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Departments of **Mechanical, Civil and Electrical Engineering** presents **Online International Conference on**

"Recent advances in Mechanical, Civil and Electrical Engineering" on 19th & 20th June 2020



(ICRAMCE-20) **PROCEEDINGS**

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Departments of Mechanical, Civil & Electrical Engineering

Online International Conference on “Recent Advances in Mechanical Civil & Electrical Engineering” on 19th & 20th June 2020
(ICRAMCE – 2020)

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&

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Sri. M. LAXMAN REDDY
CHAIRMAN



MESSAGE

I am extremely pleased to know that the Departments of Mechanical, Civil and Electrical Engineering of SMEC is organizing Online International Conference on “**Recent Advances in Mechanical, Civil & Electrical Engineering (ICRAMCE-2020)**” on 19th and 20th of June 2020. I understand that large number of researchers has submitted their research papers for presentation in the conference and also for publication. The response to this conference from all over India and Foreign countries is most encouraging. I am sure all the participants will be benefitted by their interaction with their fellow researchers and engineers which will help for their research work and subsequently to the society at large.

I wish the conference meets its objective and confident that it will be a grand success.

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M. Laxman Reddy

M.LAXMAN REDDY
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Sri. G. CHANDRA SEKHAR YADAV
EXECUTIVE DIRECTOR



MESSAGE

I am pleased to state that the Departments of Mechanical, Civil and Electrical Engineering of SMEC is organizing a prestigious Online International Conference on "**Recent Advances in Mechanical, Civil & Electrical Engineering (ICRAMCE-2020)**" on 19th and 20th of June 2020. For strengthening the "MAKE IN INDIA" concept many innovations need to be translated into workable product. Concept to commissioning is a long route. The academicians can play a major role in bringing out new products through innovations.

I am delighted to know that there are large number of researchers have submitted the papers on Mechanical, Civil and Electrical Engineering. I wish all the best to the participants of the conference additional insight to their subjects of interest.

I wish the organizers of the conference to have great success.

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G. CHANDRA SEKHAR YADAV
Executive Director



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Dr.P. SANTOSH KUMAR PATRA
PRINCIPAL



I am delighted to be the Patron & Program Chair for the **first Online International Conference on "Recent Advances in Mechanical, Civil & Electrical Engineering (ICRAMCE-2020)"**, organized by the Departments of Mechanical, Civil and Electrical Engineering, on 19th and 20th of June 2020. I have strong desire that the conference to unfold new domains of research among the Mechanical, Civil and Electrical Engineering fraternity and will boost the knowledge level of many participating budding scholars throughout the world by opening a plethora of future developments in the field of Mechanical, Civil and Electrical Engineering.

The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas, to establish research relations and to find many more global partners for future collaboration. About 225 research papers have been submitted to this conference, this itself is a great achievement and I wish the conference a grand success.

I appreciate the faculties, coordinators and Department Heads of Mechanical, Civil and Electrical Engineering for their continuous untiring contribution in making the conference a reality.

(Dr.P. Santosh Kumar Patra)
Principal



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CONVENERS

The world is always poised to move towards new and progressive engineering solutions that results in cleaner, safer and sustainable products for the use of mankind. India too is emerging as a big production center for world class quality. Mechanical, Civil and Electrical Engineering play a vital role in this endeavor.

The aim of the online International Conference on "**Recent Advances in Mechanical, Civil & Electrical Engineering (ICRAMCE-2020)**" being conducted by the Departments of Mechanical, Civil and Electrical Engineering of SMEC, is to create a platform for academicians and researchers to exchange their innovative ideas and interact with researchers of the same field of interest. This will enable to accelerate the work to progress faster to achieve the individuals end goals, which will ultimately benefit the larger society of India.

We, the organizers of the conference are glad to note that 225 papers have been received for presentation during the online conference. After scrutiny by specialist 112 papers have been selected, and the authors have been informed to be there at the online platform for presentations. Steps have been to publish these papers with ISBN number in the Conference Proceedings and all the selected papers will be published in Scopus / UGC recognized reputed journals.

The editorial Committee and the organizers express their sincere to all authors who have shown interest and contributed their knowledge in the form of technical papers. We are delighted and happy to state that the conference is moving towards a grand success with the untiring effort of the faculties of Mechanical, Civil and Electrical Engineering of SMEC and with the blessing of the Principal and Management of SMEC.

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DETERIORATION OF CONCENTRATED BIOGENIC COMPOUNDS BY THE OPERATION OF A SINGLE TANK WASTEWATER TREATMENT PLANT

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Abstract:

Indecisive processes have been involved in wastewater treatment plant, which have to a certain extent hard to estimate. Appropriate model is quit required to operate of waste water for smooth and efficient process. There are distinct models developed to treat wastewater therefore. This research has been proposed a single tank domestic wastewater treatment plant it includes different stages of screening, sedimentation, oil trap, filtration, aeration, and disinfection treatment processes for consumption. Removal of waste water pollutants flows into artificial aquatic plant and re use of water for sake of environment. Analyzed water quality parameters before inlet and after outlet such as turbidity, TDS, TSS, BOD, COD, iron and total hardness the results are stated that, before treated samples values are 52 ntu, 768 ppm, 1600 ppm, 25 ppm, 38 ppm, 108 ppm, and 1000 ppm respectively. After treated values are 2 ntu, 114 ppm, 428 ppm, 1.5 ppm, 4 ppm, 0.33 ppm, 150 ppm. We used for filtration of waste water geotextile screens and filters like charcoal, brick and sand. In this process we concluded that, for filtration process it will take time but good results can be obtained. Removing water element characterizes BOD, COD, and Total Hardness in wastewater treatment plant with respectively 92%, 89%, and 85%. Total thick of screen is 0.88 m, Aeration tank rate flow is 0.075 m³/sec at aeration period 0.373 seconds Efficiency of sedimentation tank $\eta = 96\%$. Treatment plant consist parameter such as dimensions, shape, and filters and treat of wastewater is easy way. These systems are proved to be efficient for domestic wastewater treatment.

HYDROCHLORIC ACID ATTACK ON M30 GRADE SELF COMPACTING CONCRETE USING RHA AND SCBA

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Abstract:

The self compacting concrete also known as self consolidation concrete is in a position through go with the running and consolider below it as personal mass again its totally re-aerated tank definitely whilst jumping to the uniform layers. It is made of self compacting concrete in particular really helpful at any place putting it totally changed, like in very high building concrete contributors and it complex formed in the duration time. Self compacting concrete goals of concrete lookup is blended effects of rice powder materials and sugar powder materials included to the self compacting concrete in uniformly through make bigger the electricity again one higher stronger two combination again white powder material moisture.

The houses of SCC have been studied in many researches due to its importance and conceivable to treatment the problems of concrete mix. Rice powder materials and sugar powder materials was once start to change cement in stepped attention of 0%, 5%, 10%, 15%,20% and used to reap attribute compressive energy of M30 grade concrete combine and cured every day water and Hydrochloric acid acid answer (HCL) in for extraordinary a lengthy time (7 days and 28 days) have been determined. Hydrochloric acid used for the curing of everyday water in the attention of 1%, 3%, 5%. This lookup is aimed to look at the degradation of self-compacting concrete (SCC) due to hydrochloric acid assault particularly based totally on measurement of compressive energy loss. The outcomes of excessive extent RHA and SCBA at 0% to 20% cement substitute degrees on the extent of degradation to hydrochloric acid will be assessed in this study. Different types of combination materials to the various moisture powder combinations, substitute percentage, extent off notable moisture stronger and offers resistance to bettering purpose, have been equipped again treated. Once take a appear at consequences to the conformed traits of self compacting concrete such as compaction running and T50cm, V- shaped instrument, U-shaped instrument, T5 minutes and L-Box are presented.

LOAD SHEDDING BASED ON VOLTAGE SENSITIVITY AND FREQUENCY SENSITIVITY

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Abstract:

The Load shedding is one of the most important protection measures as it is the last chance to prevent collapse of power system after a serious disturbance. Large power system disturbances sometimes leads the interconnected system to become separated into islanded system having an excess of load, which overloads the generating units and resulting in voltage and frequency to drop. To restore the stability of the system, load shedding relays are placed to remove some amount of load so as to maintain balance between generation and demand. In this paper, an effective algorithm has been proposed by the taking voltage and frequency variations, after the occurrence of disturbance, into account. The proposed algorithm suggests the optimum amount of load to be shed as well as the location of the load to be shed to reinstate the stable condition. The efficacy of the algorithm is verified by applying the method on IEEE 14 bus system by considering the loss of generation as disturbance.



UGC AUTONOMOUS

COTTON SEED OIL: A FEASIBLE OIL SOURCE FOR BIODIESEL PRODUCTION

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Abstract:

Biodiesel is a domestically produced, renewable fuel that can be manufactured from vegetable oils, animal fats or recycled Restaurant grease, cotton seed oil for use in diesel vehicles. Biodiesel is typically made by chemically reacting lipids with an alcohol producing fatty acid esters. Biodiesel is a drop-in bio fuel and thus meant to be unused in standard diesel engines. The use of biodiesel is rapidly expanding around the world, making it imperative to fully understand the impacts of biodiesel on the diesel engine combustion process and pollutant formation. Cottonseed oil can be transesterified to convert into biodiesel. Effect of this bio-diesel on engine parameters namely, fuel consumption, thermal efficiency will be analyzed.



UGC AUTONOMOUS

EXPERIMENTAL STUDY ON REPLACEMENT OF FINE AGGREGATE WITH COPPER SLAG AND STONE DUST IN CONCRETE

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Abstract:

In present arena, speedy urban development has created an immense demand for river sand that makes it much expensive. Different suitable materials were introduced in all forms of construction to lower the pressure on natural materials, which will stabilize the financial purpose of the project and also balance the surrounding environment. The over-exploitation of the natural resources for the construction has a negative impact on the environment. Thereof making construction unsustainable. Utilization of industrial I waste in construction is gaining force, not only due to availability of the good quality natural raw material but also due to the great potential of various industrial by-products to be a valuable resource. The present experimental study is conducted to explore the feasibility of copper slag as river sand in mortar mixes. Copper Slag is a by-product of copper which is produced during smelting of copper used as a substitute to river sand. Which is also recommended by IS: 383-2016. The specific gravity of copper slag is high. The present experiment is carried out for M40 design mix by replacing river sand with copper slag partially in proportion of 50% replacement. Compressive strength, split tensile strength and flexural strength at the ages for 7,28 days for various combinations of Copper Slag and Stone Dust were investigated.

UGC AUTONOMOUS

DESIGN THINKING FOR INNOVATION: SOLUTIONS FOR SOCIAL DISTANCING

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Abstract:

Social Distancing is a buzz word after Covid-19. Due to pandemic disease every person must maintain social distance of 3 metres to prevent the spread of the disease. The problem is how to maintain a social distance of 3 metres in an industry, or in a hotel or in a public transport place or a School or College. There is no vaccine as of now and we must protect ourselves in public places to mitigate the risk of this disease. We cannot stop our daily activity after exit plan of lock down. There should be some solution to mitigate the risk of Covid-19 in our daily life. This gives us an opportunity to think in a Innovate way to design the workstations in Hotels, Industries, Colleges, Public transport transit points. This paper highlights the design thinking of Innovation for social distancing solutions in various industries are discussed.



UGC AUTONOMOUS

FUZZY VELOCITY CONTROL OF SRM DRIVE FOR INTEGRATED PV ELECTRIC VEHICLE SYSTEM

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Abstract:

This paper presents the use of fuzzy logic control (FLC) for switched reluctance motor (SRM) speed. Switched Reluctance Motors (SRM) has a wide range of industrial applications because of their advantages over conventional AC/DC Drives. This is due to simple construction, ruggedness and inexpensive manufacturing potential. Various methods have used and applied to control SRM speed generally, the PV-fed EV has a similar structure to the hybrid electrical vehicle, whose internal combustion engine (ICE) is replaced by the PV panel. The PV has different characteristics to ICEs, the maximum power point tracking (MPPT) and solar energy utilization are the unique factors for the PV-fed EVs. In order to achieve low cost and flexible energy flow modes, a low cost tri-port converter is proposed in this paper to coordinate the PV panel, SRM and battery. The FLC performs a PI-like control strategy, giving the current reference variation based on speed error and its change. The performance of the drive system was evaluated through MATLAB/SIMULINK software.



UGC AUTONOMOUS

WIRELESS POWER CHARGING OF ELECTRIC VEHICLE

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Abstract:

This paper relies on summary through current wireless power transfer (WPT) technologies for the implementation of electric vehicles (EV) by wireless charging. The elementary principles of every technology are begin. In this course of classification, the benefits and limitations of every technology for EV charging are raised. Supporting technologies like coupled magnetic resonance and magnetic gear technologies are consistently taken. The latest designation, most important technical problems, challenges and state-of-art researches are carried out. The implementation trends are been given.



EXPERIMENTAL INVESTIGATION OF CERAMIC COATING ON PISTON CROWN

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Abstract:

Material qualities of the cylinder can be enhanced through ceramic coated piston to improve the proficiency. The reason for the experimenting this work is to examine the tribological impacts of surface covering for a cylinder in frictional mechanism. Surface of a cylinder in a diesel engine is to be covered with Zirconia material by the plasma-spray method, and its surface conduct is along these lines examined so better thermal efficiency is obtained. Design and Analysis of the piston is made utilizing advanced cad software. A test work is conducted to examine the changes in engine attributes with the impact of practically reviewed coated material. The thermal productivity and efficient was compared between the uncoated cylinder and the cylinder covered with Zirconia. The outcomes acquired shows that zirconia coated cylinders gives better efficiency.



UGC AUTONOMOUS

CFD ANALYSIS ON CARBON FIBER MATERIAL DRILLED BY AWJM

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Abstract:

Abrasive Water Jet (AWJ) machining is an emerging technology for material processing with the distinct advantages the absence of no thermal distortion, high machining versatility, high flexibility and small cutting forces. Moreover, the need of advanced machining technique like AWJM is inevitable to produce complex components in the field of automobile, aerospace, marine, chemical and power plant industries. Several components have been produced using FRPCs with many intrinsic features for many applications.

Computational fluid dynamics (CFD) Models for ultra high velocity by abrasive water jet machine. The present experimental study is about drilling of carbon fiber at different stand of distance as input parameter. The abrasive water jet machine is a non-conventional machining process in which abrasive and water are mixed required ratio to impinge on the work material at high velocity. CFD analysis is a branch of fluid mechanics that uses of numerical analysis and data structure and analyze and solve problem that involve fluid flows. Here we are finding the difference between the CFD analysis and practical



UGC AUTONOMOUS

AN EXPERIMENTAL STUDY ON HIGH PERFORMANCE CONCRETE USING MINERAL ADMIXTURES

Gayathri Komati¹, Srivinay Chowdari Dasari²

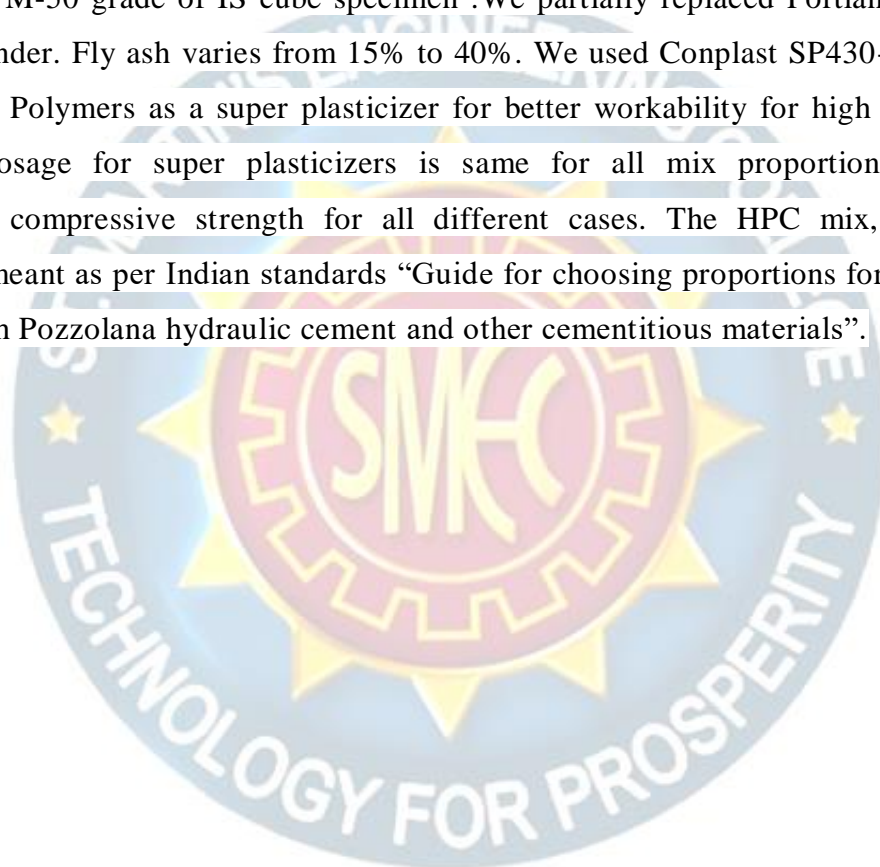
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²Structural Designer Cv Designer India Pvt Ltd, Hyderabad- 5000070, Telangana, India

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Abstract:

This paper presents study the effect of performance of HPC using mineral admixture i.e. fly ash with M-50 grade of IS cube specimen .We partially replaced Portland cement by weight of binder. Fly ash varies from 15% to 40%. We used Conplast SP430-Sulphonated Naphthalene Polymers as a super plasticizer for better workability for high performance concrete. Dosage for super plasticizers is same for all mix proportions. We have investigated compressive strength for all different cases. The HPC mix, grade M50 concrete is meant as per Indian standards “Guide for choosing proportions for top strength concrete with Pozzolana hydraulic cement and other cementitious materials”.



GEOPOLYMER BRICK

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Abstract:

The objective of this experiment study is to construct an energy saving building material which is economically good and eco-friendly. The fly ash which is a coal combustion product, is made of fine particles of burnt fuels and fuel gas emitted from coal. This brick is prepared using waste reusable materials such as fly ash, GGBS which is iron waste and waste brick powder. Clay as main ingredient and addition of chemical solution along with the above materials gives geopolymer nature to the prepared new brick. The brick has less weight compared to the standard brick as the brick is made of using waste reusable materials such as fly ash, GGBS, waste brick powder and chemical solution mix of sodium silicate and sodium hydroxide in a fixed ratio. The brick is cured in an oven in order to avoid the pollution created by burning of brick at a brick kiln. The compressive strength and water absorption tests are conducted and results are obtained. The best Geopolymer brick sample is obtained by adding clay and fly ash in the ratio 2:1 and chemical solution ($\text{Na}_2\text{SiO}_3 + \text{NaOH}$) with a ratio to clay as 0.27. For a sample of brick GGBS is taken 0.25 times of fly ash and waste brick power is approximately taken as 0.1kg. The results of experiment are compared with the standard brick.

UGC AUTONOMOUS

ENHANCED POWER FACTOR CORRECTION BASED ZETA CONVERTER WITH DISCONTINUOUS CURRENT MODE FED BLDC DRIVE

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Abstract:

This paper proposes a zeta converter with brushless dc drive with improved power factor and energy quality. Zeta converter is intended to work in discontinuous current mode to confer a necessary power factor correction at ac supply mains. Proposed solar photovoltaic array consisting zeta converter encourages the operation of voltage source inverter at foremost recurrence exchanging by utilizing the electronic replacement of the BLDC drive with reduced switching losses. The proposed topology increases the performance and efficiency of the system. The implementation of the proposed drive is evaluated over a wide-range of speed control and conflicting supply voltages with superior power quality. The proposed concept is implemented and simulated using MATLAB and Simulation Platform and the results are evaluated.



