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Experimental analysis of a vapour compression refrigeration system by using nano refrigerant (R290/R600a/Al_2O_3)

AIP Conference Proceedings **2128**, 050023 (2019); https://doi.org/10.1063/1.5117995

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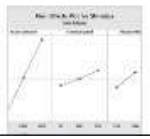
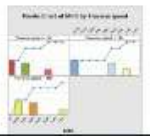
Outline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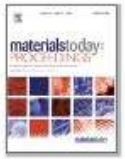

Abrasive water jet experimentation on zirconium boride and boron carbide reinforced molybdenum metal matrix

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Title for paper submitted to International Journal for Science and Advance Research In Technology (22Px)

AUTOMATIC GREENHOUSE ROOFING SYSTEM BY USING IOT

Author(s):

Ajithkumar V | Arun S | Deepan Kumar R | Mohan Babu G, Mr. Satheswaran N

Keywords:

Temperature sensor, Humidity sensor, Ultrasonic sensor and Automatic roof.

Abstract

Presently a days, throughout the mid year seasons the developed harvests gets influenced because of the overwhelming daylight force and temperature. The principle topic of this task is that to keep the yields from the overwhelming daylight, temperature and spare harvests . The Temperature sensor is utilized for the working of programmed roof top and Humidity sensor is utilized to keep up and make great condition control on nursery by utilizing ventilation fan and water sprayer in 180o and afterward ultrasonic sensor is utilized to consequently control the entryway framework.

Other Details

Paper ID: IJSARTV6I336200

Title for paper submitted to International Journal for Science and Advance Research In Technology (22Px)

DESIGN AND FABRICATION OF SUGARCANE CHIPPING CUM PLANTING MACHINE

Author(s):

Atif Hasan | Harish.B | Naveen Raj.R | Neelash.S, Prof. Balamurugan V

Keywords:

Human drudgery, Intercultural operations, Prototype, Sugarcane setts, Cultivators.

Abstract

Sugarcane planting is a very labour intensive job and it involves considerable human drudgery. Cost of sugarcane planting by mechanized method is less compared to traditional method. It also reduces drudgery involved in unit operations of sugarcane planting. The reduction in cane yield owing to delayed planting cannot be compensated by additional inputs viz., frequent irrigations, extra fertilizers and intercultural operations. In order to achieve uniform crop stand, correct seed rate, appropriate depth of setts placement and uniformity of setts with required overlapping are important. These, however can better be achieved by using tractor drawn sugarcane cutter planter apart from economizing labour and energy. Thus, recently developed sugarcane cutter planters are getting very good acceptance among sugarcane cultivators. Generally planting of any crop is very much important as far as the crop growth and yield is concerned. This paper describes the design refinement of sugarcane chipper cum planter and its prototype development. This machine simultaneously chips and plants the sugarcane setts into the furrows by pushing it from behind.

Other Details

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Experimental Study on Behaviour of Concrete Filled Tubular Column with GFRP Wrapping

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***Abstract*- Nowadays the usage of concrete filled steel tubular column constructions is becoming popular due to their high strength, stiffness, durability, corrosion resistance performances and aesthetic appearances. By using the cement and fine aggregates, leads to the environmental pollutions. Therefore, in this study the replacement concrete involved. In this experimental study, the tubular columns were filled with control and replacement concrete mixtures. The M25 grade of concrete was involved for this experimental work. This investigation focused on the replacement of cement with 5 % of metakaolin and fine aggregate with 25% of green sand. The type of concrete used and number of layers of glass fibre reinforced polymer wrapped around the outer core are the main parameters considered in this study. Experimentally, the ultimate load carrying capacity for the GFRP wrapped and unwrapped concrete filled columns were found. From the results, it is observed that the GFRP wrapped concrete filled tubular column specimens performed well under the compressive load and their performances was better than the unwrapped concrete filled tubular columns. Also, it was observed that the load carrying capacities of tubular columns were increased with the increase in the GFRP layer around the outer core of the concrete filled tubular columns**

Index terms- circular Stainless steel, Green sand, Glass Fibre, Vinyl Estar Resin

INTRODUCTION

appearance and economy in terms of material costs. Stainless steel provides high corrosion resistance, aesthetic appearance, ease of maintenance, ease of construction and high fire resistance compared to traditional carbon steel. Due to the complexity of connections between steel beams and circular hollow sections, their use in structural steelwork is limited. This is because the use of standard bolting is not feasible and costly unpopular welded connections are the normal solution.

REVIEW OF LITERATURES

Serkan Tokgoz (2015), showed the experimental behaviour of plain and steel fibre concrete filled stainless steel tubular columns under biaxial bending and axial compression. The parameters such as concrete compressive strength, cross section capacities, load eccentricity, steel fibre material and slenderness was studied, and the ultimate strength capacities, load deflection relations and load axial strain behaviour were investigated. Concluded that the high strength stainless steel tube was very effective on behalf of concrete filled steel tubular column behaviour.

Richard Liew J Y et al (2014), investigated the behaviour of tubular columns in filled with ultrahigh strength concrete at ambient and elevated temperatures. The test were conducted for the basic

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Design and Experimental Study on Steel Truss Bridge using Splice Connections

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Abstract:

Structural steel has many advantages over other construction materials by its high strength and ductility. It has a higher strength to cost ratio in tension and a slightly lower strength to cost ratio in compression when compared with concrete. Thus, structural steel is an efficient and economic material in bridges. This paper is intended to design and evaluate the steel truss bridge experimentally by using splices. A typical Warren truss bridge is designed for the single lane railway traffic with the total length of 49 m. In which the truss members designed are further reduced by connecting with splices. This makes the truss structure more efficient and able to withstand seismic forces by reducing the base shear up to 27%. The increase in load carrying capacity is also examined experimentally with minimum deflection using splice connections.

key words : steel connection, splice connection , railway bridges, steel joint seismic

I Introduction

The bridges are the structures, which provide means of communication (viz., passage) over a gap. The rivers, canyons and valleys form natural gaps. The railway and highway crossings, highway and canal crossings form artificial gaps. These are constructed to carry highway traffic are known as highway bridges (road bridges). The bridges built to carry railway traffic are known as railway bridges (rail bridges). The bridges used pedestrians are drown as foot bridges. Some bridges

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International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 06 | June 2019 www.irjet.net p-ISSN: 2395-0072

EXPERIMENTAL STUDY ON MESH CONFINED CONCRETE SUBJECTED TO HIGH TEMPERATURE

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[2]Head of the Department in Paavai Engineering College, Department of Civil Engineering, Namakkal

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Abstract:- Concrete is a widely used construction material in buildings and several structures for a quite long time. Concrete can be defined as a composite binding material having constituents as aggregate, finer sand and fine cement and water in predefined proportion so as to achieve required strength .Concrete is a composite having properties that change with time. Durability of concrete depends on many factors including its physical and chemical properties, the service environment and design life. Plain concrete is strong in compression while weak in tension. The idea of reinforcing concrete with steel bars gave rise to a new composite called Reinforced Concrete which is capable of withstanding both compression and tension simultaneously. Thus reinforced concrete has become the most commonly used construction material.

Keywords: binding materials, mesh materials, mesh confined concrete.

1. INTRODUCTION

Concrete is a widely used construction material in buildings and several structures for a quite long time. Concrete can be defined as a composite binding material having constituents as aggregate, finer sand and fine cement and water in predefined proportion so as to achieve required strength .Concrete is a composite having properties that change with time. Durability of concrete depends on many factors including its physical and chemical properties, the service environment and design life. Plain concrete is strong in compression while weak in tension. The idea of reinforcing concrete with steel bars gave rise to a new composite called Reinforced Concrete which is capable of withstanding both compression and tension simultaneously. Thus reinforced concrete has become the most commonly used construction material.

2. LITERATURE REVIEW

Title- Behaviour of concrete subjected to high temperature
Author- Abhinandan Gupta

This paper discussed about the behavior of concrete at various temperature and changes in its compressive strength and creased by 0.80% and at 600˚C the concrete got poorly damaged. He was concluded that up to 150˚C, the strength of concrete increases to some extend after that strength decreases.

Title - Performance of high strength concretes at elevated temperatures
Author – Bastami

This paper investigated about the effect of temperature on compressive strength, spalling and mass loss of High Strength Concretes (HSCs). The materials used for casting the specimens are cement, coarse aggregate, silica fume and fine aggregate. The specimens were casted and heated to a temperature of about 800°C at 20°C/min. Based on results they were summarized about the sf (silica fume)had an important role on normal compressive strength but did not affect the relativestrength of the heated specimens, while it controls spalling ratio significantly.

Title - Compressive strength of conventional concrete and high strength concrete with temperature effect
Author – Pathan

This paper discussed about the effect of sustained temperatures on strength properties of High Strength Concrete and its comparison with ordinary Conventional Concrete. The specimens were casted and heated to a temperature of about 250°C. Based on experimental results they were concluded that High Strength Concrete and ordinary concrete is dropped considerably up to 200°C and the compressive strength loss in High Strength Concrete is higher than the ordinary concrete because of the quantity of cement required is about 5-20% less than that of ordinary concrete.

3. OBJECTIVES

The objective of the project work is to study the properties of ordinary conventional concrete (OCC) and mesh confinement concrete exposed to temperature and cooled the specimens by quenching method and air-drying method.

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Overview - of Seismic Resistance of Railway Steel Trusses Bridges Using Splice Connection

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[2]Associate professor, Department of Civil Engineering, Paavai Engineering college, Namakkal.

Email id : mmc_ravisankar@yahoo.co.in

Abstract:

This paper presents overview of a seismic assessment of multi-span steel railway bridges and preventive seismic performance of steel structures. The main concept is splice connection use to steel members in railway bridge seismic behaviour and safety under seismic conditions. The newly developed splice connection in main girder , longitudinal girder trusses members used in railway bridges under reversal cyclic loading to evaluate seismic performance. Seismic performance is evaluated based on hysteretic behaviour, strength, ductility, stiffness, and energy dissipation.

key words : steel connection, splice connection , railway bridges, steel joint seismic

I Introduction

According to the recent Indian standard code on earthquake resistant design of structures, more than 60-65% of the area of our country falls under seismic zone III or above. This underlines the importance of seismic detailing. In any structure, the joints assume more importance and have to be detailed carefully so that they are able to withstand the inelastic joint rotations (in the order of 0.04 radians) and drift that may result during an earthquake. The detailing of reinforced concrete structures have been covered adequately in the Indian codes. However, until recently such detailing of joints in steel structures was not covered in the Indian code on steel structures. Though the recent version of the code, IS 800:2007, contains provisions for design and detailing for seismic loads, it does not suggest the type of

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Optimization of Construction Cost In Residential Building

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Abstract- *in this project we are presenting the details about low cost construction of a residential building. Cost optimization aims to cut down the construction cost by using alternatives to the conventional methods. The estimation of 1330 sq.feet residential building is made about Rs. 30, 75,000. In this building, we have implementing the new construction techniques and materials to achieve the cost optimization. The various techniques and materials adopted in this project are filler slab technique, ferrocement door, terracotta hollow block and manufactured sand to attain the economy in construction. This methodology brings down the total cost of building by lowering the cost in both materials and labor aspects. It is necessary to achieve the cost optimization of the building without sacrificing the strength at any situation. It should be noted that low cost housings are not houses which constructed by cheap building materials but it is using the substandard quality material. High efficiency of workers, minimize waste in design and good management practices can also paved the way for cost optimization. Suggestion for reducing construction cost in this paper is of general nature and it varies depending upon the nature of the building to be constructed and budget of the building.*

Keywords- filler slab technique, ferrocement door, terracotta hollow block, manufactured sand.

I. INTRODUCTION

The cost optimization is a process that should be carried out throughout the construction period to ensure that the cost of the building is kept within the estimated cost limits. Cost optimization of a project involves the collecting and measuring the cost record of a project and the work progress. It also includes the comparison of actual progress of project cost with the estimated. Many of challenges has to be faced by the construction industries which includes design and constructability issues, time and cost related issues, rising material and labor costs, structural changes. The cost Cost optimization of a project involves collecting and measuring the cost record of a project and the work progress. It also includes the comparison of actual progress of project cost with the estimated. The main objective of cost optimization of a project is to gain the maximum profit within the design period and with satisfactory quality of work. It is necessary to decide which optimization is required and amount of detail that will be in used into the construction stage. The cost itself is a major difficulty in operating a detailed cost optimization system. It is an expensive operation for a large contract to carry out a detailed cost optimization system.

- **Filler Slab Technique**

Filler slab technology is a simple and very innovative technology for a slab construction. Concrete is good in taking compression and steel is good in tension. Thus RCC slab is a product which resists both compressions as well as tensile. Filler slab is a very cost effective roofing technology. It is not easy to remove, the concrete from the tension zone, hence concrete can be replace (partially) that part of concrete using light weight and low cost filler material. This method of construction is called filler slab. Filler slab technology is being used across India, but substantial amount of work on the successful promotion and mostly adopted in South India.

- **Manufactured Sand**

River sand is a widely used construction material all over the world, especially in the production of concrete, cement-sand mortar and concrete blocks. Various Government, Non-Governmental Organizations and Research Institutes are striving to identify alternative materials to supplement river sand. There is a strong need for research on river sand substitutes for concrete production and cement sand mortar production. Manufactured sand is popularly known by several names such as Crushed sand, Rock sand, Green sand,

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Workability and Strength Properties of SCC made with Processed RCA

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[2]Assistant Professor, Department of Civil Engineering, Paavai Engineering College, Tamil Nadu, India.
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Abstract – *Concrete is the most commonly used material in civil engineering and the main component of most infrastructures. For the foreseeable future, there seems to be no alternative to concrete and building materials. Although the strength of the concrete is the most important factor, it is also necessary that the concrete be strong, good life and durable. In this paper, the mechanical properties of self-compacting fly ash concrete with recycled aggregates (RCA) were investigated. The RCA comes from local construction and demolition waste. The natural substitution of coarse aggregates by recycled coarse aggregates varies in self-compacting concrete between 0 to 50% at 10% interval. This study uses a commonly available class F fly ash as viscosity modifying agents. In this study the influence of the treated RCA on the SCC of grades M30 and M40 was measured.*

Key Words: Self Compacting Concrete, Recycled Concrete Aggregate, Strength Properties

1. INTRODUCTION

According to the World Commission on Environment and Development, sustainability means "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Sustainability is an idea that aims to preserve the health of our planet and to continue to grow and human development.

SCC settles due to its own weight and is almost completely deaerated when filling the formwork. In SCC, No additional internal or external vibration is required for compaction. Even with components with heavily congested reinforcements, all voids and spaces are completely filled. SCC flows like a "honey" and has a near horizontal concrete

Fresh and hardened properties of SCC directly depends on the mix design, should not be different from normal concrete, the only exception is its consistency. However, the high level of super-plasticizers to lower the liquid limit and improve the workability, the high powder content as a "lubricant" for coarse aggregates and the use of viscosity agents to increase the viscosity of the concrete were taken into account.

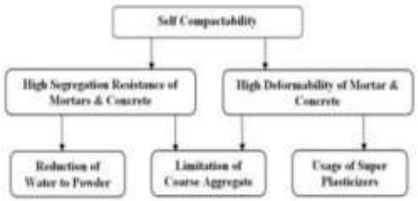

Fig -2: Basic Principles of SCC

1.1 Advantages of SCC

It has been proved economically beneficial because of a number of factors as noted below (ENFARC, 2002):

- Faster construction & Easier placing,
- Reduction in site manpower
- Uniform and complete consolidation,
- Better surface finishes,
- Improved durability,
- Increased bond strength,
- Greater freedom in design,

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Effect of Curing Temperature on the Strength Properties of M30 Grade GPC made with M-Sand

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[2]Assistant Professor, [3]Head of Department, Department of Civil Engineering, Paavai Engineering College, Tamil Nadu, India.

Abstract – *The cement industry is one of the main producers of greenhouse gases. Therefore, efforts are needed to make the concrete more environmentally friendly by using fly ash, which helps to overcome global warming and the problems arises in the disposal of fly ash. This article deals with the development of intermittent connection materials in the construction industry. Fly ash based Geopolymer Concrete is a reliable choice, but requires thermal hardening for the polymerization process. In this work we try to investigate the influence of temperature and type of curing on the strength properties of fly ash based geopolymer concrete, with the fine aggregate being replaced by M-sand. Geopolymer concrete grade M30 was prepared with chemically activated treated fly ash using alkaline solutions such as sodium silicate (Na_2SiO_3) and sodium hydroxide (NaOH). In this study, a concentrated solution of 16 M sodium hydroxide is used. All samples were cured at different temperatures in an oven at 60°C, 80°C, 100°C, 120°C and 140°C for 16 hours and tested for 7 days. It was concluded that GPC blends cured at 100°C give better results than specimens treated at other curing temperatures.*

Key Words: Geopolymer Concrete, Oven Curing, M-Sand, Alkaline Solution

1. INTRODUCTION

Concrete is the most commonly used building material, consisting of a mixture of cement, sand, coarse aggregates and water. Ordinary portland cement (OPC) is conventionally used as a primary binder for concrete production. Producing one ton of cement requires about 2 tons of raw materials, shale and limestone, and releases a large amount of carbon dioxide (CO_2) into the atmosphere, which contributes significantly to the greenhouse effect. The amount of CO_2 released during the manufacturing process of OPC is of one ton per ton of OPC produced. Worldwide, OPC production accounts for about 7% of global CO_2. That brings about 1.6 billion tons of CO_2 into the atmosphere.

