply walk towards the player while there guns are blazing, until they die. This may have its own merits as a game type in and of itself. However, there is big gap for other types of games that are more interactive and lifelike with opponents that provide a real challenge. Recently game developers began noticing this deficit and games such has UnReal©, Half-Life, © Call of Duty© and Halo© have popped up. These games have successfully used simple finite-state machines and expert- based systems to simulate the illusion of an intelligent enemy. As a result, these well-established algorithms have helped shape the game Artificial Intelligence (AI) and advancements in leaps and bounds in recent years. Even so, there is still a lot more to be done. The AI is never good enough for the experienced player. For the AI to be good enough, it must keep challenging the player and also adapt to the player's style of gameplay and also, if possible learn from the player. Presently there is no such behavior of the AI agents in the realm of the modern games. A good player learns the behavior of the enemy AI and begins exploiting its weaknesses. The exploitation of the flaws of the AI should be an aspect of the game, but the game must also keep challenging skilled players. While modeling such systems, one thing to keep in mind is to account for the different levels of skills of different players and incorporate difficulty auto adjustment systems into the choices and behavior patterns of the AI rivals. This paper focuses on using a deep learning system to model player behavior. However, one must keep in mind that any such system needs to be designed with enough overrides and hooks so as to ensure game balance. There are many different machine learning algorithms available to choose from, some of which excel in certain domains while others don't. It's always better to frame the problem in hand as much as possible and pick the suitable machine learning algorithm, rather than hastily picking one. After we determine the appropriate data set, we need to gather plenty of samples and go ahead and try some of the standard algorithms. It will be more effective to use the more recently considered algorithms like genetic algorithms or neural networks. This

will help the developers to introduce the unpredictability factor to the AI players. This will certainly also help in modeling expert players with minimal specifications of rules. This in its very essence means that it will virtually be effortless to model complex behavior of a racer or sniper or any other class of gamer into the AI agent without needing any predetermined rules.

Observing the current trends in the world of gaming, there couldn't be a better time to

A SINGLE CYLINDER CI ENGINE'S EMISSION CHARACTERISTICS AND ECONOMIC ANALYSIS OF FOUR NON-EDIBLE STRAIGHT VEGETABLE OILS

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ABSTRACT

An experimental investigation has been carried out to analyze the performance and emission characteristics of a compression ignition engine fuelled with non-edible straight vegetable oils of Neem, Mahua, Linseed and Castor oil. Straight vegetable oils posed operational and durability problems when subjected to long term usage in CI engine. These problems are attributed to high viscosity, low volatility and polyunsaturated character of vegetable oils. Hence, process of transesterification is found to be effective method of reducing viscosity and eliminating operational and durability problems. Fuel preheating in the experiments for reducing viscosity of neat oils has also been done by a specially designed heat exchanger, which utilizes waste heat from exhaust gases. The test is conducted on single cylinder DI engine at constant speed of 1500 rpm. The performance parameters evaluated include thermal efficiency, brake specific fuel consumption (BSFC), brake specific energy consumption (BSEC), and exhaust gas temperature whereas exhaust emissions include mass emissions smoke. The results of the experiment in each case were compared with baseline data of diesel. Significant improvements have been observed in the performance parameters of the engine as well as exhaust emissions with use of neem, mahua and castor oil. Economic analysis was also done in the study and it is found that use of vegetable oil as diesel fuel substitutes has almost similar cost as that of mineral diesel.

Keywords: non-edible oils, CI engine, performance analysis, emission characteristics, transesterification, economic analysis.

1. INTRODUCTION

Using straight vegetable oils in diesel engines is not a new idea. Rudolf Diesel first used peanut oil as a fuel for demonstration of his newly developed compression ignition (CI) engine in year 1910. Later with the availability of cheap petroleum, crude oil fractions were refined to serve as 'diesel', a fuel for CI engines. During the period of World War-II, vegetable oils were again used as fuel in emergency situations when fuel availability became scarce. Nowadays, due to limited resources of fossil fuels, rising crude oil prices and the increasing concerns for environment, there has been renewed focus on vegetable oils and animal fats as an alternative to petroleum fuels.

Vegetable oil is easily available worldwide. It is a renewable fuel with short carbon cycle period (1-2 years compared to millions of year for petroleum fuels) and is environment friendly. These are the triggering factors for research all over the world to consider vegetable oils and their derivatives as alternative to petroleum diesel. However major disadvantage of vegetable oil is its viscosity, which is order of magnitude higher than that of mineral diesel. The fuel injection system of new technology engines is sensitive to fuel viscosity changes. High viscosity of the vegetable oil leads to poor fuel atomization, which in turn may lead to poor combustion, ring sticking, injector cocking, injector deposits, injector pump failure and lubricating oil dilution by crank-case polymerization [1, 2]. Viscosity of the vegetable oils must be reduced in order to improve its engine performance. Heating, blending with diesel and

Smart energy assessment for buildings used by institutions

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Abstract

Brilliant structures and Fuzzy based control frameworks utilized in Buildings Management System (BMS), Building Energy Management Systems (BEMS) and Building Automation Systems (BAS) are a state of interests among analyst and partners of structures' creating area because of its capacity to save energy and decrease ozone depleting substance discharges. Along these lines this paper will survey, examines characterize and assesses the utilization of fluffy rationale regulators in shrewd structures under subtropical Australia's subtropical locales. What's more the paper likewise will characterize the most recent turn of events, plan and proposed controlling techniques utilized in institutional structures. Moreover this paper will feature and talk about the calculated premise of these advances including Fuzzy, Neural and Hybrid extra innovations, its capacities and its restriction.

Keywords:

Fuzzy control Neural network BMS Smart buildings

1.Introduction

The commercial buildings sector in Australian use a significant quantity of energy which normally leads to negative influence on the environment including significant greenhouse gas emissions and production of non-environmental materials. The building sector today consumes about 40% of the world's total fossil fuel energy [1]. Additionally, the Australian commercial buildings consume about 61% of total energy use by the buildings sector [2]. Moreover, Australian commercial buildings' greenhouse gas emissions have grown by 87% between the years 1990 and 2010 [3]. The building sector is also responsible for nearly 27% of the country's total greenhouse gas emissions and that includes commercial buildings that accounted for 10% of the country's total greenhouse gas emissions.

Building Automation system or management systems (BAS, BMS) include heating-ventilation-air-conditioning (HVACs') system, lightings' systems, fire-fightingand other safety systems, and access control. BMS is cabable to decrease energy-consumption and improve thermal-comfort throughout industrial and institutional buildings [4]. In addition the system is cabable to control, supervise and manage different building's interfacesalso in order to provide users and occupants with strong security, improved-productivity, human comfort, and accurate energy consumption management. However, most of the HVAC and lighting systems are controlled using conventional controller whose function is based on process mathematical model (i.e. ON/OFF control). These kinds of controllers are not appropriate for systems with operating-environment nonlinear as those in HVACs and lightings' systems.

Conventional control technique e.g. ON/OFF controller and classical Proportional-Integral-Derivative (PID) controllers are the most common and popular controllers because of its low cost. Nonetheless, in the long term, the ON/OFF controllers are expensive as their operation is based on low energy efficiency standards [5]. Regardless of the past theoretical research, it is fundamentally impossible to employ existing mathematical models in designing HVAC control systems due to several constraints. Firstly, the calculation of thermal comfort involves complicated processing that makes it impractical to install it in real-events applications. Secondly, mankind's thermal comfort sensation is a rather imprecise due to the way of its assessment variation based on users' preferences. Thirdly, human warm-bodied thermal comfort evaluation relies on various

INDIAN RAILWAYS' SMART UNMANNED LEVEL CROSSING SYSTEM

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Abstract- Throughout the years, Indian Railways system had undergone lots of calamities and various accidents which directly suffered people's precious life. More than half of accidents are due to the level crossing problems in our country in which Unmanned level crossing is the main issue, where our country lacks in. India's railway system is one of the largest railway networks all over the Asia and with this mammoth system, every level crossing in our country cannot be handled manually. So, to rectify this problem we have designed model which is totally automatic, safe, regardless of human error and the most important thing in the paper is that it is designed to compensate and save road users time. So,here is a technological system in which railways tracks near crossing are laid by a piezoelectric plates which will give electrical signals to hooters and speedometer when mechanical pressure is applied by train on plates. LED screen timer is sync with speedometer which tells time of arrival of train and automatic gates are off as the train resides near rail- road junction. This will surely reduce time and considered as an effective way to increase safety for various lives of people.