UGC AUTONOMOUS

POTENTIAL USE OF NATURAL RED MUD AS PARTIAL REPLACEMENT WITH CEMENT USING SCC

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^{1,2,3,4,5}

Assistant Professor, Department of Civil Engineering, St. Martin's Engineering College, Dhullapally

ABSTRACT-

The Bayer's Process for the production of alumina from Bauxite ore is characterized by low energy efficiency and it results in the production of significant amounts of dust like high alkalinity bauxite residues known as red mud. Disposal of large quantities of red mud; a solid-waste generated at the Aluminum plants all over the world possess an increasing problem of storage, land cost & availability and pollution. Nowadays, the wastes are not having any industrial applications, so it can be innovatively using these wastes as a raw material in the civil engineering field. Availability of raw material required for manufacturing of cement and production of concrete are limited in nature. So as to overcome this problem it is very much essential to utilize the industrial waste materials and by-products generated in manufacturing of cement and in concrete construction. An experiment was carried out by partially replacing the cement with red mud as a trial and error procedure based on EFNARC guidelines using self-compacting concrete. The different percentages added as 10%, 20%, and 30% after the properties of red mud was studied and tested. The strength was calculated by various laboratory tests by preparing different moulds such as cubes, cylinders, prisms and the compressive strength test, splitting tensile test, flexural strength test are conducted for both fly ash and red mud and the results are tabulated.

UGC AUTONOMOUS

SMART WHEELCHAIR WITH TEMPERATURE DETECTION

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Abstract:

In recent days persons with motor disability and venerablemankind using motility dependable devices such as wheelchair are increasing. Many physically handicapped people are impotent to operate anelectrically energized wheelchair easily without making injuries to others. Also in the presently existing devices there is no provision to measure the body temperature of the person who is using the wheelchair, which is highly inevitable in this pandemic situation. This paper presents about hardware modelling of an Automated smart wheelchair with different control strategies and Temperature sensing. A prototype model of proposed system has been developed based on conventional wheelchair available in market. This model integrateda configured Electronic System, Obstacle motion control by Joystick. Experiments have been conducted on the developed automated smart wheelchair for testing its proper functionality.



UGC AUTONOMOUS

INVIGILATION ROBOT

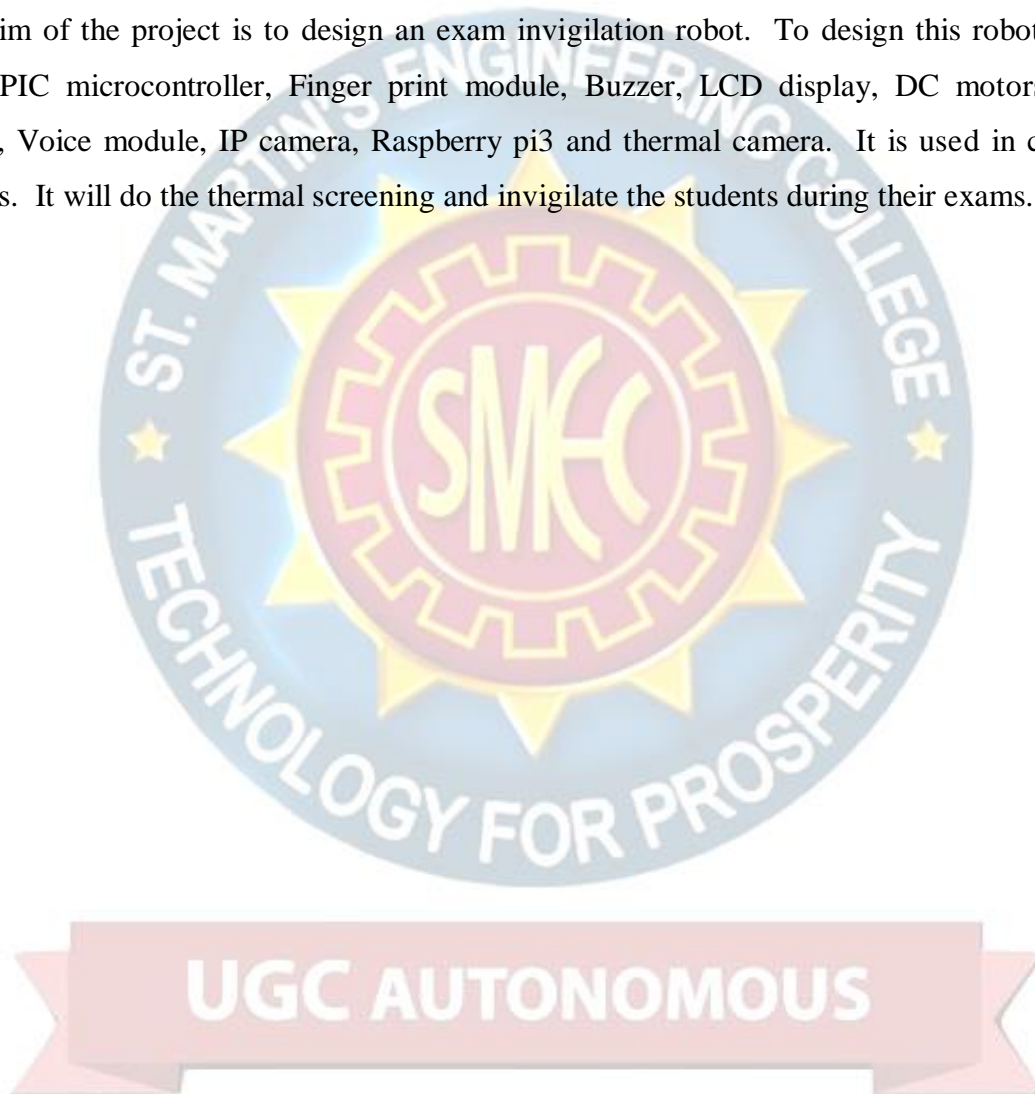
G.Sai Kumar¹, K.Satish², A.Deepak³, A.Sirisha⁴, B.Manohar⁵, CH.Manohar⁶, E. Surya
Narayana⁷, P.Mahendra⁸, D.V.Srikanth⁹,

¹²³⁴⁵⁶⁷⁸ B.Tech Student, Mechanical Engineering, St.Martin's Engineering College,
Secunderabad, Telangana

⁹Professor and Head of the Department, Mechanical Engineering, St.Martin's Engineering
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Abstract:

The aim of the project is to design an exam invigilation robot. To design this robot we are using PIC microcontroller, Finger print module, Buzzer, LCD display, DC motors, SR04 sensor, Voice module, IP camera, Raspberry pi3 and thermal camera. It is used in colleges/schools. It will do the thermal screening and invigilate the students during their exams.



EMISSIONS IN IC ENGINE USING ALGAE BIODIESEL

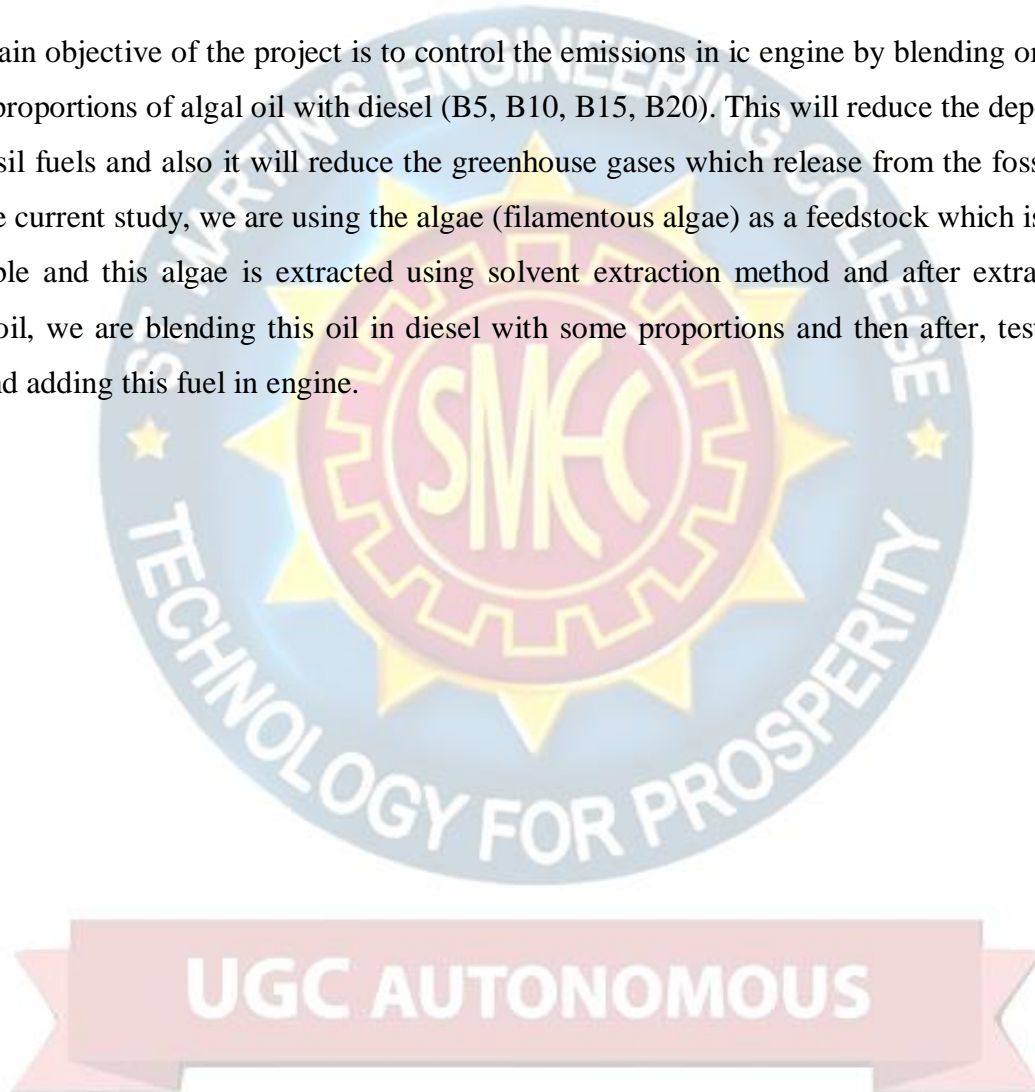
G. Shiva Kumar¹, M. Sainath², G. Laxman Goud³

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ABSTRACT:

The main objective of the project is to control the emissions in ic engine by blending or mixing some proportions of algal oil with diesel (B5, B10, B15, B20). This will reduce the dependence on fossil fuels and also it will reduce the greenhouse gases which release from the fossil fuels. For the current study, we are using the algae (filamentous algae) as a feedstock which is locally available and this algae is extracted using solvent extraction method and after extraction of algae oil, we are blending this oil in diesel with some proportions and then after, testing this fuel and adding this fuel in engine.



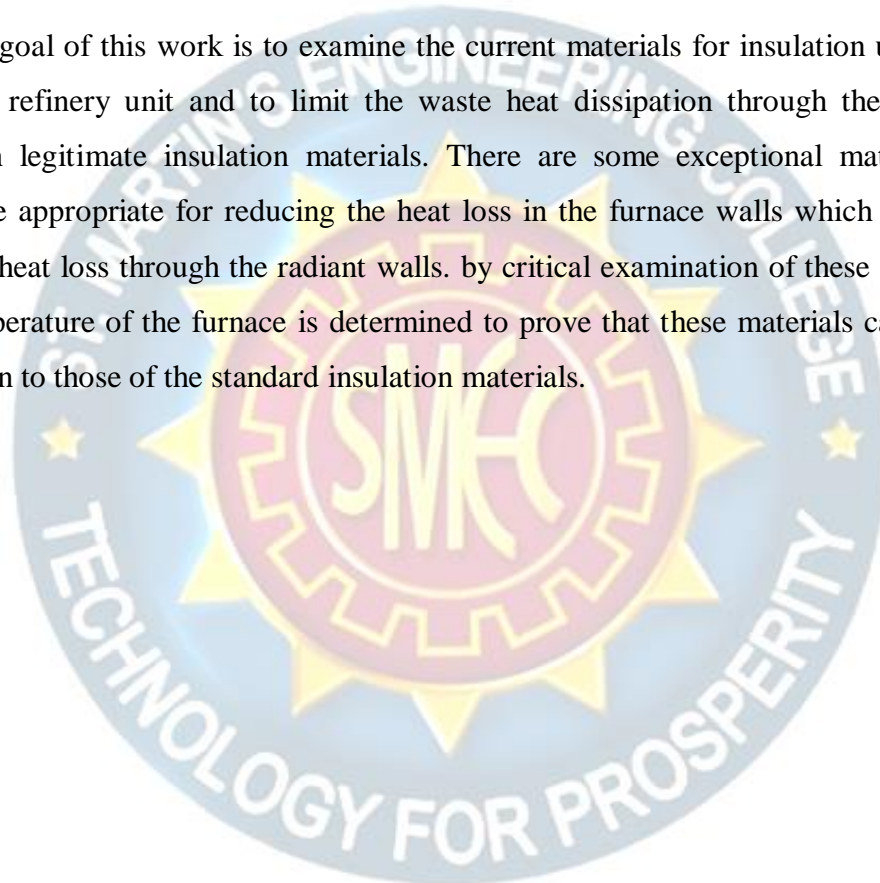
INVESTIGATION ON LESSENING OF HEAT TRANSFER IN A FURNACE

Gunasekaran. N¹, Shanmugaraja. M², Bharathwaaj R³, Shilpha Dharshini. J⁴, Vivishnu Kumar.
M⁵ Yogesh Kumar. P S⁶

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Abstract:

The primary goal of this work is to examine the current materials for insulation utilized in the furnace of a refinery unit and to limit the waste heat dissipation through the radiant wall subbing with legitimate insulation materials. There are some exceptional materials whose properties are appropriate for reducing the heat loss in the furnace walls which could clearly decrease the heat loss through the radiant walls. by critical examination of these materials, the external temperature of the furnace is determined to prove that these materials can be utilized as substitution to those of the standard insulation materials.



AN EXPERIMENTAL ANALYSIS ON SELF COMPACTION CONCRETE USING NANO SILICA

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rajeshce@smec.ac.in¹, Bhanuprasadce@smec.ac.in², ramarangulabhi123@gmail.com³,
roshithadhondi6@gmail.com⁴, vamshipatel61@gmail.com⁵

Abstract:

Now a days Self-Compacting Concrete is the most common used concrete for construction now a day, Preparation of Self Compacting Concrete by addition of SP gives good results. Self-Compacting Concrete helps in reduction of man work at site. The void space in the concrete will not be reduced by using the SCC. For this purpose, partial replacement of Cement by NS Powder into the SCC helps in reducing the Void Space and concrete density will be increase. So, by the increase in concrete density and Strength of the concrete will also increases. The present work deals with additions of nano-silica powder to Cement as a partial replacement to Cementous material as dosage by pf 2.5%,3%,3.5% respectively by the gauged cement and based on early research M20 grade concrete has been taken for the present study. Optimum Composition containing of SCC+ nano-silica powder was taken, in which compressive strength were increased to 6% respectively compared to the Nominal concrete. The advance of nano material is clearly seen in the Scanning Electron Microscope images showed in this journal paper. And the analysis has been taken and the presence of nano-silica and with particle shape and size are mentioned, nano-silica Powder is introduced into the concrete improves the interfacial surface transition zone area in between the Cementous material particles. The density of the concrete optimum specimens was decreased by 0.5% relative to the Nominal Concrete. Therefore, Imbedding nano-silica powder to nominal Cement show a significant increase in compressive strength. SEM (scanning Electron Microscope) analysis evidence the direct involvement of nano-silica in the region of specimen.

UGC AUTONOMOUS

A COMPARATIVE STUDY ON DIFFERENT CONTROL TECHNIQUES OF SAPF FOR POWER QUALITY IMPROVEMENT

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Abstract:

The intense of the paper is to present different control strategies applied for Active Power Filter. Conventional techniques have been identified and they have compared with Soft Computing techniques. Basically three soft computing techniques have been identified Fuzzy logic (FL), Artificial Neural Network (ANN), and PI controller (PI). The review has been done for recognizing the components, which can control APF, and three components have been identified Harmonic Detection, Current Control and DC bus voltage. The objective of most papers to use soft computing techniques in Active Power Filter is to increase the efficiency, stability, accuracy, and robustness, tracking ability of the systems. Moreover, minimizing unneeded signal and to reduce total harmonic distortion is the ultimate goal in applying these techniques to the APF. Hysteresis control is used to control the current in PWM inverter. The simulation results reveals that comparative study of all this results shows the advantage and disadvantages of 3 control strategies.



UGC AUTONOMOUS

AN OPTIMAL LOCATION OF D-STATCOM IN A DISTRIBUTION SYSTEM USING VARIOUS TECHNIQUES

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Abstract:

This paper deals with various Techniques used to determine the place of D-STATCOM in a distribution network system at different conditions. Most of the loads in distribution network system are inductive in nature which have lagging power factor which leads to Instability in the voltage, voltage variations, power losses, load variations, poor power factor, security problems which disturbs the overall efficiency and power transfer of the system. Distribution Static Compensator (DSTATCOM) is a D-FACTS device which has been utilized for Reactive power compensation, Minimize the power loss, to improve Voltage profile, Minimize the average voltage total harmonic distortion, Average voltage deviation and Reduction in investment cost. The Optimal Location of D-STATCOM is a challenging task and it plays a crucial role. A suitable place for DSTATCOM is crucially important to ensure sufficient investment for the device in distribution networks that will enhance the Margin for Voltage stability, reduce power loss, reactive power compensation, improve power factor and improve voltage profile. A Lot of Research is going on optimal placement of D-STATCOM in a Radial Distribution network. This review paper gives an idea about the various techniques and it's classification in a distribution network to determine the location of DSTATCOM at different practical conditions.



UGC AUTONOMOUS

A NOVEL METHOD FOR HOME AUTOMATION INTEGRATION WITH SMART GRID

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Abstract:

To meet present day power needs, smart grid plays a significant role. It's a better thanks to transmit and distribute power. In smart grids, there exists a framework for end-to-end ability in home and building space networks. The involvement of smart grid in home and building automation systems has LED to the event of diverse standards for sensible product to manage appliances, lighting, energy management and security. Good grid permits a user to regulate the energy usage consistent with the worth and demand. Within the actual era of good homes and smart grids, advanced technological systems that permit the automation of domestic tasks area unit developing apace. There are a unit varied technologies and applications which will be put in in smart homes nowadays. They permit communication between home appliances and users, and enhance home appliances' automation, observation and remote capabilities. This review, by introducing the thought of the smart home and also the advent of the smart grid, investigates technologies for smart homes. The technical descriptions of the systems area unit given and illustrate benefits and drawbacks of the technology conjointly the role of users have also been mentioned.



UGC AUTONOMOUS

LABORATORY INVESTIGATION ON THE PROPERTIES OF ASPHALT AND MODIFIED ASPHALT MIXTURES

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Abstract:

Asphalt also known as bitumen. It is a clingy, dark, and profoundly thick fluid or semi-strong type of oil. The fundamental utilization of black-top is in street development, where it is utilized as paste or cover blend in with total particles to build Asphalt concrete. Detailed laboratory investigations are carried out by preparing asphalt concrete mixtures by adding PPA with dosage 0.5%,1%,1.5% and 2% by weight of binder, also asphalt concrete mixtures by adding PMB40 with dosages of 10%, 20%, 30%, 40% and 50% by weight of binder. Volumetric properties of the blends are resolved and different quality tests, for example, marshal security are led. On the basis of above tests conclusions are drawn.