1.1 Geopolymer Concrete

Davidovitts completed a very important study in 1978 by discovering geopolymer concrete, which was concrete without cement. This has attracted many attentions, where fly ash has completely replaced the cement. He had his own qualities and left extraordinary impressions in research studies.

The geopolymer is an inorganic alumina-silicate compound made from materials of geological origin or derived materials such as fly ash, rice husk, etc., which are rich in silicon and aluminum. Geopolymers technology could reduce the atmospheric CO_2 emissions of the cement and aggregates industry by about 80%. Direct alkaline activation of industrial waste, such as fly ash, can produce a geopolymer that can be used to construct new concrete for construction. This can be considered as a sustainable approach to construction, as the internal energy content of these new concretes is much lower than that of ordinary Portland cement concrete (OPCC), making Portland cement, one of the largest contributors to the greenhouse, completely eliminate gas emissions.

1.2 Fly Ash Based Geopolymer Concrete

Fly ash is one of the most abundant materials on earth. Due to its role in geopolymerization, it is also a crucial component in the production of geopolymer concrete. Fly ash is a pozzolan powder. A pozzolan is a material that has cementing properties in combination with calcium hydroxide. Fly ash is the major by-product of coal combustion in coal power plants.

Geopolymer concrete generally requires the use of class F fly ash. In this project, a low-calcium fly ash-based geopolymer (ASTM grade F) is used as the binder. Fly ash geopolymer paste binds coarse aggregates, fine aggregates and other

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International Journal of Scientific Research and Engineering Development-– Volume 2 Issue 3, May –June 2019

Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

Effective Utilization of Plastic Wastes in Tile Manufacturing: A Step Towards Sustainability

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Abstract:

In India, 70 percent of total plastic consumption is discarded as waste. Around 5.6 million tonnes per annum (TPA) of plastic waste is generated in country, which is about 15,342 tonnes per day (TPD). To a large extent in India, plastics management is seen more as a waste management rather than generation of plastics. Another major concern about plastics in the waste stream is their longevity and whether or not they are truly biodegrade. It is estimated that most plastics would take 500-1000 years to break down into organic components. Because of this longevity and the low rate of recycling, much of our plastic waste ends up in landfills or as litter. Some of this plastic waste makes its way via rivers and wind to the ocean. Garbage barges, and the trans-continental transport of recyclable materials also lead to an increasing amount of plastics in our oceans and waterways. *Plastics* have a high energy content that *can be converted to* electricity, synthetic gas, fuels and recycled feedstocks for new *plastics* and other products of chemistry. Recovering this abundant energy also reduces *waste* sent *to* landfills and complements *plastics* recycling. Hence keeping all these factors in mind, it is liable to utilize plastic waste into useful construction material. Hence an attempt is made to utilize plastic in manufacturing of tiles with suitable proportions. Experiments are conducted to assess the compressive strength, rupture, abrasion, impact strength and water absorption. SEM analysis is performed to examine the micro level distribution of plastic wastes in manufactured tiles. It is believed that such initiative will lay the path towards the goal of "waste to wealth".

Keywords *: Plastic waste, flooring material, waste utilization*

I. Introduction

India is facing a serious challenge in disposing waste in many landfills throughout the country. The landfills situation is resulting in high disposal cost and potential environmental problems. If current trend continues, with waste production projected to grow by each year. A product that would help old

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International Journal of Scientific Research and Engineering Development-- Volume 2 Issue 3, May -June 2019

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EXPERIMENTAL STUDY ON SELF COMPACTING CONCRETE USING GGBS

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Abstract

Ground granulated blast furnace slag (GGBS), due to its pozzolanic nature, could be a great asset for the modern construction needs, because slag concretes can be of high performance, if appropriately designed. The use of GGBS as a cementitious material as well as fine filler is being increasingly advocated for the production of High performance concrete (HPC), Roller compacted concrete (RCC) and Self compacting concrete (SCC), etc. However, for obtaining the required high performance in any of these concrete composites, slag should be properly proportioned so that the resulting concrete would satisfy both the strength and performance criteria requirements of the structure. The paper is an effort towards presenting a new mix design methodology for the design of self compacting GGBS concretes based on the efficiency concept. The methodology has already been successfully verified through a proper experimental investigation and the self compacting slag concretes were evaluated for their self compactability and strength characteristics. The results indicate that the proposed method can be capable of producing high quality SCC.

KeyWords: Self compacting concrete, Compressive Strength, split tensile strength, Flexural strength, GGBS, admixtures, plasticizers.

I. INTRODUCTION

Green concrete is very often also cheap to produce, because, for example, waste products are used as a partial substitute for cement, charges for the dumping of waste are avoided, energy utilization in production is inferior, and durability is superior. In India there is an extreme manufacture of fly ash as it is used in the production of electricity in nuclear power plants. Ground granulated blast furnace slag (GGBS)then dried and ground into a fine powder. By well judged use of available materials for concrete making and their proportioning, concrete mixes are produced to have the desired properties in the fresh and hardened states, as the situation demands.

Waste can be used to fabricate new products or can be used as admixtures so that natural sources are used

As the properties are as good as the cement, the Class F fly ash (coal fly ash) and Ground granulated blast furnace slag (GGBS) is used as fine partial replacement in the cement in Self compacting concrete.

Self – compacting concrete (SCC) is a fluid mixture, which is suitable for placing difficult conditions and also in congested reinforcement, without vibration. In principle, a self – compacting or self – consolidating concrete must:

- Have a fluidity that allows self – compaction without External energy
- Remain homogeneous in a form during and after the placing process and
- Flow easily through reinforcement

Self – consolidating concrete has recently been used in the pre – cast industry and in some commercial applications, however the relatively high material cost still hinders the wide spread use of such specialty concrete in various segments of the construction industry, including commercial and residential construction.

Compared with conventional concrete of similar mechanical properties, the material cost of SCC is more due to the relatively high demand of Cementation materials and chemical admixtures including high – range water reducing admixtures (HRWRA) and viscosity enhancing admixtures (VEA). Typically, the content in cementation materials can vary between 450 and 525 Kg/m^3 for SCC targeted for the filling of highly restricted areas and for repair applications. Such application required low aggregate volume to facilitate flow among restricted spacing without blockage and ensure the filling of the formwork without consolidation. The incorporation of high volumes of finely ground powder materials is necessary to enhance cohesiveness and increase the paste volume required for successful casting of SCC. Proper selection of finely ground materials can enhance the packing density of solid particles and enable the reduction of water or HRWRA demand required to achieve high deformability. It can also reduce viscosity

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Experimental Investigation of Magnesium Phosphate Cement Based Concrete

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ABSTRACT
This project shows the results of an experimental study on the Magnesium phosphate cement for repair work in concrete mixed with coarse aggregate and fine aggregate. The percentage of Magnesium phosphate cement used in concrete and cement was replaced with 0%, 5% and 10%. The effects of curing for 7, 14 and 28 days on strength of concrete were studied. Experimental results indicate that the increase in the proportions of Mineral Admixtures resulted in an increase or decrease in the strength of concrete. The overall test performance revealed that Magnesium phosphate cement can be utilized as a partial replacement of cement in high strength concrete. The Mix Design for concrete M60 grade is being done as per the Indian Standard Code IS: 10262-2009.

KEYWORDS: Magnesium phosphate cement, coarse aggregate, fine aggregate

How to cite this paper: S. Priyadarshika | M. Rajkannan "Experimental Investigation of Magnesium Phosphate Cement Based Concrete" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-4 | Issue-4, June 2020, pp.1059-1064, URL: www.ijtsrd.com/papers/ijtsrd31361.pdf

IJTSRD31361

1. INTRODUCTION

1.1. CONCRETE

Concrete is a composite material composed of fine and coarse aggregate bonded together with a fluid cement (cement paste) that hardens (cures) over time. In the past lime based cement binders were often used, such as lime putty, but sometimes with other hydraulic cements, such as a calcium aluminate cement or with Portland cement to form Portland cement concrete (for its visual resemblance to Portland stone) Many other non-cementitious types of concrete exist with different methods of binding aggregate together, including asphalt concrete with a bitumen binder, which is frequently used for road surfaces, and polymer concretes that use polymers as a binder.

Concrete structure may often suffer from an unexpected deterioration in terms of pop-out arising from physical/chemical delamination and corrosion of steel reinforcement. Moreover, internal cracking has still a potential risk of degradation of concrete properties, subsequently leading to structural failure. Thus, regular repair and rehabilitation would be required to secure a structural safety. However, unlike other civil infrastructures, the traffic restriction during the repair of pavement costs high; only a couple of hours are given for the repair treatment at night to avoid congestion of transportation. Additionally, the conventional repair materials such as Ordinary Portland Cement and hot-mix asphalt may face early degradation due to a debondment from the existing substrate.

1.2. MAGNESIUM PHOSPHATE CEMENT CONCRETE

Magnesium phosphate cement, also known as MPC, is a high performance, quick setting cement binder that has a multitude of beneficial properties when compared to Ordinary Portland Cement (OPC) binder systems.

MPC cement provides a fast-setting, strong and durable binder system for a wide variety of construction products applications for both external and internal use. The binder system bonds tenaciously to a wide variety of aggregates, fillers, and fibers allowing a broad choice of ingredients while maintaining sufficient compressive strength and integrity even at low binder ratios. The binder system also bonds with a wide variety of substrates such as itself, concrete, asphalt, metals, wood, and a variety of plastics thus providing a wide spectrum of potential applications. The main applications for MPC binder systems are for dry shotcrete mixes, for rapid setting and hardening patching mortar or dry-mix products, and protective coatings.

1.3. OBJECTIVE OF THE STUDY

The present study on magnesium phosphate cement concrete has the following objectives.

To find the optimum percentage of magnesium phosphate characteristics of raw materials, water to binder ratio, the

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RESEARCH ARTICLE OPEN ACCESS

STUDY ON EFFECTS OF LIGHT WEIGHT AGGREGATES ON COMPRESSIVE AND FLEXURAL STRENGTH OF CONCRETE

S.Thenmozhi[a], M.Rajkannan[b]

[a] PG student(Structural Engineering), Civil Department, Paavai Engineering College, Pachal.

[b] Assistant Professor, Civil Department, Paavai Engineering College, Pachal.

Abstract:

The present day world is witnessing construction of very challenging and difficult civil engineering structures. In this study comparison has been made between plain cement concrete and light weight concrete having different proportion of aggregates and admixtures, i.e., Expanded Clay Aggregates: 0%, 25%, 50%, 75% and 100% with coarse aggregate, silica fumes 10% and PVA(Poly Vinyl Alcohol) 1.6% of constant replacement with cement and water respectively. It helps to increase the volume of concrete and hence reduce the weight. In Design of concrete structures, light weight concrete plays a prominent role in reducing the density and to increase the thermal insulation. These may relate of both structural integrity & serviceability. More environmental and economical benefits can be achieved if waste materials can be used to replace the fine light weight aggregate.

Key words: Expanded Clay Aggregate, Silica fume, Poly Vinyl Alcohol (PVA), Density, Compressive strength, Flexural strength.

INTRODUCTION

Lightweight concrete is a type of concrete contains expanded light weight aggregates which increase the volume of the mixture while giving additional qualities such as lowering the dead weight.

Lightweight concrete maintains its large voids and not forming laitance layers or cement films when placed on the wall. This research was based on the performance of light weight concrete using expanded clay aggregate. However, sufficient water cement ratio is vital to produce adequate cohesion between cement and water. Lightweight concrete is usually chosen for structural purpose where its use will lead to a lower overall cost of a structure than normal weight concrete

This research report is prepared to show the activities and progress of the lightweight concrete research project. The performance of lightweight concrete such as compressive strength tests, water absorption and density and supplementary tests and comparisons has been made with nominal concrete.

Most of the normal weight aggregate of normal concretes is natural stone such as lime stone and granite. With the increasing amount of concrete used, natural environment and resources are excessively explored. Synthetic light weight aggregate produced from environmental waste like fly ash, is a viable new source of structural aggregate material. The use of light weight concrete permits greater design flexibility and substantial cost savings, reduced dead load, improved cyclic loading, structural response, longer spans, better fire ratings, thinner sections, smaller size structural members, less reinforcing steel and lower foundations costs. Other inherent advantages of the material are its greater fire resistance, low thermal conductivity, low coefficient of thermal expansion and lower erection and transport costs for prefabricated members.

Structural lightweight aggregate concretes are considered as alternatives to concretes made with dense natural aggregate because of the relatively high strength to unit weight ratio that can be achieved. Other reasons for choosing lightweight concrete as a construction material is more attention is being paid to energy conservation and to the usage of waste materials to replace exhaustible natural sources. Lightweight aggregate, due to their cellular structure, can absorb more water than normal weight aggregate. In a 24-hour absorption test, they generally absorb 5 to 20% by mass of dry aggregate, depending on the pore structure of the aggregate. Normally, under conditions of outdoor storage in stockpiles, total moisture content does not exceed two-thirds of that value.

This means that lightweight aggregate usually absorb water when placed in a concrete mixture, and the resulting rate of absorption is important in proportioning lightweight concrete. Due to this more

International Journal of Scientific Research and Engineering Development-- Volume 2 Issue 3, May-June 2019

Available at www.ijsred.com

absorption of water of light weight aggregate, internal curing will be maintained for a long period.

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International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume: 3 | Issue: 3 | Mar-Apr 2019 Available Online: www.ijtsrd.com e-ISSN: 2456 - 6470

Experimental Study on Mechanical Properties of Sintered Fly Ash Aggregate in Concrete

Anupriya T[1], Jayapal A[2]

[1]PG Student, [2]Assistant Professor
[1,2]Civil Engineering Department, Paavai Engineering College, Namakkal, Tamil Nadu, India

How to cite this paper: Anupriya T | Jayapal A "Experimental Study on Mechanical Properties of Sintered Fly Ash Aggregate in Concrete" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-3 | Issue-3, April 2019, pp.203-215, URL: http://www.ijtsrd.com/papers/ijtsrd21679.pdf

IJTSRD21679

ABSTRACT

There is heavy demand for the building materials in the domestic market, which is becoming scarce day by day. Presently in India the power sector depends on coal based thermal power station, which produce a huge amount of fly ash approximately to be around 200 million tones annually. The mass utilization of fly ash in concrete, essentially focused on sintered fly ash aggregate replaced by natural coarse aggregate is thought of in this investigation.

Keywords: *Sintered fly ash, fly ash, conventional concrete, compressive strength, natural course aggregate*

1. INTRODUCTION

1.1. GENERAL

In many countries, due to the increasing cost of raw materials and the continuous reduction of natural resources, the use of waste materials is a potential alternative in the construction industry. Waste materials, when properly processed, have shown to be effective as construction materials and readily meet the design specifications. The continued and expanding extraction of natural aggregate is accompanied by serious environmental problems. Often it leads to irremediable deterioration of rural areas, since quarrying of aggregates alters land topography and causes other potential problems, such as erosion. The artificial aggregates from industrial and post-consumer wastes are not only adding extra aggregate sources, but also reduce environmental pollution.

Fly ash disposed from thermal power plant is being beneficially utilized for various civil engineering applications such as for the production of blended cement, fly ash bricks, ash addition in the future is well anticipated. The mass utilization of fly ash in concrete essentially focused as cement Replacement material or as aggregate fillers.

1.2. CHARACTERISTIC FEATURES OF FLY ASH

Fly ash is finely divided residue resulting from the combustion of powdered coal and transported by the flue gases and collected by electrostatic precipitation. It is the most widely used pozzolanic material all over the World. In recent time, the importance and use of fly ash in concrete has grown so much that it has almost become a common ingredient in concrete, particularly for making high strength and high performance concrete. Extensive research has been done all over the world on the benefits that could be accrued in the utilization of fly ash as a supplementary cementitious material.

ASTM broadly classify fly ash into two classes

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International Journal of Trend in Scientific Research and Development (IJTSRD)
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Experimental Study on Composite Concrete RC Frame Structure using Sisal Fibre

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[1,2]Civil Department, Paavai Engineering College, Pachal, Tamil Nadu, India

ABSTRACT

This project aims to compare the mechanical properties of Sisal fiber in the improvement of load carrying capacity of concrete structure in different layers. Beams and columns may be strengthened in flexure through the use of sisal fiber bonded to their tension zone using epoxy as a common adhesive. Due to several advantages of sisal fibre wrapping over conventional techniques used for structural repair and strengthening. In our project is study about load carrying capacity of an RCC frame wrapped with sisal fiber. An experimental study is to predict the maximum load carrying capacity, deflection of the composite RCC structure. Finally the results are compared with conventional framed structure, which is suitable for strength and rehabilitate the concrete structure.

KEYWORDS: Sisal fibre, Fibre, RC Frame, Composite Structure and Sisal Fibre Composite

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IJTSRD31115

I. INTRODUCTION

CONCRETE

Concrete is a composite material that consists of a cement paste within which various sizes of fine and course aggregates are embedded. It contains some amount of entrapped air and may contain purposely-entrained air by the use of air-entraining admixtures. Various types of chemical admixtures and/or finely divided mineral admixtures are frequently used in the production of concrete to improve or alter its properties or to obtain a more economical concrete.