Index terms- Indian Railways, Unmanned crossings, Automatic, rail-road junction

I. INTRODUCTION

Indian Railways which is a boon of economic growth of the country and the largest network in our whole continent is deprived of safety of people. Out of (31,846) crossing in our country in which around 42% i.e. (13,530) crossings are unmanned crossings [1]. This is due to a fact that with such huge system it is difficult to keep an eye on every level crossing manually and due to this many railway crossings remains unattended. Moreover, this usually happens in rural and extreme remote areas and people have to suffer with their precious life.

According to NCRB (Natural Crime Record and Bureau) says a total 2,547 railway crossing accidents occurred in 2014 which led to 2,575 deaths and 126 serious injuries across country, also annual report of The Hindustan Times stated that 83.5% railway crossing accidents have increased by when comparedto 2013 [2]. This problem is increasing day by day and needs a strong solution. No one thought-over it from many years. So here we are introducing our smart unmanned level crossing system which is economic user-friendly, automatic, efficient with very low service requirement and with the ability to itself produce power to do all function due to mechanical stress of train by using piezoelectric plate which makes the system independent to any type of external supply or aidto do various operations when train comes near to the crossing.

II. OBJECTIVE OF PROJECT

Indian Railways is the fourth largest network in the world with 8.397 billion passengers annually and an average of 18 million people carried to their destination each day. But sadly 15% of all accidents

Impedance source for grid inverters powered by solar energy

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Abstract

In this work, the whimsicalness of sunlight based energy can be overwhelmed by utilizing Maximum Power Point Tracking calculation (MPPT). Irritate and Observation (P&O) MPPT calculation achieve quick the most extreme force point for fast difference in ecological conditions, for example, irradiance power and temperature. The MPPT calculation applied to sun powered PV framework keep the lift converter yield steady. Yield from help converter is taken to three stage impedance-source inverter with RL burden and network framework. Impedance-source inverter plays out the change of variable DC yield of the sun powered PV framework in to approach sinusoidal AC yield. This close to sinusoidal AC yield successively is served to the RL load first and afterward to matrix framework. The recreation is done in matlab/simulink stage both for RL burden and lattice framework and the reenactment results are tentatively approved for RL load course of action as it were.

Keywords:

Impedance -source inverter Maximum power point tracking (MPPT) Solar energy system

I. Introduction

With reduce in cost of solar PV modules and the growing electricity tariffs, grid connected solar PV systems are becoming economically feasible for the vast population. The grid connected solar PV systems offers various benefits like greater energy production, high efficiency levels, low current total harmonic distortion, fast maximum power point tracking which deliver high power yields etc. The grid connected solar PV systems convert the direct current produced by the solar PV module into suitable alternating current. Thus the sunlight is transformed in to savings and a greener planet. It is apt for the tropical countries where the sunlight is in plentiful.

Unfortunately, solar characteristics rely on ecological conditions like irradiance intensity and temperature [1]. The fickleness of solar energy transpires us to find an active method to leverage it when they are accessible. The fickleness of solar energy can be overcome using Maximum Power Point Tracking algorithm (MPPT).Perturb and Observation (P&O) MPPT algorithm can execute maximum power point for rapid change in environmental conditions such as irradiance intensity and temperature. Therefore maximum power point tracking based inverter [2] is requisite in between the solar energy system source and the load arrangement. Many methods and algorithms for tracking the maximum power from the solar energy system are available. P&O [3] and incremental conductance algorithms are commonly used for the reasons of their appropriateness and ease to realize for solar photovoltaic panel.

To resolve the problem of undulations nearby the maximum power point under steady state conditions and poor tracking competency during changeable irradiance traditional P&O algorithms, the variable step size P&O has been brought in [4], [5]. The various families of power converters have been intended to interface the renewable solar resource for different applications [6]. Owing to development

Review of Solar Photovoltaic and Thermal (PV/T) Air Collector

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Abstract

subsequently expanded criticalness of photovoltaic warm (PV/T) gatherers. A PV/T air authority is a framework which has an ordinary PV framework joined with a warm gatherer framework. The framework can create electrical energy straightforwardly changed over from daylight by utilizing photoelectric impact. Then, it likewise separates heat from the PV and warms the liquid (wind current) inside the authority. In this survey, sun based PV framework and sun based warm gatherers are introduced. Furthermore, considers directed on sunlight based PV/T air authorities are evaluated. The advancement of PV/T air authorities is a promising zone of exploration. PV/T air authorities utilizing in sunlight based drying and sun based air warmer

Keywords:

Energy analysis Exergy analysis PV/T efficiency Renewable energy

1. Introduction

Solar energy is the radiation produced as a result of the nuclear fusion reactions in the sun. This energy is radiated from sun in all directions. The solar energy from sun when beamed onto Earth for even an hour is sufficient to produce the global energy need for an entire year. Many technologies exist to harness the energy from sun and use it in application. The energy harnessed from sun can be used in two different forms; thermal and electrical. One such technology which utilizes radiation from solar energy to produce electrical and thermal energy is Solar PV/T technology and the device used in this technology is called a Solar PV/T collector.

Solar PV/T collector is a hybrid system that deploy solar PV technology and solar heater technology. When a photovoltaic system is irradiated with solar energy, the cell temperature increases prominently. The greater the temperature difference between ambient temperature and temperature of the cell is, the less efficient the electrical efficiency and electrical output of the PV module becomes. In order to enhance the electrical efficiency, this excess heat is extracted by passing a heat extracting fluid (air or water) under the module. This integrated method, where electrical and thermal energy are generated simultaneously, is the basis of PV/T collectors [1]-[9].

The overall performance of the PV/T air collector can be evaluated based on the thermodynamic, environmental and economic impacts analysis. Enviroeconomic and exergoeconomic analyses for PV/T air collectors was studied [10]. Energy-exergy-economic-environmental analyses for different PV/T array systems was studied [11]. In this review, thermodynamic aspect is focused involving exergy analysis. Exergy has the characteristic that it is conserved only when all processes of the system and the environment are reversible. Exergy is destroyed whenever an irreversible process occurs when an exergy analysis is performed on a system like PV/T system, the thermodynamic imperfections can be quantified as exergy destruction, which is wasted work or wasted potential for the production of work. By analyzing the exergy destroyed by each component in a process, it can be easily identified where the focus should be given to improve system efficiency. Exergy analysis is conducted by utilizing the first and second law of

Using Frequent Data Item collections, a study of the Service-Oriented Architecture

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Abstract

The Service Oriented Architecture (SOA) is an architectural model for building flexible, modular, and interoperable software applications. The underlying concepts of SOA based on the concepts of software, the object oriented programming, and some other models. The SOA model allows to merging of various of distributed applications regardless of their implementation details, deployment location, and initial objective of their development. The main objective of the SOA architecture is that reusability of software within different applications and processes. Service oriented architecture is essentially based on various collection of services. All the services must be defined to allow to utilize the context those are need for different purposes. Once defined and deployed, services operate independently of the state of any other service defined within the system. The SOA using the Frequent pattern mining techniques helpful to find interesting patterns in massive underlying data. Prior domain knowledge leads to decide appropriate minimum support threshold. This paper describes the service oriented architecture and different frequent pattern mining techniques based on apriori or FP-tree or user define techniques under different computing environments like parallel, distributed or available data mining tools, those will be helpful to determine interesting frequent itemsets. The proposed methodology helps to develop efficient service oriented architecture using frequent pattern mining techniques.

