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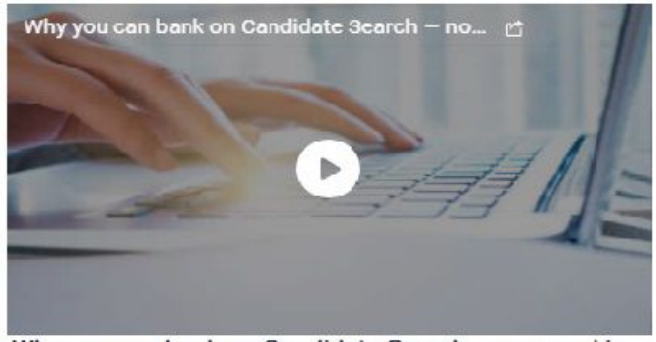

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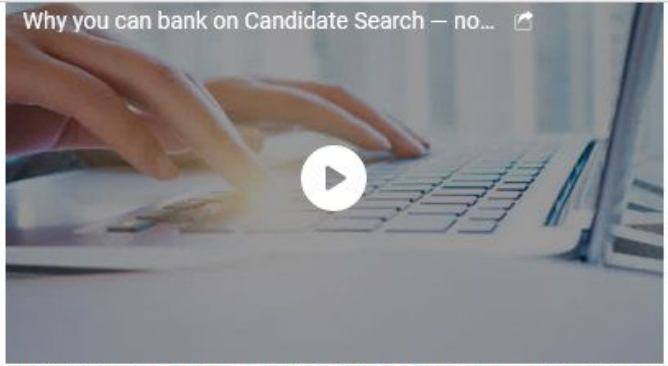

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AN EXPERIMENTAL STUDY ON DEGRADATION OF SOLID WASTES USING EFFECTIVE MICROORGANISMS SOLUTION

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Effect of different crop establishment methods on soil physical, chemical and biological properties in rice-rice cropping sequence

A Vivekanandhini, V Ravi and K Subrahmaniyan

Abstract
To study the effect of different crop establishment methods of rice on soil physical, chemical and biological properties, the field experiments were conducted in *Kharif 2016* and *Rabi* 2016-17 seasons at Tamil Nadu Rice Research Institute, Aduthurai. The study consisted of six treatments *viz.*, T_1– Non-puddled transplanted rice (NPTR) in *kharif* – No Till (NT) in *rabi*, T_2 – NPTR in *kharif* – Puddled transplanted rice (PTR) in *rabi*, T_3 – Dry Seeded Rice (DSR) in *kharif* – NT in *rabi*, T_4 – DSR in *kharif* – PTR in *rabi*, T_5 – PTR in *kharif*– NT in *rabi* and T_6 – PTR in both *kharif* and *rabi*. The results revealed that there is no significant difference between crop establishment methods on soil physical properties like soil bulk density, particle density, porosity and infiltration rate during both *kharif* 2016 and *rabi* 2016-17 season. However there is Significant different observed between crop establishment methods on soil chemical and biological properties. The soil available nutrients were lower in DSR followed by PTR during *kharif* 2016 and DSR-PTR during *rabi* 2016-17. The microbial population of the beneficial organisms namely *Azotobacter*, *Azospirillum* and PSB were observed to be higher in DSR during

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Performance of Different Crop Establishment Methods on Growth, Weeds Dynamics and Yield in Rice-Rice Cropping Sequence

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A B S T R A C T

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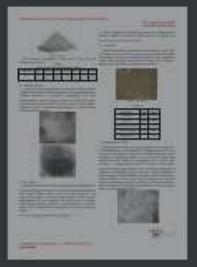

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Investigation On M-Sand Based Geopolymer Concrete With Sisal And Polypropylene Fibre

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Abstract **— One of the important issues in environment is to reduce the greenhouse gas emission. Worldwide cement industries release 5-7% of greenhouse gas. Geopolymer concrete is an alternative to conventional Portland cement concrete which is highly eco-friendly. The reaction of materials containing alumino silicates with concentrated alkaline solution to produce an inorganic polymer binder is known as geopolymer concrete. It is emerged as a possible solution for using the by-products and they could be utilized to manufacture precast structure and non-structural elements. The demand of natural sand is quite high in developing countries to satisfy the rapid infrastructure growth, in this situation developing country like India facing shortage in good quality natural sand. In order to reduce these problems, recently manufactured sand was used as partial or full replacement material with natural river sand. NaOH solution of 8M concentration is mixed with sodium silicate gel is used as alkaline solution. The primary objective of this paper is to compare the geopolymer concrete properties with sisal and polypropylene fibre. The influence of fibre content in the strength of geopolymer concrete is presented. Significant improvement of strength of geopolymer concrete with fibres are compared and observed for M30 grade of concrete.**

Keywords **— Geopolymer concrete, Sisal fibre, Polypropylene fibre, Manufactured Sand**

I. INTRODUCTION

Production of Ordinary Portland cement is highly energy intensive; consume a substantial quantity of non-renewable natural resources such as limestone deposition, coal etc. & about one ton of carbon dioxide CO2 is released in the course of the production of a ton of Portland cement. The environmental effects connected with the making of Portland cement designed an urgent need to develop alternative binder to make concrete. On the other hand, coal-burning power generation plants produce enormous quantities of fly ash. The volume of fly ash would boost as the demand for electricity increases. Most of the fly ash is regarded as waste and dumped in landfills. To examine the concerns pointed out above, it is crucial that other types of binders have to be developed to make concrete. The growth of fly ash based geopolymer concrete is in response to the need for greener concrete. The abundant availability of fly ash worldwide represents a chance to employ this by-product of burnt coal as a replacement for Portland cement to manufacture concrete. Davidov its (1988) advised that alkaline liquid could be used to react with the Si & Al in the source material of geological origin or by product material such as Fly ash, Metakaolin, GGBFS, Rice husk ash etc., to make binders. Geopolymer concrete does not employ any Portland cement in it.

In developing nations, the demand for natural sand is very high. Specifically, in India, natural sand deposits are getting depleted and causing a serious threat to the concrete. The most typically used fine aggregate is the natural river. One day sand will become a rare material, in this scenario; we began to look for alternative materials that are affordable and readily available. The development of sustainable infrastructure requires alternative materials that must also meet the technical requirements of fine aggregate because it must be accessible in abundance. Manufactured sand provides a viable alternative to natural sand and is a special fine aggregate developed by grinding and sieving or further processing.

The geopolymer paste binds the loose coarse & fine aggregates & other unreacted materials with each other to form geopolymer concrete. The manufacture of geopolymer concrete is carried out using the usual concrete technology strategies. High early strength, low shrinkage, freeze-thaw resistance, sulphate resistance, & corrosion resistance are the properties of geopolymer concrete. The addition of fibers in the geopolymer concrete will considerably increase the mechanical strength properties than the conventional mix.

II. MATERIALS USED

The material utilised in this present study was fly ash as source material, alkaline liquids, course & fine aggregates & water. M30 grade concrete was deemed in this study.

A. Fly ash

Class F type of fly ash obtained from Mettur thermal power plant was used in the experimental work having a fineness

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Volume: 3 | Issue: 2 | Jan-Feb 2019 Available Online: www.ijtsrd.com e-ISSN: 2456 - 6470

Experimental Study on Performance of Gap Graded Concrete using Partial Replacement of Titanium Dioxide and Msand

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ABSTRACT
This paper reports an experimental investigation on the development of Gap graded concrete providing the optimal combination of strength and water permeability using M sand and admixtures. In this study, the Gap graded concrete is obtained by removing the fine aggregate wholly (0%), 5%, 10% and 15% of replacing coarse aggregate with M sand. The titanium dioxide is used as partial replacement to cement to study its behavior on mechanical properties of Gap graded concrete. Gap graded concrete trial mixes with different size of aggregate, with and without fine aggregates. Tested for its mechanical properties such as compressive strength, water permeability, and porosity. Gap graded concrete is a porous concrete which allows water and air to pass through it. The Gap graded concrete specimen of cube size of 150mm x 150mm x 150mm and they were cured in water for the period of 7, 14, 28 days. The compressive strength test and permeability is done in laboratory after curing. Then the compressive strength of Gap graded concrete is compared to the compressive strength of M20grade of concrete.

Keywords: *Gap graded concrete, M sand, Titanium dioxide, compressive strength, permeability*

1. INTRODUCTION

1.1 GENERAL

A larger amount of rainwater ends up falling on impervious surfaces such as parking lots, driveways, sidewalks, and streets rather than soaking into the soil. This creates an imbalance in the natural ecosystem and leads to a host of problems including erosion, floods, ground water level depletion and pollution of rivers, lakes, and coastal waters as rainwater rushing across pavement surfaces picks up everything from oil and grease spills to de-icing Salts and chemical fertilizers. Conventional normal weight Portland cement concrete is generally used for pavement construction. The impervious nature of the concrete pavements contributes to the increased water runoff into the drainage system, over-burdening the infrastructure and causing excessive flooding in built-up areas. Thus Gap graded concrete can play a vital role in filtration and rain water harvesting due to its porosity. This type of concrete has become significantly popular as a sustainable application during recent decades due to its potential contribution in solving environmental issues.

1.2 GAP GRADED CONCRETE

The term "Gap graded concrete" typically describes a near-zero-slump, open- graded material consisting of Portland cement, coarse aggregate, little or no fine aggregate, admixtures, and water. It is such a concrete that has high porosity and allows draining freely unlike dense, high strength concrete. Its applications are therefore in conditions where water from precipitation or other sources needs to be drained. The high porosity is achieved by the absence or very low content of fine aggregates. Gap graded research is being done on Gap graded concrete that can be used for concrete flatwork applications. Typically Gap graded concrete has water to cementitious materials ratio (w/cm) of 0.28 to 0.40 with a void content of 18 to 35%. Gap graded concrete is used in parking areas, areas with light traffic, residential streets, pedestrian walkways, and greenhouses.

Figure 1.1 Samples of Standard Concrete & Gap graded Concrete

It is an important application for sustainable construction and is one of the techniques used for ground water recharge.

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Study on Behaviour of Hybrid Fibre Reinforced Cementitious Composites

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ABSTRACT
This paper highlights the material properties of the Bendable concrete for the effective development of new structures and maintenance of existing structures. The material researchers have conducted a lot of experiments based on sustainability, durability and safety point of view. As a result of the attempts, finally a new material was established in the last decade. The proper selection of the fibre, mixing of the composite exhibit strain hardening and multiple cracking behaviour of the material. The strain hardening behaviour of the Bendable concrete gives significant advantage under flexural loading. The crack width developed under loading is very small when compared with conventional concrete due to the bridging effect of the fibre. The material properties of Bendable concrete reinforced with following 0.5%, 1.0%, 1.5%, 2% of steel fibre and 0.1%, 0.15%, 0.2%, 0.25% of polypropylene fibre. The optimum strength attained at 1.0% of steel fibre and 0.1% of polypropylene fibre and has been claimed to be the most promising proportion of the fibre content. A series of experiments were carried out to determine the compressive strength, tensile strength and flexural characteristics of Bendable concrete.

Keywords: *Bendable concrete, Sustainability, Strain hardening, Bridging*

INTRODUCTION

1.1 GENERAL

Concrete is most widely used material for the construction. In ancient time itself the people started to use concrete for the construction because of its brittleness and compressive strength. Cement act as a binding material in the concrete to tide the aggregate. Unfortunately the production of cement consumes more amounts of natural resources and liberate large amount of CO_2 which affect environmental system. So the development of new construction material is essential.

Now a day, the concrete construction industry faces lot of problem due to availability of material and bad environmental conditions. Due to this bad effect, cracks and strength losses occurr in the construction. The concrete which is mainly strong in compression but weak in tension, is also a part of load profile. To avoid the over consumption of natural resources, supplementary cementitious materials such as fly ash, rice husk ash, silica fume are used for the structure.

Recently, construction industry introduced fibres also in the concrete to provide were strength and performance based on the brittleness and ductility behaviour. Since 2003, the new construction material "Engineered cementitious composites" is developed by Victor C. Li.

Engineered cementitious composites (ECC) is a cement based material containing a mix of cement, supplementary cementitious material, sand, water and chemical admixtures, reinforced randomly distributed fibres. ECC material can improve the tensile strength, ultimate strain capacity and

1.2 DEFINITION

Engineered cementitious composite is "a special type of high performance fibre reinforced concrete containing small amount of short random fibres micromechanically designed to achieve high damage tolerance under severe loading conditions and high durability under normal service conditions".