UGC AUTONOMOUS

EXPERIMENTAL STUDY OF THE STRENGTH PROPERTIES OF CONCRETE USING SAW DUST ASH AND CORN COB ASH

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Abstract:

The objective of the study is to reduce the agro waste materials in the world and also to minimize the percentage of the cement used in concrete. The agro waste materials used in this project are saw dust ash and corn cob ash. The materials are burny at high temperatures and are made into ashes in order to make the ashes properly mix with the cement and obtain a rich mix of concrete. Chemical compound of saw dust ash and corn cob ash not only enhances the workability but also helps in the increasing of strength properties of the concrete. The percentages of ashes which are partially replaced with the cement are 3,5,7 %.The mix design had been calculated according to IS :10262-2009 .The concrete has been mixed according to the proportions of the mix and specimens are casted and allowed to dry for 24hrs and den curing has been done. Tests for the specimens had been conducted to obtain the experimental results.



UGC AUTONOMOUS

A PAPER ON REPAIR AND REHABILITATION OF THE BUILDING AND THE TECHNIQUES

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Abstract:

A. Repair: The main purpose of repairs is to bring back the architectural shape of the building so that all services start working and the functioning of building is resumed quickly. Repair does not pretend to improve the structural strength of the building and can be very deceptive for meeting the strength requirements. The objective of any repair should be to produce rehabilitation – which means a repair carried out relatively low cost, with a limited and predictable degree of change with time and without premature deterioration and/or distress throughout its intended life and purpose”.

B. Rehabilitation: “Structural rehabilitation involves the upgrading or changing of a building’s foundation in support of changes in the building’s owners, its use, design goals or regulatory requirements. In every case it is determined that it is cheaper to rehabilitate the structure and make the building improvements instead of demolishing and constructing a new building in the allotted space”

C. Retrofitting : “The engineering which involves in modifying the existing buildings for structural behavior without hampering its basic intent of use is termed as retrofitting. It becomes necessary to improve the performance of structures including those facing loss of strength due to deterioration or which have crossed their anticipated lifespan. The realization of retrofitting depends on the authentic cause and measures adopted to prevent its further deterioration. This development includes repair, retrofit, renovation and reconstruction wherever required. A proper load path has to be analyzed by a structural engineer and a decision has to be taken if any additional member like shear walls, etc needs to be added”. “Repair and Rehabilitation is necessary to save hazardous failure of structures due to deterioration. It is recommended for old buildings which have some signs like cracks, corrosion of embedded materials, etc. Therefore timely maintenance of structures is required. The selection of technique is used as per cost, location of site and other factors. Thus for proper maintenance, the techniques likewise Rebound Hammer Testing, Ultrasonic Pulse Velocity Evaluation, etc. are utilized. After analyzing the problem of building, we can apply the appropriate repair methods which are described above i.e. Guniting, Routing and Epoxy Injection”.

INVESTIGATION AND ANALYSIS OF “RCC COLUMNS WITH CFRP COMPOSITES”

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Abstract:

CFRP is preferred to withstand critical cyclic loading and temperature. The scope of the work is specialize in the planning and analysis of first applications of advanced rehabilitation, retrofitting, strengthening and field monitoring technology for structures supported unique combinations of corrosion-resistant fiber-reinforced polymers. Bridge structures are deteriorating at a quick rate, and price for repair and replacement of deficient bridges are continuously rising. The Retrofitting are often used as an economical alternative to the replacement of those structures and is usually the sole feasible solution. Fiber bolstered Polymers (FRP) sheets or plates square measure compatible to the current application owing to their high strength to-weight quantitative relation, sensible fatigue properties, and glorious resistance to corrosion. Furthermore, these materials are promptly accessible during a few structures going from factory made overlays to dry fiber sheets which will be wrapped to regulate to the geometry of a structure before including the polymer pitch.

UGC AUTONOMOUS

BEHAVIOR OF SELF CLEANING OF CONCRETE USING PHOTO CATALYTIC MATERIAL

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Abstract:

Self cleaning concrete is a technique to reduce the air contaminants such as NOX, SO₂, CO₂ and VOC'S from vehicular traffic on streets, any industrial activity and the urban environment. Photo catalytic materials are used in conventional concrete for urban buildings and road pavement store duce air pollution. The photo catalytic material is either titanium dioxide(TiO₂).Titanium dioxide(TiO₂)is addedtoconcreteby0 3, 3.3, 4, 4.5, and 5% of cement by weight. The compressive strength of concrete cubes cured for 28 days were taken. Durability test of self cleaning concrete was tested by using magnesium sulphate (MgSO₄) & sodium chloride (NaCl) solution. Self cleaning property of the photo catalytic concrete is studied by using RhB (Rhodaminedye) discolour at ion under



UGC AUTONOMOUS

STABILITY IMPROVEMENT IN A POWER SYSTEM NETWORK USING SSSC WITH FLC

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Abstract:

In this paper mainly discussing on the application of a Static Synchronous Series Compensator (SSSC) with Fuzzy Logic Controller (FLC) to reducing the damping of low-frequency oscillations in a power system network. The Static Synchronous Series Compensator (SSSC) based controller is mainly used for stabilizing the power system network at abnormal faults conditions. The proposed FLC is an additional controller is used for better stability purpose in power system network which is applying to SSSC and finally observing the performance of two-generators interconnected power system network. The main objective of this controller design is used for enhancing the stability of power system at unbalanced or balanced faults conditions. The system performance is observing by using simulation in MATLAB-SIMULATION software platform.



UGC AUTONOMOUS

ASYMMETRICAL MULTILEVEL INVERTER WITH INCREASED VOLTAGE LEVELS AND FEWER HARMONICS

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ABSTRACT:

This paper proposes a differential multilevel inverter with higher output voltage levels and lesser harmonics. Asymmetrical multilevel inverters with different input voltage ratios using twelve switches increases the more output voltage levels for used for different applications. In this proposed topology twenty three level and twenty seven level asymmetrical multilevel inverters are designed with same twelve switches decreases the circuit complexity, switch count and harmonics but similarly increases the efficiency and power quality of the system . The proposed topology is designed and implemented in simulation platform and the results are evaluated.



UGC AUTONOMOUS

IMPROVING GROUND WATER RECHARGE AND COMPARATIVE STUDY OF COMPRESSIVE STRENGTH OF PERVIOUS CONCRETE USING RECYCLED COARSE AGGREGATES AND PARTIAL REPLACEMENT OF CEMENT BY FLY ASH AND SILICA FUME

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Abstract:

In order to develop smart cities in India, we need to develop smart technologies and smart construction materials. Pervious concrete is an innovative material which is environmental friendly. This paper focuses on the studying of groundwater recharge by using pervious concrete made of recycled coarse aggregate by partial replacement of cement with fly ash and silica fume by its weight, to increase the compressive strength of pervious concrete in order to sustain heavy loads. If the permeable concrete which has a high porosity is used for the construction of pavements, walking tracks, parking lots, well lining, then it can reduce the runoff from the site and help in the groundwater recharge. Such kind of smart materials which play an important role for Indian conditions where government is putting lots of efforts to implement groundwater recharge. This paper also focuses on studying the effect of percentage increase in fly ash and silica fume and their combination on compressive strength characteristics of pervious concrete.



UGC AUTONOMOUS

STUDY OF DIFFERENT BUILDING BEHAVIORS WITH AND WITHOUT LEAD RUBBER BASE ISOLATOR

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Abstract:

Base isolation is one of the most popular means of protecting a structure against earthquake forces. It is a collection of structural elements which should substantially decouple a superstructure from its substructure resting on a shaking ground thus protecting the structural and non-structural elements of the building. The base isolation system has to perform three functions primarily: Horizontal flexibility, energy dissipation, and rigidity against lateral loads. In some cases, the application of base isolation can raise both a structure's seismic performance and its seismic sustainability considerably. Contrary to popular belief base isolation does not make a building earthquake-proof. The behavior of a structure without base isolator and with different lead rubber isolator's properties on a building was studied. The Structures were modeled in software package ETABS, a package based on Finite Element Method, and the results were compared to get a thorough understanding of base isolation.



UGC AUTONOMOUS

ANALYSIS OF SOLAR THERMAL POWER PLANTS WITH THERMAL ENERGY STORAGE AND SOLAR HYBRID OPERATION STRATEGY

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Abstract:

This paper emphasis on the Solar-hybrid power plants for operation in base-load also as mid-load were analysed regarding supply security (due to hybridization with fossil fuel) and low CO₂ emissions (due to integration of thermal energy storage). The facility plants were modelled with different sizes of solar fields and different storage capacities and proposed on an annual basis. The results were compared to every other and to a standard fossil fired combined cycle in terms of technical, economical and ecological figures. The results of this study show that as compared to a standard fossil fired combined cycle the potential to scale back the CO₂ emissions is high for solar thermal power plants operated in base-load, especially with large solar fields and high storage capacities. However, for dispatch able power generation and provide security it's obvious that in any case a particular amount of additional fuel is required. No analysed solar hybrid power station shows at an equivalent time advantages in terms of low CO₂ emissions and low LEC (level zed electricity cost). While power plants with solar-hybrid combined cycle show interesting LEC, the facility plants with turbine (Salt-Tower, Parabolic Trough, CO₂-Tower) have low CO₂ emissions.



UGC AUTONOMOUS

MECHANICAL PROPERTIES OF OPS, PUMICE BASED LIGHTWEIGHT CONCRETE: A COMPARISONAL STUDY

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ABSTRACT:

Oil palm shell (OPS) is a bio solid waste in palm oil industry, Pumice is the naturally occurring stone and both are used as aggregate in concrete mixture. OPS and Pumice has experimented as natural lightweight aggregates in research studies to produce lightweight concrete (LWC). The project study with the special concrete such as light weight concrete by using oil palm shell and Pumice as a replacer to the coarse aggregate individually, light weight concrete having low density, reduction of dead load. The reduction in density produced by using oil palm shell and pumice as a partial replacement of coarse aggregate in concrete. In this investigation M20 grade has used and coarse aggregate was replaced by various percentage of OPS and Pumice respectively i.e. 0%,10%,20%,30%,40%,50%. Then determine the compression, tensile strength of concrete to check the favorable replacement of OPS and pumice concrete. Finally, the results of pumice concrete are compared with results of OPS concrete. Light weight concrete is used for pavement filling and wall panels etc. From the test results, it could be summarized that OPS and pumice content should not exceed 30% of total volume of coarse aggregate.

THE PRELIMINARY SURVEY AND ANALYSIS OF TALVEDA VILLAGE LIFT IRRIGATION USING DEM

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Abstract:

This paper describes the analysis of lift irrigation in Talveda Village, Nizamabad district, Telangana. The lift irrigation main work is to lift the water from low elevation (river) to high elevation (hill). It is combined with water and land elevation, this conservation of water will help for more cultivation of agriculture land and domestic purpose of the study area. Talveda village Watershed model prepared by SAGA software and we calculated the break horse power and discharge of water from the pump. This is a Preliminary survey for lift irrigation project to analyze the elevation, contour, slope, flow direction, watershed basins of the study area with Digital elevation model. Godavari River to talveda village the distance is 8 km, and elevation is 348.6 m or 1143.8 feet, the diameter of the pipe is 914mm, water velocity is 5 fbs and we concluded that discharge 1000 lps of water possible to the occupation of surface water 700ha. We concluded that if the construct of lift irrigation that will help to cultivate 700hectars of land.



UGC AUTONOMOUS

A SEMI AUTOMATED ELECTRIC AGRICULTURAL VEHICLE WITH PLC APPLICATION FOR MODERN FARMING

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ABSTRACT:

Agriculture is the science and art of cultivating plants and livestock. Agriculture is the key development in the rise of sedentary human civilization. Enormous population of India is dependent on agriculture for its livelihood, that's the reason agriculture is known as the backbone of Indian economy. Since, generations the Indian traditional cultivation procedure has been the same. Modern innovations are made into practice to eliminate hard work and turn on smart work. So, is the objective of Electric Agricultural Vehicle to provide the farmers with a complete substitute for the diesel based tractor and sustain various farm practices. The working of agriculture vehicle is by an electric motor powered by a suitable battery set. Our electric agricultural vehicle posses the capability to perform the entire major farm practices such as ploughing, seeding, weeding, fertilizer spraying, watering the crops, etc. It is an electro mechanical vehicle designed to help the farmers with smart machinery, environment friendly farms and accelerate the work for much better crop yield with maximum efficiency. We have used Programmable Logic Circuit (PLC) mechanism for the control of the farm equipments. The use of PLC is done to minimize the efforts of the farmers. Use of this agricultural vehicle will diminish the labour work which previously had to been done manually, now can be easily done with the help this vehicle. We have also carried out the load tests and simulation of operating condition of the motor; so as to ensure the safety of the driver. In short, the agricultural vehicle is a key step towards development of modern day farms; reducing the cost of crop production and uplifting the farmer's produce.

DESIGN AND DEVELOPMENT OF MATERIAL HANDLING EQUIPMENT FOR CORDIERITE SLAB

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ABSTRACT:

The material handling equipment guarantees the convenient conveyance of wanted amount of material at wanted restriction with least expense and greatest security. Due to daily invention of new technologies over material handling equipment are undergoing continuous automation. The problem arises in a system while turning the soft material like cordierite ceramic material before firing in the kilns. During turning the soft materials are undergoing cracks which are mostly cannot be seen by naked eye. The turned product must be carried by a bat for kiln. The product is turned by using a clamping lot up. Two clamps are used to turn the material along with two ratchet belt to hold the product.



EFFECT OF CURING TYPE, AGGREGATE SIZE AND CONDITION ON PROPERTIES OF CONCRETE

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Abstract:

Curing is needed for concrete to gain strength and perform during the service life of the structure. The aggregates size and condition with respect to moisture affect the properties of concrete. In the present study, the findings of an experimental investigation are presented where in the concrete specimens made with different size and condition of aggregates have been subjected to different types of curing. The concrete specimens have been made from different types of cement at different water-cement (w/c) ratios. The types of cement preferred such as OPC and PPC. The w/c ratio 0.45, 0.5, 0.55, and 0.6 are used respectively. The types of curing adopted in this study are (a) normal curing in water for entire period and (b) hot curing in water at temperature of 70 degree Celsius. The coarse aggregate circumstances adopted in this study are as-received and saturated surface dry (SSD). The curing ages taken in this experiment were 28, 90 and 120 days for both normal curing and hot curing followed by normal curing. Slump test was conducted on fresh concrete and Ultrasonic pulse velocity, rebound hammer test, Compression test were on the test specimens. Finally, on the basis of the results obtained, applicable conclusions have been drawn.



UGC AUTONOMOUS

REDUCED SWITCH COUNT TOPOLOGY FOR A SERIES PARALLEL SWITCHED MULTILEVEL INVERTER

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Abstract:

The paper brings out a new three phase series parallel switched cascaded multilevel inverter (SPSWCMLI) with a reduced number of power switches in the path of the current. It allows a series parallel path for the flow of current and engages a change in the modulation index to extract a variable output voltage. The approach pronounces the advantages of a modulation technique for the inverted sine carrier pulse width modulation (ISCPWM) to confirm removal of the higher frequency components of the output voltage. The modulating mechanism also causes the fundamental component of both the output line and the phase voltage to increase significantly. Using comparatively smaller number of carriers in the process of producing the switching pulses helps to increase the range of output voltage. The intriguing merits of the phase disposition (PD) over the other modulation schemes allow for an almost sinusoidal voltage to be reached. The hardware-based investigative analysis aims to verify the simulated findings and highlight the importance of the proposed reduced switch count multilevel inverter (MLI) in terms of lowering the capital cost and enhancement in the quality of the output voltage.



UGC AUTONOMOUS

PERFORMANCE OF CONCRETE BY MODERATELY RESTORING CEMENT AND SAND WITH FLY ASH AND PLASTIC MATERIAL

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Abstract:

Now a days the focus has been kept mainly on the green and sustainable development. Now a day's large amount of fly ash is generated in thermal power plants as a waste material causing improper impact on the environment and humans. Since the fly ash consists of cementitious property, it can be replaced with cement for M25 mix in the percentages of 0%, 5%, 10%, 15%, 20% by weight of cement. Plastics have become integral part of the day today life which has wide range of applications, such as PVC (poly vinyl chloride) bags, PET (polyethylene terephthalate) bottles, injection moulded plastics and many other products. These products which are non-biodegradable products are thrown out which leads to the environmental pollution. So, these plastic products can be utilized in Eco-friendly manner by Pulverizing it and using to make concrete by partial replacement for sand. It was found that on pulverizing the plastic product and performing Sieve analysis test, the grain size analysis was similar to that of the sand of zone 3 as per IS code. The proportion of plastic as partial replacement was taken in the order of 0%, 3%, 6%, 9%, 12% for M25 mix. The laboratory test which needs to be perform on Concrete specimens are Compression strength and Splitting tensile strength test.



UGC AUTONOMOUS

BATCH STUDY ON WASTEWATER TREATMENT USING VETIVER ZIZIONIDE – A NATURAL COAGULANT

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Abstract:

Turbidity can be removed with the support of natural coagulants which are derived from different plant parts. The natural coagulants may be utilized in treatment of wastewater that is in coagulation-flocculation method. These natural materials are generally named as bio-adsorbents which can remove turbidity from any sort of water / wastewater sample. Turbidity is always a problematic parameter in wastewater treatment. Turbidity in reality refers to the cloudiness or muddiness of a solution. It points out the existence of total suspended solids (viz., clay, silt, organic matter) which are very harmful for mankind, biologically as well as chemically. The intentions of this study were to use natural coagulant available in the vicinity (i.e., Vetiver zizionide) as a substitute to the chemical coagulants. In this project two types of samples are collected i.e., domestic wastewater and agriculture wastewater. Impact of variables like pH, adsorbent dose and contact time were determined. Experimental results indicate that, Vetiver root powder shows good bio-adsorbent character. It is one of the medicinal plant root which has the capacity to remove or reduce turbidity and used as a natural adsorbent. These natural adsorbents can be effectively used for reducing turbidity without giving any chemical treatment. The highest turbidity removal efficiency of Vetiver zizionide for domestic wastewater and agriculture wastewater respectively were 91% and 89%. Both isotherm models i.e., Langmuir and Freundlich were used to express the performance of adsorption. The experimental values appropriately suited Freundlich than Langmuir isotherm model.

A NOVEL METHOD TO REDUCE POWER QUALITY ISSUES IN SMART GRIDS

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Abstract:

The integration of power distribution to needed customers and establishing communication between the power grid and customers is called Smart grid. Smart grid provides secure transfer of power supply, reliable and efficient power source. Smart grid is very essential in present days of power transfer as to ensure the customer is more interested in digital control in almost every field as in case of power supply too. Hence, all the customers have interest to know how a smart grid is built and its functions and operations. In this paper, smart grid importance, its architecture, the power quality related problems in smart grids and a method to reduce the power quality issues are discussed. The design of smart grid model is simulated in MATLAB/Simulink environment. The simulation model has its power supply inputs from grid as well as from renewable energy sources. Any customer expects input power to be reliable and efficient. Power Quality plays a major role in any kind of power system. To reduce the basic power quality issues, a controlling scheme is discussed in this paper. The controlling scheme discussed in this paper is SPWM technique and LC filters to diminish power quality issues in smart grid.