SISAL FIBRES

Fibres are usually used in concrete to control cracking due to both plastic shrinkage and drying shrinkage. They also reduce the permeability of concrete and thus reduce bleeding of water. Some types of fibres produce greater impact, abrasion and shatter resistance in concrete. Generally fibres do not increase the flexural strength of

46% lignin, 54% cellulose. Because its high content of lignin, sisal is much more advantageous than other natural fibres.

II. OBJECTIVES OF THE STUDY

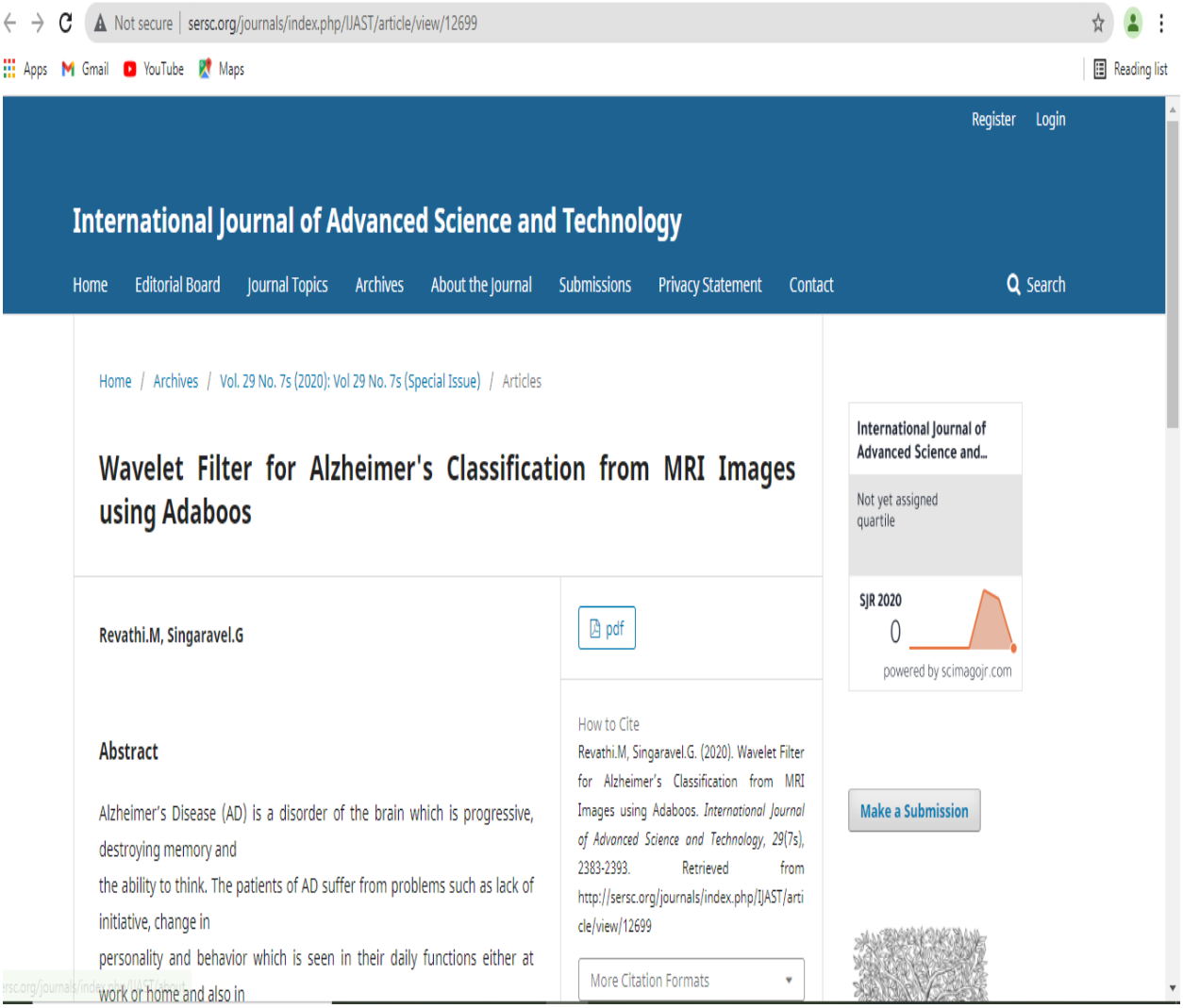
The main objectives of this study are,

1. To study the mechanical properties of conventional concrete structure and compare with sisal fibre wrapped concrete structure. To determine the bond strength between sisal fibre concrete.
2. To determine the flexural strength of sisal fibre reinforced concrete beam with sisal fibre.
3. To compare the flexural behaviour of sisal fibre reinforced concrete beams with conventional concrete structure.

III. SCOPE FOR STUDY

1. Natural fibres as reinforcement in composites have been

3.4.3 Number of research papers per teacher in the Journals notified on UGC website during the last five years (5) 2019-2020



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RELIABLE AND ENERGY EFFICIENT WBAN THROUGH ON-DEMAND HANDOVER PROTOCOL

J. Karthik et al.

PDF

How to Cite

et al., J. K. (2019). RELIABLE AND ENERGY EFFICIENT WBAN THROUGH ON-DEMAND HANDOVER PROTOCOL. *International Journal of Advanced Science and Technology*, *28*(15), 659 - 666. Retrieved from http://sersc.org/journals/index.php/IJAST/article/view/1841

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Abstract

In recent years, innovation in technological development makes human work easy. More specifically the development in the field of medical is unimaginable. Nowadays medical treatments were enhanced and more medical equipments were developed to detect the disease and also to monitor the human health. But the patient needs to be stayed in the hospital until they recover from the ill. Some illnesses may take even couple of months to few years. In that case

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semanticscholar.org/paper/Maximize-Body-Node's-Lifetime-Through-Conditional-Karthik-Rajesh/d7815f1aae401663ab595bc06204cdd563bf13dd#paper-header

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Maximize Body Node's Lifetime Through Conditional Re-transmission

J. Karthik, A. Rajesh • Published 2019 • Computer Science • Inventive Computation Technologies

Wireless Sensor Network is greatly evolved in recent years. Technological advancements in wireless networks are intended to develop various fields especially in medical domain. Nowadays, remote health monitoring is possible by the enormous growth of wireless body area sensor networks. The Wireless Body Area Sensor Network monitors the human health by using wearable body sensors, and sends the status of the human health to the medical experts. Body nodes will be placed on, in and around the... Expand

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International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 10 | Oct 2019 www.irjet.net p-ISSN: 2395-0072

HOME CONTROL SYSTEM USING ARTIFICIAL INTELLIGENCE

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[2,3,4]UG Scholar, Dept. of Computer Science and Engineering & Paavai Engineering College, TN India

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Abstract - *A proposal for home control using voice via Google Assistant. We saw many home automation technologies introduced over these years from ZigBee automation, Amazon Echo, Google home etc., it describes the implementation of such a system. The system is implemented using ordinary household appliances Natural language voice commands are given to the Google Assistant and with the help of IFTTT (If This Then That) application and the Adafruit the commands are decoded and then sent to the micro controller, the micro controller in turn controls the relays connected to it as required, turning the device connected to the respective relay On or OFF as per the users request to the Google Assistant. The micro controller used is NodeMCU (ESP8266) and the communication between the micro controller and the application is established via Wi-Fi (Internet).*

Key Words: internet of Thing, NodeMCU (esp8266), Home control, Adafruit, IFTTT, Google Assistant

1. INTRODUCTION

components along with a relay board comprising of 4/8 relays along with ULN 2803 IC. Natural language voice is used to give commands to the Google Assistant. All of the components are connected over the internet using Wi-Fi which puts this system under the IoT.

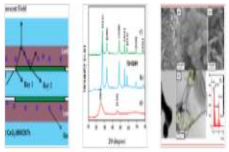
1.1 OBJECTIVE

Therefore, Home control system to assist common man's life to make his schedule more efficient and help conserve energy; it will also be of great use to handicapped and elderly members of our society.

The project as two modules in totality; the first module consists of control of lights, blinds and fans which will be switched on and off using voice commands on Google assistant. The second module consists of control of common household appliances such as television, projector, air conditioners etc. We intend to attach four loads in this work. The control of the appliances will be done using two methods

Outline

Figures (11)



ELSEVIER
Diamond and Related Materials
Volume 109, November 2020, 108006

Design and fabrication of clad modified fiber optic gas sensor based CeO_2/MWCNTs hybrid sensors by facile hydrothermal technique

S. Vijayakumar [a], S. Vadivel [b] ✉, A. Biruntha [a], T. Brindhasri [a], P.A. Desika [a]

https://doi.org/10.1016/j.diamond.2020.108006

Highlights

- A facile hydrothermal route to synthesis of CeO_2/MWCNT hybrid sensors

07-03-2018 | Special Issue 6/2019

Performance analysis of malicious node detection in MANET using ANFIS classification approach

Journal: Cluster Computing › Special Issue 6/2019

Authors: A. Kumaravel, M. Chandrasekaran

Abstract

Security threaten is the primary issue in mobile ad hoc networks (MANET). The efficiency of the MANET system is affected by presence of malicious nodes. It is very difficult task to identify the malicious nodes from the trusty nodes in MANET system due to similar characteristics between malicious and trusty node. This paper proposes an efficient feature extraction based malicious node detection system using adaptive neuro fuzzy inference system (ANFIS) classification approach. In this paper, trust function features and service trust features are extracted from trusty and malicious nodes. These extracted features are trained and classified using ANFIS classifier. The performance of

Outline

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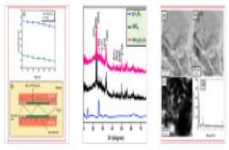
Figures (11)



Optics & Laser Technology
Volume 118, October 2019, Pages 44-51
ELSEVIER

Full length article

Fiber optic ethanol gas sensor based WO_3 and WO_3/gC_3N_4 nanocomposites by a novel microwave technique

S. Vijayakumar [a], S. Vadivel [b]

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Highlights

- WO_3/g-C_3N_4 composites were successfully synthesized by a one step microwave irradiation method.

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Captures

Simultaneous wireless information and power transfer in energy-augmented amplify and forward cooperative cognitive networks

Author(s): Cynthia Anbuselvi Thangaraj [1] ; Aruna Velkennedy [1] ; Shiny Ponmani [1]

View affiliations

Source: Volume 13, Issue 14, 27 August 2019, p. 2186 – 2191

DOI: 10.1049/iet-com.2018.5843 , Print ISSN 1751-8628, Online ISSN 1751-8636

Received 03/09/2018, Accepted 28/05/2019, Revised 15/04/2019, Published 31/05/2019

Simultaneous wireless information and power transfer (SWIPT) and energy harvesting (EH) have been considered as the promising technique to enhance the lifetime of energy constrained relay nodes of the amplify and forward (AF)-based cognitive wireless network. The amalgamation of cognitive and cooperative communication has emerged as a powerful method for improving spectrum utilisation. In this study, an energy-augmented AF (EAF) protocol has been proposed to enhance the throughput and minimise the outage probability of cooperative cognitive relay networks. A power splitting based SWIPT relay secondary user in the EH module harvests the energy and uses the harvested energy to forward the amplified version of the signal to the destination.

Published: 21 August 2019

Energy-Efficient Power Allocation with Guaranteed QoS Under Imperfect Sensing for OFDM-Based Heterogeneous Cognitive Radio Networks

Cynthia Anbuselvi Thangaraj & T. Aruna

Wireless Personal Communications **109**, 1845–1862 (2019) | Cite this article

69 Accesses | Metrics

Abstract

This paper investigates the energy efficient resource allocation scheme for orthogonal frequency division multiplexing based heterogeneous cognitive radio network (HCRN) under imperfect spectrum sensing scenario with guaranteed quality of service (QoS). The objective of this paper is to maximize the energy efficiency (EE) of the HCRN subject to total transmission power, interference and QoS Constraints. To solve the mixed integer nonlinear programming

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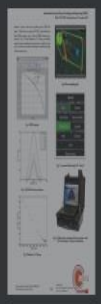

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International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878, Volume-8 Issue-4, November 2019

Performance Analysis of Reduced Handoff Interruption Time and Energy Utilization in Cognitive Radio Networks by Unmanned Area Vehicle

M.Suresh Chinnathampy, T.Aruna, C.Amarsingh Feroz, S.Esakki Rajavel, S.Allwin Devaraj

Abstract :The WiMAX (Worldwide Interoperability Microwave Access) is important in communication systems. Mobility is also important in WiMax to achieve high speed in data exchange over the medium. During the exchange of data handoff may be occurred.This paper is focused on handoff in WiMAX and MS (Mobile Station). The Handover Management Algorithm is used to avoid handoff in addition to improve the handover interruption time and to decrease the signaling transaction during the handover procedure we used Global Position System (GPS) to perform handoff faster. GPS has been introduced in this paper to find the position of the MS and BS then the MS will automatically choose BS by routing. We developed a new algorithm to improve the handoff interruption by introducing Time Division Multiple Access (TDMA).The MS finds its position using GPS and find the distance to the SBS (Source Base Station) and nearby BSs. In the next step,MS selects the target BS based on distance. Moreover we combine Handover Management Algorithm (HMA) with Cognitive radio networks (CRNs) for which are the way out for the trouble of underutilizing the license spectrum for which there are more needs in the final pair of decades. The congestion of the wireless spectrum has triggered a stringent contest for panic network resources.

Keywords - WiMAX, TDMA, Handoff, GPS, UAV, CRN, HMA

I. INTRODUCTION

The concept between Hard Handoff and Soft Handoff are explained. In soft handoff the MS is connected to two BS of various types, soft handovers like FBSS (fast base station

In NLOS, a small antenna on your computer is connected to tower, a fixed dish antenna points straight at the WiMAX tower from a apex [2] But in our algorithm distance is determined by MS using GPS. The departure is less than 2 meters In the next section HMA algorithm will be introduced. Since so many users shares the same channel there is a chance of occurring handoff delay so to avoid that we introduce TDMA in this method the users transmit information in every succession, one by one transmission / reception, everyone can use its own time slot[3]. In general WiMAX tower, covers up to 8,000 square km by a single tower. The distance between two towers can be 30 to 50 km. The HMA algorithm used in Femtocell which is a small cellular base station a low-power wireless AP (access point) designed for use in low level environment[4]. All MSs and BSs have a position. The MS position will be determined by GPS. The distance between MS and BSs are actually determined by MSs. The position of the MS can be determined in a period of time less than 60 ms, When the position of MS and all BSs are determined. Shadow fading will be occurred when there are physical obstacles (e.g. hills , towers , and buildings) between the BS and MS , which affects the received signal strength. Multipath fading occurs when two or more transmission paths exist between the BS and MS. According to the IEEE 802.16e standard, BS requests the report within 10 seconds by sending REP-REQ (report-request) message to all MSs and receives their responses by REP-RSP (report-response) or ACK (acknowledgement) message. In addition HMA and CRN

Article PDF Available

WiMax based Interference Reduction in Cognitive Radio Networks-Cognitive Radio Networks ,WiMAX , GPS (Global Positioning System),SEM (Spectral Emission Mask),EVM ((Error Vector Magnitude) ,MCP (Mask Compliant Pre-coder)

May 2019 · Caribbean Journal of Science 53(2):188-198

Authors:

SURESH CHINNATHAMPY
The Francis Xavier Engineering College

18-04-2020 | Issue 1/2020

MACBHA: Modified Adaptive Cluster-Based Heuristic Approach with Co-operative Spectrum Sensing in Wireless Sensor Networks

Journal: Wireless Personal Communications › Issue 1/2020

Authors: S. Allwin Devaraj, T. Aruna

Abstract

In this paper, a Modified Adaptive Cluster-Based Heuristic Approach (MACHBA) has been proposed for wireless sensor networks (WSNs) to perform the cooperative spectrum sensing (CSS) in the shopping mall, weather forecasting, military area and audio, video transmission applications. A Secure

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VOLUME XII, ISSUE 3, MARCH-2020-SP

Journal of Circuits, Systems and Computers | Vol. 29, No. 13, 2050205 (2020) | Research Paper

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EA-MAC: A QoS Aware Emergency Adaptive MAC Protocol for Intelligent Scheduling of Packets in Smart Emergency Monitoring Applications

Asokan Jayaram and Sanjoy Deb

https://doi.org/10.1142/S0218126620502059 | Cited by: 0

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Vol. 29, No. 13

Abstract

The evolution of the wireless sensor network (WSN) in recent years has reached its greatest heights and applications are increasing day by day, one such application is Smart Emergency Monitoring Systems (SMESs) which is in vision of implementation in every urban and rural areas. The implementation of WSN architecture in the Smart Monitoring Systems needs an intelligent scheduling mechanism that efficiently handles the high traffic load as well as the emergency traffic load without sacrificing the energy efficiency of the network. However, the traditional scheduling algorithms such as First Come First Served (FCFS), Round Robin, and Shortest Job First (SJF) cannot meet the requirements of high