Engineered cementitious composite (ECC) is a cement based material containing a mix of cement, supplementary cementitious material, sand, water and chemical admixtures, reinforced randomly distributed fibres. ECC material can improve tensile strength, ultimate strain capacity and large strain hardening properties than conventional concrete.
Engineered cementitious composite is called bendable concrete, is an easily mortar based composite reinforced with specially selected short random fibres, usually polymer fibres. The engineered cementitious composite has ductile characteristics, when compared with normal concrete which shows brittle nature. The ECC material also forms high performance fibre cementitious composite family. The ECC is prepared with short random fibres for the effective formation of the fibre matrix as well as to the increase the bond strength. The addition of fibre improves the tensile strength, toughness along with strain capability, and it shows high damage tolerance. These properties significantly the strain hardening behaviour of the material.

Strain hardening is the ability of the material to increase the level of loading after first crack while undergoing large

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Experimental Investigation on Mechanical Properties of Concrete with Sludge Waste and Silica Fume

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Abstract:

The present investigation aims to evaluate and compare the mechanical and durability properties of binary composite of cement concretes made from Ordinary Portland cement (OPC) blended with sludge waste and silica fume. Compressive strength test, tensile strength test, flexural test and coefficient of water absorption, is conducted on 28 and 90 days. The salient features of the findings are binary composite of cement concrete showed better compressive strength and same reduced the tensile strength. Samples of concrete (eg.cubes) are made in M20 grade. It is found that 0.55 water/cement ratio produced higher compressive strengths, tensile strength and better workability for M20 mix, proportion. Specifically compressive strength ranged from 18.81 -45 N/mm^2 for the mixes considered. These results compare favourably with those of conventional concrete. The concrete was found to be suitable for use as structural members for buildings and related structures, where sludge waste content did not exceed 50%.

Key words: composite cements, compressive strength, tensile strength flexural strength, coefficient of water absorption.

I. INTRODUCTION

In construction field civil engineering's facing lot problem in world due to available of materials

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NUMERICAL INVESTIGATION ON COLD FORMED PRESS BRAKING STEEL ZED SECTIONS UNDER AXIAL COMPRESSION

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[2]Under Graduate Students, Department of Civil Engineering, Paavai Engineering College, Tamilnadu, India

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Abstract - *This paper describes a buckling behavior of a series of innovative cold form press braking steel column sections .Buckling behavior was analyzed by both theoretical and Numerical analysis. For the optimization process of arbitrarily shaped thin walled member is done by CUFSM4.03 package. The steel channel and zed sections were considered with various profile and the dimensions were comprises as per the guidelines given in North American Specification (NAS). The parametric study was also carried out by varying the yield stresses and keeping the, thickness and length of the column as constant. The sections were made with cold formed steel sheets of thickness 2mm and 600mm in length. The yield stresses of steel sheets were varied as 250N/mm², 350N/mm² and 550N/mm² which are obtained from preliminary coupon test results. Theoretical analysis was done by Direct Strength Method, which was proposed by B.W.Schafter in 2004[5]. Numerical analysis is done by finite element modelling package ANSYS 12.1 with non-linear analysis on columns. This paper describes the failure modes of buckling in Cold Formed Steel sections and nominal load carried by the column under axial compression.*

Keywords: Cold formed steel, Zed/Zee Section, FEM, DSM, Buckling Mode.

1. INTRODUCTION

Cold formed steel (CFS) is the common term for products made by rolling or pressing steel semi-finished or finished goods at relatively low temperatures (cold working). Cold-formed steel goods are created by the working of steel billet, bar, or sheet using stamping, rolling (including roll forming), or presses to deform it into a usable product. Cold-worked steel products, such as cold-rolled steel (CRS) bar stock and sheet, are commonly used in all areas of manufacturing of durable goods, such as appliances or automobiles, but the phrase cold-formed steel is most prevalently used to describe construction materials. In the construction industry

graphs of cold-formed steel sheet mainly fall into two categories. They are sharp yielding and gradual yielding type illustrated below in Figure 1 and Figure 2, respectively.1.1

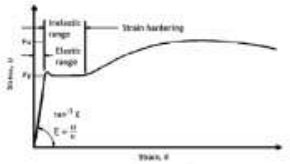

Figure -1 Sharp Yielding type

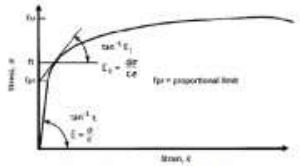

Figure -2 Gradual Yielding Type

1.1 Review Literature

A literature review or narrative review is a type of review article. A literature review is a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Some of the literature reviews for our cold formed steel members are as follows,

André Dias Martins, et al (2017) proposed a topic on 'The direct strength design of cold-formed steel columns failing in

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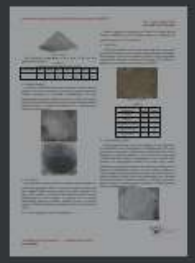
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Investigation On M-Sand Based Geopolymer Concrete With Sisal And Polypropylene Fibre

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Department of Civil Engineering, Paavai Engineering College, Pachal, Namakkal.
Tamilnadu, India

***Abstract* — One of the important issues in environment is to reduce the greenhouse gas emission. Worldwide cement industries release 5-7% of greenhouse gas. Geopolymer concrete is an alternative to conventional Portland cement concrete which is highly eco-friendly. The reaction of materials containing alumino silicates with concentrated alkaline solution to produce an inorganic polymer binder is known as geopolymer concrete. It is emerged as a possible solution for using the by-products and they could be utilized to manufacture precast structure and non-structural elements. The demand of natural sand is quite high in developing countries to satisfy the rapid infrastructure growth, in this situation developing country like India facing shortage in good quality natural sand. In order to reduce these problems, recently manufactured sand was used as partial or full replacement material with natural river sand. NaOH solution of 8M concentration is mixed with sodium silicate gel is used as alkaline solution. The primary objective of this paper is to compare the geopolymer concrete properties with sisal and polypropylene fibre. The influence of fibre content in the strength of geopolymer concrete is presented. Significant improvement of strength of geopolymer concrete with fibres are compared and observed for M30 grade of concrete.**

***Keywords* — Geopolymer concrete, Sisal fibre, Polypropylene fibre, Manufactured Sand**

I. INTRODUCTION

Production of Ordinary Portland cement is highly energy intensive; consume a substantial quantity of non-renewable natural resources such as limestone deposition, coal etc. & about one ton of carbon dioxide CO2 is released in the course of the production of a ton of Portland cement. The environmental effects connected with the making of Portland cement designed an urgent need to develop alternative binder to make concrete. On the other hand, coal-burning power generation plants produce enormous quantities of fly ash. The volume of fly ash would boost as the demand for electricity increases. Most of the fly ash is regarded as waste and dumped in landfills. To examine the concerns pointed out above, it is crucial that other types of binders have to be developed to make concrete. The growth of fly ash based geopolymer concrete is in response to the need for greener concrete. The abundant availability of fly ash worldwide represents a chance to employ this by-product of burnt coal as a replacement for Portland cement to manufacture concrete. Davidov its (1988) advised that alkaline liquid could be used to react with the Si & Al in the source material of geological origin or by product material such as Fly ash, Metakaolin, GGBFS, Rice husk ash etc., to make binders. Geopolymer concrete does not employ any Portland cement in it.

In developing nations, the demand for natural sand is very high. Specifically, in India, natural sand deposits are getting depleted and causing a serious threat to the environment as well as to the society. Increasing extraction of natural sand from river beds generating a lot of issues like losing water retaining sand beds, causing bank slides, deepening of the river beds, etc., are few examples. Properties of aggregate influence the durability and overall performance of concrete, so fine aggregate is an inherent element of concrete. The most typically used fine aggregate is the natural river. One day sand will become a rare material, in this scenario; we began to look for alternative materials that are affordable and readily available. The development of sustainable infrastructure requires alternative materials that must also meet the technical requirements of fine aggregate because it must be accessible in abundance. Manufactured sand provides a viable alternative to natural sand and is a special fine aggregate developed by grinding and sieving or further processing.

The geopolymer paste binds the loose coarse & fine aggregates & other unreacted materials with each other to form geopolymer concrete. The manufacture of geopolymer concrete is carried out using the usual concrete technology strategies. High early strength, low shrinkage, freeze-thaw resistance, sulphate resistance, & corrosion resistance are the properties of geopolymer concrete. The addition of fibers in the geopolymer concrete will considerably increase the mechanical strength properties than the conventional mix.

II. MATERIALS USED

The material utilised in this present study was fly ash as source material, alkaline liquids, course & fine aggregates & water. M30 grade concrete was deemed in this study.

A. Fly ash

Class F type of fly ash obtained from Mettur thermal power plant was used in the experimental work having a fineness modulus of 7.86 and specific gravity of 2.30.

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Volume: 3 | Issue: 3 | Mar-Apr 2019 Available Online: www.ijtsrd.com e-ISSN: 2456 - 6470

Durability Study on Self Compacting Concrete with Mineral Admixture

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

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ABSTRACT

Self-compacting concrete can be placed and compacted under its own weight without any vibration and without segregation or bleeding. The use of mineral admixture (such as fly ash, GGBS, etc.) as partial replacement of cement in SCC can bring down cost. The use of industrial waste such as fly ash, GGBS, etc in the binder of concrete reduces the storage, disposal and environmental problems. The most beneficial property with M-SAND addition to the concrete in the hardened state are the tensile strength, impact strength, the toughness and the energy absorption capacity. In the present study the mix design for M50 grade SCC was first carried out in accordance with EFNARC guidelines. The cement will be replaced with GGBS and fine aggregate get replaced with manufacturing sand Test such as slump flow,V funnel were carried out on fresh concrete and the optimum dosage of super plasticizer was found and cubes were cast for 7,28,56 days for the mix ratio 1:1.40:1.27:0.34. The influence of GGBS on the workability, mechanical strength and durability aspects like water absorption test, sulphate attack test, acid resistance test,rapid chloride penetration test , sorptivity test , linear polarization resistivity test and alkalinity test of self-compacting concrete are studied.

Keywords: *SELFCOMPACTING, FLY ASH, GGBS*

1. INTRODUCTION

1.1. GENERAL

Concrete is the most commonly used construction material worldwide. In India, reinforced concrete (RC) is extensively used in the construction of variety of civil infrastructure applications including small and large buildings, houses, bridges, storage tanks, dams and numerous other types of structures in India. The demand for concrete as construction material increases, and the demand for Fine aggregate increases. Some researchers said that the concrete industry globally would consume 48 billion tons annually of natural aggregates. Such large consumption of natural aggregates will cause destruction to the environment. In the last few decades, there has been rapid increase in the waste materials and by-products production due to the exponential growth rate of population, development of industry and technology and the growth of consumerism. The basic strategies to decrease solid waste disposal problems have been focused at the reduction of waste production and recovery of usable materials from the waste as raw material fume as partial replacements of Portland cement. Such materials are widely used in the construction of industrial and chemical plants because of their enhanced durability compared with Portland cement. The other main advantage of using such materials is to reduce the cost of construction. Several efforts are in progress to reduce the use of natural river sand as fine aggregate in concrete in order to address the ground water issues and natural aggregate depletion. Over recent decades, intensive research studies have been carried out to explore all possible reuse methods. M-Sand, Construction waste, Blast furnace, steel slag, coal fly ash and bottom ash have been accepted in many places as alternative aggregates in embankment, roads, pavements, foundation and building construction, raw material in the manufacture of ordinary Portland cement.