UGC AUTONOMOUS

NUMERICAL AND EXPERIMENTAL INVESTIGATION OF CUP DRAWING PROCESS

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Abstract:

The cup drawing processing of thin sheet plate takes an important surface place in forming metals on account of large of number of industries applications of such products. The traditional techniques of tool design for sheet forming operations used in industry are experimental and expensive. The cup drawing process is more complicated than most other metal forming operations. Hence a rigorous study was performed to understand the process. An extensive literature survey was performed and critical parameters affecting the process were identified. Die design calculations were done to produce sample cups. Die, Punch and blank holder were fabricated according to this design. The die set was then used to obtain cups from Al 1100, copper and Brass taking the help of a UTM and noting the load pattern. Finite Element Simulation of the cup drawing processing using ANSYS 15.0 was also carried with the actual dimensions and properties that have been used in experimentation. Plane185, a four noded element was used to discretize the model. The Die, Punching and Blanking holder were treated to be rigid. Axisymmetric condition was applied. Blank material was treated as a mild work hardening type. Load variation with punch travel, Stress pattern in the blank over different stages, thickness changes in the cup bottom and walls were analysed. Those results were found to be appropriate. The loads obtained are in close agreement with experimental values. Hence the simulation performed with material data, friction conditions and rate of loading are realistic. This work would definitely serve as a start up for tool designer and manufacturer doing work in this field.

STUDY OF DURABILITY OF EPOXY BONDED STEEL JOINTS IN AQUEOUS ECOLOGICAL

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Abstract:

Present instance where success and safety may be cooperation as a result of wear and tear of fluid transporting pipe systems. Consequently, it is sometimes essential to shut down the full operation to fix the problem. Thus, it is worth evaluating other process that can repair the damage for a temporary period without shutting down the process while a new pipe is being constructed. The objective was to evaluate the durability of the epoxy bonded steel in aqueous ecological that might be the conditions of such a repair. EPON 825 was chosen as the epoxy resin, and dicyandiamide and polyamidoamine were two types of curing agent evaluated in this study. The epoxy bonded steels were exposed in either distilled water or 3.3% NaCl solution for various time periods. The mechanical strengths of the bonded joints were evaluated using a three-point flexure test. The neat epoxy samples were also aged under the similar circumstances, and three-point flexure test and dynamic mechanical analysis (DMA) were performed to estimate their mechanical properties. The moisture uptake of the neat epoxy improved with exposure time, and the bending modulus of the neat epoxy decreased with aging time and moisture uptake. It was originate that the interfacial shear power reduced with aging time for both epoxy bonded systems. Scanning Electron Microscopy (SEM), optical microscopy, and X-ray Photoelectron Spectroscopy (XPS) were used to resolve the locus of breakdown of the bonded joints. It was accomplished that breakdown occurred cohesively surrounded by the oxide coating if oxides were in attendance on the substrate peripheral prior to the bonding system.

UGC AUTONOMOUS

TRANSFORMER-LESS PASSIVE LED DRIVER

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vidyajas@srmist.edu.in

Abstract:

The main idea of this paper is to design a transformer-less Light Emitting Diode (LED) driver circuit using capacitors. A constant voltage driver circuit is required to increase the life span of LEDs and reduce heat dissipation. Ripple current tends to increase the heat which is the major disadvantage in a LED circuit. Another limitation is due to additional components which results in high cost and low power density. This paper deals with new topology for LED driving with reduced number of components. To reduce the heat loss, a heat sink was designed using conventional method. This study gives an economical approach. The proposed method achieves the efficiency and effectiveness with low output current ripple.



UGC AUTONOMOUS

EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF BITUMEN WITH POLYPROPYLENE AND GLASSFIBER

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M.Kiran Reddy²

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Prathyusha Dandempally³

Student, Department of Civil Engineering,
St. Martins Engineering College, Dhulapally, Secunderabad

B. Manjula⁴

Student, Department of Civil Engineering,
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G. Naveen⁵

Student, Department of Civil Engineering,
St. Martins Engineering College, Dhulapally, Secunderabad

Abstract:

The idea of utilizing different fibers to enhance the conduct of pavement is not new nowadays. The fiber fortification has began in mid-1960's. The fiber materials were presented and are continuously being presented in the market as new application for the pavement for example asbestos, polypropylene fiber (PPF), glass fiber, carbon fiber, cellulose fiber, polyester fiber etc. Among these distinctive fibers we have picked up polypropylene fiber and glass fiber for the general execution of pavement. To study the effect of pavement when it is partially replaced with polypropylene and glass fiber and ductility and penetration value is varying by adding 1%, 2%, 3% glass fiber replacing bitumen. The stability and flow value should be determined for nominal and modified mix by marshall method by varying percentage of fibers.

UGC AUTONOMOUS

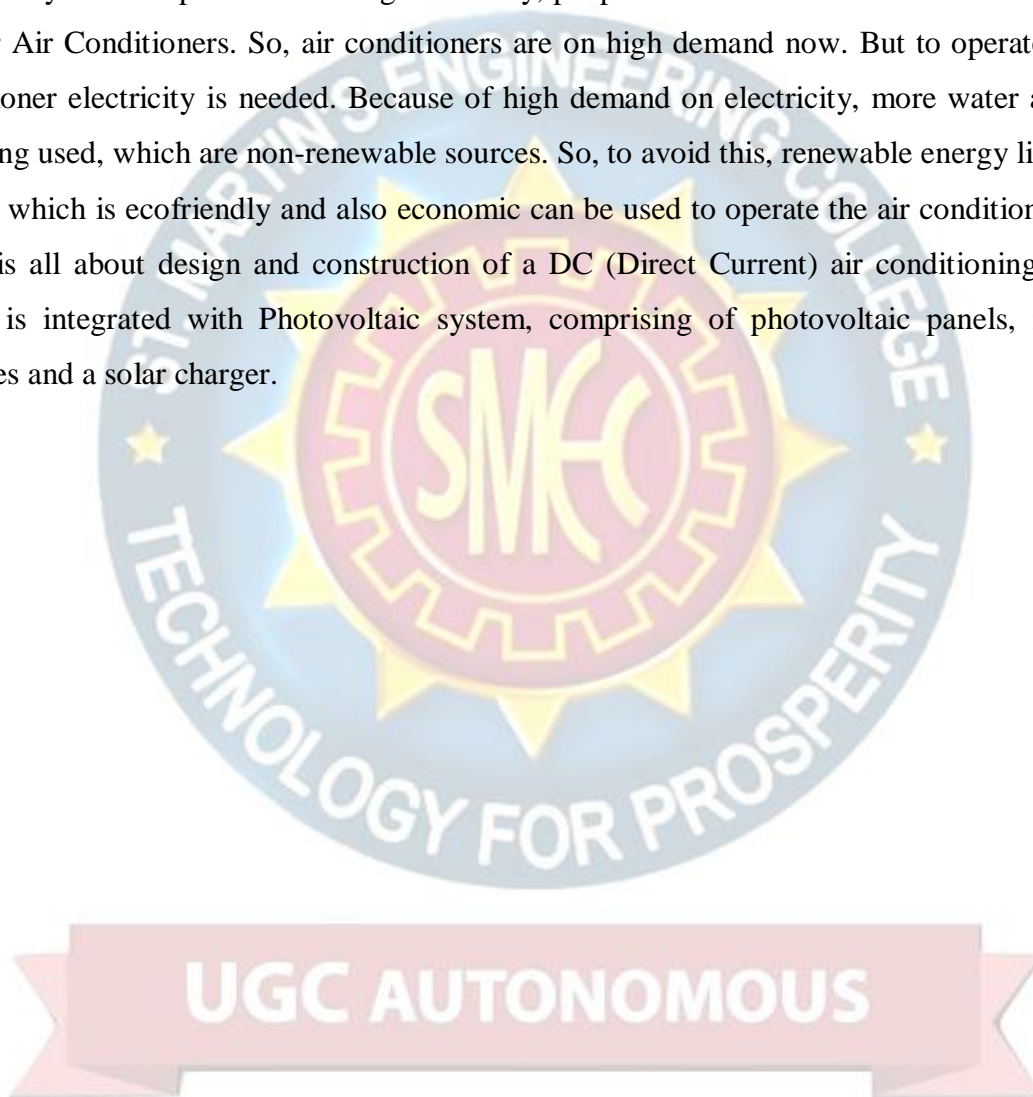
PHOTOVOLTAIC AIR CONDITIONER

P. Naveena ^{#1}, K. Sai Anusha ^{#2}, K. Archana ^{#3}

[#] Assistant Professor, Department Of Mechanical Engineering, St.Martin's Engineering College
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Abstract:

In the present climatic conditions, so many people are addicted to Air Conditioners. Particularly in some places due to high humidity, people there do not feel comfortable and they opt for Air Conditioners. So, air conditioners are on high demand now. But to operate the air conditioner electricity is needed. Because of high demand on electricity, more water and coal are being used, which are non-renewable sources. So, to avoid this, renewable energy like Solar energy which is ecofriendly and also economic can be used to operate the air conditioner. This paper is all about design and construction of a DC (Direct Current) air conditioning system which is integrated with Photovoltaic system, comprising of photovoltaic panels, inverter, batteries and a solar charger.



STRENGTHENING OF CLAYEY SUBGRADE BY USING GEOSYNTHETICS AND ADMIXTURES

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Asadi.ss**

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P. Guruswamy Goud****

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Bhanu Prasad .B*****

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Abstract:

The scope of the paper presents a new approach of using the geosynthetics and admixtures in the construction of the pavements . while construction of any type of the pavements either rigid or flexible there may be a chances of failure of the pavement by seepage and improper slope level and by many factors. So here we are using the admixtures and the geosynthetics materials in the design of the pavement to reduce or minimize this losses. The main purpose of using admixtures is to increase the strength and for other purposes. While constructing the pavement by using bitumen there may be a chance of getting patholes and the water may run through the pavements when the heavy rain occurs.

IRC:SP:73-2015 suggests following design service volume. For rural roads , typical capacities of various classification of roads is given in IRC:64-1990-guidelines for capacity of roads in rural areas.

FRICION STIR WELDING USING MAGNESIUM ZE41 ALLOY (BUTT JOINT)

G.SUDHAKAR¹

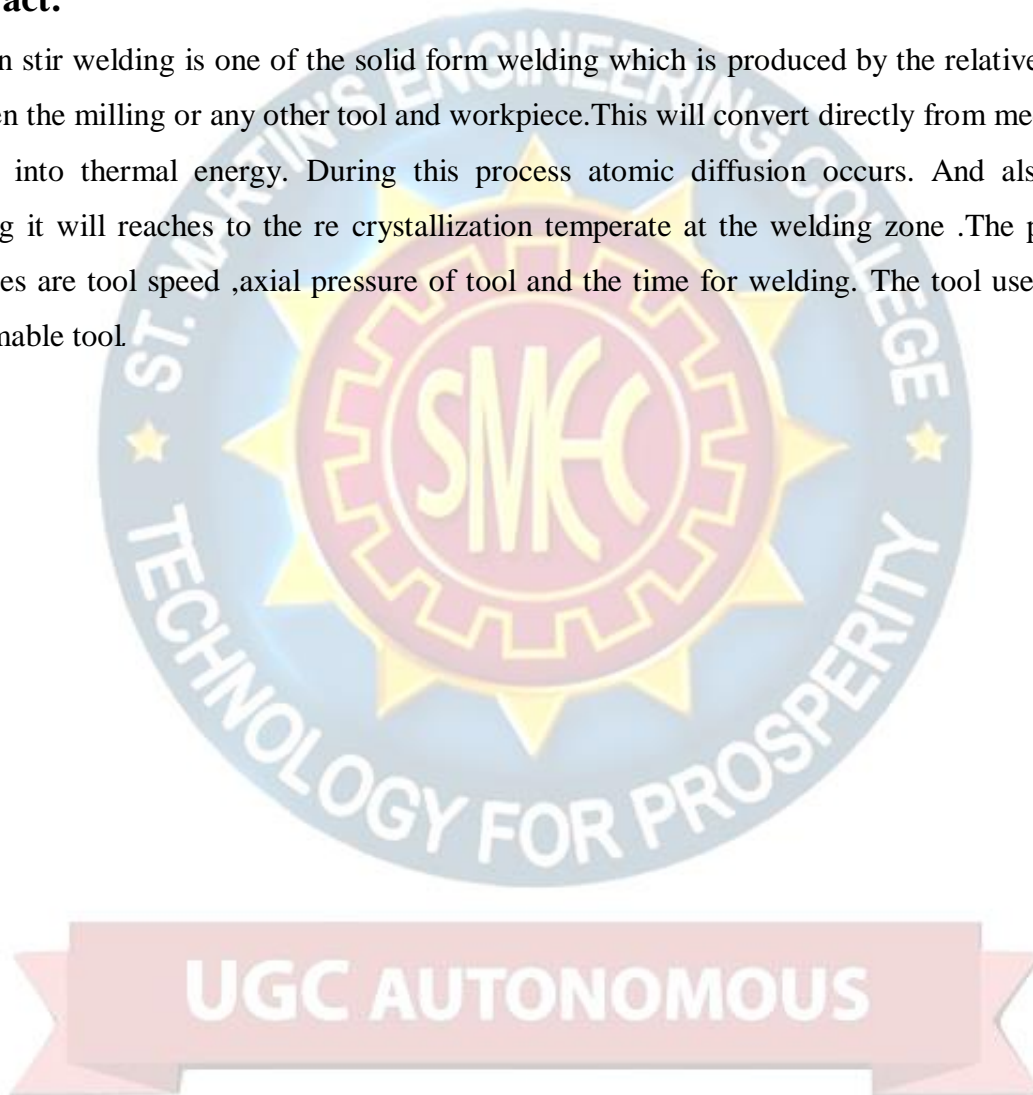
¹Associate professor, Department of Mechanical Engineering,
St martins Engineering college, Secunderabad, Telangana

Sai Eshwar², Mallikarjun³, sai krishna⁴, shivakumar⁵

²³⁴⁵Final year B. Tech, Mechanical engineering.

Abstract:

Friction stir welding is one of the solid form welding which is produced by the relative motion between the milling or any other tool and workpiece. This will convert directly from mechanical energy into thermal energy. During this process atomic diffusion occurs. And also while welding it will reach to the re crystallization temperature at the welding zone. The principle variables are tool speed, axial pressure of tool and the time for welding. The tool used is non consumable tool.



EXPERIMENTAL STUDY ON THE DURABILITY OF POLYESTER RESIN CONCRETE

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^[3] Professor, Faculty of Engineering- Civil, Bangalore University, Karnataka, India.

Email: annapurna2124@gmail.com

Abstract::

The effect of polyester resin on durability of concrete is been studied for varying percentages of resin from 10% to 100% by volume of coarse aggregate, with a variation of 10% (10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100%). The properties of polyester resin concrete is been studied for durability. The grade of concrete considered is M30. Tests are been carried out as per recommended procedures of relevant code. The results are compared with conventional concrete. It is been found that with the replacement of coarse aggregate by polyester resin varying percentage of resin from 10% to 100% the weight of polyester resin concrete reduces varying from 2% to 23.8%. The durability of polyester resin is tested for chemical resistance of sulphate, chloride acid.



UGC AUTONOMOUS

UNCONFINED COMPRESSIVE CHARACTERISTICS STRENGTH OF ALKALI RESISTANT GLASS FIBER WITH BLACK COTON SOIL BLENDED WITH LIME

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Abstract::

Geomechanical properties of Black Cotton Soil are known by conducting a laboratory study of Lime and Alkali Resistant Glass Fiber (ARGF) when it is blended with black cotton soil. Utmost importance is to find the properties of the compaction characteristics of black cotton soil. The subsequent phase pivots on the Unconfined Compressive Strength values of mixture of Black Cotton Soil with optimum content with unreliable percentage of lime and ARGF. This study pivots on change in Unconfined Compressive Strength with curing period. The Unconfined Compressive Strength values are inflated with inclusion of lime and ARGF BC soil. The unconfined compressive strength values are inflated with curing period. Finally the UCS values for different combinations like BC soil alone, BC soil and randomly distributed fiber like ARGF.



UGC AUTONOMOUS

SOLAR PV ARRAY FED 1- Φ SEVEN LEVEL HYBRID H-BRIDGE INVERTER FOR OFF-GRID APPLICATIONS

C. Pavan Kumar^{*1}, Dr. N. Karthick^{*2}, Dr. A. Madhukar Rao^{*3}

^{*123}Department of Electrical and Electronics Engineering,

^{*1}Research Scholar, Lovely Professional University, ^{*2}Associate Professor, Lovely Professional University,

^{*3}Assistant Professor, Kakatiya Institute of Technology and Science, Warangal

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Abstract:

Nowadays for high-voltage applications, the Multi-level inverters (MLI) are used extensively and the operation & analysis is easy to that of conventional inverters, because of lower harmonic distortion, switching losses, EMI and lesser number of switches. In conventional MLI, most of the topologies are required more number of switches with High THD and also having more switching losses with voltage equalizing problems. In order to overcome the mentioned drawbacks, the 1- ϕ seven-level Hybrid H-bridge inverter for Off-Grid application with asymmetrical configuration is presented in this work. Further, the DC source voltage is generated by using solar photovoltaic system. The presented inverter topology having six number of switching components, to develop a seven levels across the load from two different ratings of solar PV systems. Further, low frequency pulse width modulation control strategy is utilized for the switching operation of proposed inverter topology presented in this work. The simulation results of the proposed novel seven- level inverter topology is validated with MATLAB/Simulink software tool.



UGC AUTONOMOUS

ANALYTICAL ASPECTS OF DESIGN OF HAND BRAKE RELEASE SYSTEM

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Abstract:

Presently a day's programmed hand brake discharge system has been supplanted by the manual hand brake. This is responded to as a call that to maintain a strategic distance from of back wheel slide. The programmed hand brake discharge instrument is one of the best hands stopping mechanism over the present customary frameworks. This kind of instrument gives absolutely switch less activity which spares the exertion just as the space use of the vehicle. For the most part, the hand brake is physically worked while in this work, we have built up a programmed handbrake discharge system for security reason. The draw in and separate of the handbrake is finished with the assistance of pneumatic actuators. Besides, when the start framework is killed, the solenoid switch gets in and afterward cylinder from ace chamber pressurizes the oil and afterward by the methods for the water powered framework it connects with the handbrake instrument. Albeit once in a while it otherwise called a crisis brake, utilizing it in any crisis though the footbrake is as yet operational is probably going to severely disturbed vehicle and boundlessly improve the probability of loss of control of the vehicle, for instance by starting a back-wheel slip. Furthermore, the halting power gave by utilizing the handbrake is little and would not fundamentally help in halting the vehicle. The hand brake is rather planned for use if there should be an occurrence of mechanical disappointment where the customary footbrake is inoperable or traded off. Contrasting and manual handbrake framework it has a minimized plan just as striking looks having increasingly effective.

DEVELOPMENT OF PERFORMANCE USING PHASE CHANGE MATERIAL IN VCR SYSTEM

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Secunderabad-500100, India.

Abstract:-

The main aim of this paper is enhance the co-efficient of performance in the vapour compression refrigeration system (VCRS) by using phase change material. The phase change materials are solid, liquid, and vapour. Water is the most natural example of a substance that we use almost every day applications in all three phases, what is common to these three phases is that the water molecules remain unchanged, meaning that ice, water, and steam all have the same chemical formula as H₂O. The refrigeration system is a freezing system that uses two types of refrigerants having different boiling temperature points the run through the iron in dependent freezing cycle and are joined by a device called heat exchanger. Refrigeration system as introducing the pump in the place of heat exchanger with PCM based refrigerator. In this system temperature its bring down upto -20⁰c, reduce power consumption and To retain cooling effect for long period of time without power supply and finally refrigeration system the refrigeration effect can be increased by 28% as compared to single system for producing -20⁰C in the cold storage.