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INTERNATIONAL RESEARCH JOURNAL IN ADVANCED ENGINEERING AND TECHNOLOGY (IRJAET) E - ISSN: 2454-4752 P - ISSN : 2454-4744
VOL 6 ISSUE 1 (2020) PAGES 4511 - 4516
RECEIVED : 12.01.2020 PUBLISHED : 14.02.2020
Feb 14 2020

WIRELESS V2V COMMUNICATIONS OF UNMANNED VEHICLES WITH WIRELESS NETWORK TRACKING AND EMP CHARGER OF TESLA COIL

[1] M.SUDHA, [2] P.SANTHOSH, [3] R.SIVA PRAKASH, [4] M.SURIYA,
[1] Assistant Professor, Department of Electrical and Communications Engineering,
Paavai Engineering College, Namakkal
[2,3,4] UG Scholar, Department of Electrical and Communications Engineering,
Paavai Engineering College, Namakkal

ABSTRACT

Wireless communication systems that include unmanned vehicles promise to provide cost effective wireless connectivity for devices without infrastructure coverage Compared to terrestrial communications on high altitude platforms on demand wireless systems with low altitude UVs are in general faster deploy and more flexibly reconfigured, likely to have better communication channels due to the presence short range line of sight links However the utilization of highly mobile , energy constrained UVs for wireless communications also introduces new challenges. In Vehicle collision avoidance system is automobile system a safety system that is designed to reduce the chances of collision to achieve this we use V2V communication and vehicle to infrastructure communication used to minimize the chances of the accidents In addition to this, for an Electric unmanned vehicle we use Wireless charging to charge the vehicle with the help of Tesla coil. In this article, we provide an overview of Unmanned/ Autonomous Electric Vehicle aided wireless communications introducing the


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International Research Journal of Innovations in Engineering and Technology (IRJIET)

ISSN (online): 2581-3048

Volume 4, Issue 2, pp 64-68, February-2020

A Review on Waste Management System

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[2]M.E, Dept of Communication Systems, Paavai Engineering College, Paavai Nagar, NH-7, Namakkal, Tamilnadu-637018, India

Abstract **- The biodegradable waste comprises an organic matters like fruits, leaves, vegetables, etc., which can be decomposed into carbon dioxide, water molecules, methane or simple organic molecules by micro-organisms and other living things by composting, aerobic digestion, anaerobic digestion or similar processes. The solid waste management also includes some inorganic materials which can be decomposed by bacteria and micro organism lived in soil. Such materials have the characteristics of nitrogen and its by-products. The microorganisms are growing in deadly bodies, it cause disease and produce harmful gases which is create lungs problem to living organism. The non-biodegradable products such as plastic, glass and batteries are don't break easily, if not handled properly, these non-biodegradable waste can cause pollution like air pollution, water pollution and soil pollution, blockage of drainage system and harmful to animals. The most important equipment is image processing, obtained by camera which capture the image entering and then the image processing will compare it with the predetermined pictures. Thus directing the wastes to their respective bins.**

Keywords: Waste management; Image processing; Lab view;

II. TYPES OF WASTE

Waste products are unnecessary materials for environment. Waste is a substance which is discarded after primary consumption, defective and of no use. It is create unwanted disturbance to environment. Wastes are include municipal solid waste such as household waste, hazardous waste , wastewater such as sewage, which cause infections to human and surface runoff it leads to growing mosquito which can fever like dengue, malaria and radioactive waste and others. The garbage wastes are generated by various group of society can be classified based on their physical character. This classification is most important because, it facilitates for the recycling process. These solid wastes are mostly discharged by the urban municipalities which is comprises more hazardous materials, homogeneous load of industrial and hospital waste [1].

The different types of waste are described as follows:

Commercial Waste - Commercial waste consists of waste materials which are used for the business, trading purpose and for the purpose of sport, education or entertainment but excluding household waste, agricultural waste or industrial

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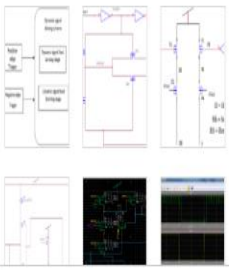

Microprocessors and Microsystems
Volume 76, July 2020, 103098

FPGA based design and implementation of low power dual edge triggered flipflop using dynamic signal driving scheme for memory applications

L. Punitha [a] ✉, J. Sundararajan [b] ✉

https://doi.org/10.1016/j.micpro.2020.103098

Abstract

Power consumption is becoming a massive part of any kind of integrated circuits, and it's a champion rundown of the most basic three problems that guide the most comprehensive development of semiconductors. In an integrated circuit, the clock diffusion framework and flip-flops use a large amount of energy from which they

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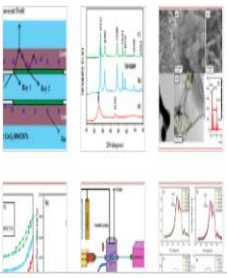

Diamond and Related Materials
Volume 109, November 2020, 108006

Design and fabrication of clad modified fiber optic gas sensor based CeO_2/MWCNTs hybrid sensors by facile hydrothermal technique

S. Vijayakumar [a], S. Vadivel [b] ✉, A. Biruntha [a], T. Brindhasri [a], P.A. Desika [a]

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Highlights

- A facile hydrothermal route to synthesis of CeO_2/MWCNT hybrid sensors

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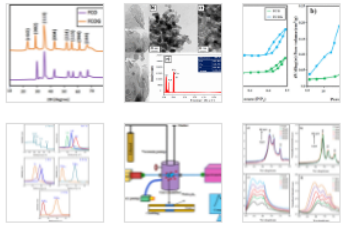

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Optik
Volume 223, December 2020, 165571

High performance ethanol and acetone gas sensing behavior of $FeCo_2O_4$/graphene hybrid sensors prepared by facile hydrothermal route

S. Rathinavel [a], G. Balaji [a], S. Vadivel [b]

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Abstract

Historically, production of high-performance gas sensing materials has promised to satisfy the worldwide research interests with the increasingly enhanced gas sensor devices. In this paper we are adopting a facile hydrothermal strategy to prepare the ternary $FeCo_2O_4$/graphene hybrid nanocomposites. The spinal phase of $FeCo_2O_4$ with spherical shaped morphology was obtained through XRD, SEM

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TEST Engineering & Management

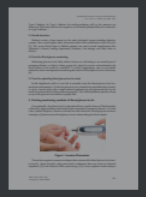
May-June 2020
ISSN: 0193-4120 Page No. 6191 - 6196

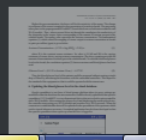
Energy Management using Li-Ion Battery for Solar and Savonius Rotor Hybrid Energy System

S. Suganya*, M.E., Assistant Professor/EEE, Paavai Engineering College, Namakkal (Dt), TamilNadu, India.
Dr.G. Balaji, M.E., Ph.D, Professor and Head/EEE, , Paavai Engineering College, Namakkal (Dt), TamilNadu, India.
R.Ajith Kumar, S.Dinakaran, N.Jayasurya, K.Mageswaran ,
UG Student/EEE, Paavai Engineering College, Namakkal (Dt), TamilNadu,India.

Article Info
Volume 83
Page Number: 6191 - 6196
Publication Issue:
May-June 2020

Abstract:
The demand for oil concentrated the supply of stable fuels which was uncovered by a petroleum crisis. Improvement of healthier sources of elective energy is renewable and has negligible ecological impact. The alternate fuels, the hybrid system's electrical energy is generally considered a more valuable renewable energy source because it is clean, plentiful and dispersed across the globe. Given the individualities of atmospheric reflection and absorption of photons, it is estimated that the event of solar radiation on the Earth's atmosphere is ten thousand times higher than the world's energy consumption. Reducing carbon dioxide emissions is a major benefit of the hybrid system. These approaches are accurate, fast and effective. Because of its benefits, such as the absence of fuel costs, low maintenance requirements and environmental friendliness, the hybrid system has become increasingly important as a renewable source. Such methods differ in





International Journal of Control and Automation
Vol. 13, No. 2, (2020), pp. 846 - 851

Design and Development of Breath Acetone Based Non-Invasive Blood Glucose Level Monitoring System

B. Murali Babu[1], P. Parameshwaran[2], B. Prabakaran[2], D. Rajarajan[2], S. Saravanan[2]

[1] *Professor, Paavai Engineering College, Namakkal, India.*
[2] *Research Scholars, Paavai Engineering College, Namakkal, India.*

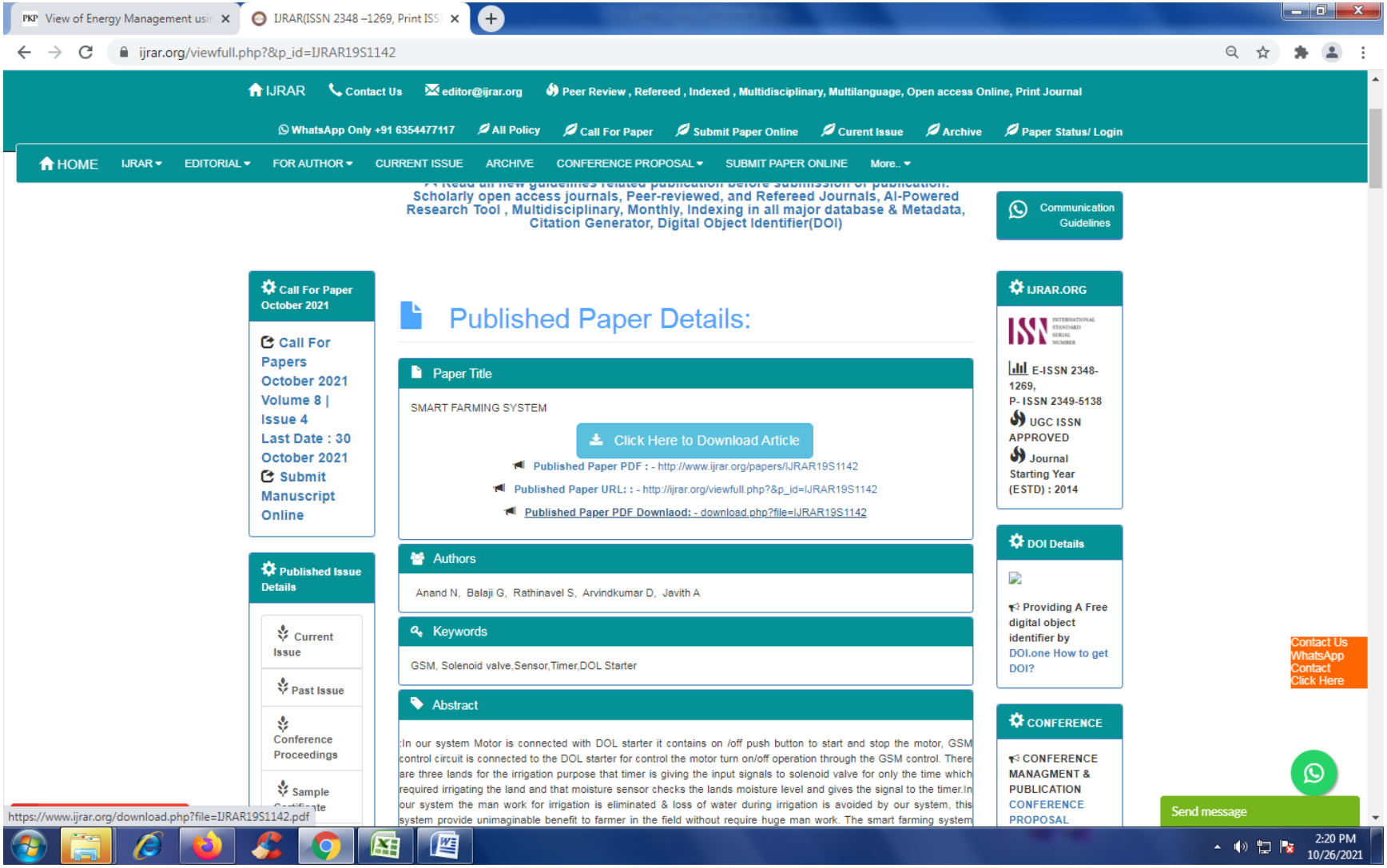
Abstract

Diabetes has become one of the most persistent diseases with high diagnosis cost. The constant monitoring of blood glucose level is necessary for maintaining the health of the patients and to take preemptive measures before the onset of any other complications. The current invasive clinical techniques for monitoring blood glucose may lead to spreading of contagious disease. With the modernized world of embedded controllers and biomedical equipment, medical problems could be solved which may enhance the quality of life. Recent research has proven acetone as a biomarker for diabetes which has a strong correlation towards blood glucose. Thus, a reliable, instantaneous and non-invasive IoT based breath analyzer has been developed. TGS822 gas sensor which has sensitivity towards acetone was used for the measurement of acetone concentration in breath and glucose levels are uploaded to the cloud.

Keywords: *Diabetes, Acetone, Embedded controllers, TGS822 sensor, Cloud storage.*

1. Introduction

Diabetes also known as Diabetes mellitus is one of the leading causes of death these days, affecting 8.7 percent of the global population including people of all age categories. Diabetes occurs throughout the world but is more common (especially type-2) in developed countries [1]. Globally, 422 million adults are estimated to live with diabetes, according to the latest data from the World Health Organization (WHO) [2]. The WHO estimated that diabetes resulted in 1.7 million deaths in 2018, making it the 8th leading cause of death. Until recently, India had more diabetic patients than any other country in the world, according to the International Diabetes Foundation, although the country has now been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Authors
Anand N, Balaji G, Rathinavel S, Arvindkumar D, Javith A
Keywords
GSM, Solenoid valve,Sensor,Timer,DOL Starter
Abstract
:In our system Motor is connected with DOL starter it contains on /off push button to start and stop the motor, GSM control circuit is connected to the DOL starter for control the motor turn on/off operation through the GSM control. There are three lands for the irrigation purpose that timer is giving the input signals to solenoid valve for only the time which required irrigating the land and that moisture sensor checks the lands moisture level and gives the signal to the timer.In our system the man work for irrigation is eliminated & loss of water during irrigation is avoided by our system, this system provide unimaginable benefit to farmer in the field without require huge man work. The smart farming system
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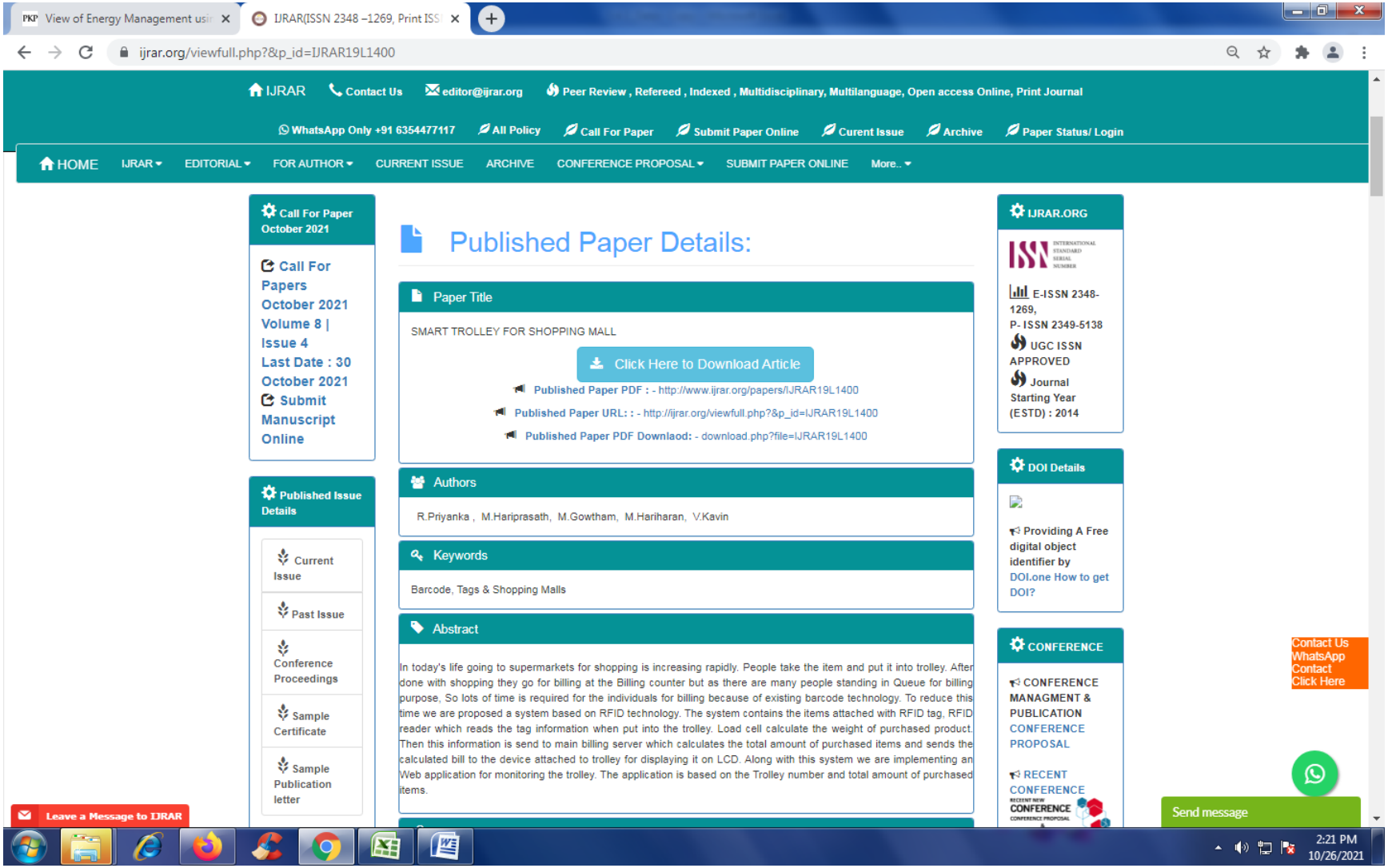
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Authors
R.Priyanka , M.Hariprasath, M.Gowtham, M.Hariharan, V.Kavin
Keywords
Barcode, Tags & Shopping Malls
Abstract
In today's life going to supermarkets for shopping is increasing rapidly. People take the item and put it into trolley. After done with shopping they go for billing at the Billing counter but as there are many people standing in Queue for billing purpose, So lots of time is required for the individuals for billing because of existing barcode technology. To reduce this time we are proposed a system based on RFID technology. The system contains the items attached with RFID tag, RFID reader which reads the tag information when put into the trolley. Load cell calculate the weight of purchased product. Then this information is send to main billing server which calculates the total amount of purchased items and sends the calculated bill to the device attached to trolley for displaying it on LCD. Along with this system we are implementing an Web application for monitoring the trolley. The application is based on the Trolley number and total amount of purchased items.
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Authors
T.Gokulnath, P.Ayyanar, M.Hariprasath, G.Dineshkannan, R.Johnnie Hepziba
Keywords
Soft Computing Technique, Biological Swarm Chasing Algorithm, Maximum Power Point Tracking, Nine-level Inverter, Buck-Boost DC-DC Converter.
Abstract
In this paper, a novel photovoltaic (PV) maximum power point tracking (MPPT) based on biological swarm chasing behavior is proposed to increase the MPPT performance for a module-integrated PV power system. Each PV module is viewed as a particle, and as a result, the maximum power point is viewed as the moving target. Thus, every PV module
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SMART E-VEHICLE CHARGING SYSTEM USING RFID