1.2. SELF COMPACTING CONCRETE (SCC)

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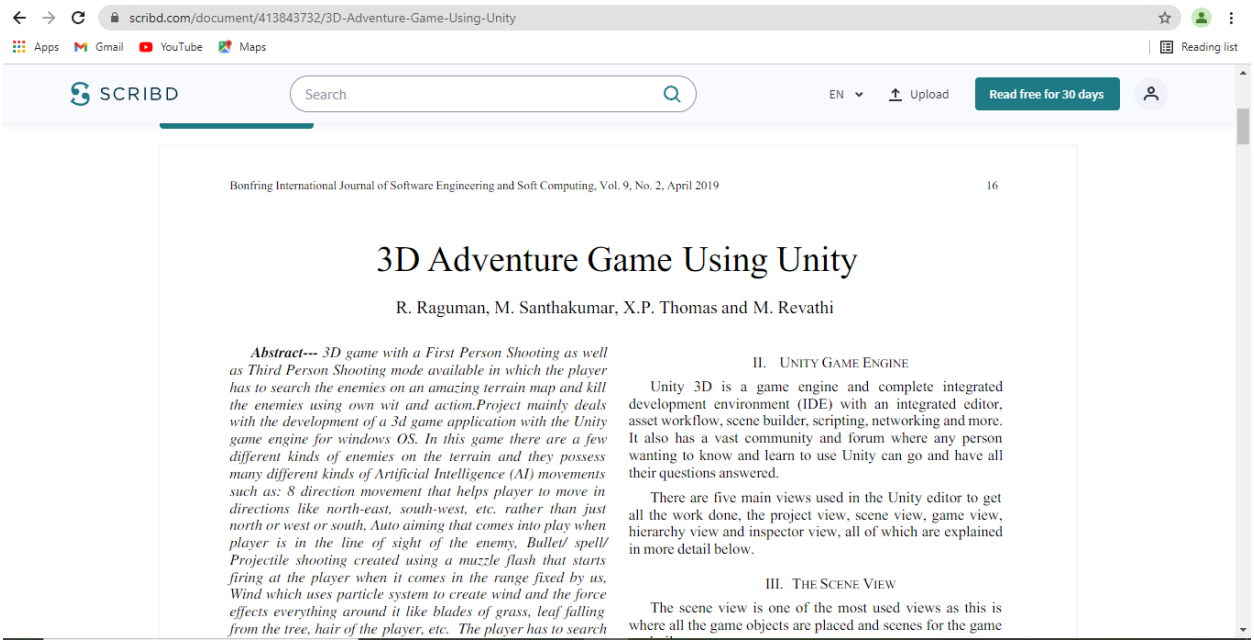

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3D Adventure Game Using Unity

R. Raguman, M. Santhakumar, X.P. Thomas and M. Revathi

Abstract--- *3D game with a First Person Shooting as well as Third Person Shooting mode available in which the player has to search the enemies on an amazing terrain map and kill the enemies using own wit and action.Project mainly deals with the development of a 3d game application with the Unity game engine for windows OS. In this game there are a few different kinds of enemies on the terrain and they possess many different kinds of Artificial Intelligence (AI) movements such as: 8 direction movement that helps player to move in directions like north-east, south-west, etc. rather than just north or west or south, Auto aiming that comes into play when player is in the line of sight of the enemy, Bullet/ spell/ Projectile shooting created using a muzzle flash that starts firing at the player when it comes in the range fixed by us, Wind which uses particle system to create wind and the force effects everything around it like blades of grass, leaf falling from the tree, hair of the player, etc. The player has to search*

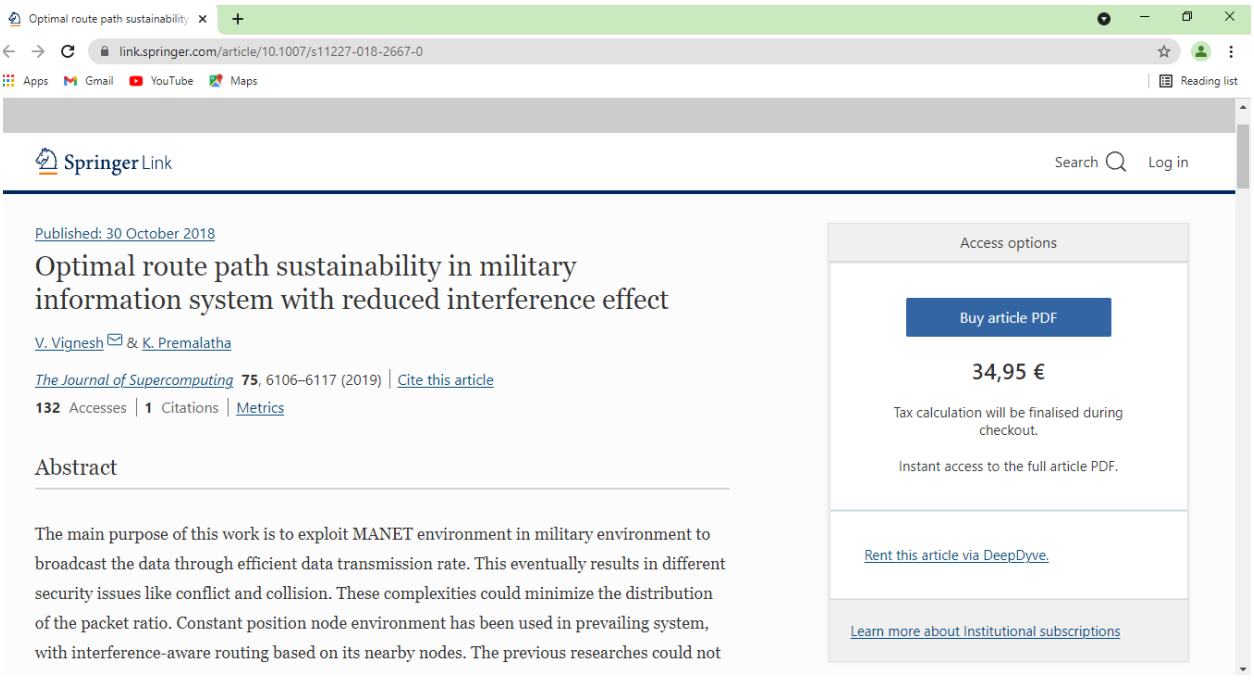
II. Unity Game Engine

Unity 3D is a game engine and complete integrated development environment (IDE) with an integrated editor, asset workflow, scene builder, scripting, networking and more. It also has a vast community and forum where any person wanting to know and learn to use Unity can go and have all their questions answered.

There are five main views used in the Unity editor to get all the work done, the project view, scene view, game view, hierarchy view and inspector view, all of which are explained in more detail below.

III. The Scene View

The scene view is one of the most used views as this is where all the game objects are placed and scenes for the game



Optimal route path sustainability

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Optimal route path sustainability in military information system with reduced interference effect

V. Vignesh & K. Premalatha

The Journal of Supercomputing **75**, 6106–6117 (2019) | Cite this article

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Abstract

The main purpose of this work is to exploit MANET environment in military environment to broadcast the data through efficient data transmission rate. This eventually results in different security issues like conflict and collision. These complexities could minimize the distribution of the packet ratio. Constant position node environment has been used in prevailing system, with interference-aware routing based on its nearby nodes. The previous researches could not

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Increasing Lifetime through Sleep Awake and Conditional Transmission in Wireless Body Area Networks

Karthik Jayaraman, A. Rajesh

Abstract

Human health is being monitored by wireless sensors from their home using wireless body area networks. Increase in the wireless body sensors made human to monitor health with great ease. Patient need not be stay in hospital for long time instead they may use body sensors and they may monitor their health from their residence itself. So that patients easily will be moving around their residence. Even though development of technology made ease of every task there are also constraints that need to be reduced. Since the body nodes are very tiny the battery used for the sensor is also small, in turn the battery capacity is also greatly reduced. So the life time of the sensor nodes are very low and in turn network lifetime also will be very less. In order to increase the life time of the node energy consumption should be monitored with more care. In our proposed system we implement sleep awake method along with conditional transmission to reduce the energy consumption that automatically increases the life time of the node as well as network. Our proposed method gives better result when compare with the performance of other methods in saving energy.

Keywords

Energy, Sleep Awake, Conditional Transmission, Network Lifetime, Body Sensors.

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Intelligent Cluster Based Routing Protocol For Mobile Wireless Sensor Networks

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***Abstract*— In recent years, the advancement of Wireless Sensor Networks (WSN) leads a platform for the growth of sensors with mobility. Moreover, the Mobile Wireless Sensor Networks (MWSN) designed for many significant applications. Several algorithms are designed based on the clustering optimization techniques. However, End-to-End delay and Packet loss ratio are occurred due to the mobility of sensor nodes which degrades the scalability, network lifetime in terms of energy consumption. Hence, an Intelligent Cluster Based routing protocol for mobile sensor nodes (ICB-Mobile) is emerged. In this technique, cluster heads (CHs) are elected using Artificial Bee Colony (ABC) optimization based on the mobility factor. Furthermore, intra cluster routing is designed by providing timeslots, assigned to each cluster member using TDMA-MAC. Subsequently, an inter-cluster routing scheme is developed to route the collected messages using fuzzy logic based on the number of hops, Residual energy and mobility factor. Proposed simulation result outperforms the previous cluster based routing protocols.**

Keywords -*Mobile Wireless Sensor Networks, Mobility factor, Optimization, Power consumption, Cluster Heads, Inter-Cluster Routing*

I. INTRODUCTION

In general, wireless sensor network (WSNs) have many number of light-weight sensor nodes which has limited energy, computational ability, memory space, and bandwidth. Furthermore, these low-cost sensor nodes can be set up either at randomly or by dropping from an aircraft rather using manual deployment. However, the sensor nodes adapted to sense any type of

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Research paper

A Flash Flood Early Warning System: Algorithm and Architecture

Asokan Jayaram [#1], Sanjoy Deb [*2]

[#1]Assistant Professor, Paavai Engineering College, Namakkal, Tamilnadu, India

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Research Article

HVQ BASED PULMONARY NODULES EXPEDITIOUS DETECTION USING THORACIC CT IMAGES

Sudha Muthusamy,Renugadevi Ravichandran and Shobana Swaminathan

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A Novel CAD system based on hierarchical scale vector quantization scheme is proposed in this paper.

ABSTRACT

It is difficult to identify lung cancer by the radiologist from the computed tomography scan. A Novel CAD system based on hierarchical scale vector quantization scheme is proposed in this paper. The high level VQ gives accurate lung segmentation from the chest volume compared to the commonly used simple thresholding approach. The low level VQ is used for identifying Initial nodule of the lung. Its effective and computationally efficient. Rule based filtering operation is combined with feature based SVM technique. The proposed system was conducted and they having at least one juxta pleural nodule .The experimental result says that our CAD system obtained 82.7% of overall sensitivity at a specificity of four FP's Per scan and 89.2% sensitivity at 4.14 FP's per scan for the preformation of Juxta pleural nodule compared to CAD System. The proposed system shows a good performance for its fast and adoptive detection of Pulmonary Nodule via CT imaging.

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INTRODUCTION

A respiratory organ nodule could be a "spot" on the respiratory organ that's but three cm (or 1½ inch) in diameter. If a spot is

in automatic detection and classification of lung nodules from low-dose CT (LDCT) scans the Early Lung Cancer Action Project (ELCAP) screening study is conducted. Overall, this paper shows a relationship between the spatial support of the

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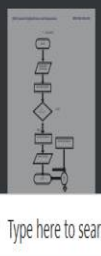

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Poultry Coop Mister Atomization using Advance Controller

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***Abstract*— In poultry there is a large number of broiler hen and laying hen in rustic areas. The normal body heat of a bird is 41 degree Celsius. A bird is most comfortable and grows faster in temperature ranging from 10-20 degree Celsius. If the temperature is greater than 30 degree Celsius, the body temperature of bird is reached 47 degree Celsius thus it dies from heart failure. The temperature is increased or decreased certain level it will reduce growth, smaller eggs, weak egg shells, depressed reproductive performance. So it is necessary to maintain or control the temperature, humidity, pH level, moisture. In middle days people use evaporative and non-evaporative cooling methods. As these methods are suitable only when temperature is lower than bird's body temperature. In recent day's ventilation fan, ventilation controller, wet bulb are used to maintain humidity. These also have disadvantages of user interpretation of temperature measurement, mercury hazards etc., To overcome all these drawbacks we introduces the atomizing mister which is automatically and continuously sense the temperature and humidity level. Auto adjust the temperature level using PIC microcontroller for poultry farm. If the temperature level is exists a certain range the tiny range of pressurized water will reveal in end of shower head or nozzle. Compared to existing work, our project performances very fast, inexpensive, eco-friendly.**

***Keywords*— Arduino, Temperature sensor, Humidity sensor, Atomation, Relay, Sprinkler.**

I. INTRODUCTION

Poultry cultivation is an affair of increasing domesticated birds such as chicken, ducks, geese, and turkeys for the reason of farming meat or egg for food. The important challenges are faced by farmers in poultry is sudden climate changes. The sudden climate changes leads loss of productivity or increasing costs & decreasing reproductive capacity. The studies of the department of environment, food &rustic affairs on hens found that the high temperature, rain fall & relative humidity has profound effects on poultry production especially in meat & egg production, outbreak of diseases, food intake as well as immune response system. So the poultry farmers uses the climate change adaption techniques includes dietary shifts, breeds comforts to the local environment, suitable housing & dis infection manner. Also it is a need to birds must be limited so as to protect them from physical hazards, rain, extreme of heat & cold. But these adaption methods of climate change has negative effects on poultry production faced by farmers which includes limited finance & poor management resulting in low productivity. Remote sensing techniques was introduced by [7] in an efficient manner. Thus for temperature & humidity management we introduce the automation humidifier. The automation humidifier will get switched on automatically depends on reading from temperature sensor. The microcontroller is

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Cluster-Based Energy Hop Count Analysis for Dynamic Route Selection in Mobile Wireless Sensor Network

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Abstract: The routing in Mobile Wireless Sensor Networks (MWSN) has been considered in a limited article which influences the quality of service of MWSN. The prior methodologies consider the traffic-based routing which screens just the blockage quantity in the routes accessible. In true conditions, considering the energy parameters in the hops of routes would not create effective execution. To enhance the service in mobile wireless sensor network, a productive zone-based Cluster Energy Hop Based Dynamic Route Selection (CEH-DRS)for the most extraordinary element of mobile wireless sensor networks is that the nodes can perform both the gathering and transmission of packets, additionally, they support routing the information packages arise from different source nodes to achieve different intentions. The CEH routing scheming to observe the traffic in various location of the network and when the routes are observed, they are part as indicated by the local parameters. Based on the traffic proportion, energy and hop-record delicate elements of the routes, the strategy plays out a dynamic determination of sending route-based on a cluster. The strategy chooses the route through the number of parameters considered, and is based on that a productive route has been chosen in such an approach to keep up the throughput and increase the lifetime of the network.