UGC AUTONOMOUS

DESIGN AND FABRICATION OF SOLAR POWERED GRASS CUTTING MACHINE

Mada Rukmini Sai Rupa Sri^{#1}, Sk. Mohammad Shareef^{*2}, N. Ankitha^{#3}
^{#1, *2, #3} *Mechanical Engineering Department, CVR College of Engineering*

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Abstract:

A solar powered Wireless Operating Grass Cutting Machine is a device or robot that help human to cut grass. In this project, a solar powered Grass Cutting Machine is developed with Wireless technology. The movement or the path of the Grass Cutting Machine is based on a path Wireless technique. The project aims at fabricating a solar powered grass cutting machine system. The present technology commonly used for cutting the grass is by using the manually handle device. The main aim of this project is to fabricate a solar powered grass cutting machine system which runs with the help of motor. The battery can be charge by using solar panel. The heart of the machine is a solar panel DC electric motor.



UGC AUTONOMOUS

FEATURES AND IMPORTANCE'S OF LEATHER

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College, Secunderabad, pin: 500100, Telangana, India.

RachakondaUpendar^[3]

Assistant Professor, Department of Mechanical Engineering, Annamacharya Institute of
Technology and Sciences, Hyderabad-501512, Telangana, India.

Abstract:

Leather is one of the important polymers in the world which has its applications in many industries and also for the humans. The outer cover of each and every living organism is skin which is nothing but leather, the human body is covered by skin and without skin the body cannot sustain high temperatures, cannot expose to the air or in a single word it is impossible to live without skin, and no living organism can live without skin which drags the interest towards this material as it is the most essential thing in the world and also it is used in making leather goods and also it has a good mechanical properties which helps in making leather goods and also in sports for making cricket ball's etc. so this drags the interest to focus on leather as a natural polymer and its importance. So this paper focuses on some features and importance of leather.



UGC AUTONOMOUS

DESIGN OF MAGNETRON SPUTTERING CATHODES FOR THE OPTIMUM BREAKDOWN VOLTAGE BY USING SOLID WORKS AND COATING TRAILS

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²Department of Mechanical Engineering, ²MLR Institute of Technology

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Abstract:

The most of physical vapour deposition (PVD) processes, magnetron sputtering has been proved to have high deposition rates compared to sputtering. The aim of the present work is to design a cathode with 3 inch target/ source and optimizing the design to obtain lower breakdown voltage using solid works software. As a part of this work initially cathode-1 was designed with a maximum magnetic field (MF) strength of 480 G, which has resulted in breakdown voltage (V_B) of 483 V. As the V_B is very high for the obtained MF strength, modifications have been done in cathode-2 to further decrease the V_B by ~ 70 V. After cathode designing Cu is used as cathode/ target and coatings have been generated with modified cathode and that coating properties like thickness and adhesion strengths were optimized.



UGC AUTONOMOUS

DESIGN AND DEVELOPMENT OF SOLAR POWERED FOUR- WHEELER

K Sunitha¹, P Rajamani²

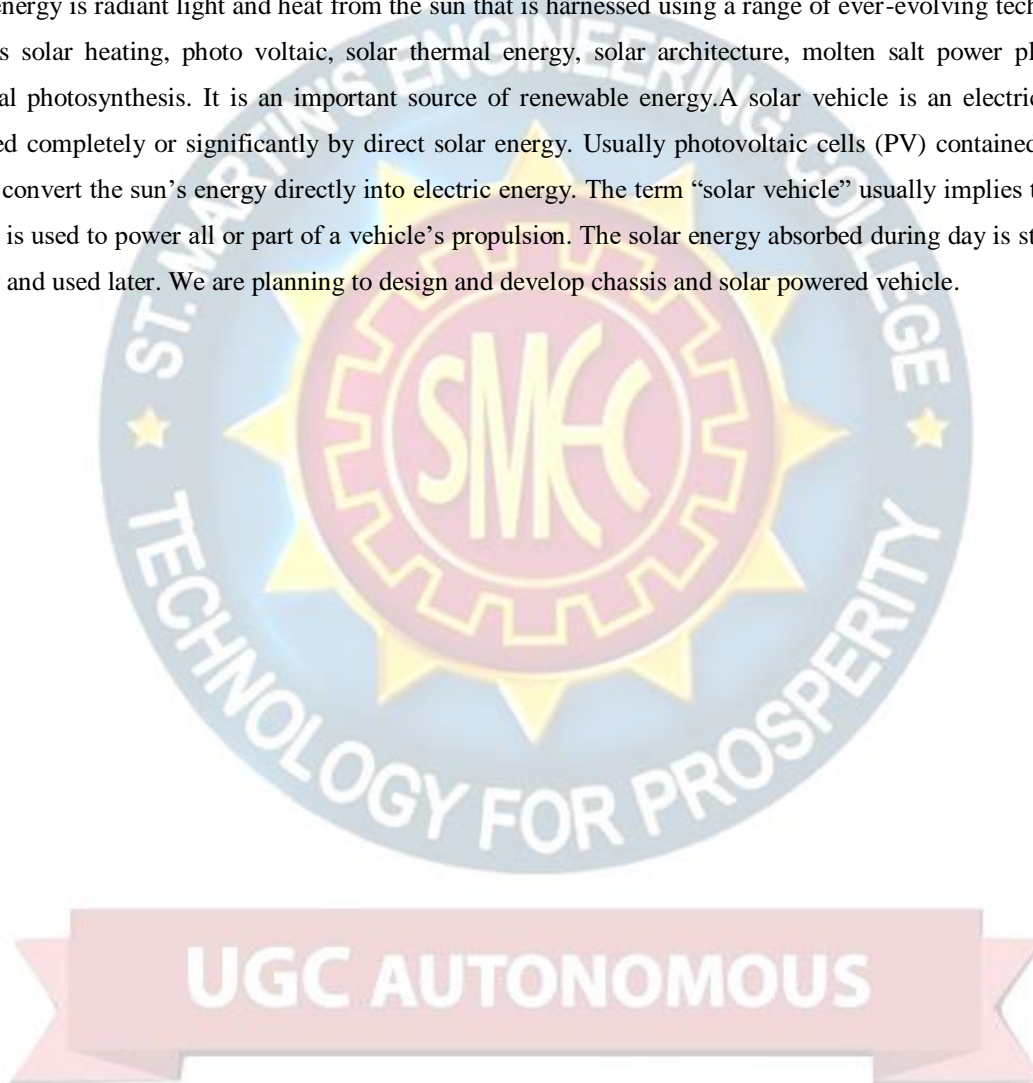
¹Dept. of Mechanical Engineering, St. Martin's Engineering College, Hyderabad, India

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Abstract::

Solar energy is radiant light and heat from the sun that is harnessed using a range of ever-evolving technologies such as solar heating, photo voltaic, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis. It is an important source of renewable energy. A solar vehicle is an electric vehicle powered completely or significantly by direct solar energy. Usually photovoltaic cells (PV) contained in solar panels convert the sun's energy directly into electric energy. The term "solar vehicle" usually implies that solar energy is used to power all or part of a vehicle's propulsion. The solar energy absorbed during day is stored in a battery and used later. We are planning to design and develop chassis and solar powered vehicle.



GENERATION OF POWER USING HYDRAULIC BUMPERS ON THE STREETS

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¹²³Dept. of Mechanical Engineering, St. Martin's Engineering College, Hyderabad, India
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Abstract:-

In this modern generation the usage of energy is increased eventually day to day because of advancement in the technology and conduction of new research in the design and every instant the energy place a dominant role. For fulfilling the need all the concentration is moving to the Conventional energy. Our concept is start by considering all these parameters making this kind of project. In our project mission we adopt the methodology to produce electricity from hydraulic bumpers while different kind of automobiles crossing on hydraulic bumper on streets. Our projected method will absorb the kinetic-energy of automobiles ride on the roads allowed to producing electricity by using hydraulic bumper by hydraulic fluid machinery. The mechanism is most resourceful other than surviving devices, it empower to build conventional by balancing in both electricity resource and demand in energy around the world. The Kinetic energy is being wasted while moving the vehicles in daily. By utilizing that kinetic resource to produce the power by new approach is called "POWER HUMP". The recovered energy we can utilize for daily usage works like on street-lights, Storing into small battery and small kind of necessary requirements.



UGC AUTONOMOUS

ANALYTICAL STUDY ON URBAN AIR POLLUTANTS OF SOLAPUR CITY

Snehal S.Pujari¹ Vaibhav Pujari²

¹ Dept. Of Civil Engineering, N.B. Navale Sinhgad College of Engineering, Solapur

² Dept. Of Mechanical and Aerospace Engineering, Western Michigan University, USA

ABSTRACT

The Central Pollution Control Board (CPCB) has initiated National Ambient Air Quality Monitoring program (NAMP) in 98 cities in India to monitor air pollution in urban areas. Following paper sheds light on the analytical comparison of the concentration of various pollutants for the city of Solapur a major town on the Karnataka Maharashtra border for a period of past three years i.e. From 2017 to 2019. Solapur, which is agro climatically dry for most of the year except Monsoon, is showing an increasing trend in terms of vehicular emissions especially NOX and Ozone parameters. The dry conditions further add to the RSPM component of the particulates and city has shown alarming levels of suspended particulate matter (PM 10) and respirable suspended particulate matter (PM 2.5). The average Air Quality is also plummeting with a dramatic fall in the AQI for the month of August last year in 2019.



UGC AUTONOMOUS

DEVELOPMENT OF SUBSURFACE PROFILE LAYERS USING GEOGRAPHIC INFORMATION SYSTEM (GIS)

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Abstract:

In the present study, the MASW test data and SPT-N values are used in Kriging technique to develop the layers for representing the subsurface in two-dimensional (2D) form. The "kriging" word is substitutable with "optimal prediction". In the multi-channel Analysis of surface Wave test is based on refraction analysis, tomographic inversion and time term method concepts are used to calculate the shear wave velocity with respect to depth for a some of selected locations in the IITM campus [1, 7, 8]. The shear wave velocities are generated for 1D and 2D subsurface profiles and soil classification is made using the results of average shear wave velocity of the top depth upto 30 m of the overburden (Vs30). The results of shear wave velocities indicate the presence of a low velocity layer near the surface underlain by approximately 10 m of sediments in the campus. The average shear wave velocity of the sediments is found to range between 270 and 414 m/s. Based on Vs30 values, it is noted in the campus areas are belongs to "class D" site with the some of few locations comes under "class C" site as per the NEHRP site classification. The shear wave velocities predicted at different locations in the campus using the "Vs and SPT-N correlation" appear to be consistent with the SPT N-values. The MASW test data and SPT-N values from borelogs are used in the GIS to develop the subsurface profile for entire IITM campus using Kriging technique.

UGC AUTONOMOUS

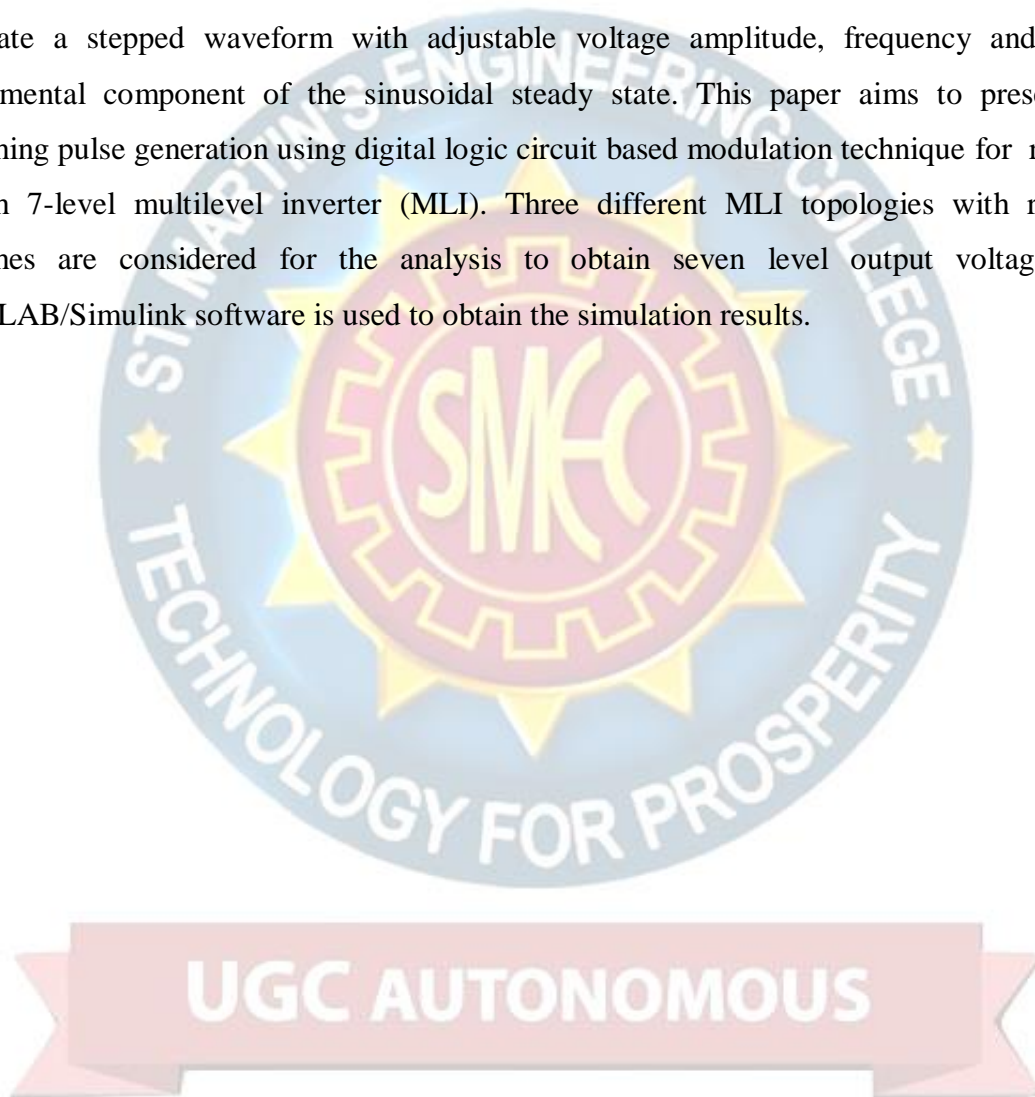
SWITCHING PULSE GENERATION USING DIGITAL LOGIC CIRCUIT FOR 7-LEVEL SYMMETRIC INVERTER

Thiyagarajan V

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thiyagarajanv@ssn.edu.in

Abstract:

Multilevel Inverters (MLIs) have been attracted a wide range of applications which growingly affect the power electronics. The main objective of modulation technique is to generate a stepped waveform with adjustable voltage amplitude, frequency and phase fundamental component of the sinusoidal steady state. This paper aims to present the switching pulse generation using digital logic circuit based modulation technique for reduced switch 7-level multilevel inverter (MLI). Three different MLI topologies with reduced switches are considered for the analysis to obtain seven level output voltage. The MATLAB/Simulink software is used to obtain the simulation results.



DESIGN AND STRUCTURAL ANALYSIS OF MISSILE CONTAINER

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Mechanical Engineering Department
St Martin's Engineering College
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Abstract:

The missile container used for transporting and storing missiles is made of a composite shell construction that is rectangularly stiffened to the interior. The rocket is placed on the bulkhead that supports the rocket's weight and weight, and with the aid of rubber padding, the rocket arresters are made of nylon chrome leather. In this project, the detailed finite element stress analysis calculates the static response of the composite missile container structure to mechanical loads for different composite materials. To conduct structural analysis, the Ansys package has been used. The response of Eglass/epoxy composite material for 6mm thickness under operating conditions is better when compared to carbon /epoxy resin.



**EFFECT OF INJECTION TIMING AND GASEOUS FLOW RATE
ON THE PERFORMANCE OF THE LPG BIODIESEL FUEL
ENGINE**

L Sunil¹, Dr.B Srinivasulu²

Department of mechanical engineering

Abstract:

In the present world growing the need of fossil fuel. The developing countries like India fuels are more important parameter which gives the economic growing of country, because changing the generation year by year the vehicles, automobile industry, transportation company, power production plant and military. These all sectors need the fuels to run the sector to perform this destination. Also in India there are no petroleum resources to fulfill the fuel to run the entire sector. The country should buy the fuel from other country it will effects the country economic growth and also increasing the petroleum application it will affect the environment condition by increasing CO, CO₂ and SO₄. To find out the test facilities for dual fuel engine on LPG-HOME fuels with different engine parameters. Examine the effect of different injection timing on the performance of dual fuel engine operated on biodiesel and liquefied petroleum gas (LPG).



UGC AUTONOMOUS

DYNAMIC ANALYSIS OF TALL STRUCTURES USING RESPONSE SPECTRUM METHOD WITH DIFFERENT SEISMIC ZONES

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¹Research Scholar, Annamalai University, Chennai.

²Assistant professor, Department of Civil Engineering, TKR Engineering College, Meerpet, Hyderabad, Telangana, India.

³Assistant professor, Department of Civil Engineering, ³TKR Engineering College, Meerpet, Hyderabad, Telangana, India.

Abstract:

The main purpose of seismic engineering is to design and build frame structures while minimizing cost and minimizing damage to the structure and its structural elements during seismic protection. ETABS version 16.2 finite element software package is used to perform dynamic analysis of structures surrounded by different seismic zones (II and V) in terms of response spectrum method according to IS 1893:2002 Code (Part 1). did. 1 is used to perform modeling and analysis of G+30 buildings. In this article, we will investigate the seismic response of dynamic analyzes of skyscrapers with different seismic zones and compare the results of these analyzes in terms of shear: basic, seismic weight, historical drift, historical shear.



UGC AUTONOMOUS

PERFORMANCE OF SINGLE CYLINDER DIESEL DI ENGINE USING DME-NH₃ FUEL MIXTURES

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Hyderabad, TS, India

Abstract:

This study investigates the performance characteristics of ammonia engines using direct injection strategies. Ammonia is a carbon-free fuel, so its combustion carbon dioxide does not produce an important greenhouse gas. Ammonia can be produced using renewable energy sources (eg, wind and solar) and as an energy carrier. Recent research has shown that combining the solid-state synthesis cycle of ammonia with hydrogen production increases the solar thermochemical production efficiency of ammonia. Ammonia is under consideration for potential storage method for wind energy. The nature of carbon-free ammonia and its ability to produce new alternatives to fossil fuels. In this study, liquid direct injection in a compression-ignition (diesel) engine is tested using the most advanced injection time. Ammonia with dimethyl ether (DME) has been used in the combustion strategy of dual fuels. Ammonia was injected with DME before injection. DME has been chosen as a diesel alternative to the fuel properties of ammonia. Three ammonia-DME ratios were tested: 100% DME, 60% DME-40% NH₃, 40% DME-60% NH₃. 40–3 DME - 60% NH₃ requires injections up to 90–340 engine speeds of 1900 rpm and 2500 rpm depending on the operating capacity of the NH₃. Wheel-to-wheel variations decreased with increasing load.

UGC AUTONOMOUS

STATIC AND FREE VIBRATION BEHAVIOR OF LAMINATED COMPOSITE PANELS

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²pothuganti.naveena@gmail.com

³archanak873@gmail.com

Abstract:

In today's scenario, the light weight structures are most promising in many engineering sectors like aerospace, automobile, defence etc. This requirement can be convinced by the use of composite materials which exhibits comparatively higher strength to weight ratio than the conventional materials. In this work, the static and the free vibration behaviour of laminated composite panels have been examined, numerically. Simulation model is developed using ANSYS Parametric design language (APDL) code in ANSYS environment. An eight node quadrilateral shell element (SHELL281) is used for the discretization purpose of the present model. The convergence behaviour of present finite element results is checked and comprehensiveness of the model is revealed by comparing the results with those available published literature. The influences of different geometrical and material parameters such as lamination schemes, geometrical parameters, support conditions and material properties on the deflection and frequency responses of laminated composite panels will be examined through a wide variety of numerical illustrations.