Keywords— Architecute frequent, Itemsets, Apriori, pattern.

1. Introduction

The development of information systems and computer technologies has enabled the automation of the activities in every field of the real-world this has induced a fast increase in the information available, the development of high volume data warehouses and finally, the emergence of Data Mining. The latter corresponds in a set of techniques and methods which from the data (typically stored in a data warehouse) extract usable knowledge in various fields such as environment, public health, pharmacy, biology, etc. However, the growing market draws attention to distributed Data Mining because data and software are geographically distributed over a network instead of being located in a single site. Moreover, the cost is another reason for the distribution. To optimize investment, users prefer to use components that respond to their specific needs. However, since the arrival of Web and cloud computing, distributed data is now much easier to access. Furthermore, distributed computing in heterogeneous environments has become much more feasible. At the same time, service-oriented architectures (SOA) are becoming one of the main paradigms for distributed computing. SOA provides solutions for integrating diverse systems that support interoperability, loose coupling and reuse. To full-fill clients need one service invoke another services. It is possible

Simple Methods For Nano Ytrium Oxide Phosphor Synthesis And Morphological Studies

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Abstract

Among the family of rare earth compounds, yttrium oxide is a widely used material. Due to its chemical and physical properties, it is well known that yttrium oxide is a common luminescent host material. In many of the applications, reduction of the yttrium oxide crystallite size into the nanometer regime would result in improved performance compared to coarse grained yttrium oxide. This is particularly evident in phosphor application, where the phosphor efficiency varies inversely as the square of the particle size due to quantum confinement effect In this paper, synthesis and characterization of yttrium oxide by various methods are analyzed. Many research works is done on synthesis of Yttrium oxide and their characterization. Yttrium oxide samples are prepared by methods like Wet chemical, solvothermal process, and Sol-gel method. Then the samples are analyzed by XRD, SEM, EDAX and UV-Vis absorption studies. By optimizing various synthesis conditions, nanophosphors with high quantum efficiency and wide structural tenability can be prepared for their use in future display applications.

Keywords: Phosphor, precipitation, calcinations

1. Introduction

Yttrium oxide finds many high technology applications due to its excellent high temperature stability, high affinity for oxygen, sulfur and well defined crystal structures whose properties can be tailored by incorporating different types of ions into the structure [1,2].

Inorganic nanomaterials are attracting a great deal of attention due to their many potential applications in the fabrication of electronic devices, sensors, biochips and energy storage media [3-14]. In many of the applications, reduction of the yttrium oxide crystallite size into the nanometer regime would result in improved performance compared to coarse grained yttrium oxide. This is particularly evident in phosphor application, where the phosphor efficiency varies inversely as the square of the particle size due to quantum confinement effect [15].

Phosphor films play an important role in high resolution display devices such as cathode ray tubes (CRTs) used in medical imaging, graphics, helmet mounted display, thin film electroluminescence panels, gas sensors and thermomechanic devices. In addition to high resolution, displays with thin film phosphors have higher contrast, ruggedness, exhibit a high degree of uniformity and better adhesion. [16].

Among the family of rare earth compounds, yttrium oxide is a widely used material due to its chemical and physical properties; it is well known that

Cables made of carbon fibre reinforced polymer (CFRP) are used in structures for civil engineering

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Abstract

This review gathers the available literature on Carbon Fibre Reinforced Polymer (CFRP) cables. The behaviors of built-in structures are very crucial, especially structures with large dimensions and long service, usually involving advanced technology. Hence, there is the need to understand the behavior of carbon fibre reinforced polymer (CFRP) cable which is considered to be a new discovery for making composite materials. This review covers literature on the behavior and strength of CFRP cables in relation to bridges as well as the use of such cables in other civil engineering structures other than bridges. This paper also describes, briefly, some selected projects in which CFRP cables have been used to demonstrate the wide range of the current and potential applications of CFRP cables for Civil Engineering Structures

Keywords — Carbon fibre, CFRP cables, Bridge, Structures, Projects

1. Introduction

Civil Engineers are known for realizing the limits of building structures and for discovering technologies to make the buildings go higher, last longer and consist of lighter materials. The challenge to reduce weight, increase spans, build higher or slender structures motivate the search for new materials such as a composite ones.

A composite material is multi-phased and a combination of two or more individual materials that differ in composition. An example of such material is the CFRP, a very common composite stuff used in a multitude of applications ranging from its use in space-related and aeronautic constructions to its use in building cars and ships. The use of composite materials in Civil engineering has been very slow in coming, probably because composites are more expensive compared to traditional materials such as steel. Yet, composite materials have the advantages of being lightweight, corrosion resistant and strong. In addition, the CFRP provides good damping characteristics and high resistance to fatigue. Indeed, CFRP materials are being extensively used as structure materials for bridges in various forms because of these advantages as well as their suitability for modular construction, environmental friendliness and low maintenance demand. [3]

Conventionally, common materials, especially steel, are used to construct bridges, but these can be replaced and bridges can be made from lighter and stronger composite materials.

Initially, CFRP materials were used efficiently with restrictions. Researchers using these materials for engineering works especially bridges limited the usage to some parts of the construction works. However, in recent years, experiments have been conducted to investigate the applicability of CRFP composite materials in cable-stayed bridge structures. [4]

In view of the foregoing, this paper reviews some previous works in order to gather basic information on CFRP composite materials, including its structural behavior, pertaining to their civil engineering applications, especially in making cables and their acceptance in the construction industry in view of their success in automobile and aerospace industries.

2. Description Of Carbon Fibre Reinforced Polymer (Cfrp)

A. Carbon Fibre

One of the applications of high performance available for civil engineering is the carbon fibre stuff which is made by controlled pyrolysis and crystallization of precursors which are organic at temperatures usually above 2000^OC. This way, carbon crystallites aligned along the fibre length are produced. Three choices of precursor are available for the manufacturing process – rayon, polyacrylonitrile (PAN), and pitch options. The PAN types are the major ones for commercial carbon fibres and they produce a mass of around 50% of original fibre. Pitch types also produce high carbon yield at lower cost, even though they have less uniformity in the carbon fibres produced. It bears stressing that carbon fibres have higher fatigue strength and elastic modulus than glass fibres. In terms of service life, studies have shown that carbon fibres have more potentials than fibres of other materials [1] and the most important advantage in using carbon fibres as pre-stressing tendons is their chemical resistance. This is so because carbon is fully inert for nearly all chemicals, both in alkaline and acid environments. Indeed, it also resists all electrolytic or atmospheric degrading. [21].

B. Carbon Fibre Reinforced Polymer

Carbon Fibre Reinforced Polymer (CFRP) is a composite Polymer matrix reinforced with carbon fibres, which are very strong and light. In CFRP the reinforcement material is carbon fibre that provides the strength. The matrix is commonly a polymer resin

For shotcrete in underground tunnelling, Steel Fibre Reinforced Concrete (SFRC) is preferred over plain concrete

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Abstract

After drilling and blasting, it be comes very important to choose the right material for shot crete in underground tunneling. Over the years,SFRC has been frequently used for shotcrete. This paper focuses attention to the advantages coming from the use of SFRC over plain concrete in terms of compressive strength and flexural strength

Keywords —Compressive strength,Flexural strength ,Shocrete,SFRC,plain concrete

1.   Introduction

Application of Fibre Reinforced Concrete(FRC) is continuously growing in various application fields.FRC is widely used in structures. Due to the property that fibre enhances toughness of concrete, FRC is used on large scale for structural purposes. It improves fatigue resistance, makes crack pattern distributed.[1] By making crack pattern distributed, it is meant that it decreases the crack width. Underground tunneling has a very vast and profound application of SFRC and there is growing interest in SFRC as compared to plain concrete. Rehabilitation of conventional rokbolt and wire mesh support can be very disruptive and expensive. The excavations being shotcreted immediately are increasing. The incorporation of steel fibre reinforcement into the shot crete is an important factor in this escalating use,since it minimizes labour intensive process of wire mesg installation. Trials and observations suggest that shot crete can provide effective support in mild rock burst conditions[2].