Keywords: Cluster, routing, Energy, Route selection, Wireless network, Hop count

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Abstract

Power consumption plays a significant role in any integrated circuit. In this study, an explicit type pulse trigger flip-flop is implemented using the CMOS 90 nm technology. For low-power dissipation, 1 V supply will optimize the size of gate terminal. This explicit type flip-flop uses an explicit source for pulse generation, that is, the double edge-triggered pulse generator, which requires half of clock frequency compared to the single edge-triggered pulse generator. The

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An Enhanced Incremental Conductance Algorithm for Photovoltaic System

K. Ramesh

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K. Mahalakshmi

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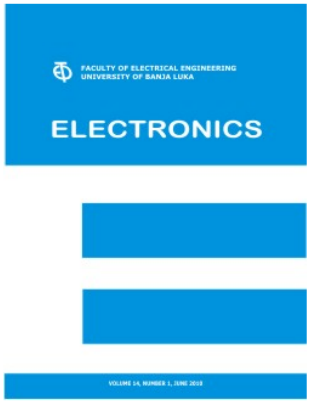

Abstract

The energy obtained from the photovoltaic array is dependent on the available solar insolation, the panel tilt angle and the power point tracking algorithm of the system. Some of the Conventional MPPT methods are developed by considering uniform solar irradiance. During partial shading conditions, solar panel may produce multiple Local Maximum Power Points (LMPPs) in its power voltage characteristic curve. A new algorithm has been developed in this paper by using sequential sampling embedded with existing incremental conductance procedure in order to predict the Global

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ANALYSIS OF CHEMICAL CELLS IN DIFFERENT ASPECTS FOR OFF-GRID ENERGY SYSTEMS

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[2]Professor, Department of EEE & Paavai Engineering College, Namakkal, Tamil Nadu-6370 018, India.

Abstract - *Different battery chemistries fit different applications, and certain battery types stand out as preferable for stationary storage in off-grid systems. Rechargeable batteries have widely varying efficiencies, charging characteristics, life cycles, and costs. This paper compares these aspects between the lead-acid and lithium ion battery, the two primary options for stationary energy storage. The various properties and characteristics are summarized specifically for the valve regulated lead-acid battery (VRLA) and lithium iron phosphate (LFP) lithium ion battery. The charging process, efficiency, and life cycle are discussed for each battery type. Through cost analysis specifically, lithium ion batteries are shown to be a cost-effective alternative to lead- acid batteries when the length of operational life – total number of charge/discharge cycles – is considered. Finally, applications for off-grid applications and specifically developing world microgrids are discussed.*

Key Words: Batteries, Lithium Batteries, Lead-Acid Batteries, Energy Storage, Microgrids, Valve Regulated

Lead-Acid (VRLA).

1. INTRODUCTION

The rechargeable electric battery is the most common and widespread device used to store electrochemical energy for power systems. Fundamentally, a energy storage. Li-ion batteries work longer in operation (more charge-discharge cycles than lead-acid) but are often avoided in budget-constrained systems off-grid because Li-ion are more expensive per kWh of storage capacity.

Lead-acid batteries, being the older technology, are widely used and comparatively big and bulky. They are easy to install and have low upfront and maintenance costs. Performance of lead-acid batteries is depends largely on ambient temperature and the discharge rate, which is controlled by a system's power electronics. Lead-acid batteries are made up of plates of lead and plates of lead dioxide, all immersed in an electrolyte solution of sulfuric acid and water. When discharging the process involves electrodes turning into lead sulphate, whereas the electrolyte that is sulphuric acid becomes primarily water. A single cell of lead-acid is capable of producing 2.15V [2], [3]. Two types of lead-acid batteries dominate the market – flooded and valve regulated lead-acid (VRLA). This paper focuses primarily on VRLA since – by contrast with flooded – this type has a lower chance of cell failure and does not require addition of handling acid or water. Furthermore, degradation from hydrogen evolution during float is lower in VRLA than in flooded lead-acid by a factor of 10 [4].

Li-ion batteries rely on newer chemistry that improves on lead-acid and other batteries previously available on the market. Li-ion batteries are mainly used in portable electronics because of their durability, compact and

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Anfis Based Mppt Control Of A Stand - Alone Hybrid Power Generation System

Authors

T.Karthic, A.Rathinam

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Abstract

This research study presents the fuzzy space vector pulse width modulation (FSVPWM) method of current control for three-phase voltage source inverter. The hybrid fuzzy particle swarm optimization-based maximum power point (MPP) tracking algorithm has been employed to obtain high tracking efficiency as well as optimal MPP under adverse operating states. The FSVPWM technique provides less current harmonic content, fixed switching pattern, protection from over current, low switching losses and able to handle the non-linearity's and uncertainties of the photovoltaic-wind grid integrated system. Grid synchronization with sinusoidal current injection is achieved using the inverter controller. Most studies on tuning of fuzzy inference are concerned with numerical inputs and outputs only, and very few research has been done on tuning of fuzzy inference with fuzzy inputs and outputs. Moreover, in many cases the object of tuning are fuzzy predicates only, apart from the other factors intervening in fuzzy inference. In this paper we propose a method to tune the fuzzy inference when inputs and outputs are given as fuzzy sets. This method is similar to back propagation and tunes the parameters of aggregation operators, implication functions and combination functions as well as the fuzzy predicates which appear in the nodes of the network representing the calculation process of thc fuzzy inference Fuzzy logic controller-based SVPWM controller compensates current error and provides DC-link utilization with high efficiency. The experimental responses have been

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Volume: 06 Issue: 05 | May 2019 www.irjet.net p-ISSN: 2395-0072

GRID INTEGRATED SINGLE PHASE PV WITH SHUNT ACTIVE FILTER BASED CONTROL FOR DISTRIBUTED SYSTEM

N. THILAGA[1], Dr. G. BALAJI[2]

[1]Student, Department of Electrical and Electronics Engineering, Paavai Engineering College
[2]HOD, Department of Electrical and Electronics Engineering, Paavai Engineering College

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Abstract - *The grid integration is a framework which is used to evaluate a power system with high penetration levels of variable renewable energy. This is established to build generation and transmission capacity, ideally capturing the spatial diversity benefits of solar resources. The grid integration of renewable energy sources depends on the scale of power generation. The small scale power generation is connected to distributed systems and large scale power generations are connected to transmission systems. The conventional passive filter is necessary to insert between the inverter and the utility grid in order to filter the harmonics produced by the inverter. There are three types of passive filter: the L filter, the LCL filter. Nowadays, the LCL filter is vastly used than the others because of its filtering efficiency.*

Key Words: LCL filter, harmonics, shunt active filter

1. INTRODUCTION

Power quality refers to the ability of electrical equipment to consume the energy being supplied to it. A number of power quality issues including electrical harmonics, poor power factor, voltage instability and imbalance impact on the efficiency of electrical equipment. This has a number of

harmonic filters or reactors the harmonics are eliminated and the result is more efficient power usage and cost savings.

2. Poor power factor-refers to an excess of reactive power in the system. This reactive power does not perform any real work and as such is wasteful and costly. Power factor correction (PFC) reduces and can almost eliminate this reactive power, reduce energy costs and stop equipment over heating, nuisance tripping and motor failure.

3. Voltage instability- is in part a side effect of the high or low voltage electricity supply from the network. High voltage does not increase equipment power and is detrimental to equipment performance and longevity, and low voltage can cause brown outs and reduce productivity. Voltage optimization ensures the voltage supplied to the system is stable as required by the equipment on site.

Due to generator we had harmonics disturbance in the transmission line by implementing power quality improvement to rectify losses by harmonics compensation and power factor correction using active filters.

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Off-Grid Solar Power Bank

M. Karthikeyan[1], C. Arul Kumar[2], A. Rathinam[3]

[1, 2, 3]*Department of EEE & Paavai Engineering College, Namakkal, Tamil Nadu-6370 018, India.*

Abstract: ***In this paper, a single-switch two-stage DC-DC conversion circuit is proposed for an off-grid solar power application. A photovoltaic (PV) panel powers the load and a storage unit (battery) via the proposed circuit. The battery is designed to balance the supply and the demand of power under different irradiation situations. Based on conventional***

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Authors Name:	S.Chandraleka , S.Rathinavel
Unique Id:	IJSDR1905026
Published In:	Volume 4 Issue 5, May-2019
Abstract:	Now a day's electricity is most essential facility for the human being. One of the primary needs for socio-economic improvement in any nation in the world is the provision of reliable electricity supply systems. This work is a improvement of an indigenous technology hybrid Solar Wind Power system that harnesses the renewable energies in Sun and Wind to generate electricity. Here, electric DC energies produced from photovoltaic and wind turbine systems are transported to a DC disconnect energy Mix controller. The controller is bidirectional connected to a DC-AC float charging-inverter system that provides charging current to a heavy duty storage bank of Battery and at the same time produces inverted AC power to AC loads. All the conventional energy resources are depleting day by day. So we have to shift from conventional to non-conventional energy resources. In this the combination of two energy resources is takes place i.e. wind and solar energy. This process reviles the sustainable energy resources without damaging the nature. Solar panels are used for converting solar energy and wind turbines are used for converting wind energy into electricity. This electrical power can utilize for various purpose. Generation of electricity will be takes place at affordable cost. This paper deals with the generation of electricity by using two sources combine which leads to generate electricity with affordable cost without damaging the nature balance and essential for information communication technology infrastructure and people in rural communities.
Keywords:	Electricity, Hybrid, solar, power, wind, Socio Economic development, Hybrid system, Solar and Wind Power, remote areas
Cite Article:	**"HYBRID INTEGRATED SOLAR AND WIND POWER GENERATION SYSTEM FOR REMOTE AREAS "**, International Journal of Science & Engineering Development Research (www.ijsdr.org), ISSN:2455-2631, Vol.4, Issue 5, page no.159 - 164, May-2019, Available :http://www.ijsdr.org/papers/IJSDR1905026.pdf
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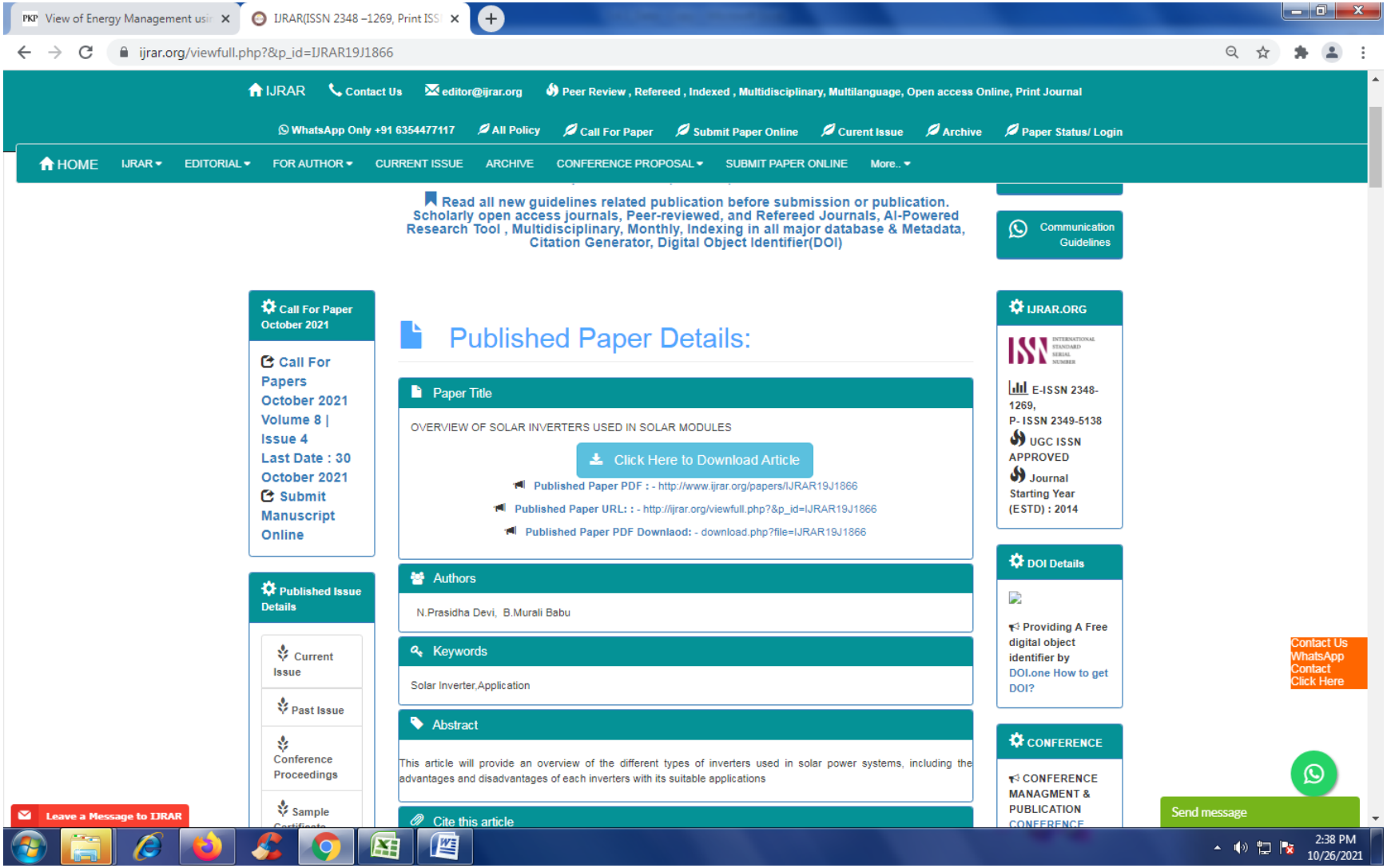
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Authors
N.Prasidha Devi, B.Murali Babu
Keywords
Solar Inverter,Application
Abstract
This article will provide an overview of the different types of inverters used in solar power systems, including the advantages and disadvantages of each inverters with its suitable applications
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RELAY CO-ORDINATION AND ARC FLASH ANALYSIS USING ETAP