UGC AUTONOMOUS

AN OVERVIEW OF POWER QUALITY ISSUES, MITIGATION TECHNIQUES, STANDARDS, CHALLENGES AND SOFTWARE TOOLS IN ELECTRICAL POWER SYSTEM

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²Associate Professor, Department of Electrical and Electronics Engineering, St. Martin's Engineering college Secunderabad, Telangana

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Abstract:

The power quality issues are major causes of economic of our nation. The electrical energy utilized by the end users to become comfort, reduction in losses and affordable cost. This paper investigate with various power quality problems and solving this problem using different mitigation techniques in electrical power system. The main intention of power system to provide the good quality of power supply to the consumers. The power quality issues brought down the reliability and losses in the power networks. This paper significantly reviewed to solve the power quality problems and get better the power system and utilities.



UGC AUTONOMOUS

HHV PREDICTION MODEL FROM UNSATURATED FATTY ACIDS (MUFA AND PUFA) OF WASTE FRYING OILS.

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Abstract:

Today's world scenario focuses on fuel demand and stock, fuel price, energy security and environmental protection. Due to these concerns, biodiesel from vegetable and used cooking oils were considered as partial or full alternative fuel instead of diesel for the compression ignition engine. Heating value is a vital feature to estimate the fuel quality. In this work, a correlation was developed to predict the heating value of waste cooking oils from unsaturated fatty acid compositions. 25 samples were collected from various users producing waste frying oil (hotels, fast foods, restaurants and household). The fatty acids were determined by using gas chromatography and the heat content by bomb calorimeter. Consequently, to create an empirical formula, an analysis on regression was performed between higher heating value obtained experimentally and fatty acid composition of waste frying oils based on unsaturated fatty acid components such as Monounsaturated and polyunsaturated components. The R^2 value of newly developed correlation was found to be 0.957. The accuracy of the correlation when compared with the experimental data is observed with an error within 2%.



UGC AUTONOMOUS

IMPROVEMENT IN EFFECTIVENESS OF THE ENGINE CYLINDER BY VARYING THE FINS SIZE AND COOLANT

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ABSTRACT-

In the automobile vehicles the cylinder and piston plays a major role in the combustion process for movement of vehicles from one instant to another instant. The overall vehicle i.e., all the parts of the vehicle movement is completely depends upon the power generation of the engine cylinder. So in order to design the engine it should produce higher results also considering the safety. The complete generation of power production is done in the small closed location i.e., piston-cylinder arrangement. By continuous and high generation of power the parts subjected to higher temperatures, stress concentration and some other thermal properties. In our project we are concentrated on the methods of higher rate of heat rejection. The fins are provided to the engine around the cylinder for cooling purpose, suppose if we increase the size of the fins which leads to the increased weight. Hence we are implemented that by reducing the fin thickness size and selected proper and effective cooling lubricants for increase the heat transfer rate to the surrounding. The amount of heat transfer rate is very important for the engine life as well as vehicle performance. By reducing the fin size weight of the engine also considerably reduces that is also one main implantation in the design sector. The selection and calculation of the engine parameters are shown the better results for the new implementation in the design.



UGC AUTONOMOUS

DEVELOPING A COST EFFECTIVE GCTRL CNC PLOTTER

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Abstract:

As innovation progresses, the interest for PC numerical control (CNC) plotter machines in instructive organizations and research centers is quickly expanding. Minimal effort assembling of printed circuit sheets (PCBs) has become an essential prerequisite for hardware building, mechanical designing understudies, and gadgets specialists. In the first place, the client needs to change over any picture record or content document into G code utilizing ink pace programming, and afterward feed it to the machine utilizing preparing programming. Aurdino with ATmega328P Microcontroller is utilized as control gadget for this venture. Microcontroller changes over G-Code into a lot of machine language guidelines sent to CNC plotter's transporter. This paper presents a reasonable model of the CNC plotter machine equipped for drawing a circuit format utilizing straightforward calculations and accessible segments on a PCB or other strong surface.



UGC AUTONOMOUS

ROLE OF NANOTECHNOLOGY IN CAPACITY BUILDING: EMERGING TRENDS AND POSSIBILITIES UNDER MAKE IN INDIA

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Abstract:

It is understood that science in the current scenario is advancing very rapidly. Everyone needs answers to hand-made conditions which are likely to be avoidable or reversed in order to improve the world, encourage medicine and other space applications. Research engineers in general and mechanical engineers worldwide are working to find answers to these pressing global problems. Nanotechnology is an evolving interdisciplinary science with a creative capacity in producing new substances, enhancing power efficiency and developing new diagnostics and medical therapies. Nanofibres, solar cells and light materials are of immense assistance in space applications. Incorporated corrosion and corrosion prevention are some areas of nontechnology that help climate. We make coatings with increased toughness and wear strength with nanoscale plasmas. In the background of the current Make in India, our paper seeks to display emerging possibilities and ideas in India. It aims to extend the conceptual limits of application within the context of TERII for the emerging growth of nanotechnology in India.

UGC AUTONOMOUS

DSTATCOM BASED REACTIVE POWER COMPENSATION IN DISTRIBUTED GENERATION SYSTEMS

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Abstract:

In this paper, wind farm is connected to the grid and it's required to feed the load. Wind farm are confronted with increasing demands for power quality fail safe operation at grid fault. In wind turbine technology, most of the currently installed wind turbines utilize induction generators to produce electricity. Since the induction generators do not perform voltage regulation and absorb reactive power from the utility grid. Whenever the disturbance occurs due to the fault, load variations causes the wind farm goes to outage conditions. This paper deal with operation and control of a DSTATCOM for reactive power compensation in asynchronous machine based distributed generation. The power quality issues like voltage regulation, load balancing and power flow are being analysed and simulated. The DSTATCOM is realized using a 3 leg IGBT based pulse width modulation Voltage source converter having a DC bus capacitor. The instantaneous p-q theory used to derive the gate pulse for the IGBT switches. The proposed model is developed in MATLAB/SIMULINK environment and it's observed that the DSTATCOM is effective for compensating Reactive power.



UGC AUTONOMOUS

SIMULATION AND CHEMICAL TRANSPORTATION OF GROUNDWATER IN HYDERABAD REGION USING Q-GIS, MODFLOW AND MT3DMS

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Abstract:

Groundwater modeling is to analyze the groundwater scenario. The main objective of the present study is to envisage the changes in groundwater levels and quality of a selected study area groundwater in Hyderabad, Telangana. To analyze the groundwater system flow characteristics, visual MODFLOW is used to render the modeling for 2-D and 3-D groundwater flow environment and contaminant solute transport. MODFLOW is an software application used in this study performs numerical simulations of the groundwater flow and traces contaminant-solute transport in groundwater. Mass transportation of total dissolved solids , SO₄, Na, Cl, Fe, Mn, Al and NO₃ have been investigated using MT3DMS implying pollution source in groundwater .



UGC AUTONOMOUS

PERFORMANCE ANALYSIS OF GRID CONNECTED HYBRID SOLAR PHOTOVOLTAIC - WIND ENERGY SYSTEM

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Abstract:

This paper describes the analysis of a solar photovoltaic-wind power generation system using non-conventional sources of energy such as wind and solar. The proposed model consists of wind turbine and solar panels that wired together are connected to the boost converter in which MPP technique is incorporated and then connected to the three-level inverter (VSC) that supplies AC power from inverter to the grid. Due to exponential increase in demand for electricity causes an imbalance which leads to several problems in the existing grid. The problems caused by imbalance are unbalanced voltage and load shedding which affect the end consumers. Using renewable energy sources can overcome the problems that are raised by increase in demand. When configuration of wind power or solar power used individually may lead to power fluctuations in the desired system. When combined the system provides a sustainable and reliable source of energy that is constant. The non-conventional energy sources, solar PV and wind turbine are connected in parallel to the utility grid. The hybrid system provides continuous and uninterrupted power supply compared to the individual system. The generated power by the hybrid system i.e., PV/Wind is directly fed to the grid from the grid side inverter. The results show the affect of wind speed and irradiance on system's output power. The paper presents grid connected hybrid model using MATLAB/Simulink..

PNEUMATICALLY OPERATED SPRING RETURNED PISTON CYLINDER SHEARING MACHINE

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Abstract:

The major concept behind this kind project is to minimize the effort required by human and simultaneously to reduce the time consumption for completing work. For achieving that criteria we are selected the pneumatically operated machine. In our mechanism pressurized air is considered as the working medium. Due to pressurized air which created the motion to spring piston in the cylinder for sheering work. By placing the required sized sheet over the stationary blades and supply the high compressed air in the cylinder to move the spring piston. The main advantage in this type is because of spring attachment the return movement of the piston is done by the spring action hence the quantity of compressed air requirement for return motion is reduced simultaneously the air is one again compressed during return motion of the piston. There four instead leaving the air into atmosphere we can store that air by proving proper path.

The air is freely available source, its cleaning and machine maintenance is also easy and less expenditure to operate. But highly loading is not possible as compared to hydraulic but its very useful for small scale industry and workshops.



UGC AUTONOMOUS

SOIL STABILIZATION BY USING HUMAN HAIR FIBERS (PILUS) AND CEMENT

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Abstract:

Soil stabilization is the process of improving the shear parameters of soil and thus increasing the bearing capacity of soil. Soil stabilization is the alteration of soil to enhance its physical properties. Normally clay soil has a low bearing capacity. In order to make it suitable for constructions, the physical properties of it has to be enhanced by the addition of suitable additives that increases its bearing capacity. The main aim of this study is to investigate the suitability of using solid waste materials such as human hair fibers in the process of soil stabilization. It has the potential to replace the already existing fiber materials used in Soil stabilization. Now a days, the excessively generated solid waste and their disposal arises major environmental concerns. The generation of solid waste materials like human hair fiber-a non-biodegradable matter can be minimized by using the same as a reinforcing agent in soil stabilization.²There are many methods to stabilize the soil by using additives like jute, lime, waste crumb rubber, rice husk, fly ash, gypsum etc. But, the usage of human hair fibers (Pilus) in the process of soil stabilization, proves to be beneficial since it is a cost effective material and also easily available. Human hair fibers (Pilus) and Cement mixed with soil samples were tested for its engineering properties by conducting laboratory tests such as Atterberg limit test, Standard Protractor test, and unconfined compression test.¹²Human hair strands with a length of 5-50mm and diameter of 45-120 μ m were used. ⁵The test results revealed that the strength of the soil significantly improved with the inclusion of Human hair and Cement ,it further improved when optimum percentage of both Cement and Human hair were added together.

MODEL DESIGN OF ELECTRIC REGENERATIVE BRAKING PHENOMENA

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ABSTRACT—

Power is wasted because of rubbing action between the objects in occurrence of due to brake. If some amount of power is restored and it will reutilized means, it benefits in refining fuel expensive of a automobile or any device that consumes petrol energy, changing from land operated vehicles to in air flying planes. It's a mechanism of recovering the energy during the brake. Kinetic Energy Recovery System (KERS) is one of the type of recovering energy during brake. For the fabricated the model we are selected readily available parts such as motor, battery, power circuit and dynamo. And the remaining frame structure, steering arrangements, seating arrangement is done by standard calculation and for joining process we used welding technology. The recovery of energy takes place while applying the brakes at that time some amount of energy is recovered from the rotating wheels and by using the dynamo the rotational motion is converts into electrical form.



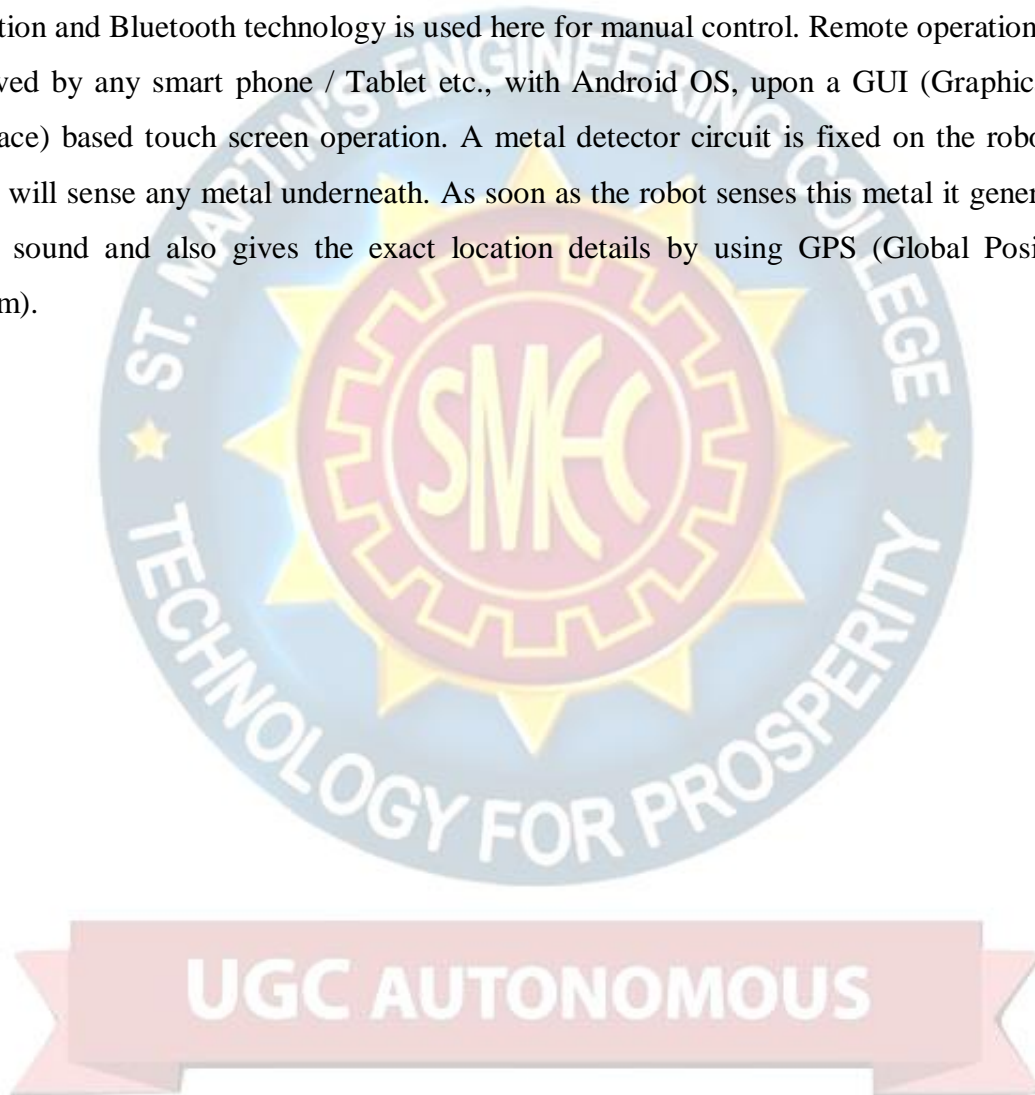
UGC AUTONOMOUS

AUTOMATED METAL DETECTOR ROBOTIC VEHICLE WITH MANUAL CONTROL USING BLUETOOTH TECHNOLOGY

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Abstract:

In this project a new type of robotic vehicle is designed that uses a metal detector sensor to detect metallic object. The robotic vehicle is controlled using android application for remote operation and Bluetooth technology is used here for manual control. Remote operation can be achieved by any smart phone / Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. A metal detector circuit is fixed on the robot body and it will sense any metal underneath. As soon as the robot senses this metal it generates an alarm sound and also gives the exact location details by using GPS (Global Positioning System).



A COMPARATIVE STUDY AND RECENT RESEARCH OF BATTERY TECHNOLOGIES

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Abstract:

The growth of electric vehicle market in India is inferior compared to other countries. The main issues facing by EV market are lack of charging stations, the maximum components and batteries are exported from other countries which increasing the cost of EV, which acts as a main obstacle of EV growth in India, anxiety on vehicle fuel that they can reach destination or not and irregular policies. These issues are limiting the growth of EV market. However research is going on in a great extent to fabricate battery with as high power and energy densities as possible but these batteries costs high. But once the battery technology advances in such a way that it is feasible to apply in all application where presently maximum usage of batteries are lead acid batteries, their prices comes down automatically. This paper gives comparative study and recent advances of different battery technologies. This study gives the knowledge over the factors to consider before using in EV or hybrid electric vehicle (HEV).



UGC AUTONOMOUS

FLEXIBLE FRICTION STIR JOINING TECHNOLOGY

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Abstract:

The technology development in this project primarily focused on its first targeted application construction of steel pipelines for energy transmissions (natural gas, oil, hydrogen, etc.). It also benefited potential near future applications for construction of wind towers, pressure vessels, refinery vessels, shipbuilding, bridges, and nuclear power reactors. The project comprised the following major technology development activities of process innovations. They included the development of tool materials with the durability and strength necessary for joining of steels and other high-temperature materials; the concept of auxiliary heating to reduce process load and increase welding speed & productivity; and the patented multi-pass multi-layer FSW that fundamentally overcomes the thickness limitations of today's FSW approach. Development of the field-deployable FSW prototype systems to provide flexibility and affordability for on-site construction. Technology validation and demonstration fabrications. The project included the demonstration on different steel pipe diameters and wall-thicknesses based on market needs and technology progression; the validation of field fabrication capability and robustness of the developed FSW system to handle variations in materials, pipe dimensions and pipe alignment etc., and the patented pipe welding without internal support. The concept of field deployable FSW was realized and demonstrated by means of the construction and use of a prototype FSW welding system capable of joining large diameter steel pipelines, on-site. All individual program goals were met including the ultimate goal of demonstrating the ability to friction stir weld 76 cm (30 inch) diameter, 15.9 mm (0.625 thick inch) wall, X70 line pipe steel without using internal support.

CHARACTERIZATION OF COPPER COMPOSITE ALLOYS FOR HEAT TRANSFER APPLICATIONS

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Abstract:

Aluminium nano particles were added to the Cu–Zn alloy in order to assess their effects on the micro structural, tri biological and corrosion characteristics of preparation alloys. A mixture of zero volt percent copper and zinc powders and 5volt α -Al nano-powder was used for the satellite ball mill alloying. The results showed that after 18 hours of mechanical alloy, the solid solution Cu–Zn had formed. The mechanically alloyed polvo was compacted and the obtained green compacts were fried at 750 ° C for 30 minutes. Nano particles were distributed uniformly in the Cu–Zn alloy matrix alumina. The tri bology characteristics were evaluated through pin on disks, which showed that after introducing alumina nano particles the friction coefficient and wear rate were reduced to 20 percent and 40 percent. The corrosion properties of samples exposed to a NaCl solution of 3.5wt percent were investigated with immersion and potentio dynamic polarization methods.



UGC AUTONOMOUS

DESIGN AND 3D MANUFACTURING OF STAR SENSOR BRACKET FOR SATELLITES

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Abstract:

This report starts with a basic introduction of the satellite and its components, AM technologies and their potential applications, identifying limitations and proposing actions to overcome existing barriers including the problem definition. The literature review and history of additive manufacturing is set out. This chapter also includes the present scenario, basically comparing both the situations. The report is followed by the requirements for designing and manufacturing, an explanation of the software used for designing and analysis, also about the manufacturing process used and few specifications of the machine component.