In the present paper advantages of SFRC over plain concrete in underground tunneling over properties like compressive strength and flexural strength are discussed with some experiments performed and collective data on the samples of SFRC and plain concrete

2.   Experiment Methodology

2.1 Compressive Strength

Three different types of steel fibres are used in the experiment with aspect ratios of 50.1,53.87 & 62.50.Two cube specimen of dimensions 150x150x150 mm and cylindrical specimen of length 200mm and diameter 100mm are used. The concrete that is used for csasting is M25 grade concrete. One mould is filled with plain comcrete(0% fiber) and other with 0.5% steel fiber. Table vibrators were used for vibration. Specimens are demoulded and then transferred to curing tank. In curing tank, they are used for 7 and 28 days with strengths being noted at 7th and 28th day. Testing of cube and cylinder is done under digital compression testing machine. The testing is stopped where the cube is failed or when failure load is approached. The behaviour of plain concrete and SFRC is shown graphically in the compressive stress strain curves in "Fig." 1 in Figures and Tables.
Formula for calculating compressive strength is:
Failure Load/Cross Section Area

2.2 Flexural Strength

Steel fibres are generally found to have much greater effect on flexural strength than on compressive or tensile strength. Increase in the flexural strength is not only affected by volume of fibres but also by aspect ratio of the fibres with larger aspect ratio leading to greater flexural strength. "Fig." 2 in the Figures and Tables shows the fibre effect in terms of combined parameter Wl/d,where l/d is the aspect ratio and W is the weight of fibres.It should be noted that for Wl/d>600,the mix characterstics tends to be quite unsatisfactory.Deformed fibres show the same type of increase at lower volumes,because of their improved bond characterstics.[3]In order to check the sample for flexural strength,two point loading test is implemented which is discussed below:

A virtual workers' review of WEB OF WORKERS

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Abstract

Consistently advancing and progressively ground-breaking data and correspondence innovations (ICTs) have essentially changed the idea of worldwide connections, wellsprings of upper hand and openings for monetary and social turn of events. Innovations, for example, the web, PCs and remote phone have transformed the worldwide climate into an inexorably interconnected organization of people, firms, schools and government imparting and collaborating with one another through an assortment of channels.

In a business economy of imploding item improvement times and life cycles, fruitful business associations should be gifted at reverted dynamic, rapid capital and innovation move, getting to the most practical work and deliberately dealing with their stock chains. In the new climate, upper hand will presently don't emerge from responsibility for actual resources, however as far as responsibility for, admittance to information escalated, high worth added, innovation driven frameworks (Amidon Rogers 1996)..

Key words: HRIS, Virtual, virtual workers and team.

1. Introduction

There are three types of resource in the environment namely natural resources (elements or things found in the environment such as land, water and minerals), human resources (people) and capital resources (money, tools and equipment). We might see each of these resources from different view of points as a completely different entities but when we look closely at it, we will see that they are inter connected in the most simple and complex way, say for we cannot extract or process a natural resource without the help of the human or capital resource in the same way we cannot have good human resource without the capital or the natural resources. In today's world everything is connected with each other in a variety of ways; is it via internet or physical presence. With the vast increment in the ways, the organisations are working it is getting more and more difficult to find competent and quality workers.

For this kind of problems one solution or advantage can be the use of virtual workers. These are people who do the works entirely (almost) through electronic medium rather than manual or traditional format. Virtual workers are someone who does remote work (work completed in an environment other than the employer workplace[1]). Virtual workers are a group of people known as the Virtual Team. Gassmann and Von Zedtwitz (2003b) defined "virtual team as a group of people and sub-teams who interact through interdependent tasks guided by common purpose and work across links strengthened by information, communication, and transport technologies. [2]

In order to know who these workers are, we must first understand what HRIS is. HRIS is defined by different authors and associations in different ways. Such as:

According to Dresser & Associates, HRIS or Human Resource Information System is a software solution for small to mid-sized businesses to help automate and manage their HR, payroll, management and accounting activities.[3]

A system which seeks to merge the activities associated with human resource management (HRM) and information technology (IT) into one common database through the use of enterprise resource planning (ERP) software. [4]

Using the BFO algorithm, a tracking algorithm for objects in wireless sensor networks

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Abstract

This paper based on design such kind of algorithm that are used for tracking of object in WSN that more energy efficient for tracking of object that is required for checking the varying speed of target, target precision and missing target recovery. BFOA works for providing the energy efficient clusters and cluster head selection and the task of object tracking is performed by prediction based clustering algorithm.

Keywords: WSN, BFOA, Cluster Head, Object Tracking, PES.

1. Introduction of WSN

Wireless Sensor Networks (WSN) have gained world-wide attention in recent years due to the advances made in wireless communication, information technologies and electronics field [6,9].The concept of wireless sensor networks is based on a simple equation: Sensing + CPU + Radio = Thousands of potential applications. It is a sensing technology where tiny, autonomous and compact devices called sensor nodes or motes deployed in a remote area to detect phenomena, collect and process data and transmit sensed information to users. The development of low cost, low-power, a multifunctional sensor has received increasing attention from various industries. Sensor nodes or motes in WSNs are small sized and are capable of sensing, gathering and processing data while communicating with other connected nodes in the network, via radio frequency (RF) channel. WSN term can be broadly sensed as devices range from laptops, PDAs or mobile phones to very tiny and simple sensing devices. At present, most available wireless sensor devices are considerably constrained in terms of computational power, memory, efficiency and communication capabilities due to economic and technology reasons. That,,s why most of the research on WSNs has concentrated on the design of energy and computationally efficient algorithms and protocols, and the application domain has been confined to simple data-oriented monitoring and reporting applications. WSNs nodes are battery powered which are deployed to perform a specific task for a long period of time, even years. If WSNs nodes are more powerful or mains-powered devices in the vicinity, it is beneficial to utilize their computation and communication resources for complex algorithms and as gateways to other networks. In wireless sensor networks there are several wireless sensors which are capable of sensing a special phenomenon in the environment and send the data back to one or several base stations. The main feature of WSN that makes it unique is its flexibility in terms of the shape of the network and mobility of the sensors. Without any wires, WSN can be deployed in areas where regular sensor networks cannot operate.

Also the self-shaping feature of WSN, along with the freedom of the wireless sensors movement makes it an ideal tool for the situations where the sensors are mobile. Having these features, WSN is used in medical applications, military purposes, disaster area monitoring etc. The flexibility of wireless sensor networks comes with a series of challenges. Since wireless sensors are not physically connected to any

The Use of Vehicular Ad-Hoc Networks in Smart Cities

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Abstract

Now-a-days due to the rapid increase in urban population leading in various kinds of problems such as long hours traffic-jams, pollution which is making cities life insecure and non-livable. Smart cities are emerging to fulfill the desire for the safety of its users' and secure journeys over in the urban scenario by developing the smart mobility concept. Vehicular Ad-hoc networks are widely accepted to attain such provisions of providing safety and non-safety applications. However, VANET has its own challenges from node mobility to location privacy. This paper describes the application areas, security threats and their consequences of VANET into the smart city content.

Keywords: Paper main parts, Articles, Paper Specifications.