A. Udhayakumar, M. N. Gokulraj, P. Gopinath

Abstract :

Relays and circuit eakers are heart of the modern large interconnected power system. Proper co-ordination of relays is essential to minimize unnecessary outages. The arc flash hazard is related to electrical safety in work place. The calculations required for determining arc-flash incident energy exposure for electrical workers are involved. The authors have completed arc-flash energy studies for many industrial sites, from small facilities to large chemical plants. This paper provides a summary of the results of these studies, with an emphasis on the wide range of results that were found. Learning's about electrical equipment design, installation and operation are discussed that were found to be associated with high arc-flash energy values. In addition, some methods are described to evaluate the arc-flash energy values for a facility that can help the owner determine the most effective arc flash hazard management policy

Keywords :

crumb rubber utilization compressive strength low cost sustainable

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Optical Fiber Technology
Volume 48, March 2019, Pages 218-224

Development of ethanol and acetone gas sensing performance of $MgCo_2O_4$ nanosensors by clad modified fiber optical method

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

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Highlights

- $MgCo_2O_4$ nanosheets were successfully synthesized by a one pot hydrothermal method.
- $MgCo_2O_4$ has high sensitivity, fast response and recovery time towards

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Optical Materials
Volume 85, November 2018, Pages 267-274

High performance ethanol and acetone gas sensor based nanocrystalline $MnCo_2O_4$ using clad-modified fiber optic gas sensor

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

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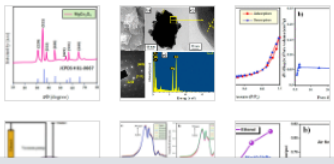

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Development of ethanol and acetone gas sensing performance of $MgCo_2O_4$ nanosensors by clad modified fiber optical method

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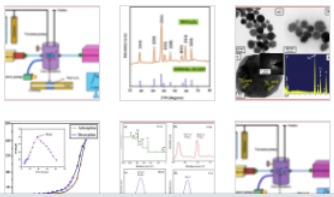

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High performance ethanol and acetone gas sensor based nanocrystalline $MnCo_2O_4$ using clad-modified fiber optic gas sensor

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

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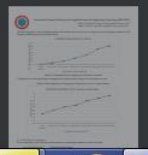

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Cost Effective Conversion of Existing Bike into Hybrid Electric Bike

Dr.G.Balaji[1], Mrs.K. K. Poongodi[2], V. Ramya[3], N. Yogeshwari[4]

[1]Head of the Department, [2]Professor, [3, 4]UG Final year students, Paavai Engineering College(Autonomous)[#1, 2, 3, 4]

Abstract: *Air pollution from motor vehicles and exhaustion of natural resources has become a serious global and environmental hazard. The emission of poisonous gases such as Carbon monoxide (CO), Nitrous Oxide (N2O), Sulphur dioxide (SO_2) and other hazards gases from Two-Wheelers is a significant contributor to air quality problems which cause severe threats to all living organisms. Due to increase in number of vehicles and limited use of emission control strategies, two-wheelers are considered to be a significant source of urban air pollution in most of the Indian cities. To overcome such harmful effects, the modification of Existing bike into a Hybrid Electric bike is necessary. This Hybrid method involves two modes of operation where the battery is operated as the main source and the fuel is operated as back up supply. Through switching operation, the modes of process can be switched from battery into fuel and vice versa. BLDC hub motor is used for its long operating life, compact size, high efficiency and better Speed-Torque characteristics. The Sealed Lead Acid battery is used and the Controller is used to governor*

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SOFT-SWITCHED OF HIGH STEP-UP DC-AC INVERTER FOR A BUCKBOOST VOLTAGE SOURCE INVERTER WITH AN SPLIT CAPACITOR

S. Ramachandran, M. Ramasamy, +1 author S. Sujithvignesh • Published 2019

Renewable power systems as distributed generation (DG) units often experience big changes in the inverter input voltage due to fluctuations of energy resources. Often, a front-end boost converter is added to step up the DC voltage when the energy resources are at a weak point. However, when a very high boost gain is demanded, the duty cycle may come to its extreme, and large duty cycle causes serious reverse recovery problem. This paper proposes a novel single-stage boost-type inverter... Expand

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[VOLUME 6 I ISSUE 1 I JAN.– MARCH 2019] E ISSN 2348 –1269, PRINT ISSN 2349-5138

A NOVEL DESIGN OF SEPIC OPERATION OF AN DC-DC CURRENT SOURCE CONVERTER USING WECS

S. Ramachandran[1] & M. Ramasamy[2] & P. Sridevi[3] & S. Thamarai Selvi[4]
[1]Assistant Professor, Department of Electrical and Electronics Engg., Paavai Engg. College, Namakkal, India
[2]Associate Professor, Department of Electrical and Electronics Engg., K.S.R College of Engg., Namakkal, India
[3]UG Student, Department of Electrical and Electronics Engg., Paavai Engg. College, Namakkal, India
[4]UG Student, Department of Electrical and Electronics Engg. Paavai Engg. College, Namakkal, India

Received: January 29, 2019 Accepted: March 14, 2019

ABSTRACT: *A high step-up resonant dc-dc converter with ripple-loose input modern-day for renewable strength structure. We use an enter-current doubler and a switching mechanism hired at an output-voltage doubler to gain high step-up voltage benefit without having to use a transformer with excessive turn ratio. A lively-clamp circuit established at the primary facet suppresses the surge voltage at the switch additives and recycles the power stored in the leakage inductance. A resonance that happens on the secondary side of the converter is used to reduce the turn-off contemporary and switching loss notably, and to acquire excessive power conversion efficiency. The enter current ripple declines to zero theoretically due to the fact the duty cycle of the primary-aspect switches is always set to zero.5 no matter the input voltages and load versions. The circuit operations, constant-country analysis, and layout guideline of the proposed converter are also presented. A six hundred-W prototype converter has been fabricated to demonstrate the overall performance of the proposed converter.*

Key Words: *: Current source converter, efficiency, wind mill, dc to dc converter, battery, SEPIC converter, wind electricity conversion gadget.*

I. Introduction

Renewable are now the arena's quickest-growing strength resources and are expected to increase by using 2.6 % consistent with yr via 2040. via 2040, coal, herbal gasoline, and renewable strength sources are anticipated to provide more or less identical stocks (28%– 29%) of the sector power generation. The renewable strength resources along with photovoltaic panel, thermoelectric generator, and gasoline-mobile stack generate low voltages and require low-contemporary ripple to enlarge their lifestyles span, so that they require distinctly-efficient dc-dc converter which can offer high step-up conversion with low input-current ripple over the whole range of operation.

To gain high step-up conversion, some converters use a transformer with high flip ratio, however this transformer has massive leakage inductance and parasitic capacitance which can reason excessive voltage or modern-day spike at the strength gadgets. further, to reduce input cutting-edge ripple, a converter with non-stop input cutting-edge is preferred due to the fact because the ripple decreases, the conduction loss of the primary-side switches and the size of the enter electrolytic capacitors can be decreased. current-fed kind converters can meet most of those requirements and are consequently widely utilized in renewable power structures. A converter designed with an input-contemporary doubler in conjunction with an lively-clamp circuit and an output-voltage doubler has low conduction loss on the

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Wind Energy Using in Generation of proficient Power with Five-Level Dual-Buck Full Bridge Inverters

S. Ramachandran[1], M. Ramasamy[2], S. Saravanan[3]
[1]*Assistant Professor, Department of Electrical and Electronics Engg., Paavai Engg. College, Namakkal, India*
[2]*Associate Professor, Department of Electrical and Electronics Engg., K.S.R College of Engg., Namakkal, India*
[3]*UG Student, Department of Electrical and Electronics Engg., Paavai Engg. College, Namakkal, India*

***Abstract*: Among varied styles of renewable generation, electrical phenomenon generation, alternative energy, and fuel cells are wide used. The power density of dual-buck converters has to be improved, also because the conversion potency. In this work the simulation results of wind energy conversion system with three phase five-level DBFBI topologies are obtained through Power sim for grid application. High-efficiency converters area unit fascinating for renewable energy systems, specifically those connected with grid connected wind applications. The aim is to possess a straightforward, robust, free maintenance, and highly efficient system. The proposed five-level DBFBI topologies have been applied in a three phase wind energy system and presents several promising advantages. First, it will generate power for ac utility from PMSG. Secondly, it will increase or decreases output-voltage level with the assistance of buck-boost device to take care of constant output in order that it's higher potency and lower weight for the general system. Third, in the case of a five-level DBFBI topologies, it does not require an output filter because high-order harmonics are effectively filtered off, owing to the reactance of the inductive load; so, it will turn out a stairway voltage wave shape with lower harmonics eliminated specified higher order harmonics will be simply filtered off if required for that specific application.**

***Keywords*: Wind energy, Dual-buck inverter, efficiency, grid-tied inverter, multilevel inverter, Power density**

inverters, no reverse recovery problem occurs in the freewheeling mode, since the independent freewheeling diode has excellent reverse recovery characteristic. In addition, power MOSFETs are used in dual-buck inverters. Therefore, the dual-buck inverter is an attractive solution to achieve high efficiency for low-power grid-connected applications. Two filter inductors are required in single-phase dual-buck inverters, and both of the inductors are operating at each half cycle of the utility grid alternately, which increases the size and weight of the converter. Hence, the power density of conventional two-level and three-level dual-buck inverters needs to be improved. The multilevel system is an effective way to attain high power density.

However, the number of power switches used in the multilevel inverter is more than that used in the conventional half-bridge and full-bridge inverters. Moreover, its control circuit is much more complicated. Thus, the tradeoff between the performance and the hardware cost should be considered in the design of multilevel inverters A five-level H-bridge inverter topology was proposed by introduce a neutral point clamped bi-directional switch (NPC branch) based on the conventional full-bridge inverter .Compared with the Dual Noval Power Converter five-level inverter topology, the FCC five-level

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DUAL AXIS SOLAR TRACKING SYSTEM USING ARDUINO

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Abstract - *The world is now moving towards the renewable energy source due to various factors like pollution and cost of non-renewable energy sources. One of the major renewable energy sources is Sun. In this paper Arduino based Dual-axis solar tracking system proposed in order to get maximum solar energy. The Arduino is used to give command to rotate the solar panel. Solar trackers are used to improve the power gain from solar energy. Solar power is changes due to the seasonal variation and tilting of earth which changes the position of the sun in the sky. In this regard dual axis solar tracking is practically implemented and performance is compared with fixed mount and single axis solar tracking system. Finally, experimental result clearly evident that proposed method gives better efficiency compared to fixed mount and single axis solar tracking system.*

Key Words: Renewable Energy, Dual axis solar tracker, Arduino, LDR, Solar power.