The methodology and various manufacturing processes are explained in detail. Each process is discussed in brief with a schematic diagram representing the process. The most common processes are Selective Laser Sintering (SLS). This is followed by the chapter explaining the design procedure. The part modeling was done in SolidWorks 2018. In this chapter there is a step-by-step procedure for modeling of the component. At the end of this chapter there is a drawing of the component with various views for better understanding of the viewer. Following the modeling procedure, the report continues with the analysis section. In this chapter the analysis is discussed by a step-by-step process. The analysis was also done in SolidWorks. The results of the analysis are displayed in a pictorial form. There are two parameters that are taken into consideration and three types of analysis were done.

The necessary calculations are shown. The factor of safety is calculated for all the parameters taken into consideration just to ensure that the component designed is safe under all conditions. The results of the analysis are displayed in tabular form. This chapter consists of all the results from start of the analysis. The results are also compared based on the materials. Finally the conclusion is given by proposing the best material suitable for manufacturing the bracket. References are added for detailed information of the reader.

DESIGN AND FABRICATION OF TWISCYCLE

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Abstract:

This invention relates to the implementation of a fully capable sports bike which can be used for maximum body use for exercise and a cargo for the sports equipment to be carried easily and is compact. The invention consists of the type of two wheel cycle where the propulsion to the rear wheel is achieved by the use of rider's legs/feet while secondary propulsion is achieved on the front wheel by a separate crank system operated by rider's arms and upper body. Both crank systems utilize independent chains to transfer force to wheels. In this it is in a folded position its compact size is different to a common bike. With a simple lifting move the rear wheel swings out under the cargo basket, creating space for the goods. When folding, the rear wheel moves in to position and the auxiliary chain on there realigns with the main chain. The rear wheel is interlocked in its new position.



ACTIVE AND REACTIVE POWER INJECTION STRATEGIES FOR THREEPHASE INVERTERS DURING SYMMETRICAL/ASYMMETRICAL VOLTAGE SAGS

G Esha^{#1}

Electrical and electronics engineering, St.Martin's Engineering College

Abstract:

Electric grid codes are expected to change in near future to accommodate an increased number of distributed generation units in the distribution power system without impairing its power quality. It is desired that the generators remain connected during voltage sags and provide ancillary services, such as voltage and reactive power control, ensuring the operational stability of the power system. This paper explores how the existing strategies for active and reactive power injection impact the operation of grid-tied inverters in terms of required power, current flowing and reduction of active power delivery during the voltage sags. Such inputs are relevant to properly size converters for operation under fault events. In addition, this paper contributes to devise 1) constant peak current control, 2) constant active current control and 3) constant average active power control strategies for three-phase four-wire grid-tied inverters considering the natural (abc) reference frame. The design and implementation of the investigated power injection strategies are discussed, and their effectiveness and technical viability are analyzed through dynamic computational simulations under symmetrical/asymmetrical voltage sags, and variation of the short-circuit ratio.



UGC AUTONOMOUS

THE EVALUATION OF EXPERIMENTAL STUDY BETWEEN FRICTION STIR WELDING AND MIG WELDING OF 2024-T4 ALUMINUM ALLOY

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College, Hyderabad, Telangana, India.

Abstract:

In this paper, the mechanical properties of welded joints of 2024-T4 aluminum alloy obtained using friction stir welding (FSW) and conventional metal inert gas welding (MIG) are examined. FSW welds were experiments on a milling machine. The presentation of FSW and MIG welded joints were recognized using tensile, hardness and microstructure. Properties FSW and MIG forms were likewise contrasted with one another with comprehend the points of interest and weaknesses of the procedures for welding uses of the Al compound. Better tensile strength was obtained with FSW welded joints. The width of the heat influenced zone of FSW was smaller than MIG welded joints. The outcomes experiments show that FSW improves the mechanical properties of welded joints.



UGC AUTONOMOUS

MICRO STRUCTURAL STUDY ON HYBRIDIZATION OF TiB₂ NANO PARTICLES WITH FERRO ALLOYS

VIJAYAGIRI SRIPAL

Assistant professor

Abstract:

In this analysis, the microstructural evolution and mechanical properties of extruded Mg composites containing micro-Ti hybridized particles with differing amounts of nano-B₄C was studied and compared with Mg-5.6Ti. Microstructural analysis revealed the existence of widely dispersed micro-Ti particles embedded in nano-B₄C particles resulting in substantial grain refining. Electron back scattered diffraction (EBSD) analyzes of Mg-(5.6Ti x-B₄C)BM hybrid composites showed that the addition of hybridized particle resulted in relatively more recrystallized grains, basal plane alignment and weak basal fiber texture extension compared to Mg-5.6Ti. The assessment of mechanical properties indicated improved ductility retention strength in Mg-(5.6Ti x-B₄C) BM hybrid composites. Compared to Mg-5.6Ti, the superior strength properties of Mg-(5.6Ti Δ xB₄C)BM hybrid composites are attributed to the presence of nano-reinforcements, the uniform distribution of hybridized particles, better interfacial bonding between the matrix and the reinforcement particles, and the matrix grain refining achieved by nano-B₄C addition. The increase in ductility achieved in hybrid composites can be attributed to the spread of fiber texture and favourable basal plane orientation achieved by the addition of nano B₄C.



UGC AUTONOMOUS

EXPERIMENTAL INVESTIGATION OF AN ALTERNATE REFRIGERANT FOR R22 IN WINDOW AIR CONDITIONING SYSTEM

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Telagana, India.

Abstract:

This paper is concerned with the future phase-out of Hydro Chloro Fluoro Carbons (HCFCs) used in the air conditioning systems. The air conditioning industry is currently evaluating alternative refrigerants for R-22. A window-type air conditioning system is selected for the tests conducted with three different types of refrigerants. These air conditioning units are spread widely in their applications and are circulating R-22 as a refrigerant. Finding an alternative refrigerant for replacing R22 is becoming a practical problem because general use of hydro chlorofluorocarbons (HCFCs) including R-22 is promised to be banned by 2020 as per the Montreal Protocol. It is intended to replace R-22 refrigerant by other refrigerants which are considered to be environmental friendly. In this project, two zeotrope blend refrigerants were selected to be tested as alternative refrigerants for R-22 in the window type air conditioner system viz., R-407C (mixture of R-32/125/134a), R-407A (mixture of R-32/125/134a) to their better thermal properties and acceptable pressure and temperature ranges. The alternate refrigerants to be used in the project have very less ozone depletion potential (ODP) and global warming potential (GWP). The performance of each refrigerant has been found individually and the results were used to evaluate and compare the following performance criteria: cooling capacity, Energy Efficiency Ratio and the coefficient of performance (COP).

EMERGING WELDING TECHNIQUE: UNDERWATER FRICTION STIR WELDING

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¹Research Associate, Dynostat.Pvt.Ltd.

²Research Scholar, Department of Mechanical Engineering, Osmania University

Abstract:

In recent years, Underwater Friction Stir Welding (UFSW) was an emerging method in stream of welding which was an extremely new and developing innovation. In the current brief, a better view of the UFSW procedure and a review on the most recent explores in the same field. That review was structured based on the various researchers modelling and designing of the UFSW, process parameters effect on joint and its role in welding similar and dissimilar materials. The advantages, disadvantages in utilizations of UFSW to FSW technique was discussed. Finally, the over view helps to get a help line to further research.



EFFICIENCY IMPROVEMENT OF FLAT PLATE SOLAR COLLECTOR USING REFLECTORS

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Hyderabad, Telangana, India.

ABSTRACT

Solar energy is one of the important and abundant renewable sources of energy. Technologies are developed to use this energy as power source for various purposes. Solar collectors are the main components of a solar heating system. The collectors collect the sun's energy, transform this radiation into heat, and then transfer this heat into a fluid, water or air, which has many household or industrial applications. The amount of sunlight falling on the collector per unit area can also alter the efficiency of the collector. Hence, in this project, a prototype will be fabricated and efficiency would be checked using different characteristics and efficiency of collector without reflectors and Collector with reflectors in order to find out the variation in the efficiency. The solar reflectors are employed with the solar collector to increase the reflectivity on the collector. Thus, the reflector concentrates both direct and diffuse radiation of the sun toward the collector. Since there are variations in both area and radiation, there will be increase in output power leading to increase in efficiency of solar collector.



UGC AUTONOMOUS

THERMAL BARRIER COATINGS FOR AEROSPACE APPLICATIONS

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³Department of Mechanical Engineering, The National Institute Of Engineering, Mysuru – 08

Abstract:

Thermal barrier coatings (TBCs) play a significant role in the applications that are unmasked at high temperatures. These TBCs are used in diesel and combustion engines and especially in aerospace gas engines due to their extreme thermal resistant nature. Here the discussion focuses on methods like physical vapour deposition, different plasma-sprayed techniques, GPX that are incorporated to get TBCs and how these techniques influence various problems and properties of TBCs their thickness and composition of materials used, are considered that makes way to improve the durability of TBCs.



UGC AUTONOMOUS

SIMILITUDE INVESTIGATION ON ACTIVE POWER FACTOR CORRECTION MECHANISM EMPLOYING ZETA CONVERTER WITH DIODE AND SYNCHRONOUS MODE OF RECTIFICATION

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Abstract:

Effective use of electricity is identified by means of an important parameter called power factor. This paper introduces the conversion of AC-DC by means of incorporating a zeta converter. Improvement of power factor has become an important phenomenon in order to harvest the necessary output. It thereby improves the voltage and maximizes the current carrying capacity and reduction of loss of power. Due to the harmonics enhancement the fundamental frequency gets varied which results in increase of the total harmonic distortion (THD) when this condition occurs, we observe that loss of power has increased. To reduce the increase of THD, we are in the position to develop and implement a converter suitable for the power factor correction. Upon literature survey various methods have been introduced along with the available converters. Here we use DC-DC zeta converter which has lower output voltage ripple and smooth compensation where synchronous mode of rectification is illustrated. A comparative analysis is done for both synchronous and diode rectification and it is noted that the results are highly satisfactory which gives better load transient results on simulation through MATLAB / SIMULINK. The response of the system can be witnessed by generating a step load change at the input side.

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STUDY ON HYBRID FIBRE REINFORCED CONCRETE

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Abstract:

The main purpose of this work is to study the behaviour of concrete both in fresh state and hardened state by combing the stainless steel fibers (hooked end) and polypropylene fibers in it. We have added two types of fibres in concrete, so it is named as hybrid fibre reinforced concrete (HFRC). In general cement concrete is weak in tension; to enhance the tensile strength in concrete we have adopted fibers. By incorporating short closely distributed and evenly dispersed fibers to concrete, it will enhance the strength properties of concrete and these fibers also act as crack resistor. Hybrid fibers are added to the concrete in volume fraction i.e. 0.25%, 0.50%, 0.75%, 1% respectively. Concrete of M40 grade was adopted based up on Indian standard code of mix and design. Tests were conducted on specimens to study the effect of hybrid fibers in various fractions in hardened concrete. Performance of HFRC under loading was found to improve significantly compared with normal concrete. Undoubtedly these hybrid fibers improve the mechanical properties of concrete. Test results have proven that Hybrid fibers will enhance the compression, flexural and split tensile strength parameters of concrete.

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EYE BLINK DETECTION FOR COMA PATIENTS

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Abstract:

Coma is a state of unconsciousness where the person is totally insensitive to oneself and also the outside surroundings, thereby incapable to react definitively to the external stimuli. This may occur due to a difficulty of an underlying sickness, which may be an outcome of injuries that are caused due to accidents, such as head trauma and various other reasons like a disease or infection, intoxication which affects the central nervous system. Coma patients are treated on a universal scale called Glasgow Coma Scale (GCS). Unconscious patients are challenging to manage and a systematic team approach is required. Thereby keen monitoring of them is required which is difficult to achieve. This project helps in treating a coma patient based on one important factor of GSC that is eye movement. Eye movements can be helpful in assessing an unconscious patient by calculating the Eye aspect ratio (EAR). The Openness of eye i.e. EAR is measured using OpenCV library where the algorithm recognizes the facial features and characteristics. This system gives an alert using the Labview tool to the medical assistant whenever the patient blinks.

A pink ribbon-shaped logo with the text "UGC AUTONOMOUS" in white, bold, uppercase letters. The ribbon has a slight 3D effect with shadows on the sides.

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**EXPERIMENTAL STUDY ON DEFORMATION
CHARACTERISTICS OF CLAYS TREATED WITH FLYASH AND
GROUND GRANULATED BLAST FURNACE SLAG**

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Abstract:

Soil swells on absorbing water and shrinks on drying. Because of this action, structures built on them are subjected to the differential settlements due to the lost of support from soil. Stabilization of clays with various additives had considerable successes. This paper presents the comparison of deformation characteristics like coefficient of consolidation and compression index of clays when treated with Fly ash and Ground Granulated Blast furnace Slag (GGBS). A Fly ash content of 15%, 20%, 25%, and 30% and GGBS of 10%, 15%, 20%, 25% is being used with the soil for the current study. To determine the deformation characteristics, firstly MDD and OMC of the clay, clay with fly ash and clay with GGBS have been determined for which optimums were obtained. Secondly, for the obtained optimum values of clay, clay with fly ash and clay with GGBS are used for taking the samples to test the deformation characteristics by Odeometer test. Finally after testing only for the loading conditions, the t_{90} graphs and log P vs Void ratio curves were developed for determination of coefficient of consolidation and compression index respectively.

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STRENGTHENING OF MARINE CLAY BY SOLID WASTES CUSHION & GEOSYNTHETICS

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Abstract:

India being peninsular country, it has large coastal area. The soils which exist in these coastal regions are weak and expansive in nature formed by the deposits of soft marine clays. Present study deals with marine clay collected at Rudravaram, Machilipatnam. Laboratory tests have been made as per ASTM specifications for observing the index and strength properties of soil. State Government of Andhra Pradesh intended to construct housing project at Rudravaram, Machilipatnam. The soil at the site is soft to very soft up to 25meters depth with liquid limit of 80%, plasticity Index of 45% and Average Natural moisture content is about 55%. For low cost housing project pile foundation is costly and uneconomical. Alternative foundation is required to be suggested. In this connection it is proposed to have a cushion using solid wastes like Ground Granulated Blast Furnace Slag (GGBS), Fly ash (FA), Quarry dust (QD) and Granular Sub Base (GSB) along with geogrid/geocell. Laboratory tests are conducted on cushion material placed along with geogrid above the soil and found that GSB layer provides better results compared to other cushion materials. Hence it is suggested to provide raft foundation over GSB layer reinforced with geocell. The field plate load test conducted at the site on the improved ground is safe and adequate to carry the load from the structure. The present study emphasizes on the use of geosynthetics as reinforcement for avoiding the excess settlement and to increase the bearing capacity of the construction site.

ROAD CORRIDOR MANAGEMENT

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Abstract:

The improvement of cities largely relies upon their bodily, social, and institutional infrastructure. In this context, the significance of intra-urban transportation is paramount. This calls for both a growth in an amount as well as the high-quality of public shipping and effective use of demand as well as supply-aspect management measures. this paper gives a number of guidelines bobbing up from the street protection look at regarding viable improvements in aspects of avenue protection along with the corridor and ability packages of those changes to different roads via reading the general number one and secondary situations which effect on the road corridors of the study region from beginning from Kazipet to Warangal street on NH 202. More congestion and delays are widespread in Indian towns and suggest the seriousness of delivery issues. An excessive degree of pollution is every other undesirable feature of overloaded streets. In conclusion, urban site visitors in India are heterogeneous in person. There is a huge volume of cycle visitors and in some cities cycle rickshaws also ply. Pedestrian visitors could be very heavy in city streets due to the high density of the population. The very wide type of traffic devices with their first-rate disparity of size and velocity creates some of the issues and areas of conflict.

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PERFORMANCE OF XANTHAN GUM ON INTERNAL EROSION CHARACTERISTICS OF DISPERSIVE SOILS

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Abstract:

The main aim of this study is to assess the erodibility of dispersive soil treated with xanthan gum by using the Hole Erosion Test (HET). Two types of dispersive soil mixed with 0.5, 1, 1.5, and 2% of Xanthan gum were tested for various curing days (7, 28, 60, and 90 days). Hydraulic shear stress and erosion rate are the key parameters that were evaluated for treated soils. From the results, it was observed that increments in hydraulic shear stress and decrement in erosion rates were observed for all curing days with various admixture concentrations. The rate of improvement in erosion rate was significant for the addition of 1% XG



PAVEMENT DESIGN OF CEMENT TREATED RECYCLED CONCRETE AGGREGATE BASES FOR LOW VOLUME ROADS

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India

Abstract:

Generally, cement-treated bases are the non-conventional pavement layers used for improving the mechanical characteristics of base and sub-base courses. The present study focused on the design and analysis of the pavement with cement-treated bases made of Recycled Concrete Aggregates (RCA). The mechanical characteristics of the cement-treated recycled concrete aggregate mixes with 75% and 100% RCA are explored in the current study. The mixes with 2% and 4% cement are used as either a base or a sub-base for pavement design and analysis. To investigate the stresses and strains analysis and subgrade California Bearing Ratio (CBR) of 6% and 1 to 2 million standard axles (msa) of design traffic are considered. The reference pavement sections are considered corresponding to subgrade class-III and a total of 3 traffic categories ranging from T-7 to T-9 are considered as per the IRC: SP-72-2015. Initially, the Resilient Moduli (M_R) of the pavement layers for corresponding reference sections are calculated. Using the above-calculated M_R values, thicknesses and Poisson's ratio of 0.35 is considered corresponding to the granular layers. The allowable stresses and strains are estimated by using the KENPAVE software. By taking these stresses and strains as the benchmark, the pavement design and analysis was carried out. From the obtained results, it is concluded that the Cement Treated Mixes with 75% RCA and 100% RCA can be recommended for the base sub-base layer materials especially for Low Volume Roads (LVRs).

PERFORMANCE ATTRIBUTE OF BASALT FIBER REINFORCED CONCRETE

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Abstract:

The concept of using fibers in concrete to improve properties of concrete. During the last 30 years different types of fibers and fiber materials were introduced and are being continuously introduced in the market as new applications. In this thesis, commercially available basalt fiber is used to study the effects of basalt fiber used for reinforcing concrete mixes and to obtain basic strength. The compressive, splitting tensile strength and flexural strength tests were performed by changing fiber weight content from 0% to 0.6% of the cement weight content. As a result, it was found that the use of basalt fiber considerably increases the tensile strength as the fiber content is increased. The compressive strength has increasing by 10% with (0.25%) of fiber than start decrease with increase the fiber quantities. Compared to corresponding plain concrete, there was a favorable decrease in drying shrinkage and creep of specimens containing various fiber contents.



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PERFORMANCE OF ULTRA HIGH PERFORMANCE CONCRETE USING STEEL FIBRE

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Abstract:

Ultra High-Performance Concrete (UHPC) is another brand of new generation constructing materials with exceptional feature and incredible mechanical characteristics. The aim of this investigation to evaluate the compressive/crushing strength and split/direct tensile strength for several ages of UHPC. Cement, silica fume (SF), marble waste as binder, fine aggregate, W/B as 0.18 and 0.20, SP as 2.6% and Steel fibres of 0 to 2% were the material used for making concrete. Totally 8 mixes were used for investigation, two without fibre and 6 mixes with Steel Fibre. Crushing strength and Direct tensile strength enhances with the escalate in Steel Fibre addition for two water binder ratios. Maximum crushing strength of 142MPa was attained for UHPC7 blend containing 1.5 percentages of steel fibres and water binder ratio as 0.18. Utilization of marble waste powder as a replace in cement will enhance economy and ecology of the environment.