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Authors

A.Ajithkumar, M.Ajithkumar, S.Gopi, V.G.Balaji sabarinathan, C.Gowrishankar

Keywords

RFID,IOT CLOUD

Abstract

With an increased number of Electric Vehicles (EVs) on the roads, charging infrastructure is gaining an ever-more important role in simultaneously meeting the needs of the local distribution grid and of EV users. This paper proposed system RFID system for user identification and charging authorization as part of a smart charging infrastructure providing charge monitoring and control. The RFID provides a cost-efficient solution to identify and authorize vehicles for charging and would allow EV charging to be conducted effectively while observing grid constraints and meeting the


1


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International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
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WIRELESS SCROLLING MESSAGE AND VIDEO LED DISPLAY

R.Manimaran[1], R.Haribaskar[2], K.Gowtham[3], M.Gopalsamy[4]

Guided by, S.Manikandan, M.E[5],

[5]Assistant Professor, Department of Electrical and Electronic Engineering, Paavai Engineering College, Namakkal, India

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ABSTRACT: The display development is driven by the increasing need to present information and graphics to larger audiences in more temporary and flexible formats. The need for portability, fast setup, easy reconfiguration and multiple uses has driven the need for light, efficient, easily erected, high quality displays. Through collaboration with multiple industry representatives, the display was designed to meet expectations of visual quality, portability, and display management, influenced by the LED arrangement, power efficiency, thermal regulation and physical construction. Notice Board is primary thing in any institution / organization or public utility places like bus stations, railway stations and parks. But sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notice display.

This project deals about an advanced hi-tech wireless notice board. The overall software interface is simple, powerful, easy to learn and use. The project is built around the P6 LED module. This acts as a controller and Wi-Fi module provides all the functionality of the display. Display is obtained on LED Matrix Display Array on a printed circuit board. The scrolling speed text can also be changed according to user requirement using a mobile. This can be done using Wi-Fi wireless communication.

The key outcomes of this prototype include an operational, full scale prototype display, which implements large LED display colour aliasing, a purely passive thermal management solution, a rapid deployment system, and LED current control with two way display communication, auto-configuration and complete signal redundancy.

1. INTRODUCTION

The led Display System is used at the colleges and universities for displaying day to - day information continuously or at regular intervals during the working hours. Being WI-FI- based system, it offers flexibility to display flash news or announcements faster than the programmable system. WI-FI- based help of technology, this is one step to simplify real time noticing.

Notice Board is Primary Thing In Any Institution Or Organization Or Public Utility Place Like Bus, Railway Station and Park. Sticking Various Notices Day-To-Day Is A Difficult Process. A Separate Person Is Required To Take Care Of This Notices Display. This

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SMART CLASS BASED ON FINGER PRINT ATTENDANCE SYSTEM AND SMART TV

T.Nandagopal[1], D.Divyabharathi[2], M.Hemamalini[3], N.Jananey[4], S.Kiruba[5]

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Abstract - *Fingerprint attendance system aims the automated attendance procedure of an educational institution using biometric technology. It allows the monitoring of student attendance to class is a true electronically by using biometric recognition. It can reduce the fraudulent students who are mostly making their fake presence. It is more secure to use and unique for every person which does not change in one's lifetime. Identifying an individual from a set of fingerprints is a time taking process. Smart class is a digital initiative which is rapidly transforming the way teacher teach and student learn. Smart class as a modernized method provides the quality education to student. Without use of CPU, processor or computer, it requires only a pen drive is plugged to a smart TV. Smart TV is used for Bluetooth, WI-FI connection, casting, audio system and network connection. The uniqueness of the fingerprint supported by technology can automatically identify or recognize a person using fingerprint sensor. The existing fingerprint sensor can only do fingerprint identification on one machine. For the mentioned reason we need a method to be able to recognize each user in a same fingerprint sensor with high accuracy. The purpose of this research is to build fingerprint sensor system for fingerprint data management to be centralized so that identification can be done in short interval of time*

attendance system followed in an educational system where the teacher calls out the name of each student and marks the attendance causes the time wastage during lecture time. This becomes more severe especially in current scenario where number of students in a class is very large. Managing the attendance data such as large group is also very difficult also it has chance of a student to make fake attendance. Fingerprint devices use computer to store and verify fingerprints in corporate environments. It can be ported to academic environments with modifications. The entitled student attendance monitoring system is to update student's attendance automatically and sent to the HOD of the corresponding department, it will display the class faculty lecturing the classroom and send the alert message to the corresponding faculty member. The students entering the classroom place their finger on the biometric sensor. The digital output from sensor received by Arduino controller compares with digital data of various students already registered. If any mismatch occurs, it gives invalid finger else the data is stored. When the entire student thumb is received then we switch on a button on biometric system.

2. EXISTING SYSTEMS


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Authors
C.Arulkumar, S.Jeeva, M.Kaviyarasan, G.Manoharan, R.Gokulraj
Keywords
Super capacitor, Battery, Choke, Speed Controller & Toggle Switch
Abstract
Different brands of Electric bikes are available in the market at present. In almost all Electric bikes a rear wheel with hub motor, lead acid battery pack, a light weight chassis, and a controller is placed which is very long and lifespan of batteries is short i.e. around years. Considering these limitations in this, we are giving solutions to modify the existing design to give a better performance. Super capacitor modules help to increase the lifespan of battery. Regenerative
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Smart Class Automation

K. Jagatheesan[1], P. Divya[2], A. Hasna Fathima[3], J. Jayabarathi[4], V. Madhumitha[5*]
[1]*Assistant Professor, Department of Electrical and Electronics Engineering, Paavai Engineering College, Namakkal, India*
[2,3,4,5]*UG Student, Department of Electrical and Electronics Engineering, Paavai Engineering College, Namakkal, India*
*Corresponding author: sarovijayan27@gmail.com

***Abstract*: Today's world day automation is very much essential. Smart classroom is the representative of modern teaching. Now-a-days a smart fan and light is very much essential to the concept of "smart class". When it is hot, using a fan which is less expensive than compared to air conditioner. When an individual forgets to turn off the fan and light, it leads to the waste of electricity. So, they move on to automation. Most of the previous research paper explained that IR and PIR sensors act as the sensing sensors. The performance of IR sensor has poor tolerance to light reflection such as bright light object. The passive infrared sensor (PIR) has the drawback of temperature limit. So, in this project we have used ultrasonic sensor. The main advantage of ultrasonic sensors is that it does not have any range or zone like a PIR sensor. It is used to measure the distance between the human and predefined set point. The microcontroller and ultrasonic transducer HC-SR05 forms the basis of the circuit. The ultrasonic module sends signal to the object and pick up its echo and output a wave form processing and varies the intensity of the fan. Here these sensors are fixed in the overhead ceiling fan. These sensors can sense up to 360-degree circumference beneath the fan and a thermostat is used to maintain the temperature in the room. This paper also describes about the remote controller fan on pressing the OPEN and CLOSE switch.**

***Keywords*: HC-SR04, MLS, PIR, Smart fan.**

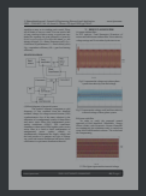
1. Introduction

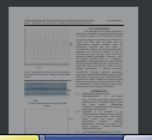
The classroom automation system is developed by the automatic switching of light and fan. Our country has developed in different season. The temperature will be above 40 degree Celsius in most regions during summer. It becomes

for automation of lights and fans using Arduino with Internet of Things for smart homes [5]. Keeratiburt Kanchanasatian Here the author used DHT22 temperature sensors were used to monitor the temperature. HC-SR04 ultrasonic sensors were used to detect the users [6]. Mishra R,e t al., they works on the development of automatic person detection system to control electrical fan and lights using Microcontroller 16F887A. [7] Nikita Bagali, et al., Here the author used Raspberry Pi and IR sensor [8]. Shimi S.L et al proposed a system which operates with control of relays and with the use of WAGO PLC (Programmable Logic Controller) and Arduino Uno. [9] Suresh S it is about automatic room light system by using visitor counters operation [10]. Vahid et al proposed a system whose control is depend on Arduino microcontroller, network communications and Modbus industrial protocol.

2. Existing system

The existing system work consists of automatic device control system which used to control the light control using Arduino and PIR sensor shown in Fig. 1. The components used in this system are Arduino Uno, PIR sensor and relay module. Here the system mainly depends on PIR sensor which helps in detecting human presence. The Relay Module which allows Arduino, Raspberry Pi or other Microcontrollers to control big electrical loads.





S. Ramachandran,etal. Journal of Engineering Research and Application www.ijera.com
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RESEARCH ARTICLE OPEN ACCESS

Control of Grid Interfaced wind and solar Energy Sources Used to Ameliorate power quality

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D.Anjali[5*], S. Kiruthika[6*],

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ABSTRACT
To surmount the constraints in power distribution engendering system, which are been compensating by utilizing contrivances like, series/shunt compensating. This puissance quality quandary should be addressed so incidentally provide congruous quality power at the same time integrating hybrid renewable energy sources. In this project, the design of amalgamated operation of solar and wind array proposed. The proposed system is composed of series shunt controller, wind and PV array connected to DC link by boost converter, which is able to compensate the voltage sag, swell, voltage interruption harmonics and reactive in is landing and interconnecting modes. The renewable energy source hand me down here is photovoltaic (PV) and Wind system. This project presents renewable energy source interfacing mutually the grid that compensates power quality quandaries by a grid interfacing UPQC control. The grid interfacing UPQC gate pulse is engendered by a hysteresis current control method and it has the potency to (1) minimize the harmonic current (2) ameliorate power factor (3) compensate reactive power (4) supply active power to the load in DG. This work is modelled and simulated in MATLAB/Simulink
Index Terms- Renewable Energy, Distribution Generation, Power Quality, photovoltaic, Solar, shunt active filters, series active filter

Date of Submission: 22-04-2020 Date of Acceptance: 06-05-2020

I. INTRODUCTION

The potency quality issues can be viewed with veneration to the Solar wind generation.

II. SYSTEM CONFIGURATION

The grid interfaced to wind energy source and solar PV array, for sustainable energy


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Authors
D.Murugesan, S.Mathanraj, A.Praveen kumar, R.Praveen, N.Ranjith
Keywords
Rescue Robot & Borewell
Abstract
In the past few years, there have been several accidents of children falling into abandoned bore wells in India. Abandoned bore wells that have turned into death pits for children. The problem is all over India. Rescue teams spend hours and sometimes days in futile attempts to save these little kids. A lot of money is also spent in these missions. In most cases they are unable to save the kids. Such events have happened umpteen times in the past, and every time either the government or the bureaucracy is blamed. The rescue process to save the child from bore well is a long and
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International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 05 | May 2020 www.irjet.net p-ISSN: 2395-0072

IOT BASED MESSAGE SCROLLING LED DISPLAY

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Abstract

Notice boards are playing a very important role in our day to day life. By replacing conventional analog type notice board with digital notice board we can make information dissemination much easier in a paperless community. Notice board could be a primary factor in any establishment or public places like bus stations, railway stations, colleges, malls etc. Sticking out numerous notices day to day could be a tough method. A separate person is needed to take care of this notice display. The objective of our project is to design a dot-matrix moving message display using microcontroller and IOT where the characters shift from left to write continuously. In this project we have used ATMega8 microcontroller. ATMega8 is a family of 8-bit microcontrollers. It has a maximum rated processor frequency of 16MHz. The ATMega8 lends itself displays messages sent from the user's mobile application.

Keywords: IOT, GSM, ATMega8 Microcontroller and Dot Matrix

1. INTROGUCTION

Electronic notice board is a common device that is used to display information. The information or messages are displayed using dot matrix. The wireless system for dot matrix display is a method using Radio Frequency as transmission medium. The system consists of two modules; transmitter and receiver. The transmitter module is used by a user to place a message through an input module such as keypad or keyboard or smart phone. The information then transmitted using WI-FI technology to the receiver. It then will be decoded and displayed on electronic noticeboard.

Information dissemination among

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DESIGN OF AC-DC CONTROLLED RECTIFIER FOR HYBRID ELECTRIC VEHICLE

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S.Preetha[2], D.Soundharya[2], P.Srimathy[2], S. Nagasoundarya[2]

[2]UG Student, Department of Electrical and Electronics Engg., Paavai Engg. College, Namakkal, India.

ABSTRACT:

Hybrid electric vehicles are important in automobile industry. However, the present-day hybrid electric vehicles are used battery as a secondary source of power. The global warming counter measure, reduction of carbon dioxide is released from vehicles and to increase the fuel efficiency in automobile industry. The auto-manufacturer are contributing their efforts for the development of hybrid electric vehicle.

The existing system was focused on the rectifier circuit. AC-DC conversion of electric power is used in many applications such as adjustable speed drivers, switch mode power supplies, uninterrupted power supplies and battery energy storage. AC-DC converters are referred as a rectifier and are implemented using diodes and thyristors to give an uncontrolled and controlled DC power with unidirectional and bidirectional power flow.

An AC-DC converter supplies an electric power from a commercial power system to an onboard high voltage battery. A highly efficient low-cost hybrid with three phase and three level rectifiers is introduced. A simulation model is implemented in MATLAB/ simulink to test and the results are verified the validity of the proposed system.

Key words- Hybrid electrical vehicle, Three level rectifier, SiC,

I. INTRODUCTION

potential to save the fuel consumption and to

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REAL TIME BIOMETRIC BASED VECHILE SECURITY SYSTEM OF SPEED CONTROL

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Abstract- In This project has an aim to control the speed of two wheeler automatically in cities and also in restricted areas such schools, parks, hospitals and in speed limited areas etc. Now a days in a fast moving world all the peoples are not have self-control. Such peoples are driving vehicles in a high speed. The police are not able to monitor all those things. This paper provides a way for how to control the speed without harming others. Driver does not control anything during such places; controls are taken automatically by the use of electronic system. In this project we using RF for indicating the speed limit areas it is placed front and back of the restricted zones.