1. INTRODUCTION

Solar energy is emerged as a possible source of renewable energy over the past two to three decades. This solar energy is converted into electrical energy by using solar panel according to the principle of photovoltaic effect. Out of various renewable energy sources solar energy is widely used. Because it is simple and it is easy to use in household too. Solar Trackers is a device used for the rotation of solar panel according to the sun's rays. To utilize this renewable solar energy solar trackers are employed [1]. For static solar cost of implementation by Arduino is the reason behind choosing Arduino in this project [3]. This was achieved even by using microcontroller [4].

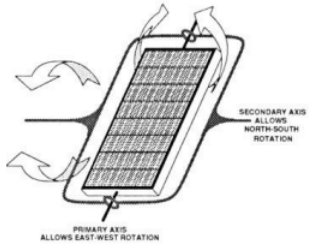

Figure.1 Mechanism of dual axis tracker

The above figure.1 shows the basic operating mechanism of dual axis solar tracker. It is basically an Azimuth-Altitude dual axis solar tracker [5]. Altitude refers to elevation of angle between a substance and the observer's location. It is basically between the angles of 0-90◦. Zenith distance can also be used instead of altitude. Then azimuth is usually analysed from north and increasing towards east [6]. This is mainly employed to get the maximum efficiency when compared to the static and single-axis solar tracking system [7]. To achieve this, we used Arduino UNO, LDRs, DC motor, LCD and solar panel. In [8] automatic solar tracking and two axis solar tracking is proposed in [9] for better solar tracking

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Performance optimisation of electrochemical micromachining of micro-holes on Inconel 625 alloy

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y through Electrochemical micromachining (EMM) process. The concentration and duty ratio. The cathode tool used is a conical tipped stainless steel needle and the electrolyte is acidified sodium nitrate solution. Taguchi design of L9 Orthogonal Array is followed for experimental work. The performance analysis is done through process responses such as machining rate and

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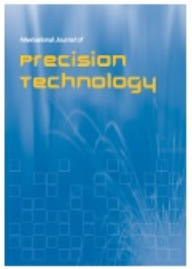

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Volume 5, Issue 1, Part 3, 2018, Pages 2945-2950

Study on mechanical properties of graphite particulates reinforced aluminium matrix composite fabricated by stir casting technique

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MTAEC9, 53(1)49(2019)

STUDY OF THE MICROSTRUCTURES AND MECHANICAL PROPERTIES OF ALUMINIUM HYBRID COMPOSITES WITH SiC AND Al_2O_3

ŠTUDIJA MIKROSTRUKTUR IN MEHANSKIH LASTNOSTI ALUMINIJEVIH HIBRIDNIH KOMPOZITOV S SiC IN Al_2O_3

Palanisamy Pugalenthi[1], Murugesan Jayaraman[2], Venkatajalapathy Subburam[1]

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A Comparative Analysis of Waste Tyre Pyrolysis, Gasifiction and Liquification Processes

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Performance optimisation of electrochemical micromachining of micro-holes on Inconel 625 alloy

V. Subburam, S. Ramesh, P.N. Mohan Kumar and A. Srinivasan

Published Online: August

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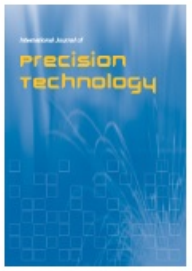

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Abstract

This work involves pro ical micromachining (EMM) process. The input parameters inve ty ratio. The cathode tool used is a conical tipped stainless steel needle and the electrolyte is acidified sodium nitrate solution. Taguchi design of L9 Orthogonal Array is followed for experimental work. The performance analysis is done through process responses such as machining rate and

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STUDY OF THE MICROSTRUCTURES AND MECHANICAL PROPERTIES OF ALUMINIUM HYBRID COMPOSITES WITH SiC AND Al_2O_3

ŠTUDIJA MIKROSTRUKTUR IN MEHANSKIH LASTNOSTI ALUMINIJEVIH HIBRIDNIH KOMPOZITOV S SiC IN Al_2O_3

Palanisamy Pugalenthi[1], Murugesan Jayaraman[2], Venkatajalapathy Subburam[1]

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Aluminium metal-matrix composites are widely produced with different ceramic compounds as reinforcements to enhance their properties and to suit various structural applications. The present work involves the fabrication of Al7075 composites with silicon carbide (SiC) and aluminum oxide (Al_2O_3) as reinforcements through stir casting. Four specimens were produced with different compositions comprising SiC (3, 5, 7 and 9 *w*/%) and Al_2O_3 2 *w*/% in all the combinations. Mechanical properties like ultimate tensile strength (UTS), yield strength (YS), percentage of elongation (% of elongation) and hardness (VHN) were examined, along with fractography studies. The microstructural characterization of the composites was also studied through micrographs obtained from the scanning electron microscope (SEM). The test results revealed that the increase in the *w*/% fractions of the reinforcement materials caused an increase in the tensile strength, yield strength and hardness of the aluminium composite, except for the % of elongation, which is reduced with the addition of ceramic particles.

Keywords: stir-casting method, hybrid composites, mechanical properties and microstructure

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Abstract

Electrochemical micromachining (EMM) is in the forefront among the non-traditional machining processes that are brought into micromachining domain. The major influencing factors of EMM process are more sensitive at the micro-level machining, and for achieving precision the right combination of parameters is essential. Continuous research works are

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Experimental investigation of future HFC/HCs Blended refrigerants for use in small capacity Window Air-conditioner

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Abstract: This paper deals with the experimental study of the air conditioning system working with a new alternative for R22 in view of reducing the global warming effect. The investigations pertain to five refrigerant mixtures with varying mass compositions of R152a /R290/R600.The properties of new proposed mixtures were obtained from REFPROP7.0 software for the operating temperature ranging from 0°C to 60 °C. The performance of the refrigerant mixtures was evaluated from the output parameters like Co-efficient of performance (COP), power consumption, mass flow rate, refrigeration effect and pressure ratio. From the investigations, the mixture with R152a-10% / R290-10%/ R600 - 80% was found to give 5.27% higher COP and 5.22% lower power consumption than that of R22. This refrigerant mixture with lower global warming potential could be used as an alternative working fluid for residential air conditioning applications.

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Volume 6 Issue VII, July 2018- Available at www.ijraset.com

Flexural and Impact Behaviour of Kevlar/E-Glass Reinforced Epoxy Matrix Composites

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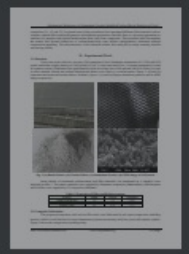

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Mechanical Behaviour of Aluminium Powder ModifiedCarbon/Basalt Reinforced Vinyl EsterComposites

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Corresponding Author: M.S. Santhosh

Abstract *–Polymer matrix composites (PMCs) deserves a significant role in the new age engineering materials due to its unique properties like formability, room temperature processing, and economic nature. Main aspire of this proposed work is to investigate mechanical behaviour (flexural and tensile) of unfilled and 5, 10 Wt. % aluminium powder filled carbon/basalt hybrid composites produced via open mould followed by a compression process. Results collected from the experiments reveals that the inclusion of nano-aluminum powder greatly influences the mechanical properties of carbon/basalt/vinyl ester composites. Void fraction and densities intensified reasonably by the annexation of Al powder while the tensile strength shows a steady decrease. Carbon/basalt with 5 wt. % Al possess better properties whereas 10 wt. % Al reinforcement shows better tensile modulus. The Al included fiber configurations were compared with unreinforced composite laminate to grasp the optimum filler reinforcement percentage. SEM images of the fractured surfaces also analyzed for a better understanding of failure conditions.*

Index Terms: *Mechanical behaviour, Carbon, Basalt, Aluminium powder, Open mould, Reinforcement, Vinyl ester, Polymer matrix composite.*

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Fabrication and Impact Behaviour Study of Industrial Safety Helmet

R. Hariharan[1], R. Mohanraj[2], G. Karthikeyan[3], T. Thangavel[4], N. Lokeshwaran[5]
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[4, 5] *Mechanical Department, Paavai Engineering College*

Abstract: *The skin that covers the head (scalp) plays a vital role in the protection of head from various impact threats. Scalp is an only sliding interface between helmet and skull, also it is a first tissue of the head which undergoes impact in both with and without helmet conditions. Helmets are universally endorsed by all industrialists and motorcyclists as effective head protection system. It is very important to analyse and observe the overall impact behaviour (Ballistic behaviour) of the industrial helmet in order to prevent accidental defects. In recent times there is huge helmet awareness (material and maximum impact energy*

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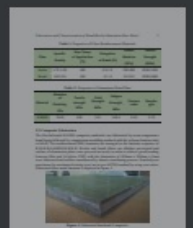

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Fabrication and Characterization of Basalt/Kevlar/Aluminium Fiber Metal Laminates for Automobile Applications

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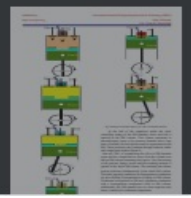

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A Concept of Internal Combustion Engine with Homogeneous Combustion in a Porous Medium

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***Abstract* - The advantages of homogeneous combustion in internal combustion (I.C.) engines are well known and many research groups all over the world are working on its practical realization. A new combustion concept that fulfils all requirements to perform homogeneous combustion in I.C. engines using the Porous Medium Combustion Engine, called "PM-engine" has been proposed. This is an I.C. engine with the following processes realized in a porous medium: internal heat recuperation, fuel injection and vaporization, mixing with air,**

II. HOMOGENEOUS COMBUSTION

Homogeneous combustion in an IC engine is defined as a process characterized by a 3D-ignition of the homogeneous charge with simultaneous volumetric combustion, hence, ensuring a homogeneous temperature field. According to the definition given above, three steps of the mixture formation and combustion may be selected that define the ability of a given combustion system to operate as

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CLUTCH PLATE FABRICATION BY USING AL-SIC METAL MATRIX COMPOSITES

K.Ramesh[1], Karthick[2], S.Arunraj[3], J.Ajitkumar[4]
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Karpagam College of Engineering, Coimbatore
[2]Assistant Professor, Department of Mechanical Engineering,
Paavai Engineering College, Namakkal
[3,4]UG student, Department of Mechanical Engineering,
Paavai Engineering College, Namakkal

Abstract: In this paper, fabrication of Stircasting setup which was used for the production of clutch plate using 7075 Al-SiC Metal Matrix Composites was discussed. The mechanical properties, advantages of MMC's, experimental procedure of stir casting were explained. The present investigation shows that MMCs have considerable higher wear resistance than conventional grey cast iron while sliding against automobile clutch plate under identical conditions.

1. Introduction

The ever increasing demand for light weight, fuel efficiency and comfort in automobile industries has lead to the development of advanced materials along with

2. Definition of Composite

A composite is a structural material consists of two or more combined constituents that are combined at a macroscopic level and are not soluble in each other. Generally, a composite material is composed of reinforcement (fibers, plastics, flakes and fillers) embedded in a matrix (polymers, metals or ceramics). The matrix holds the reinforcement to form a desired shape while the reinforcement improves the overall mechanical properties of the matrix. The new combined material (composite material) will exhibit better strength when compared with other structural materials. Composite materials are cohesive structures made by physically combining two or more compatible materials

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Experimental investigation of future HFC/HCs Blended refrigerants for use in small capacity Window Air-conditioner

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***Abstract*:** This paper deals with the experimental study of the air conditioning system working with a new alternative for R22 in view of reducing the global warming effect. The investigations pertain to five refrigerant mixtures with varying mass compositions of R152a /R290/R600.The properties of new proposed mixtures were obtained from REFPROP7.0 software for the operating temperature ranging from 0°C to 60 °C. The performance of the refrigerant mixtures was evaluated from the output parameters like Co-efficient of performance (COP), power consumption, mass flow rate, refrigeration effect and pressure ratio. From the investigations, the mixture with R152a-10% / R290-10%/ R600 - 80% was found to give 5.27% higher COP and 5.22% lower power consumption than that of R22. This refrigerant mixture with lower global warming potential could be used as an alternative working fluid for residential air conditioning applications.