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DESIGN AND DEVELOPMENT OF ONLINE LIFE CYCLE ASSESSMENT SOFTWARE

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Abstract:

In this work the web-based Life Cycle Assessment (LCA) software has been proposed for LCA beginners. The objective of the online proposed LCA software is to simplify the LCA study. The proposed LCA software is web based which avoids the installation of LCA software in local systems. The user can access the LCA software by following simple steps. The software uses CML and Recipe method to calculate the environmental impacts of product system. The LCA software was tested in the Local Area Network mode with two computers. The result was comparable with reference case study chosen. The Hyper Text Markup Language was used to design the Graphical user interface. JavaScript is used for client side and PHP is used for server side.



HIGH FLUORIDE CONCENTRATION OCCURRENCE IN VANGAPERU BASIN, ANANTHAPURAMU DISTRICT, ANDHRAPRADESH, SOUTH-INDIA.

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#2. Professor, Department of Geology, Sri Venkateswara University, Tirupati, Andhra Pradesh, India.

#3. Department of Geology, Sri Venkateswara University, Tirupati, Andhra Pradesh, India.

Abstract:

High levels of fluoride (beyond 1.5 ppm) in ground water as source of drinking water are common in many parts of Ananthapuramu District, Andhra Pradesh India, and causing fluorosis. A study was carried out to determine fluoride concentration in groundwaters of Vangaperu Ananthapuramu district, Andhra Pradesh. Water samples were collected from 44 boreholes during Pre & Post monsoon conditions 2018. Samples were then analysed for fluoride by using a fluoride electrode and an ion selective meter. The results showed that fluoride concentrations for the rainy season varied from min 1.80 mg/l to max 3.8 mg/l both conditions. Majority of the samples are deserialable limits as per World Health Organisation (WHO) maximum permissible limit of 1.5 mg/l. The high groundwater fluoride values seem to be associated with the weathered basement complex containing biotite that is a probable source of fluoride. The concentration of fluoride in ground water with depth of the aquifer is a function of lithology, amount and duration of rainfall, rate of infiltration, and level of ground water exploitation in the area. According to Gibbs' ratio samples in both seasons fall in the rock dominance field. Piper diagram under falls the CaNaHco₃, CaMgCl types.



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PYROLYSIS OF WASTE BIOMASS OF DIFFERENT ORIGIN

P. Rajasekhar Reddy #¹, Dr.S. Ramanaiah #², U. ImranBasha #³.

Saravana Sathiya Prabhakar R*¹, Seshan A*²

Department of Mechanical Engineering, Mepco Schlenk Engineering College, Sivakasi

Abstract:

Now days there is need for the alternative fuel due to the depletion of the existing fuels, bio-oil can serve this purpose. Biomass will play an important role in the future global energy infrastructure for the generation of power, heat and also for heating applications. Currently many researches are going on alternative fuel to meet the future demand. Bio-oil can be produced from biomass in many ways such as digestion fermentation, combustion gasification and pyrolysis. The bio-oil can be upgraded to produce bio-diesel. In this proposed work bio-oil is produced using pyrolysis which is a thermo chemical process. Thermo chemical process is a way in which the material is heated in the oxygen starved environment. The raw material used is Orange peel, Pomegranate peel, Banana peel which is largely available. In this proposed work peels are heated in a closed container in a vertical tubular furnace in the absence of oxygen thus the bio-oil is obtained and analyzed.



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ELIMINATING MUSCULOSKELETAL DISORDER IN SHOP FLOOR BY KARAKURI TECHNIQUE

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Abstract:

Effective controls protect workers from workplace hazards, minimize or eliminate safety and health risks. Major health hazards found threatening in the machine floor of an automobile industry which includes the Musculoskeletal Disorder (MSD) and Spine Loading of the operators. The aim of this project is to eliminate the risks of work related MSDs in machine floor. The impact of bad body postures on MSDs is found out using the postural analysis tools, Rapid Upper Limb Assessment (RULA) using RULA Software. The scores of working postures are found out and with the subsequent result, ergonomically designed device is implemented. Japanese cheap automation philosophy called “Karakuri” (Lean Manufacturing) method is implied to ergonomically design the devices with the existing energy, like gravity, to put in motion mechanisms, in order to reduce cost and eliminate work related MSDs in machine floor.



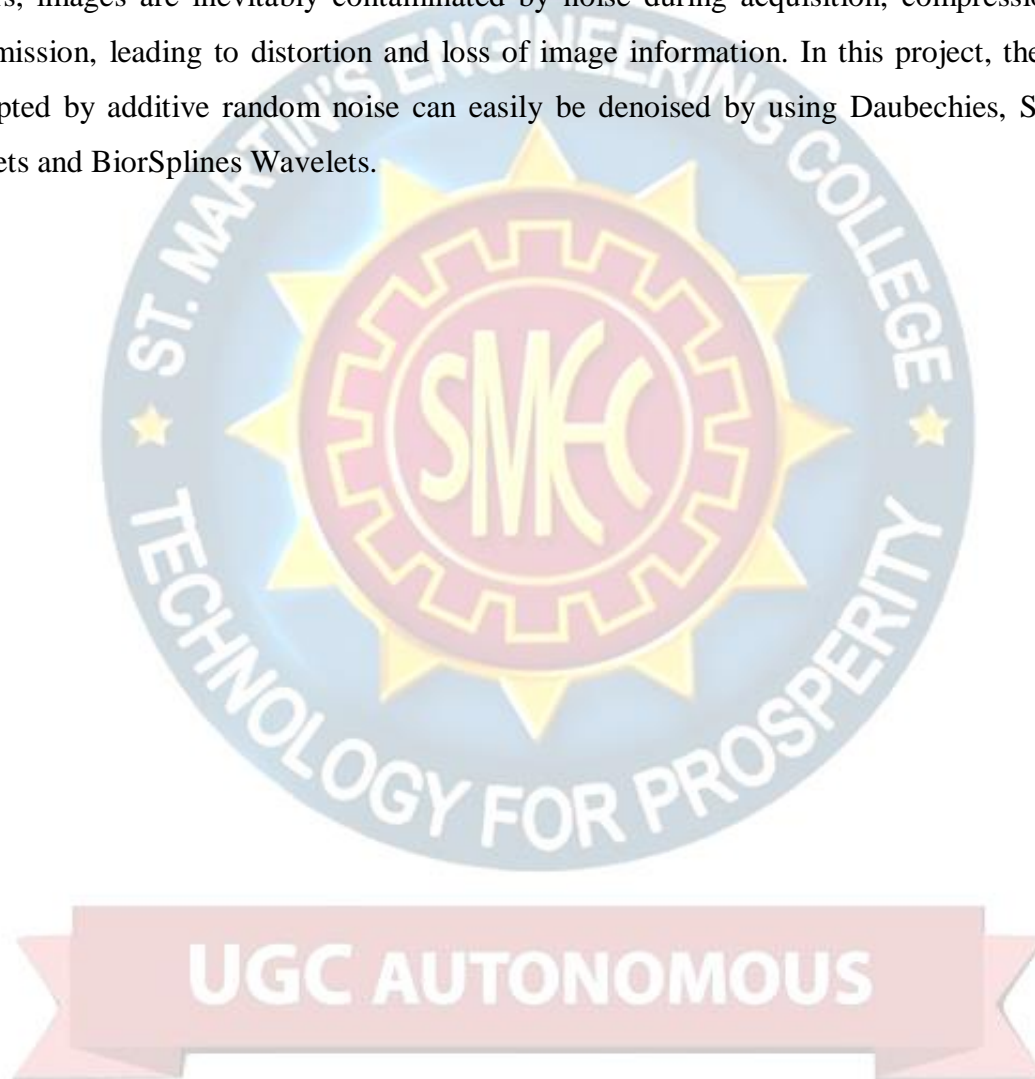
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**AN EFFICIENT IMAGE DENOISING BY DAUBECHIES,
SYMLETS, COIFLETS AND BIORSPINES WAVELETS**

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G.Pullaiah College of Engineering and Technology, Kurnool, Andhra Pradesh, INDIA

Abstract:

During transmission and the influence of environment, transmission channel, and other factors, images are inevitably contaminated by noise during acquisition, compression, and transmission, leading to distortion and loss of image information. In this project, the image corrupted by additive random noise can easily be denoised by using Daubechies, Symlets, Coiflets and BiorSplines Wavelets.



VEHICULAR DELAY MODELLING FOR MIXED TRAFFIC CONDITIONS AT SIGNALIZED INTERSECTIONS

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Abstract:

Vehicular delay is a measure of effectiveness or performance of signalized intersection making it essential to estimate. Delay is defined as an extra time spent by drivers against their expectation in a trip. Under homogeneous traffic and lane discipline conditions, conventional approaches to estimate delay such as Highway Capacity Manual delay model (USA), Webster's Delay model (UK) can be adopted. But for developing countries like India, where it is heterogeneous and no lane discipline conditions, other different sets of delay models are as Indo – HCM and Arpita delay model can be used to estimate delay. In this paper, three signalized intersections from Hyderabad city i.e. Kingkoti, Bachupally, and Miyapur were considered. Delay from different models are being estimated. From correlation matrix, important independent parameters were obtained in order to develop a model ($R^2 = 0.82$) which helps in predicting the realistic delay values under heterogeneous and no lane discipline condition.



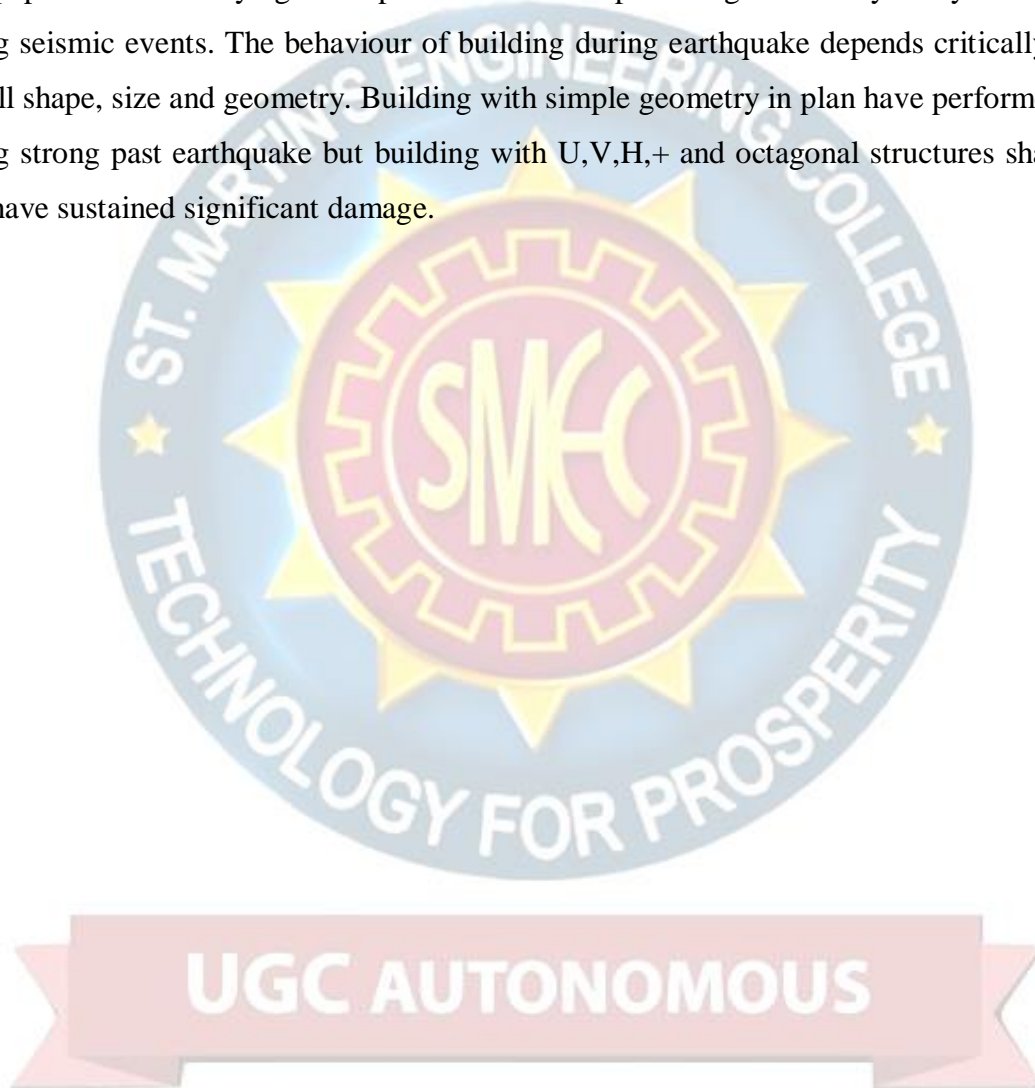
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SEISMIC ANALYSIS OF PLAN IRREGULAR MULTI-STOREYED BUILDING USING STAAD PRO

G.Siva Vignan, Assistant Professor, St. Martin's Engineering College
K.Saran Rao², Assistant Professor, Mahatma Gandhi Institute of Technology
K.Prabhakar³ Assistant Professor, Mallareddy Institute of Technology

Abstract:

This paper aims at studying description of different plan irregularities by analytical method during seismic events. The behaviour of building during earthquake depends critically on its overall shape, size and geometry. Building with simple geometry in plan have performed well during strong past earthquake but building with U,V,H,+ and octagonal structures shaped in plan have sustained significant damage.



PERFORMANCE MODELLING AND SYSTEM DESIGN OF VEHICLE TO VEHICLE COMMUNICATION USING ZIGBEE PROTOCO

Nikitha. V¹, PG Student, Dr. K. Senthil Kumar²Professor, Dr.T.Godhavari³ Professor & Head
Department of ECE, Dr. M.G.R Educational and Research Institute, Maduravoyal, Chennai,
Tamil Nadu, India.

Abstract:

Communication has offered many new opportunities for the automotive industry. Vehicular communication systems can be effective in minimizing accidents, traffic congestion, improving safety and reducing the excessive cost of traffic collisions. The recent survey carried out by Statista Research Department of Germany reveals that the number of road accidents in the first drop of 2020 is 1,93,479. Due to the lack of automation of the vehicles on roads, our country faces the major number of road accidents. This can be reduced by implementing the automation technology on roads. Based on the survey done with recently published work from the year 2015 to till date, few limitations were identified such as data loss, low speed data transfer, internet range issue, lack of communication. To overcome those limitations, solutions have been proposed in this project and we are going to implement vehicle to vehicle communication using zigbee protocol. The key features of the zigbee protocol include long battery life due to low consumption of energy, minimum data loss and high speed data transfer. To design the contemplate system into two small car models – a manual vehicle and an autonomous vehicle as a prototype to prevent accident, to enhance the communication between the vehicles, lane change, to prevent data loss and transfer the information at a high speed. For this additional sensors are interfaced to the manual vehicle. The autonomous vehicle will decide according to the current circumstances of the manual operated vehicle. The manual vehicle status is displayed in the LCD of an autonomous vehicle.

COMPARATIVE STUDY ON COLUMN PERFORMANCE UNDER SEISMIC LOADS IN RCC AND CFST COLUMN BUILDING

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Abstract:

Composite columns are ultra-efficient to resist heavy loads in multistory buildings. CFST columns are, concrete is filled in steel hollow tubular columns may be with different shapes like square, circular etc.. CFST columns have more advantages over RCC columns. CFST columns have higher load carrying capacity, larger moment carrying capacity and more ductility over RCC columns[1]. Local buckling of steel column can be reduced drastically by filling of steel tubular section with concrete[4]. With these advantages CFST columns can be used in tall buildings, bridge piers, oil and gas structures etc., [5]. The behaviour of irregular structures under seismic loads are very different from regular and symmetrical buildings. In comparison to parameters between RCC and CFST irregular buildings, some additional parameters like thickness of steel tube, proportioning of projections may have significant influence on the performance of the structure [3].

In the present, irregularity of the building is considered in terms of projection ratio i.e., ratio of projection of building to the length of the building (a/L). The study is conducted to understand the behavior of RCC columns and CFST columns in 10 and 20 floor buildings subjected to seismic loads. In CSFT columns three different thicknesses of steel tubes are considered 6 mm, 8 mm and 10 mm of square tubular columns. A finite element software ETABS is used for the analysis. Response spectrum method is used for seismic analysis of RCC and CFST column buildings. The bending behavior is studied in identified columns.

IOT BASED TWO WHEELER FOR PHYSICALLY CHALLENGED PEOPLE

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^{2,3,4} UG students, Department of Mechanical Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore, Tamilnadu, India

Abstract:

Many physically challenged persons use the same old vehicles meant for handicapped persons in our country. Since a vehicle does not have a reverse gear, to overcome the difficulties of the handicapped people by implementing our project, whose main aim is to help physically challenged persons to move their vehicle in the backward movement without the help of others. For the backward movement of the vehicle a compact, self-contained hub motor is to be mounted on the front wheel to be driven electrically for a wheeled vehicle. On the stationary center, shaft mounted a wheel having a hub. A motor housing is rotationally mounted on the center shaft. The specialty of the vehicle lies in the way that the foot steering mechanism has been designed, here we use a pedal-controlled steering mechanism which is very helpful for the person without an arm to move the vehicle in directions. The accelerator and the brake mechanism have been designed in the same way as the steering mechanism. This vehicle can also be controlled using voice recognition by IoT. Arduino UNO is the microcontroller used here for voice recognition. The functions controlled by IoT includes switching ON and OFF of the ignition, headlamp, indicators and horn.



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A REVIEW ON CURRENT RESEARCH TRENDS IN ABRASIVE WATER JET MACHINING- A STATE OF ART APPROACH

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²Associate Professor, Mechanical Engineering, PVG's College of Engineering & Technology

Abstract:

Abrasive water jet machining (AWJM) is one of the advanced and modern machining process used for difficult to cut materials. It is an environment friendly and relatively inexpensive process with reasonably high material removal rate. The abrasive water jet machining has become one of the prominent manufacturing technologies in a short period of time. This paper reviews the research work carried out from the inception to the development of AWJM within the previous decade. There are several parameters influencing the performance of abrasive water jet machining. Important process parameters which mainly affect the quality of cutting are traverse speed, hydraulic pressure, abrasive flow rate, standoff distance, and abrasive type, work material. Material removal rate (MRR) and surface roughness (Ra), taper of cut, width of cut (kerf) are outputs of AWJM. This review paper mainly focuses on the areas of research works performed on experiments, modeling, optimization, Analysis and other hybrid processes related with AWJM. This paper also foresees & reveals the future scope of work and possibilities of developing new techniques in this field.



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STUDY ON ETHYL ACLOHAL USED AS DIESEL BLEND FOR SUPER CHARGED ENGINE

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Abstract:

Biofuels like ethanol, biodiesel, have attracted attention of people worldwide and proved to be the successful fuel alternates to petroleum products. In the present investigation, the effect of supercharging is studied on the performance of a direct injection diesel engine using ethanol diesel blends with palm stearin methyl ester as additive. The performance of the engine is evaluated in terms of brake specific fuel consumption, thermal efficiency, exhaust gas temperature, un-burnt hydrocarbons, carbon monoxide, nitrogen oxide emissions, and smoke opacity. The investigation results showed that the output and torque performance of the engine with supercharging was improved in comparison with naturally aspirated engine. These factors include blend properties such as stability, viscosity and lubricity, safety and materials compatibility. It is observed that the brake thermal efficiency of ethanol diesel blends was higher than that of diesel. With supercharging brake thermal efficiency is further improved. Brake specific fuel consumption of ethanol, ester and diesel blends are lower compared with diesel at full load. Further reduction in brake specific fuel consumption is observed with supercharging. Nitrous oxide formation seems to decrease with ethanol, ester and diesel blends. Hydrocarbons and carbon monoxide emissions are more with ethanol, ester and diesel blends with supercharging slight reduction in those values are observed.

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