1. Introduction

growing need for vehicular ad-hoc networks (VANET), in which vehicles can communicate with each other, with or without the help of infrastructure on a temporary basis. The purpose of creating such network is to reduce the traffic delays and to make safe traveling for its users. In a typical VANET environment, vehicles directly communicate with other is known as V2V communication and with RSU is known as V2I communication. Each vehi- cle is equipped with a hardware OBU that has computational and communication capabilities.[1]. Apart from OBU, these smart vehicles are integrated with micro sensors, embedded systems, and GPS. As per dedicated short range communication (DSRC) standard, a vehicle needs to periodically broadcast the traffic and safety-related messages known as beacons. These beacons contain four-tuple information, i.e., the speed of the vehicle, location, direction and traffic events briefing accident or road scenarios. This beacon travels in the network carrying data loaded by the sender vehicle to others moving in the same region. For example, A vehicle can carry aware future traffic about the real-time traffic situations that would help other drivers to take early action in response to an unexpected situation. Due to these attractive features, this technology is considered as a mandate pillar in

developing the smart city project.

VANET applications can be categorized into four main classes: Safety (time-critical and life-critical applications), Traffic Management (provide traffic information, prevent traffic jams), Enhanced Driver Comfort and Maintenance and is described below:

- Safety Applications: Proactive measures for violation of traffic signals, stop sign and intersection collision; warning for the emergency vehicle coming, breakdown and wrong way driver; and can track a stolen vehicle, etc. are included in this cate- gory.
- Traffic Management Applications: These applications comprise of area access control, traffic flow control, electronic toll payment and rental car processing, etc. for the complete movement of the traffic on the roads.
- Enhanced Driver Comfort Applications: The ap- plications under this category involve updated route guidance and navigation, parking spot locator, point-of-interest notification and map download/update/GPS correction, etc. for the driver's assistance while moving on the road.
- Maintenance Applications: This category includes wireless diagnostics, safety recall notice, and information about software update/flashing, etc.

Vehicular Ad-Hoc Networks (VANETs) permits Dedicated Short Range Communications (DSRC) of vehicles in the 5.9 GHz band, defined

Enhancement of a SCADA-focused firewall against global hacking apparatus

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Abstract

An Industrial firewall is a framework used to direct and control traffic to and from an organization to make sure about apparatuses on an organization. It dissects the information going through it to a generally characterized reconnaissance measures or conventions, disposing of information that doesn't meet the convention's prerequisites. As a result, it is a channel forestalling bothersome organization traffic and specifically restricting the sort of transmission that happens between a made sure about transmission line. In this examination paper a SCADA based Firewall is executed for assurance of the information transmission to a PLC, against outside hacking gadgets. This firewall is practically presented to a few outside programmers and the level of weakness is painstakingly contemplated, to build up an ideal Firewall.

Keywords: Firewall Industrial control systems PLC SCADA-HMI Simulator

1. Introduction

In the year 2000, an unnamed sewage control system in Queensland, Australia, faced several difficulties from the moment it was installed by the manufacturer. Most of these problems continued for several of the following months; with pumps not responding and running when required to, a complete loss of transmission between the control room and the pumping stations etc. These lead to several months of flooding in several of the nearby communities and a river with several tons of sewage.

An insight into several of the industrial cyber-attacks is that they are very difficult to identify, this case was no different. The attacker linked with this attack managed to attack the system a total of 46 times, until the unknown entity was caught. At the onset it was considered that a leakage in the pipes must have been the root cause of all the problems. Only after months of data logging it was discovered that several of the controllers were hacked, and would activate the valves randomly without a command being initiated at the remote control rooms. Later it was discovered that, one of the ex-employee of the contractor company was behind all these hacking attempts in order to be hired by the company to resolve these issues [1]. The above case study is an indicator on why protecting these industrial control systems is crucial. Development of highly sophisticated industrial firewalls can prevent such a haphazard [2, 3].

In these recent times, Industrial control systems have increased their dependence on several typical internet protocols such as Ethernet, TCP/IP and Windows for transmission of sensitive or non-sensitive information.

Utilization of these protocols in large scale industrial systems have become a lot more networked and easily reachable from any portion of the world, making them a lot more vulnerable to a cyberthreat. Moreover, the rising reliance over internet-connected devices, also known as Internet of things is making the devices more susceptible to Cyber-attacks.

Keeping all the above risks in mind, when Supervisory control and data acquisition engineers or experts are questioned over the actual threats to industrial control systems, often cast a blind eye over the entire issue by claiming that specially designed communication protocols and exclusive automation systems would incorporate to all the external factors affecting the systems [4-7]. The proposed ideology, suggests a SCADA based Firewall which is implemented for shielding the data transmission to a PLC, against extrinsic hacking gizmos. This firewall is virtually exposed to extrinsic hackers trying to override TCP interface protocols and further improvisations are incorporated based on

Performance ICs in Embedded Systems Under Changing Temperature: Analysis

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Abstract

Chip temperature is increasing with continued technology scaling due to increased power density and decreased device feature sizes. Since temperature has significant impact on performance and reliability, accurate thermal and circuit analysis are of great importance. Due to the shrinking device feature size, effects occur at the nanometer scale, such as ballistic transport of energy carriers and electron tunneling, have become increasingly important and must be considered. However, many existing thermal and circuit analysis methods are not able to consider these effects efficiently, if at all. This thesis presents methods for accurate and efficient multi-scale thermal and circuit analysis. For circuit analysis, the simulation of single electron device circuits is specifically studied.

Interconnect is one of the main performance determinant of modern integrated circuits (ICs). The new technology of vertical ICs places circuit blocks in the vertical dimension in addition to the conventional horizontal plane. Compared to the planar ICs, vertical ICs have shorter latencies as well as lower power consumption due to shorter wires. This also increases speed, improves performances and adds to ICs density.

Keywords: ICs, MTTF, Security, Attacks, Tamper Mechanisms.

Introduction

The technological revolution that started with the introduction of the transistor just over half a century ago is without parallel in the way it has shaped our economy and our daily lives. The current trend toward nano scale electronics is expected to have a similar impact into the third millennium. Commercial integrated circuits are currently available with transistors whose smallest lateral feature size is less than 100 nm and the thinnest material films are below 2 nm,

Exploratory Approach to Retailer Brand Awareness

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Abstract

Reason for the examination: This exploration paper planned to realize how the purchaser responds to the retailer's image. This is additionally an endeavor that to recognize the impact of retailers brand on the buying choice of the buyers. Approach/Design: An example of 500 respondents was drawn from the hypermarkets who are the incessant purchasers of food supplies. Comfort inspecting method will be utilized to gather the information from the clients. The chose areas of the hypermarket depend on the 5 significant region/zones in Bangalore city, to be specific East region, West region, North region, South region and focal region. Discoveries: According to this overview, it's been seen that the clients are intrigued to know retailer's image particularly who are the maker/maker of the items. The clients know about the items and the brand and furthermore have the away from of the appropriately connected brand with the specific item.

As clients are keen on buying the marked items and accordingly marked items are getting a charge out of the benefit on the lookout. The great net revenue is foreseen in some food supplies fragment; even nearby

1. Introduction

In today's competitive environment customers are keen observer of market, marketers and of course on the products and services as customers have more number of alternatives to move upon. It has been observed that the marketers are trying different tactics to attract the customers and also by offering best products and the services to satisfy the customer. Even though this is the situation where the marketers are providing more alternatives to the customer, it is difficult to expect the good response by the customers.

Brand plays very pivotal role in the purchasing of products. Customers are keen interested in buying the branded products rather than the local/ private labels or tags. Few of the customers perceive that if they own branded products, it increases the standard of living and projects the high status. It has been

noticed that the concept of brand is more effective when the consumers make a purchase, consumers show interest in buying the branded products especially when it comes to the less/ affordable prices.