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Vol-5 Issue-2 2019 *IJARIIE-ISSN(O)-2395-4396*

A Project of Cleaning Smog and Particulates by Using Smog Cleaner with Negative-Ion Generator

R. Jagan[1], R. GokulaKrishnan[2], S. Ramar[3], S. Manikandan[4], D.R.P. Rajarathnam[5]

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[5] *Professor, Department of Mechatronics, Paavai Engineering College (Autonomous), Tamil Nadu, India.*

ABSTRACT

The main objective of this project is to clean smog from the environment by cleaning micro-level dust particles. Smog is a mixture of smoke and fog, it contains a mixture of air pollutants and fog with suspended dust particles, it causes major health problems and reduces visibility. The smog was cleaned in special process by using negative ion generator, the negative ions which are generated by Air-ionizer are negative charged particles that are highly attracted to dust particles, it makes particulates into clusters hence it can be easily captures by filter which is fitted at the outlet. Basically fog is a high dense air with suspended water droplets, the density of fog is reduced by heating the intake fog by heating element and this heating element temperature is controlled by digital temperature controller thermostat which is programmed as per our convenience. We use timer for controlling intake and exhaust

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Vol-5 Issue-2 2019 *IJARIIE-ISSN(O)-2395-4396*

AUTOMATIC RAIN SENSING WIPER AND HEADLIGHT CONTROL IN THE VEHICLE

Rajarathnam.DRP[1], Vibinstalin.C[2], Dinesh.S[3], Vijaya Kumar.A[4], Vijay.P[5], Venkatesan.K[6]

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[6] *Student, Mechatronics Department, Paavai Engineering College , Tamilnadu , India*

ABSTRACT

Wiper is an essential component that used to wipe raindrops or any water from the vehicle's windscreen and Head light is used to safety purpose during night. The previous system used to activate the wiper manually and the process of pulling up the wiper is difficult to be handled and now a days the headlight also glows in a day time. This day time AHO reduce the vehicle mileage. Thus, this method is planned to unravel these issues. The objectives of this project are to upgrade the older cars system by providing automatic wiping and headlight system , to improve the system by using sensor with actuator and to style a basic program that may totally operate with the system. The thought of this planned wiper system is comparable with alternative existing standard wiper. In spite of removing water from windscreen, this system also will be upgraded to an automatic control system by using a arduino UNO, rain detecting and intensity sensor, fog sensor and day night sensor.

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MOBILE CONTROLLED PICK AND PLACE ROBOT USING ARDUINO

D.R.P.Rajarathinam[1],R.Arunbabu[2],M.Danujan[3],B.Jasper Fernando[4],
S.Vinoth Kumar[5],T.Sethupathi[6]

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ABSTRACT

The work is designed to develop the pick and place robotic arm with a soft catching gripper that to lift hazardous object which cannot not be touched by human hands.The robot is controlled through Bluetooth using smartphone.It is built with servo motors. Arduino *controller is used in robotic arm process ,the movement of the robot is either forward,backward,left or right.The robotic arm is designed using servo motors,and it is interfaced with micro controller.The main advantage of soft catching gripper is to lift a hazardous object.it is controlled by using Bluetooth in smart phone.*

Keyword—*Arduinouno,Bluetooth,servmotor*

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PCB MANUFACTURING MACHINE USING HYBRID DNC MACHINE

RAJARANATHNAM D.R.P.[1] ,R.T.AJAYKARTHIK[2],ARUNKUMAR.G[3], GOWSIC RAJ.T[4]

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ABSTRACT

Normally, for making PCB, we required more time for designing, printing etching also drilling. Hence to reduce time and more effort we are design this project. In this paper, the design of PCB milling and drilling machine, where the drill holes and circuit path are automatically find out the layout in EAGLE software. This paper focuses on the design and fabrication of automatic PCB milling and drilling machine for large production. This is the microcontroller based machine that uses path planning through the numerical codes for the circuit layout. In this project, multiple spindle or fixtures are controlled by single control unit, which is used to make the system more stable and accurate for high productivity.

Keyword: *Hybrid DNC, PCB Milling, Multiple Spindles, Common drive system.*

1. INTRODUCTION

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BIOMETRIC FINGERPRINT BASED SELF-AUTHENTIFICATION PROTECTED VOTING MACHINE

D.R.P.Rajarathinam[1], C.Vibinstalin[2] , Gnana sekar N[3],Ramesh M[4]

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[3,4]*UG student, Dept.of Mechatronics, Paavai Engineering College,Namakkal*

Abstract

Fingerprint Voting System was implemented with the Arduino technology. In this System a voter can poll his vote easily. In this database server all voters fingerprint information was stored to register in this system, the voter should scan the fingerprint during the poll time. This fingerprint information will be checked by the database server. Because all the fingerprint information about the voter would be already exist in the database, there is anything wrong, the system will not allow the voter to poll his or her vote. This system is helpful to avoiding the misuse of others vote. It is more Secured way. Fingerprint is an important identity of the user. Fingerprint Voting System is user-friendly. It has simple architecture, responses very quickly manner, Easy to carrying to polling center from the polling box, It provide easy and accurate counting without any troubles.

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DESIGN AND FABRICATION OF AUTOMATIC ANIMAL IDENTIFIER AND RESTRICTOR TO PREVENT HUMAN LIVEHOOD

Rajarathnam.DRP[1], Sumithra.C[2], Lakshmanakumar.M[3], Sakthivel.P[4], Keerthivasan.K[5]

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[5] *Student, Mechatronics Department, Paavai Engineering College , Tamilnadu , India*

ABSTRACT

The main aim of our project is to safeguard the crops from harm caused by animal on slope areas yet by divert the animal. Animal sightation system is intended to detect the presence of animal and provide a warning , during this project we tend to used PIR sensors to sight the movement of the animal and send signal to the controller .It diverts the animal by manufacturing sound signal in additional, this signal is transmitted to GSM associate which provides

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Design_and_Fabrication_of_Surveillance_Drone_in_Caves_ijariie9654.p... 1 / 4 100%

DESIGN AND FABRICATION OF SURVEILLANCE DRONE IN CAVES

Rajarathnam.DRP[1], Arunbabu.R[2], Suresh Kumar.M[3], Dineshwaran.S[4], Dhilip.A[5], NandhaKumar.S[6]

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[6] *Student, Mechatronics Department, Paavai Engineering College , Tamilnadu , India*

ABSTRACT

There are several advancements within the field of region and aeronautics. Scientists have more and more began to concentrate on VTOL (vertical take - off and landing) aircrafts. we've got engineered a miniature VTOL twinrotor UAV. UAVs have begun to grab plenty of attention nowadays because of its various applications like police work and relief. Twinrotor may be a quite a eggbeater having 2 main propellers rather than one and no tail fin. All 3 vital motion of the craft i.e. roll, pitch, yaw are controlled by thrust vectoring exploitation servo motors and dynamical the magnitude of thrust using physics speed controllers. The paper deals with the look of a basic UAV supported application and therefore the construction keeping in mind the various ideas that govern its motion.

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Optimization of Boiler Operation using Air Pre-Heater

M. Rama Krishnan[1], S. Subash[2], S. Manikandan[3], D. R. P. Rajarathinam[4]
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[3]*Assistant professor, Paavai Engineering College (Autonomous)*
[4]*Head of the department, Department of Mechatronics, Paavai Engineering College (Autonomous)*

Abstract: ***Air pre-radiator and economizer are heat move surfaces in which air temperature and water temperature are raised by exchanging heat from other media, for example, vent gas. Tourist is important for fast burning in the heater and furthermore to dry coal in processing plants. So a basic kettle frill which fills this need is air pre-radiator. The air pre-warmer isn't fundamental for task of steam generator, however they are utilized where an investigation of expense demonstrates that cash can be spared or productive burning can be acquired by their utilization. The choice for its selection can be made when the money related favorable circumstances is weighed against the capital expense of radiator. The productivity of the kettle increments with the expansion in the temperature of the ignition air utilized in the heater. This is accomplished by the expanded temperature of the pipe gas noticeable all around preheater and economizer zone. This paper manages the diverse approaches to get the most extreme warmth from the vent gas voyaging through the air preheater and the economizer zone to enhance the evaporator effectiveness.***

Keywords: Air Preheater, Heat Exchangers, Economizer, Seal Leakages, Heat Conductivity, Flue Gas, Optimum Air.

I. INTRODUCTION

Air is an essential segment in heaters and boilers. In every one of these types of gear, the surrounding air should be warmed up to high temperatures. Preheating the approaching air to a great extent enhances the warm proficiency of the framework, in this way

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A Project of Cleaning Smog and Particulates by Using Smog Cleaner with Negative-Ion Generator

R. Jagan[1], R. GokulaKrishnan[2], S. Ramar[3], S. Manikandan[4], D.R.P. Rajarathnam[5]

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[4] *Assistant professor, Department of Mechatronics, Paavai Engineering College (Autonomous), Tamil Nadu, India.*

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ABSTRACT

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Optimization of Boiler Operation using Air Pre-Heater

M. Rama Krishnan[1], S. Subash[2], S. Manikandan[3], D. R. P. Rajarathinam[4]
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Keywords: Air Preheater, Heat Exchangers, Economizer, Seal Leakages, Heat Conductivity, Flue Gas, Optimum Air.

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AUTOMATIC RAIN SENSING WIPER AND HEADLIGHT CONTROL IN THE VEHICLE

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BIOMETRIC FINGERPRINT BASED SELF-AUTHENTIFICATION PROTECTED VOTING MACHINE

D.R.P.Rajarathinam[1], C.Vibinstalin[2] , Gnana sekar N[3],Ramesh M[4]

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[2]*Assistant Professor,Dept.Of Mechatronics Engineering College, Namakkal*

[3,4]*UG student, Dept.of Mechatronics, Paavai Engineering College,Namakkal*

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International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 03 | Mar 2019 www.irjet.net p-ISSN: 2395-0072

Design and Fabrication of lawn mower using RF module

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[4]Assistant Professor, Department of Mechatronics Engineering, Paavai Engineering College(Autonomous), Pachal Namakkal, Tamil Nadu, India-637018

Abstract - *The present technology ordinarily used for trimming the grass is by exploitation the manually handle device. In this paper we have automated the machine for trimming the grass. The device consists of linear blade that is operated with the assistance of the motor the facility offer for the motor is by exploitation battery. This project is associate degree autonomous garden tool which will enable the user to the flexibility to chop their grass with lowest effort. Unlike different robotic field mowers on the market, this design requires no perimeter wires to maintain the robot within the lawn. The project summarizes and reviews different technological development for making efficient and cost effective lawn mowers. The lawnmower is a machine to make cutting grass process easier. The lawnmower movement will be controlled using RF module.*

Key Words: **Battery, Motor, Rf module, Blades, connecting wires.**

2. EXISTING SYSTEM

The star grass cutter has panels mounted AN exceedingly| in a very arrangement at an angle in such the way that it will receive radiation with high intensity simply from the sun. These star panels convert solar power into power. This machine consists of the photovoltaic, dc to dc converter, motor, controller, linear blades, and battery. It is an automatic system for the aim of grass cutting. Solar Grass Cutter uses solar power as an energy source that addresses a number of issues that standard internal combustion engine mowers do not. An electric grass cutter with a star charger are easier to use. There is no mussy, dangerous hydrocarbon to take care of, most significantly it eliminates the emissions of an indoor combustion lawn mower. An Arduino Uno control board will act as a processing unit and direct the entire working of the mower as per a presented programmer. The motion of the mower is controlled by four

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MOBILE CONTROLLED PICK AND PLACE ROBOT USING ARDUINO

D.R.P.Rajarathinam[1],R.Arunbabu[2],M.Danujan[3],B.Jasper Fernando[4],
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ABSTRACT

The work is designed to develop the pick and place robotic arm with a soft catching gripper that to lift hazardous object which cannot not be touched by human hands.The robot is controlled through Bluetooth using smartphone.It is built with servo motors. Arduino *controller is used in robotic arm process ,the movement of the robot is either forward,backward,left or right.The robotic arm is designed using servo motors,and it is interfaced with micro controller.The main advantage of soft catching gripper is to lift a hazardous object.it is controlled by using Bluetooth in smart phone.*

Keyword—*Arduinouno,Bluetooth,servmotor*

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DESIGN AND FABRICATION OF SURVEILLANCE DRONE IN CAVES

Rajarathnam.DRP[1], Arunbabu.R[2], Suresh Kumar.M[3], Dineshwaran.S[4], Dhilip.A[5], NandhaKumar.S[6]

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ABSTRACT

There are several advancements within the field of region and aeronautics. Scientists have more and more began to concentrate on VTOL (vertical take - off and landing) aircrafts. we've got engineered a miniature VTOL twinrotor UAV. UAVs have begun to grab plenty of attention nowadays because of its various applications like police work and relief. Twinrotor may be a quite a eggbeater having 2 main propellers rather than one and no tail fin. All 3 vital motion of the craft i.e. roll, pitch, yaw are controlled by thrust vectoring exploitation servo motors and dynamical the magnitude of thrust using physics speed controllers. The paper deals with the look of a basic UAV supported application and therefore the construction keeping in mind the various ideas that govern its motion.