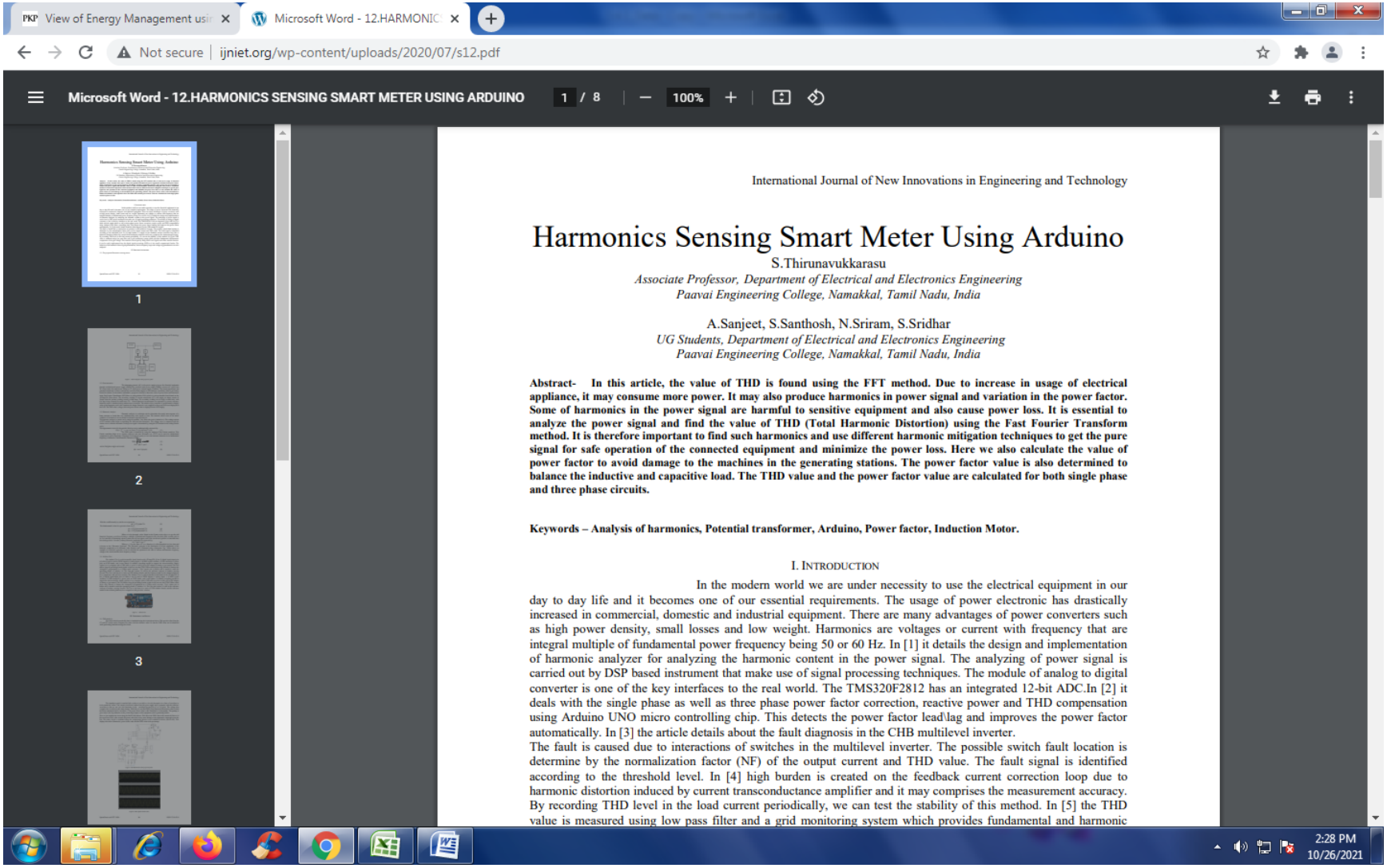
RF receiver is placed inside the vehicle. Speed is acquired by the help of speedometer in the vehicle. The controller compares the speed. If it exceeds the limited speed the controller controls taken automatically. In addition we added biometric and fingerprint based password security system. This system will help for the user of vehicle and prevent from theft.

If user forget the password they can use their fingerprint to unlock the vehicle. Fingerprint is match after enter the password the motor is start.After receiving this signal RF transmitter sends a signal to the motor to reduce the vehicle speed automatically which

Unfortunately, drivers usually do not take these speed limits seriously and ignore them. Road accidents can be prevented by adopting measures such as Traffic management, improving quality of road infrastructure and safer vehicles. To ensure decline in accidents and to improve road safety, speed control techniques such as speed control in school and hospital zones by using RF transceiver.

The RF transmitter is placed in the speed limit areas and RF receiver is placed in the system which is placed inside the vehicle. RF transmitter transfers the information about the speed of the zone to the receiver which is interfaced with microcontroller. The current speed will be sensed by the proximity sensor using dc motor that also sends information to controller. The controller compares both speed, if speed of vehicle is greater than speed limit of the area then message is given to the driver through LCD Display to reduce the speed. And if driver does not decreases the speed, the control transfers automatically. But the driver again operate it manually and exceeds the limited speed the message is given to the nearest RTO Office through GSM. The message contains the current speed and number of the vehicle.

EXISTING SYSTEM



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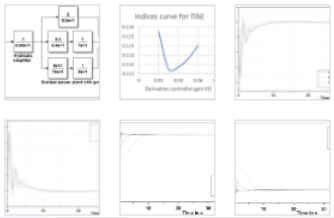

ELSEVIER
Microprocessors and Microsystems
Volume 73, March 2020, 102953

Ant colony optimization technique tuned controller for frequency regulation of single area nuclear power generating system

Boopathi Dhanasekaran [a], Saravanan Siddhan [b], Jagatheesan Kaliannan [a]

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https://doi.org/10.1016/j.micpro.2019.102953

Abstract

Obtaining energy from the power generating unit is a more critical issue in recent days due to the sudden increasing load demand than that of the past. In this proposed work the Load Frequency Control (LFC) of nuclear power system is studied by implementing the Proportional Integral Derivative (PID) controller as a secondary controller. The controller gain values are optimized by utilizing Ant

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HEAT TRANSFER AND FRICTION FACTOR CHARACTERISTICS OF PIPE-IN-PIPE HEAT EXCHANGER FITTED WITH VARIANT PLAIN TAPE INSERT

by

Arthanari Ponnusamy SIVASUBRAMANIAM[a*], Mayilsamy KAVANDAPPA GOUNDAR[b], and Murugesan PERUMAL[c]

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Original scientific paper
https://doi.org/10.2298/TSCI190602457A

The heat exchanger is used to transfer heat between the fluids without mixing them for both cooling and heating processes. Normally the fluids are separated by a solid wall or tube that is made of different materials in order to avoid mixing. The performance of a heat exchanger is predicted on the basis of heat transfer rate. Many new techniques are being explored by industries to improve the heat transfer rate of heat exchangers. In this work, a double tube heat exchanger is used for studying the variation in heat exchange by inserting a flat tape with different geometries: plain tape, plain tape step cut arc, and plain tape step cut rectangle. Experiments are carried out by varying pressure of hot water and the evaluation is done for different mass-flow rates with inlet temperatures of hot and

Outline

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Figures (3)

materialstoday: PROCEEDINGS
Volume 21, Part 1, 2020, Pages 727-730

Machining parameters optimization in laser beam machining for micro elliptical profiles using TOPSIS method

V. Senthil Kannan [a], K. Ienin [b], P. Navneethakrishnan [c]

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[b] Faculty of Mechanical Engineering K. Ramakrishnan College of Engineering, Trichy 621112, Tamilnadu, India
[c] Faculty of Mechanical Engineering, Anna University, BIT Campus, Trichy, Tamilnadu, India

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Investigation in machining parameter of micro profile and surface characteristics of Al7475 with SiC alloy in LBM

V. Senthil Kannan [a], K. Lenin [b], P. Navneethakrishnan [c]

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[b] Faculty of Mechanical Engineering, K. Ramakrishnan College of Engineering, Trichy 621 112, Tamilnadu, India
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Tierärztliche Praxis
Vol 40, 2020

Experimental Investigation of Passive Heat Transfer Enhancement Using in Plain Tape Insert

*A.P.Sivasubramaniam[1], K.Mayilsamy[2] and P.Murugesan[3]

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Abstract

In present days, almost all the industries that use heat exchangers use them at present with inserts required to improve the convective heat transfer rate of the system without the overall performance getting affected. Even the inserts can be conveniently set up and require less maintenance aside from the cost benefits.Given the successful role of inserts in the usage of exchangers, the present study experimentally examines the contribution of plain tape inserts that are mounted within the plain tube of a dual pipe heat exchanger (DPHE) to increase the system's heat transfer capacity.Using a simple tube under counterflow structure for variable pressure drops in hot water, an experimental system is used to conduct the test process and measurement is performed for various mass flow speeds of hot and cold water inlet temperatures at 53^0C and 30^oC respectively.From the experimental measurements the thermal enhancement factor and even the properties of heat flow and friction effect are learned from the results

Research and Applications of Thermal Engineering

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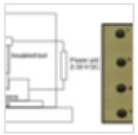
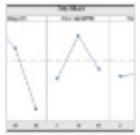
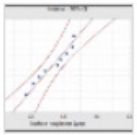
Simulation Studies of Heat Transfer Enhancement in a Double Pipe Heat Exchanger Fitted with Plain Tape Insert

A. P. Sivasubramaniam, K. Mayilsamy, P. Murugesan

Abstract

Heat exchangers are important devices that are commonly used in various industries such as processes, petroleum refining, chemicals, oil industries, power plants, and paper, etc. The demand for high efficiency heat exchangers has been driven by energy and material saving requirements as well as environmental challenges in the industry. In order to improve the heat exchanger performance, an increase in the heat transfer in heat exchangers is required.In addition, heat transfer improvement makes it possible to greatly reduce the size of the heat exchanger. For a compact heat exchanger, a high heat transfer rate with minimum space requirement is required. The counter flow heat exchanger increases the heat transfer feature of the plain tube with plain tape insert in the inner tube. To predict the Nusselt number, Reynolds number & Thermal enhancement factor based on the numerical calculation with help of ANSYS software.

Figures (4)


Mathematical modeling and investigation on aluminium bronze MMC using ECM process

A. Jayapradha [a], G. Jims John Wessley [b], G. Vimalarani [c], P. Ramesh Kumar [d], Ram Subbiah [e], S. Maniraj [f]

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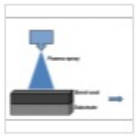
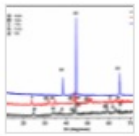
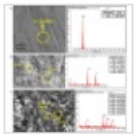
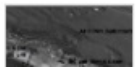

Original Article

Experimental investigation on the effect of ceramic coating on the wear resistance of Al6061 substrate

Suresh Chinnusamy [a], Venkatachalam Ramasamy [b], Subburam Venkatajalapathy [a], Gobinath Velu Kaliyannan [c], Sathish Kumar Palaniappan [d]

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INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH VOLUME 8, ISSUE 07, JULY 2019 ISSN 2277-8616

Design And Analysis Of Fire Tube Boiler With Heat Flow Analysis

S. Gopalakrishnan, M. Makesh

Abstract: Boilers are used to generate steam that provides heat or power. Water is converted to steam in the boiler. This steam travels through the heating apparatus which any piece of equipment that requires steam for operation. In fire tube boilers, the combustion gases travel within the tubes to heat the surrounding water. In water tube boilers, on the other hand, the water travels inside the tubes and the heat on the outside. The objective of this project work is to improve the heat transfer rate of Fire tube boiler using various materials. The following materials are considered for designing fire tube of boiler such as Copper, Aluminium, Chromium. The model of fire tube boiler is modeled through CREO software. The Three different models are create with same shape and size but different such as copper, aluminum and chromium. The models made up of different material are numerically analyzed for its various thermal behaviors through the analyzing software ANSYS from analysis we obtained different temperature and heat flux for all three materials respectively. The three analysis shows copper performance is more effective than aluminum and chromium.

Key words: Boiler heat flow analysis, Fire tube Boiler.

I. INTRODUCTION

The purpose of boiler is to convert water into steam. The steam can be used for various usages such as driving an engine to generate electricity, heating purpose and for other industrial process applications. The boiler consists of several types, which include water tube boiler, fire tube boiler, packaged boiler, fluidized bed combustion (FBC) boiler, atmospheric fluidized bed combustion (AFBC) boiler and so forth. The most popular boilers that used in many industries are water tube and fire tube boiler. Water tube boiler is the one with water flowing through the tubes that enclosed in a furnace heated externally while fire tube boiler comprises of fire or hot flue gas directed through tubes surrounded by water. Heat recovery steam generator (HRSG) is a good example of system in power plant that

II. LITERATURE REVIEW

The Unit 10 stoker boiler at the University of Iowa (UI) power plant uses moving grate on to which pulverized coal is thrown. The modeling of the combustion ofthe coal on this moving grate is very complex and effort has been made in the past to come up with simplified models for use in CFD. The most common are fixed-bed models, utilizing either transient combustion calculations or approximate reaction equations in order to determine the boundary conditions at the grate resulting from the combustion of the solid fuel on the bed. Due to the popularity of fixed-bed modeling, there are multiple approaches for it found in the literature: one-dimensional in space, onedimensionalin time, two-dimensional in space, and models that combine spatial and transient analyses. Fully three-dimensional

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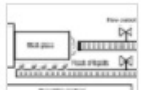

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Hardness performance analysis of chromel composite using end and lateral quenching method

Santhanakrishnan Raman [a], J. Vairamuthu [b], B. Stalin [c], Ram Subbiah [d], S. Maniraj [e]

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International Journal of Research in Engineering, Science and Management
Volume-3, Issue-1, January-2020
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Application of TOPSIS for Optimization of Operating Parameters in Micro-EDM

M. S. Vijayanand[1], K. Ajith Kumar[2], Adite Mathew[3], R. Ashok[4], A. Abdul Rahim[5]
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***Abstract*: The efficiency of a manufacturing process strongly depends on the selection of appropriate process parameters. Most of the machining parameters are determined by human judgements based on experience or hand book values some time. This does not ensure the optimal or near optimal performance. The selection of most suitable cutting parameters is a multi-criteria decision making problem which is based on the several qualitative and even conflicting factors involved. In the present work, Experiments have been conducted by considering three parameters such as discharge current, pulse on time and pulse off time each at three levels for obtaining responses like material removal rate, tool wear rate and overcut. Taguchi L9 orthogonal array is used as it helps to collect information regarding the response parameters with less number of experimental runs. This Current work demonstrates the application of TOPSIS method for determination of suitable machining parameters for making micro holes in Monel 400 Alloy.**

Many studies have been carried out previously on optimizing process parameters in the domain of EDM by classical methods [4]-[6]. Multi Criteria Decision Making (MCDM) has found acceptance in areas of operations research and management science and the discipline has created several methodologies. Gadakh [7] presented techniques for order preference by similarity to ideal solution (TOPSIS) method for solving multiple criteria optimization problem in WEDM process. TIWARY [8] used combined approach of response surface methodology and fuzzy technique for order preference by TOPSIS for machining of titanium super alloys. In this study an effort has been taken to select optimum process parameters for making micro hole in a Monel metal specimen.

Outline

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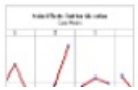
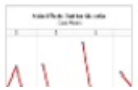
Figures (2)

materialstoday: PROCEEDINGS
Volume 45, Part 2, 2021, Pages 2470-2473

Investigation of process parameters of AMEDM on Al/SiC composite using Taguchi approach

A. Ranjithkumar [a], C. Suresh [b] ✉, M. Eswaran [c], K. Rajasekar [d], U.M. Saravanan [d], T. Sathees Kumar [d]

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[c] Department of Mechanical Engineering,PSNA College of Engineering and Technology, Dindigul, Tamil Nadu, India

Part of special issue:

International Conference on Advances in Materials Research - 2019

Edited by Kumaresan G

Other articles from this issue

1

2

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-10, October-2019
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Automatic Temperature Based Fan Controller using Thermistor

D. R. P. Rajarathnam[1], S. T. Kumaravel[2], A. Surya[3], M. Vinoth[4], V. Subash[5]
[1]*Professor & HoD, Department of Mechatronics Engineering, Pavia Engineering College, Namakkal, India*
[2]*Associate Professor, Department of Mechatronics Engineering, Pavia Engineering College, Namakkal, India*
[3,4,5]*Student, Department of Mechatronics Engineering, Pavia Engineering College, Namakkal, India*

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2. Methodology

The circuit presents the design, construction, development and control of automatic switching electric fan. The idea is based on the problem occurs in human's life nowadays by improving the existing technology. The Peripheral Interface Controller (PIC) based automatic fan system is applied to upgrade the functionality to embed automation feature. The electric fan will automatically switch on according to the environmental temperature changes. The circuit is using a microcontroller to control the fan according to the temperature variation. The system measures the temperature from the Integrated Circuit (IC) LM35, where it will control the fan according to the setting values in the programming.