Brand awareness is an important factor where the potential customers identify the brand and they will be rightly associated with the particular product of the brand. Normally customers are cleverer in this type of the situation where their past experiences make the purchase of the desired products under the brand and brand image. In brand development, brand awareness is an essential tool which helps the brand to stand out in the marketplace. This is an attempt that to know whether the customers are aware of the retailer's brand. It also focuses on the demographic variables are effective enough to switch the customers buying decision behavior on the retailer's brand.

This research paper follows the below pattern. The first level will be focused on the Demographic variables effectiveness which switches the customers buying behavior of the retailer's brand. Second level is projected on the effect of the brand awareness of retailer's brand on customer's buying behavior. And final level proposed on the findings and suggestions.

2. REVIEW LITERATURE

This section focuses on the previous researches, and divided into two main phases namely Consumer Buying Behavior, Brand Equity.

2.1.Consumer Buying Behavior

K. Rama Mohan Rao. et. al (2013) observed that there is a boom in organized retailing that won't be affect the consumer opinion and perception of the individuals. The factors of ambience, especially lighting, cleanliness plays add on benefit to the retailing where most of the consumers feel satisfied.

Manju Malik (2012) noticed that the combination of store convenience, Product

These Behavioral Features Tubes with Fiber Reinforced Polymer Filled with Ultra High Strength Concrete

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Abstract - UHSC is widely used in bridges, high raise structures, replacing with Heavy weight structural elements etc. However higher the strength of UHSC, higher the material brittleness. Therefore, it is important to improve the ductility of UHSC. Concrete-filled FRP tubes owe their improved deformation capacities to the confinement action provided by the surrounding FRP tube. The lateral confinement can enhance both the strength and ductility of concrete. Thus the ductile behaviour of UHSC filled in GFRP tubes has to be studied. The effect of confinement with respect to corner radius and aspect ratio will be studied. Thus this experimental study will include the strength and ductile behaviour of the circular ultra high strength concrete filled FRP tubes.

Key words: Ultra high strength concrete, Glass Fiber reinforced polymer tubes, Strength, ductility.

1. Introduction

Ever since the time of Romans, there has been a continuous effort by research scholars in the field of cement and concrete technology to produce better quality concrete. But it has two major drawbacks, namely low tensile strengthand limited deformation capacity

(i.e., low ductility). Due to this, reinforced concrete Structures, unlike steel structures, tent to fail in relatively brittle manner. The brittle failure of reinforced concrete members can be avoided only if the concrete is made to behave in ductile manner, so that, the member can undergo a large amount of inelastic deformation. It has been observed from the literature that the brittleness of concrete can be modified by confinement using GFRPTs.

1. Ultra High Strength Concrete

In IS: 10262-1982, concretes are grouped in to three categories viz. ordinary concrete (M10 to M20), Standard Concrete (M25 to M55), high strength concrete (M60 to M100), and ultra high strength concrete (M100 to M150).

Conventional concrete has the following draw backs

- Permeable to moisture and air resulting in corrosion of steel reinforcement.

- Less resistance to abrasion and chemical attack.

- Unable to achieve the required / intended life span of structures due to environmental effects.

In order to overcome the above problems, considerable efforts have beenmade worldwide to develop Ultra High Strength Concrete.

1.1.Composition of Ultra High Performance Concrete

The composition of HPC usually consists of cement, water, fine sand, super-plasticizer, fly ash and silica fume. Sometimes, quartz flour and fiber are the Components as well for HPC having ultra strength and ultra ductility, respectively. The key elements of high performance concrete can be summarized as follows:

- Low water-to-cement ratio,

- High dosage of super-plasticizers
- Large quantity of silica fume (and/or other fine mineral powders),
- Small aggregates and fine sand,

1.2. Strength

Studying axial compressor performance parametrically under design conditions

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Abstract
In this paper, a parametric study of compressor performances is performed by the streamline curvature method. Effects of three input parameters in the design process, e.g., number of blades, distribution of blade thickness, and blade sweep angels, on the main objective parameters in the aerodynamic design, e.g., velocity distribution, efficiency, and pressure ratio, are investigated in the parametric study. Initially, a certain two-stage axial compressor is designed by the streamline curvature method. Validation of the results is confirmed by comparing the obtained results with the experimental ones. Regarding various values for the aforementioned input parameters, the first stage of the axial compressor is redesigned, and the output parameter is established. Therefore, the sensitivity of the design results to each of the aforementioned parameters is recognized. Results show that increasing the blades sweep angle causes the flow behavior, such as efficiency and pressure ratio in the axial fan, to improve while reducing it provides a completely contrary result. Also, reducing the rotors blades number leads to an increase in the pressure ratio and efficiency while its increase causes a contrary result. It is concluded that a reduction in the number of the blades has a stronger effect on the performance parameters than when it increases. The results also show that the effect of the thickness in the hub is greater than the thickness of the tip, and its increase leads to reduce both efficiency and pressure ratio.

1. Introduction

Recently, several attempts have been made to enhance the performance of turbomachinery by using parametric study and optimization methods with the help of the computational power and expensive experimental setup. Applying the parametric study leads to better design of turbomachines to enhance the performance in terms of increasing efficiency, pressure ratio, and reducing weight and flow loss, etc.

Several investigations have been studied on the performance of an axial compressor by using parametric study. Sweep, lean and skew angles which form the 3D shape of the blades are considered as the most important parameters for optimization. These parameter can lead to a significant effect on overall compressor performance, loss coefficient, and flow structure. In this regard, Gallimore, et al. [1]

Analysis of Recycled Aggregate Concrete Behavior When Exposed to High Temperatures

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Abstract

This paper focuses on effect of elevated temperature on recycled aggregate concrete. When concrete is exposed to Elevated Temperature due to fire, the property of a concrete may alters. The effects of elevated temperatures on the physical and mechanical properties of various Recycled aggregate concretes are explained Here w/c ratio 0.27 and 0.36 with replacement of 0%, 30%, 35%, 40%, 45% and 50% of Natural aggregates by Recycled aggregates are taken into consideration. Here 35 specimens (Cubes, Cylinder and prism) for each trial mixes (12 nos) has been casted and heated under four different temperature: 200°C, 400°C, 600 °C and 800°C. . Attempt is made to compare with different mixes of recycled aggregate concrete. The results indicate that concrete with aggregate partially replaced with RCA exhibits good performance under elevated temperatures and it can be considered comparable to conventional concrete.

Keywords: *Recycled aggregates, elevated temperature, compressive strength, split tensile strength, flexural strength, residual properties.*

1. Introduction

When concrete is exposed to high temperature, the mechanical properties such as strength, modulus of elasticity and durability decreases, which leads to structural failure. Therefore properties of concrete should be taken care to withstand high elevated temperature. At 110^0C temperature CSH bond starts breaking and with increase in temperature beyond 300^0C, thermal expansion of the aggregate increase internal stresses and micro cracks are induced. Calcium hydroxide [Ca(OH)2] dissociates at around 530°C resulting in the shrinkage of concrete. The fire is generally extinguished by water and CaO which converts into [Ca(OH)2] causing cracking and crumbling of concrete. Therefore, the effects of high temperatures are visible in the form of surface cracking and spalling. CSH gel decomposes beyond 600^0C and concrete gets crumbled at 800^0C.

P. Saravankumar et al concluded that the compressive and tensile strength of RAC is lesser than the NAC at all percentage of NA replaced by RA at all age of concrete. Chetna m. Vyas et al conducted durability tests on RAC, they concludes that the sorptivity and water absorption of RAC was less for 40% replacement of NA by RA comparing to other replacement ratio in each grade of concrete According to T.Morita et al (2000), the lower the w/c ratio, the higher the degree of spalling. Spalling slightly occurs, if the W/C ratio exceeds 50% for two month-old concrete, and 45% for one-year old concrete. The age of concrete at the time of fire exposure has a significant effect on spalling. Though age of concrete affects the strength and moisture condition of the concrete, it is observed that the lower the moisture content, the lesser the possibility of spalling caused by vapor pressure in the concrete.

Jaeyoung Lee et al (2013) worked on Entire and partial heating of high strength concrete small columns. The crack, spalling and rupture are severe on partially heated specimens than the entire heated specimens. Thus uneven heating would increase the spalling. According to Manzi, C. Mazzotti, M.C. Bignozzl (2014) Workability decreases with increase in Percentage replacement of recycled aggregate to the natural aggregates. According to Salah R. Sarhat et al (2013), Concrete made with Recycled Aggregate Concrete (RAC) exhibits adequate performance at elevated temperatures.

2. Experimental Investigation

A. Material and Properties

Cement: the grade of cement used in this work is ordinary Portland cement, 43 grade manufactured as per IS 8112. Fine aggregate: Locally available sand free from silt, organic matter and passing through 4.75mm sieve confirming to zone 2 as per IS 383 is used as fine aggregate. Natural Coarse aggregate: the natural coarse aggregate of maximum size 12.5mm passing and retained on 4.75mm sieve is used. Recycled Coarse aggregate: the recycled aggregate size of maximum size 12.5mm passing and retained on 4.75mm sieve is used and properties of materials are listed in Table.1.

PVPF: a Real-Time Integrated Web Application for Photovoltaic Power Planning

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Abstract

In this paper, we propose a completely mechanized AI based determining framework, called Photovoltaic Power Forecasting (PVPF) instrument, that applies enhanced neural net-works calculations to constant climate information to give 24 hours ahead gauges to the force creation of sun oriented photovoltaic frameworks introduced inside a similar area. This framework imports the continuous temperature and worldwide sunlight based irradiance records from the ASU climate station and connects these records with the accessible sun oriented PV production estimations to give the legitimate contributions to the pre-prepared AI framework alongside the records' experience concerning the current year. The AI framework was pre-prepared and advanced dependent on the Bayesian Regularization (BR) calculation, as portrayed in our past examination, and used to anticipate the sun based force PV creation for the following 24 hours utilizing climate information of the last five con-secutive days. Hourly forecasts are given as a force/time bend and distributed

Keywords: Web Application, solar,
photovoltaic PV, forecasting machine,
solar radiance

1. Introduction

Energy production by Photovoltaic (PV) systems is one of the significant clean energy sources that covers part of the increasing energy demand with the ongoing industrial growth [1]. Nowadays, many factors contributed to world energy problems, either a supply-demand or economic problems, among those factors are increasing world population, increasing living standards (directly related to energy consumption per capita), in-dustrialization and modernization [2]. All these factors induced a global trend to utilize more renewable energy sources into countries' energy mix. Photovoltaic power plants have been widely utilized in the last decade, due to their simplicity, advantages of the technology and most importantly due to significantly decreased prices. One of the main challenges of integrating large PV installations into power systems is the stability of the power systems and how it is affected by intermittency of PV power plants [3].

Many researchers investigated various techniques used to forecast PV power, in order to facilitate power systems management and implementation of forecasting techniques into some application such as Elec tric Vehicles (EV) charging stations, smart homes and smart grids. In [4], Traunmuller and Steinmaurer studied different techniques used to forecast solar irradiance and weather conditions and compared the achieved re-sults. They also demonstrated the implementation of solar irradiance and weather condition forecasting into controlling the heating and cooling systems of an office building and its energy efficiency

[5] presented a statistical method for PV power forecasting using artificial intelligence. The forecast horizon for the proposed method is 24 hour ahead, which is suitable for grid operators and PV plant operators trading in electricity markets. [6] presented a short-term solar irradiance forecasting model using artificial neural networks implementing statistical feature parameters. The proposed model is of great importance for grid tied PV plant operators to achieve optimum operation and power forecasting. In [7], the authors presented a novel short-term forecasting model based on a combined ensemble empirical mode decomposition and support vector machines, to achieve accurate hourly PV power forecasting for one day ahead. The proposed model is oriented toward integrating large-scale PV plants into power systems with economic dispatch. In [7] and [8], the authors presented a pair of articles as a benchmark of statistical regression methods used for short-term forecasting of PV plant's energy yield. The main objective of these two articles is to build a

Performance evaluation of multi-level inverters powered by PV

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Abstract
This article manages the PV based DC/DC support chopper incorporated nine level inverter. This geography requires 7 switches in least to get a nine level ventured wave yield. So the primary goal of this paper is to build up a 9 level AC yield utilizing PV based DC/DC help chopper. On account of regular staggered inverter, 16 switches were used and the quantity of sources required was additionally more. Here the proposed framework involves single PV board and the switches utilized are likewise less. Additionally PV is coordinated with DC/DC help chopper is utilized to expand the source input level of the inverter. Utilizing MATLAB stage, the proposed framework is reenacted with a resistive and inductive burden. The comparative outcomes are acquired in model which approves the planned converter.

Keywords: : Boost chopper Multilevel inverters Sinusoidal PWM Solar PV system

1. Introduction
The Multi-level inverters (MLIs) were highly used in many recent applications because of its nature of high voltage handling capacity. It can able to deliver multi-level output with least composition on exchanging appliances. In contrast to the conventional single level inverter, the multilevel inverter becomes the score seeding to multi switching. MLI has the capability of producing typical output voltage levels by interchanging the inverter groups. In the case of MLI, as the level of voltage increases, the output delivered by the converter will also have moderately diminished output waveform. In general, H type connected MLIs have been utilized in many applications as discussed in [1]. The purpose and special implementation of the MLIs are examined by the re-enactment after-effects of a existing stage nine leveled symmetric as well as seventeen level asymmetric MLI and testing out comes of a nine-altitude and seventeen stages MLI. Eventually the suggested topology evokes reduction of establishment region and expenses and has efforts of control strategy is discussed in [2].This design may be developed to have lesser number of electronic devices such as switches, power devices thyristor families, DC energy sources, driver circuit etc. Also it can be utilized to yield a better quantity of energy stages [3].Suggested SOP technique licensed MLI can perform like conventional inverter with moderate change in recurrence constrained to assessed key recurrence without trading off on consonant twisting were elaborated in [4].Reference [5] elaborates the total harmonic distortions (THD) of a stepped level output of a single state MLI. A 15 – Level MLI was investigated by [6]. It describes how the voltage control of the output occurs and its operation. An high frequency source based MLI is designed in [7]. The design and its operation of HFAC and PDS were well explained by the authors. Each module is composed of H bridge and semi extended bridge and two different DC equivalent source [8]. [9]. The 3 stage 7 – Level H bridge MLI is developed and presented in [10].

2.SINUSOIDAL PUSE WIDH MODULATION
Figure 1 depicts the sinusoidal pulse width modulation (Sinusoidal – PWM) output taking amplitude along Y axis and time period along X axis. It has two signals namely carrier signal and reference signal. Those two signals were compared to obtain the PWM output waveform. Sinusoidal waveform is considered as reference signal and triangular wave is considered as carrier signal. The obtained sinusoidal – PWM is utilized for the triggering of power switches in 9 level MLI. Since sinusoidal – PWM is used in this work, the resonance of inverter found to be reduced when compared with the conventional

Literature Review Employee Engagement in Progress

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Abstract

Though frameworks for understanding engagement vary, the concept is commonly understood to capture levels of commitment and discretionary effort exhibited by employees.

In a world that is changing both in terms of the global nature of work and the diversity of the workforce, engaged employees may be a key to competitive advantage. To improve employee engagement and to give full play to the employee potential ability is a magic weapon to obtain success.

Employee engagement is a relatively new but extremely popular concept in the field of Human Resource Development. It has been discussed by many of HRD practitioners lately because it is believed to have positive impacts toward performance, work attitude and work behavior.