1

2

International Journal of Materials Science
ISSN 0973-4589 Volume 14, Number 1 (2019), pp. 1-9

http://www.ripublication.com

Fabrication and Characterization of Basalt/Kevlar/Aluminium Fiber Metal Laminates for Automobile Applications

M.S. Santhosh[1], R. Sasikumar[2], T. Thangavel[3], A. Pradeep[4], K. Poovarasan[5], S. Periyasamy[6], T. Premkumar[7]

[1] *Junior Research Fellow, Selvam Composite Materials Research Laboratory, Tamilnadu, India.*

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Materials and Manufacturing Processes ›
Volume 34, 2019 - Issue 13

Articles

Effect of electrode heating on performance of electrochemical micromachining

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ABSTRACT

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Technical Paper | Published: 11 July 2019

Optimization of Electrochemical Micromachining Process Parameters for Machining of AMCs with Different % Compositions of GGBS Using Taguchi and TOPSIS Methods

S. Maniraj & R. Thanigaivelan

Transactions of the Indian Institute of Metals **72**, 3057–3066 (2019) | Cite this article

Outline

ELSEVIER

Measurement
Volume 159, 15 July 2020, 107800

Measurement and multi-response optimization of turning parameters for magnesium alloy using hybrid combination of Taguchi-GRA-PCA technique

R. Viswanathan [a], S. Ramesh [b], S. Maniraj [c], V. Subburam [c]

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Outline

ELSEVIER

Journal of Cleaner Production
Volume 240, 10 December 2019, 118128

Enhancing the fuel properties of tyre oil diesel blends by doping nano additives for green environments

S.T. Kumaravel [a], A. Murugesan [b], C. Vijayakumar [c], M. Thenmozhi [d]

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Experimental investigation on engine performance, emission, and combustion characteristics of a DI CI engine using tyre pyrolysis oil and diesel blends doped with nanoparticles

Kumaravel Thangavelu S, Murugesan Arthanarisamy,

First published: 19 July 2019 | https://doi.org/10.1002/ep.13321 | Citations: 7

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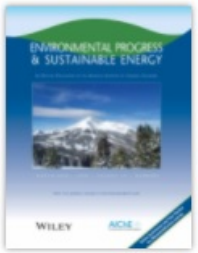

Volume 39, Issue 2
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Outline

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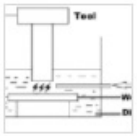
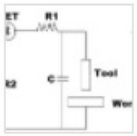
Figures (3)





materialstoday: PROCEEDINGS

Volume 45, Part 2, 2021, Pages 780-782

Enhancement of material removal rate in EDM process using silicon carbide based strenx 900 steel

S. Marichamy [a], S. Maniraj [b], R. Thanigaivelan [c], S.T. Kumaravel [b], K. Vinoth Babu [a], P. Mallesham [a]

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Role of AMPK signaling in Repigmentation- An Insilico study

Thenmozhi M+, Murugesan A+, Kumaravel S.T+

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Kumaravel S.T
Assistant Professor, Department of Mechanical Engineering, Paavai College of Engineering, TamilNadu, India.

Abstract

Vitiligo is an epidermal disorder causes depigmented patches resulted from the loss of melanocytes, Autoimmunity hypotheses strongly supports that the immune system compartments responsible in the development of vitiligo. Adenosine MonoPhosphate kinase (AMPK) signaling plays a role in regimentation in vitiligo. In this present study, set of ligands selected to dock against AMPK protein in the AMP binding site using FlexX software. Based on the scores

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Research... ? Let's do it.

Design and Analysis of Emergency Rescue Vehicle

Author(s):

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Keywords:

Rescue Emergency Drone, Emergency Disaster Management Simulation

Abstract

Traffic accidents are a result of the convergence of hazards, malfunctioning of vehicles and human negligence that have adverse economic and health impacts and effects. Unfortunately, avoiding them completely is very difficult, but with quick response to rescue and first aid, the mortality rate of inflicted persons can be reduced significantly. Smart and innovative technologies can play a pivotal role to respond faster to traffic crash emergencies comparing conventional means of transportation. For instance, Rescue Emergency Drone (RED) can provide faster and real-time crash site risk assessment to

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Radar Guided Missile System

D. R. P. Rajarathnam[1], R. T. Ajay Karthik[2], V. Ajith Kumar[3], J. Manivasagam[4], R. Manoj Kumar[5]
[1]*Professor & HoD, Department of Mechatronics Engineering, Paavai Engineering College, Namakkal, India*
[2]*Associate Professor, Department of Mechatronics Engineering, Paavai Engineering College, Namakkal, India*
[3,4,5]*UG Student, Department of Mechatronics Engineering, Paavai Engineering College, Namakkal, India*

***Abstract*: The aim of our project is to design a missile launcher which is controlled by the signals from a RADAR. The working is based on Arduino Uno, Servo motor, Ultrasonic sensor. The idea is to first code the entire working using our previous knowledge of programming. The code will then be simulated on software and later be interfaced with the hardware or Arduino Uno. The ultrasonic sensor movement is maintained by the servo motor fixed within it. The servo motor is made to revolve through fixed angles; if object is detected then the angle position is sent as the input to the launcher fixed servo motor. The launcher will release the missile fixed within it. This project will play an important role in defense purposes.**

***Keywords*: Arduino Uno, Ultrasonic sensor, Servo motor**

1. Introduction

RADAR is an object detection system which uses radio waves to determine the range, altitude, direction, or speed of objects. Radar was secretly developed by several nations before upcoming driverless cars by Google like Prius and Lexus. This setup can be used in any systems the customer may want to use like in a car, a bicycle or anything else. The use of Arduino in this provides even more flexibility of usage of the above-said module according to the requirements.

D. A. Ghoghre [1], Ahire Dhanshri, Ahire Priyanka, have presented the radar system which is used for only object detection, and can be implemented for surveillance only and not available in defence technology.

Srijan Dubey [2], Supragya Tiwari and Sumit Roy, have performed an object detection system with the help of ultrasonic sensor and published "Implementation of Radar using Ultrasonic Sensor", this system is used for detecting objects in an open surface and provide alarming system to indicate the interference of objects. This is a surveillance system which can able indicate.

Kadam D. B. [3], Patil Yuvr J. B., Chougale Krishna V.,

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Paper on Hybrid Vehicle Parking System

M. Praveenkumar[1] M. Thirumoorthy[2] M. Vairamuthu[3] R. Arun Babu[4] D. R. P. Rajarathnam[5]
[1,2,3,4,5]Department of Mechatronics Engineering
[1,2,3,4,5]Paavai Engineering College, Namakkal, India

Abstract— The aim of our project is to design a hybrid vehicle parking system. The working is based on Android OS, Arduino uno, L298N motor drivers, HC-05 Bluetooth module. This is a very simple remote controlled system, with an Arduino and Bluetooth module. The idea is to first code the entire working using our previous knowledge of programming. The code will then be simulated on software and later be interfaced with the hardware. The controlling remote can be any smart device with android. All the controls of the vehicle will be on the app on that device. We chose this for our major project to overcome parking problems in everyday lifestyle and also have a wide scope in the engineering field. It plays a vital role in the development of new technology.

Keywords: HC-05 Bluetooth Module, Smart Phone, Arduino Uno, 150 rpm DC Motors, Vehicle Chassis, 12V Battery, Mobile Controlling Car

I. INTRODUCTION

Smartphone has quite changed the traditional ways of human to machine interaction. Smartphone is now a vital part of a person's life. Android is a software platform for mobile devices that includes an operating system, middleware and key applications. Android is a safe and secure operating system. Now a day's various applications are developed in play store.

with help of steering system and DC motor. For the forward and backward movement of this vehicle, DC motors are used in wheel and a battery is used to provide electrical energy for the DC motor. It has turning radius nearly equal to negligible of length of the vehicle itself. This system is to be useful in hospitals, small industries and also on railway platforms.

Mr. Amitesh Kumar [3], presented zero turn four wheel steering system, the various functions of the steering wheel are, to control the angular motion the wheels, direction of motion of the vehicle, to provide directional stability of the vehicle while going straight ahead, to facilitate straight ahead condition of the vehicle after completing a turn, the road irregularities must be damped to the maximum possible extent. This project the use of steering is to rotate front wheels.

Mr. Sharad P. Mali[4], presented zero turn four wheel mechanism, in this project people have used DC motor and wheel to vehicle rotate 360 degree at a same position. So in this project, the idea is to arrange of DC motor and wheel. A.A Kamble, A Dehankar[5], discusses fusion of AVM and ultrasonic sensor, used to detect the vacant parking slot in the automatic car parking system. The AVM provides a virtually 360 degree scene of the car in bird's eye view. The AVM helps the driver to maneuver into parking spots. Through the bird's eye view, a driver can check for obstacle around the vehicle. First, the parking slot marking detected in the AVM

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Paper on Hybrid Vehicle Parking System

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[1,2,3,4,5]Department of Mechatronics Engineering
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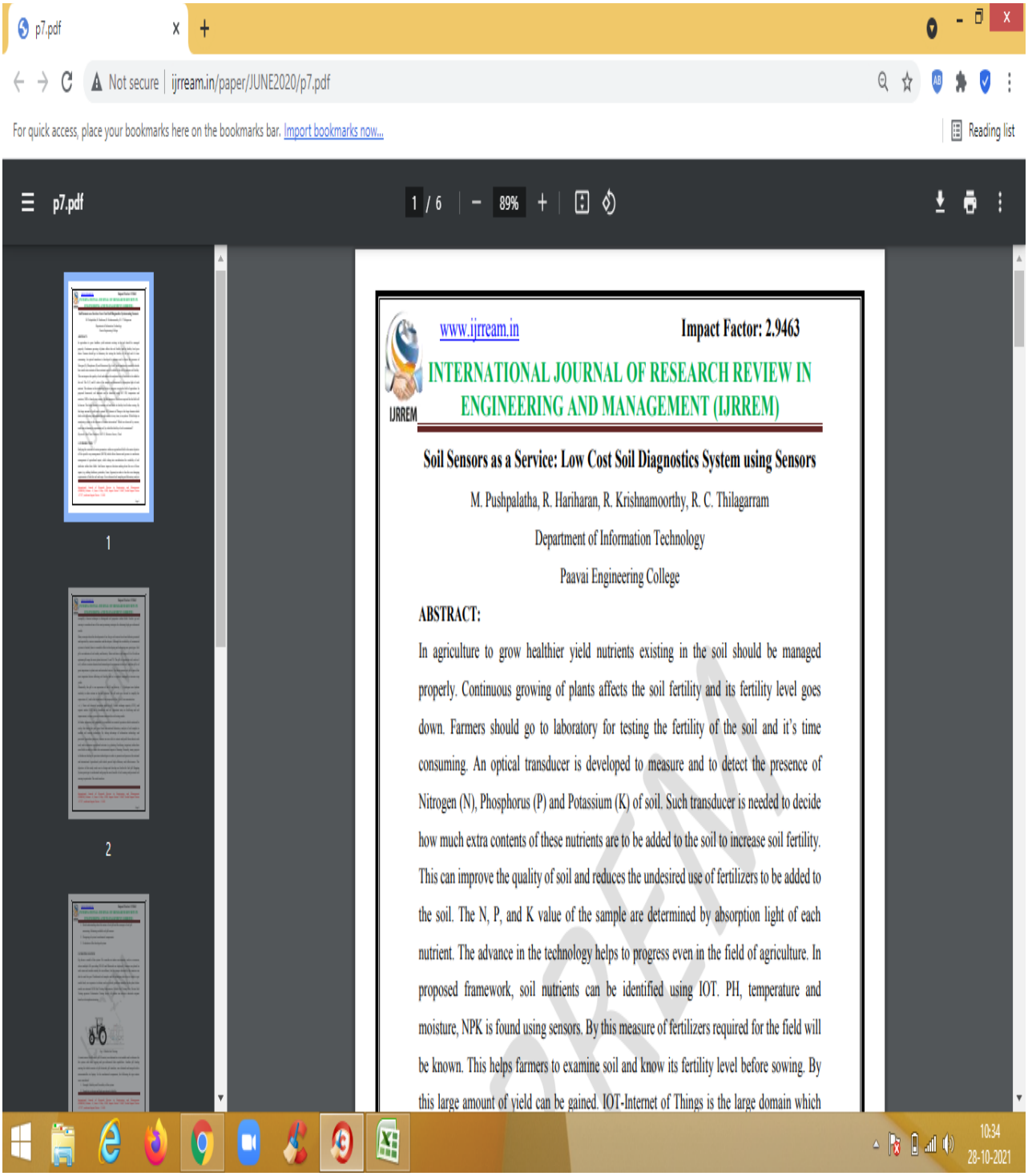
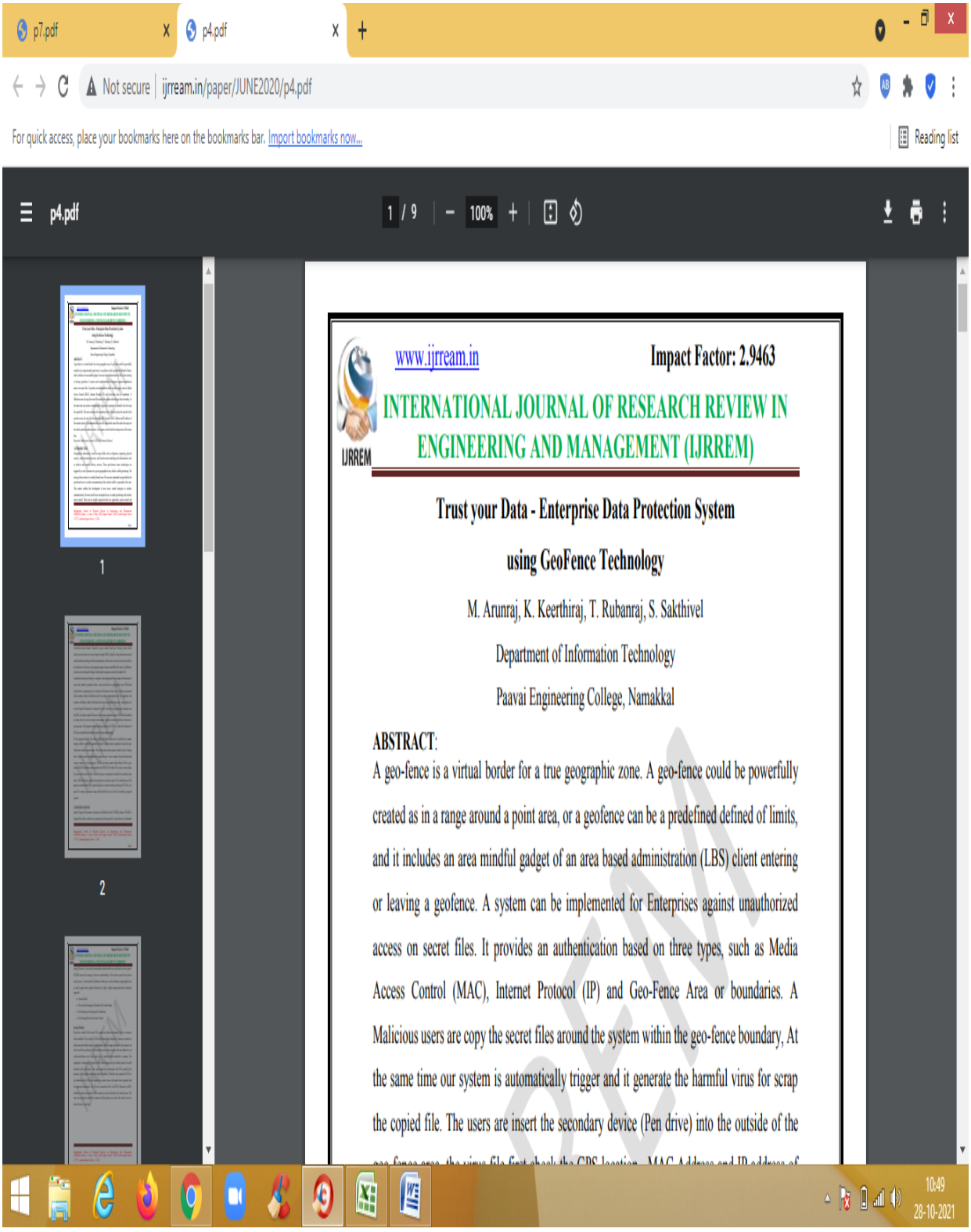
ACADEMIC YEAR 2019-2020

Soil Sensors as a Service: Low Cost Soil Diagnostics System using Sensors



Enterprise Data Prediction Using Geo Fence Technology



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INTERNATIONAL JOURNAL OF RESEARCH REVIEW IN ENGINEERING AND MANAGEMENT (IJRREM)