It has become a topic of immense interest in the organizational literature in recent years and has also been acknowledged as a vital factor contributing to organizational success and could have positive implications in all aspects of any business. It combines elements of belonging, commitment, motivation, readiness and productivity. We theorize that engagement, conceptualized as the investment of an individual's complete self into a role, provides a more comprehensive explanation of relationships with performance than do well-known concepts that reflect narrower aspects of the individual's self.

Employee engagement is a strategic approach for driving improvement and encouraging organizational change. Organizations have the potential to gain considerable benefits from incorporating engagement into their culture. Engaged employees contribute to the foundation line of any business and their engagement is echoed in their services to clients and customers.

This paper makes an attempt to study the different theoretical dimensions of employee engagement with the help of review of literature. This can be used to provide an overview and references on some of the conceptual and practical work undertaken in the area of the employee engagement. Through this paper, we also aim to provide a comprehensive account of how employee engagement needs to be integrated within the HRM fabric of an organization if engagement is to yield sustainable competitive advantage.

1. Introduction

Employee engagement is a concept that has become increasingly mainstreamed into management thought over the last decade. It has been the focus of growing interest in recent years as research in positive organizational phenomena has expanded. Employee engagement is a positive, enthusiastic, and affective connection with work that motivates an employee to invest in getting the job done, not just "well" but "with excellence" because the work energizes the person. It is generally seen as an internal state of being physical, mental and emotional that brings together earlier concepts of work effort, organizational commitment, job satisfaction and 'flow' (or optimal experience). Typical phrases used in employee engagement writing include discretionary effort, going the extra mile, feeling valued and passion for work. Employees are considered to be engaged, when there is an optimistic attitude towards the work and also a higher degree of commitment. An organization can acquire most of assets similar to its competitor but cannot copy the skill and talent of the human resources of the competitor. Employee Engagement is an important area that an organization should concentrate to be productive and to get effective, loyal,

PONGAMIA, JATROPHA, AND NEEM METHYL ESTERS AS BIODIESEL IN A C.I ENGINE: PERFORMANCE AND EMISSION ANALYSIS

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In the present investigation, experimental work has been carried out to analyze the emission and performance characteristics of a single cylinder 3.7 kW, compression ignition engine fuelled with mineral diesel and biodiesel blends at an injection pressure of 200 bar. Methyl ester of Pongamia (PME), Jatropha (JME) and Neem (NME) were derived through transesterification process. Experimental investigations have been carried out to examine Properties, Performance and Emissions of different blends (B10, B20, B40 and B100) of PME, JME and NME in comparison to diesel. Results indicated that B20 have closer performance to diesel and B100 had lower brake thermal efficiency mainly due to its high viscosity compared to diesel. However, its diesel blends showed reasonable efficiencies, lower smoke, CO, HC and higher NOx emissions. Pongamia methyl ester gave better performance compared to Jatropha and Neem methyl esters.

Keywords: Non edible oils, Biodiesel, Transesterification, Methyl esters, Pongamia , Jatropha, Neem

INTRODUCTION

The ever increasing number of automobiles has lead to increase in demand of fossil fuels (petroleum). The increasing cost of petroleum is another concern for developing countries as it will increase their import bill. The world is also presently confronted with the twin crisis of fossil fuel depletion and environmental degradation. Fossil fuels have limited life and the ever increasing cost of these fuels has led to the search of alternative renewable fuels for ensuring energy security and environmental Protection. Fuels derived from renewable biological resources for use in diesel engines are known as biodiesel. Biodiesel is environmentally friendly liquid fuel similar to petro-diesel in combustion properties. Increasing environmental concern, diminishing petroleum reserves and agriculture based economy of our country are the driving forces

HR's Role in India's Retail Sector

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Abstract

Consistently changing nature of retail market has made accessibility of ability unavoidable for presence. HR is acquiring significance in the worth chain and turning into a deliberately significant for the Industry. Today retail area requests recruiting gifted ability, holding basic ability and connecting with and rousing representatives which were generally seen as a help capacities in retail however today has become a flat out need.

1. Introduction

India is witnessing a boom in retail industry over the past few years due to changing life style, rising consumerism, enhanced buying power of the middle class, relaxation of FDI in retail sector and government encouragement for local retailers. The pattern of retailing has changed tremendously during last six to seven years which can be called as short period. The industry is expected to rise 12% p.a. and will generate about 2 million jobs in the next 5/6 years. However the industry has no planned setup to check with. So the industry is evolving with experimentation, risk-taking and trial-and-error methods. The industry requires huge supply of qualified, future-ready talent which can sustain high performance and retain key talent. The industry is battling with economic challenges as well as talent shortages.

2 KEY FEATURES OF INDIAN RETAIL INDUSTRY

- Government's FDI policy changes, likely entry of major global players like Walmart

- Expansion of markets beyond metros and Tier 1 cities, huge potential in rural areas

- Growing popularity of modern retail formats

- Thrust on profitable growth with improved manpower and cost optimization

- Greater use of technology

- Efficient supply chain management

- Effective store management and improving availability

- High attrition rates and low employee commitment

HR in Retail

The constant changes in Indian retail sector have also changed the functioning of HR department. Earlier HR was seen in a supplementary role primarily functioned for recruiting and managing present employees, making sure there are people to perform functions required for running the organization. Hiring people was the key performance indicator of HR since attrition is very high in this sector. As retail is one of the fast growing sectors in India, the key business focus was also on expansion, thus, having HR focus on recruiting and getting people on the floor on time. However dynamic business environment and evolving HR functions has made HR business partner. Some retailers, evaluate the performance of HR annually based on key business focus areas. The work of HR is
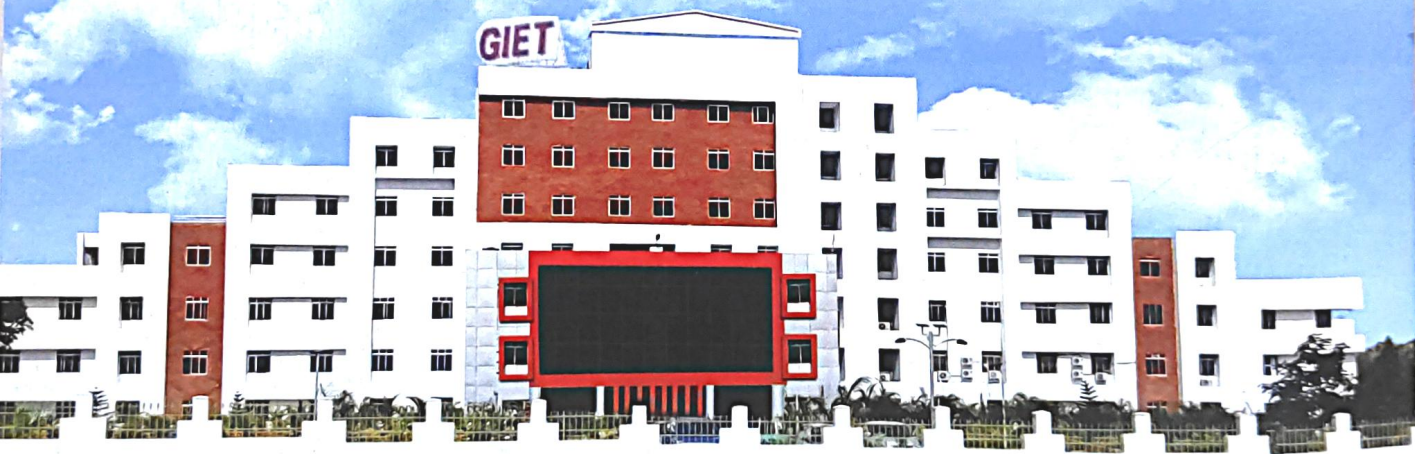
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