Trust your Data - Enterprise Data Protection System using GeoFence Technology

M. Arunraj, K. Keerthiraj, T. Rubanraj, S. Sakthivel

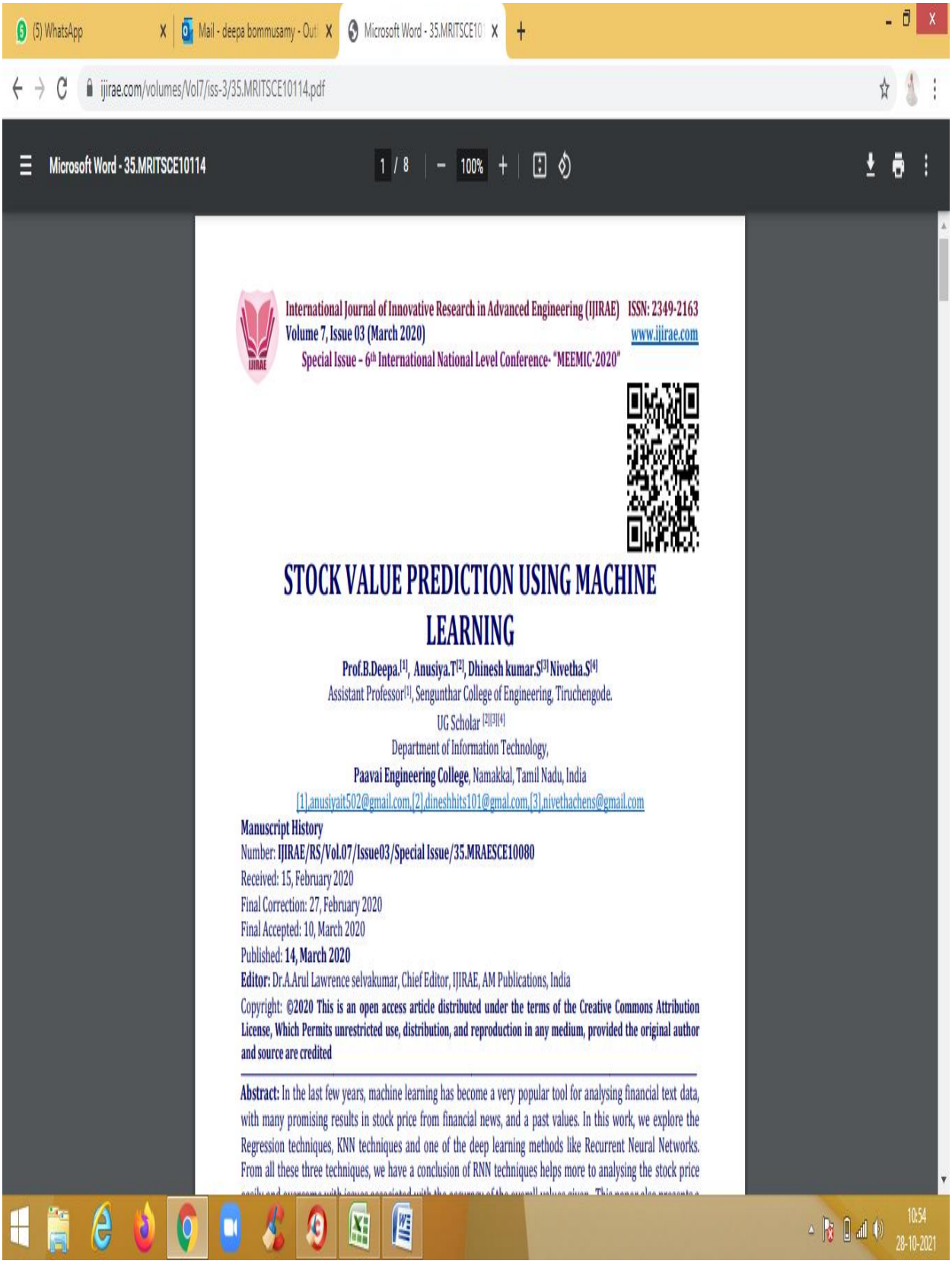
Department of Information Technology

Paavai Engineering College, Namakkal

ABSTRACT:

A geo-fence is a virtual border for a true geographic zone. A geo-fence could be powerfully created as in a range around a point area, or a geofence can be a predefined defined of limits, and it includes an area mindful gadget of an area based administration (LBS) client entering or leaving a geofence. A system can be implemented for Enterprises against unauthorized access on secret files. It provides an authentication based on three types, such as Media Access Control (MAC), Internet Protocol (IP) and Geo-Fence Area or boundaries. A Malicious users are copy the secret files around the system within the geo-fence boundary, At the same time our system is automatically trigger and it generate the harmful virus for scrap the copied file. The users are insert the secondary device (Pen drive) into the outside of the

Stock Value Prediction Using Machine Learning



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STOCK VALUE PREDICTION USING MACHINE LEARNING

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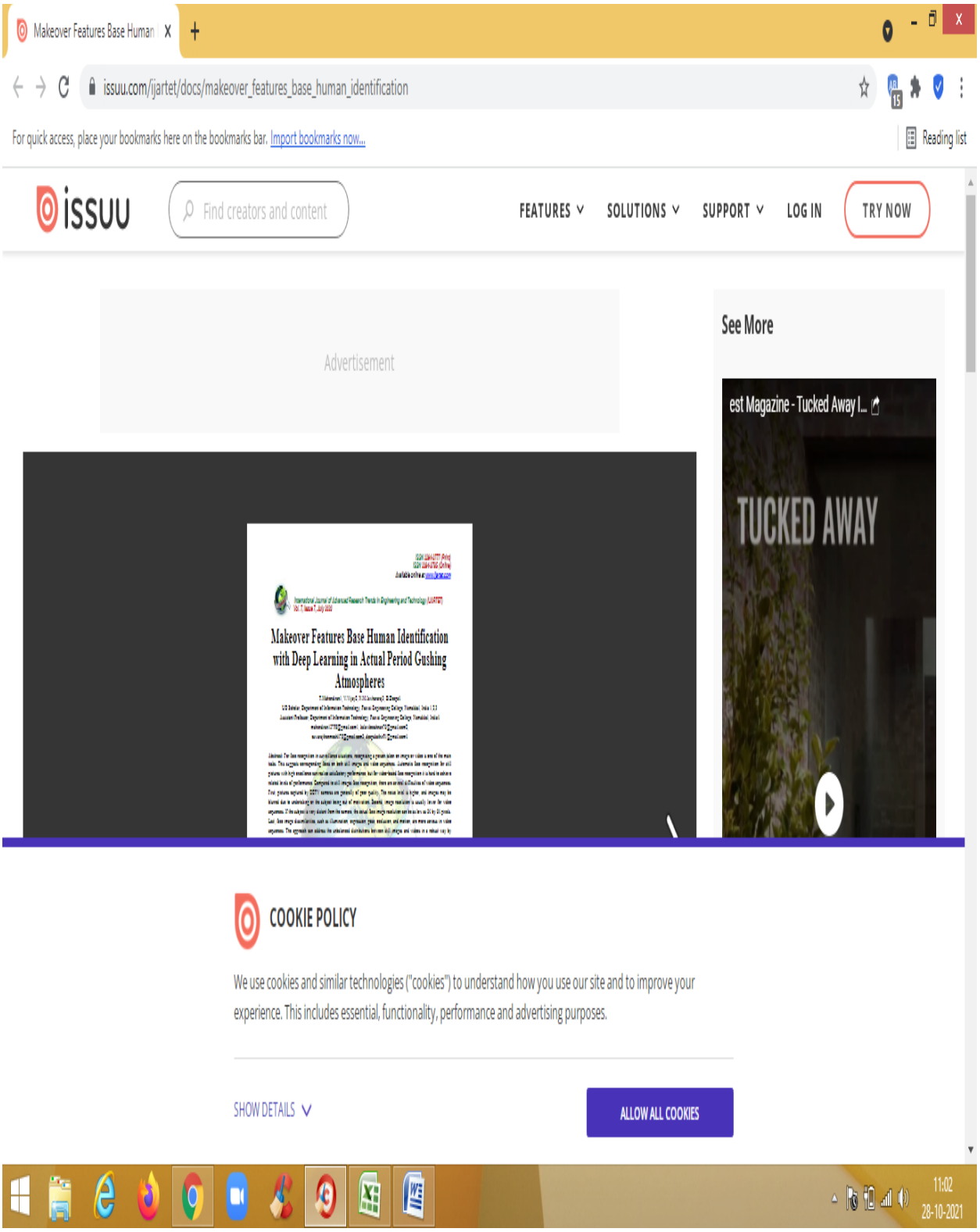
Abstract: In the last few years, machine learning has become a very popular tool for analysing financial text data, with many promising results in stock price from financial news, and a past values. In this work, we explore the Regression techniques, KNN techniques and one of the deep learning methods like Recurrent Neural Networks. From all these three techniques, we have a conclusion of RNN techniques helps more to analysing the stock price

Makeover Features Base Human Identification with Deep Learning in Actual Period Gushing Atmospheres



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In silico analysis of oral acute toxicity, organ toxicity, immunotoxicity, genetic toxicity endpoints, nuclear receptor signaling pathways and stress response pathways of phytocopounds from *Cymbopogon flexuosus*

T Senthil Kumar and JS Ruthra Priya

Abstract
The present objective was an *in silico* study to detect oral acute toxicity, organ toxicity, immunotoxicity, genetic toxicity endpoints, nuclear receptor signalling, and stress response pathways of common synthetic pyrethroids by using ProTox-II webserver. The phyto-compounds synthesized from cymbopogon flexuosus such as carbetapentane, 2-propenoic acid, bornyl acetate, Heptadecanoic acid, phytol, 1(3H)-isobenzofuranone,3-ethoxy-, quinhydrone, 9,12,15-octadecatrienoic acid ethyl ester, 15-methylhexadecanoic acid, oxirane, 1-Heptanol-6-methyl, Diacyl phthalate, eicosane. ProTox-II webserver was used for toxicological assessment in organism, organs, cell and gene level along with molecular mechanisms of toxicity. The predictive results for the toxicity of phyto-compounds, 2-propenoic acid showed highly toxic compound among 13 compounds as fatal if swallowed as class III followed by carbetapentane, Heptadecanoic acid, 15-methylhexadecanoic acid, quinhydrone, 1-Heptanol-6-methyl but hepatotoxic potential was only Heptadecanoic acid, quinhydrone, 9,12,15-octadecatrienoic acid ethyl ester while no immunotoxic was obtained. On the other hand, none of the compounds were obtained cytotoxicity and carbetapentane and oxirane shows carcinogenicity and Mutagenecity. In case of NR signalling pathways, 9,12,15-octadecatrienoic acid ethyl ester were obtained nrf2/ARE and HSE active while MMP active compounds were obtained 1(3H)-isobenzofuranone,3-ethoxy-, quinhydrone, respectively. For p53 and ATAD5 parameters, all thirteen compounds were obtained inactive. In conclusion, the present predictive results are suitable for academician, researchers, industries, etc. those who are making drugs and environmental chemicals. This web server helps faster screening of large numbers of compounds within short duration and no animal testing. This present *in silico* study easily

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ELSEVIER

Optik

Volume 223, December 2020, 165571

High performance ethanol and acetone gas sensing behavior of $FeCo_2O_4$/graphene hybrid sensors prepared by facile hydrothermal route

S. Rathinavel [a], G. Balaji [a], S. Vadivel [b]

https://doi.org/10.1016/j.ijleo.2020.165571

Diamond and Related Materials

Volume 109, November 2020, 108006

ELSEVIER

Design and fabrication of clad modified fiber optic gas sensor based CeO_2/MWCNTs hybrid sensors by facile hydrothermal technique

S. Vijayakumar [a], S. Vadivel [b], A. Biruntha [a], T. Brindhasri [a], P.A. Desika [a]

https://doi.org/10.1016/j.diamond.2020.108006

Outline

ELSEVIER

Inorganic Chemistry Communications

Volume 120, October 2020, 108132

Short communication

A simple and one step low cost microwave induced low cost grapheme modified CeO_2 photo electrodes for high-efficiency dye-sensitized solar cells

R. Gayathri [a], G. Raja [a], P. Rajeswaran [b]

https://doi.org/10.1016/j.inoche.2020.108132

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RELIGION: AN IDEOLOGICAL CONFLICT IN MAHESH DATTANI'S FINAL SOLUTIONS

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Abstract
Mahesh Dattani, an elite, modern and a creative thinker has discovered the world of real human experience and given drama a synonym of life itself. The play *Final Solutions* is a dossier of Hindu-Muslim hatred winning Sahithya Academy award and stands as a fine testimony to Dattani. He, as a social scientist, discerns a mixture of diverse attitudes towards a religious identity that often puts the country into human strife. For years together communal hatred has been an unresolved issue. Despite India's marvelous achievements in science and technology, rapid changes in the spheres of education and the blooming of parliamentary

Malaya Journal of Matematik, Vol. S, No. 1, 596-599, 2019

https://doi.org/10.26637/MJM0S01/0106

On the oscillatory behavior of solutions of third order nonlinear neutral differential equations

M. Sathish Kumar[1] and V. Ganesan[2,*]

Abstract

The achieved results are based on the new comparison principles, which help us decrease the problem of the wavering between the third and first-order equations. Examples are given to prove the significance of new theorems.

Keywords

Oscillation, neutral, third-order, comparison theorem, differential equation.

AMS Subject Classification

34K11, 34C10, 34C15.

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Contents

Under a solution to Eq.(1.1), we mean a function $x(t)$ in $C^2[T_x, \infty)$ for which $a(t)(z''(t))^\gamma$ is in $C^1[T_x, \infty)$ and Eq.(1.1) is satisfied on some interval $[T_*, \infty)$, where $T_* \geq t_0$. We only

AIMS Mathematics
2020, Volume 5, Issue 4: 3851-3874. doi: 10.3934/math.2020250
Research article

Previous Article Next Article

Asymptotic behavior of solutions of third-order neutral differential equations with discrete and distributed delay

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MSC : 34C10, 34C15, 34K11

Abstract Full Text(HTML) Download PDF

By refining the standard Riccati substitution technique, integral averaging technique and comparison principle, we obtain new oscillation and asymptotic behavior for a class of third-order neutral differential equations with discrete and distributed delay. These criteria dealing with some cases have not been covered by the existing results in the literature. We present many sufficient conditions and related examples in order to illustrate the main results.

order, delay, neutral, differential equation

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https://doi.org/10.37418/amsj.9.11.2

ASYMPTOTIC PROPERTIES OF THIRD-ORDER NONLINEAR NEUTRAL DIFFERENTIAL EQUATIONS WITH VARIABLE DELAY ARGUMENTS

R. ELAYARAJA, M. SATHISH KUMAR[1], AND V. GANESAN

ABSTRACT. The present paper focuses on the oscillation and asymptotic properties of the third-order nonlinear neutral differential equations with variable delay arguments. By applying the Riccati transformation and the integral averaging technique, we give an analytical method for the estimation of Riccati differential inequality to establish several oscillation criteria for the discussed equation, which show that any solution either oscillates or converges to zero. We give several theorems and related examples to prove the significance of new theorems.

1. INTRODUCTION

Outline

ELSEVIER

Optics & Laser Technology

Volume 118, October 2019, Pages 44-51

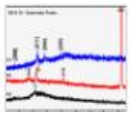
Full length article

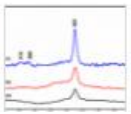
Fiber optic ethanol gas sensor based WO_3 and WO_3/gC_3N_4 nanocomposites by a novel microwave technique

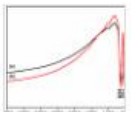
S. Vijayakumar [a], S. Vadivel [b]

https://doi.org/10.1016/j.optlastec.2019.04.040

Outline







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Journal of Electroanalytical Chemistry

Volume 851, 10 October 2019, 113409

Fabrication of the Mn_3O_4 thin film electrodes by electron beam evaporation for supercapacitor applications

Dadamiah P.M.D. Shaik [a], P. Rosaiah [c], O.M. Hussain [b]

https://doi.org/10.1016/j.jelechem.2019.113409

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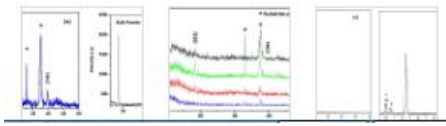

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Volume 19, Part 2, 2019, Pages 388-391

Growth and electrochemical properties of RF sputter deposited $Li[Ni_{0.5}Co_{0.25}Mn_{0.25}]O_2$ film cathodes

G. Prathibha [a], P. Rosaiah [b], O.M. Hussain [c]

https://doi.org/10.1016/j.matpr.2019.07.621

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ELSEVIER

Vacuum

Volume 168, October 2019, 108835

Surfactant - Alcohol interactions: An ultrasonic, UV and FTIR analysis

N. Chithralekha [a], A. Panneerselvam [b]

https://doi.org/10.1016/j.vacuum.2019.108835

lights

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Heliyon

Volume 5, Issue 6, June 2019, e01941

Physico-chemical studies on binary aqueous solutions of Anti-Viral Influenza drugs

S. Punitha [a], R. Uvarani [b], A. Panneerselvam [c], S. Nithiyanantham [d]

https://doi.org/10.1016/j.heliyon.2019.e01941

Physico Chemical Analysis of Cetyl Pyridinium Chloride (CPC) Blended by Cellulose solution

June 2019

DOI:10.26438/ijsrpas/v7i3.125136

Authors:

Panneer Selvam
Paavai Engineering College, Pachal, Nama...

V. Karikalan

High stable with efficient dye-sensitized solar cell-based Al2O3/graphene hybrid photoanode fabricated by simple household microwave irradiation technique.

- **Source:** Journal of Materials Science: Materials in Electronics . Jun2020, Vol. 31 Issue 12, p9742-9752. 11p.

- **Author(s):** Gayathri, R.; Raja, G.; Rajeswaran, P.

- **Abstract:** A facile and one-step microwave irradiation approach was adapted to fabricate the hybrid photoanode of aluminum oxide (Al₂O₃)/graphene (GR) nanocomposite and scientifically investigated their structural, morphological and optical properties by XRD, TEM, Raman, UV, PL and BET analysis. XRD and TEM results exposed that crystal symmetry and exhibited face centered lattice with uniform plate-like nanoparticles are homogeneously covered on the surface of the graphene sheets. Mesoporous with nature with high pore size and huge surface area of Al₂O₃/GR is identified by N₂ adsorption–desorption analysis. A significant reduction in the band gap energy (4.42–3.62 eV) and rapid electron–hole pair generation process of the hybrid materials was found by UV-DRS and PL spectra analysis. Sandwich type solar cell was fabricated by deposition the hybrid materials on FTO glass substrate and technically studied the photovoltaic (PV) parameters through J–V characteristics. The results express that Al₂O₃/GR hybrid photoanode show fabulous photo conversion efficiency (PCE) of (8.21%) and high stability than compared with bare Al₂O₃.