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Vol-5 Issue-2 2019 *IJARIIE-ISSN(O)-2395-4396*

PCB MANUFACTURING MACHINE USING HYBRID DNC MACHINE

RAJARANATHNAM D.R.P.[1] ,R.T.AJAYKARTHIK[2],ARUNKUMAR.G[3], GOWSIC RAJ.T[4]

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ABSTRACT

Normally, for making PCB, we required more time for designing, printing etching also drilling. Hence to reduce time and more effort we are design this project. In this paper, the design of PCB milling and drilling machine, where the drill holes and circuit path are automatically find out the layout in EAGLE software. This paper focuses on the design and fabrication of automatic PCB milling and drilling machine for large production. This is the microcontroller based machine that uses path planning through the numerical codes for the circuit layout. In this project, multiple spindle or fixtures are controlled by single control unit, which is used to make the system more stable and accurate for high productivity.

Keyword: *Hybrid DNC, PCB Milling, Multiple Spindles, Common drive system.*

1. INTRODUCTION

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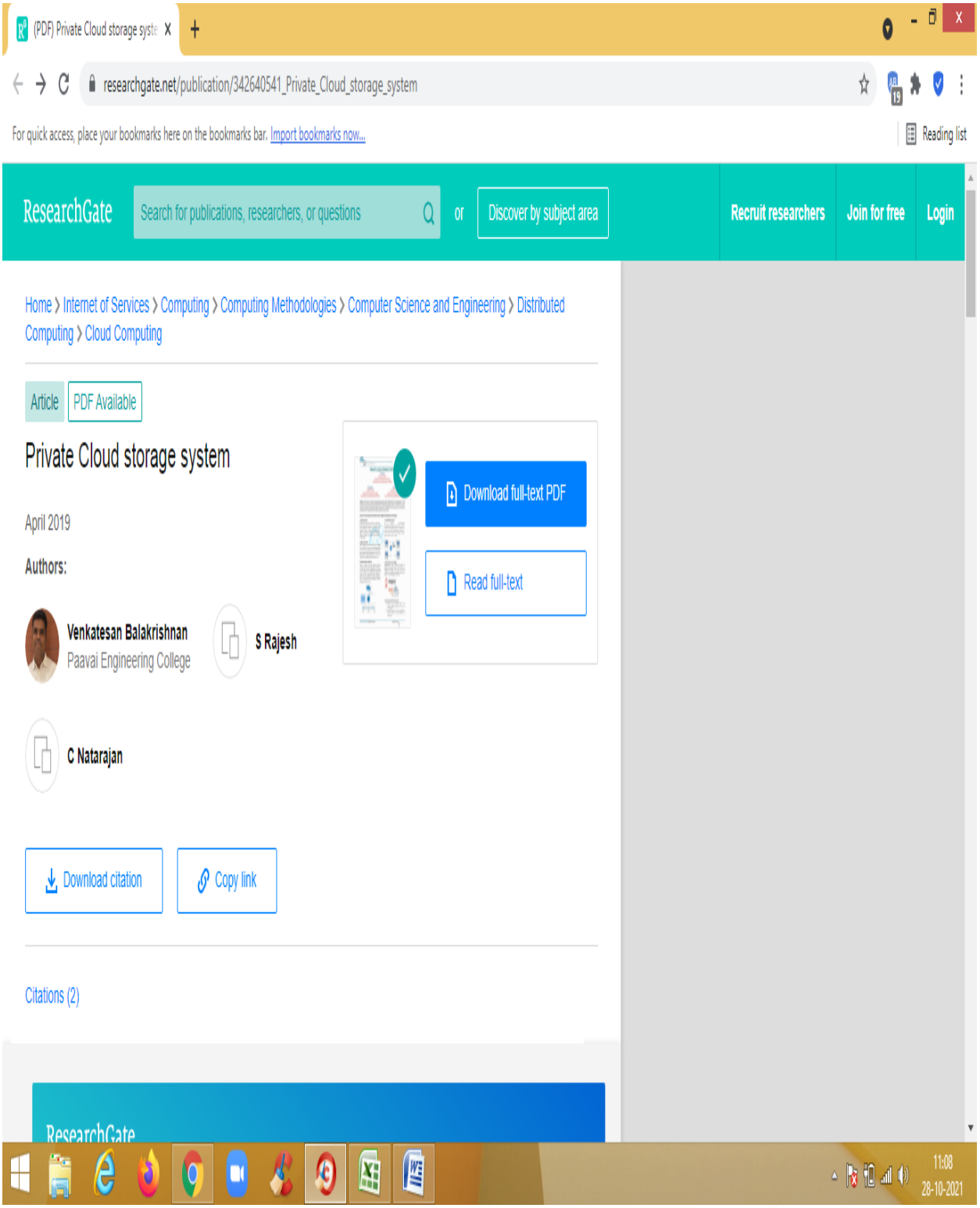

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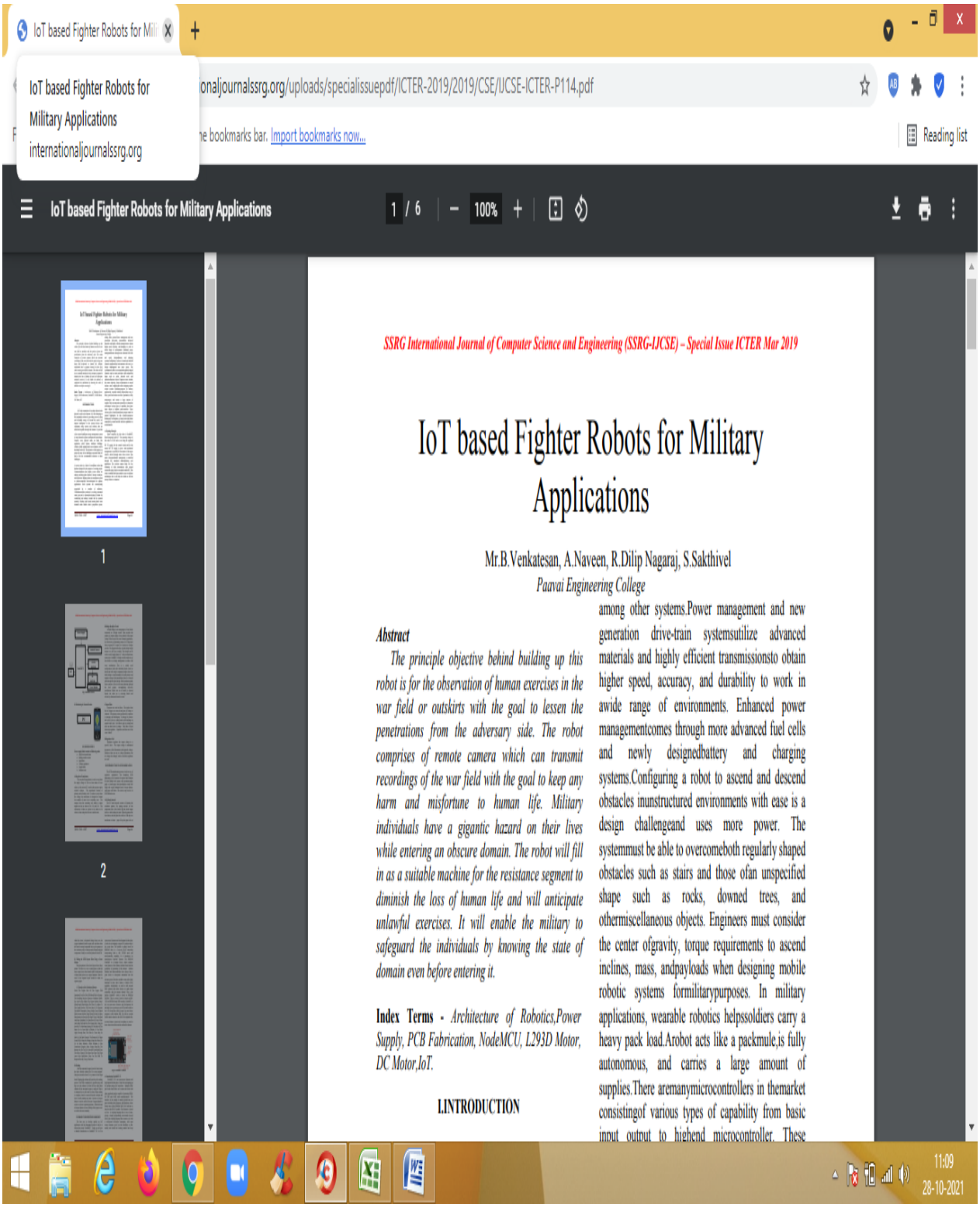

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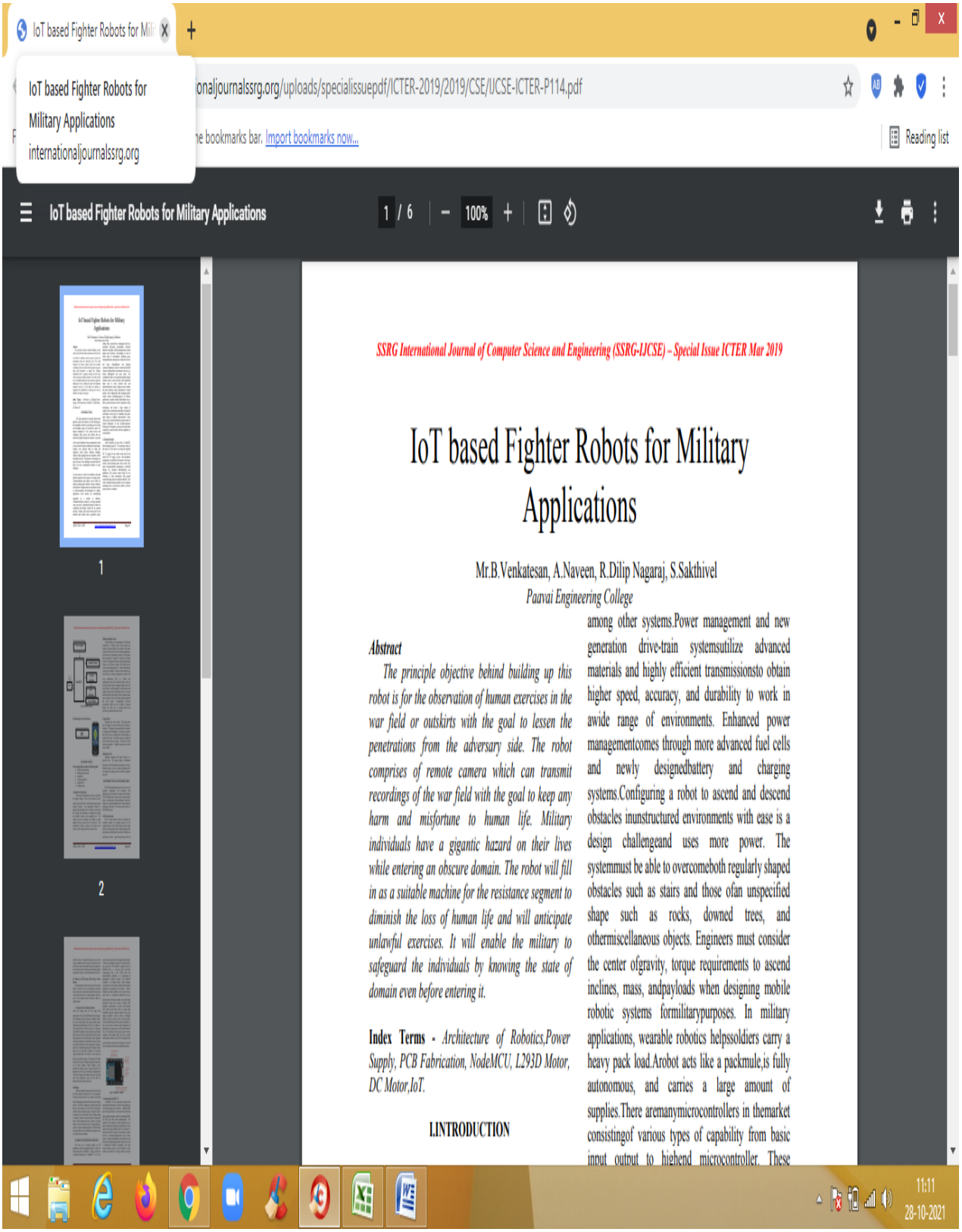

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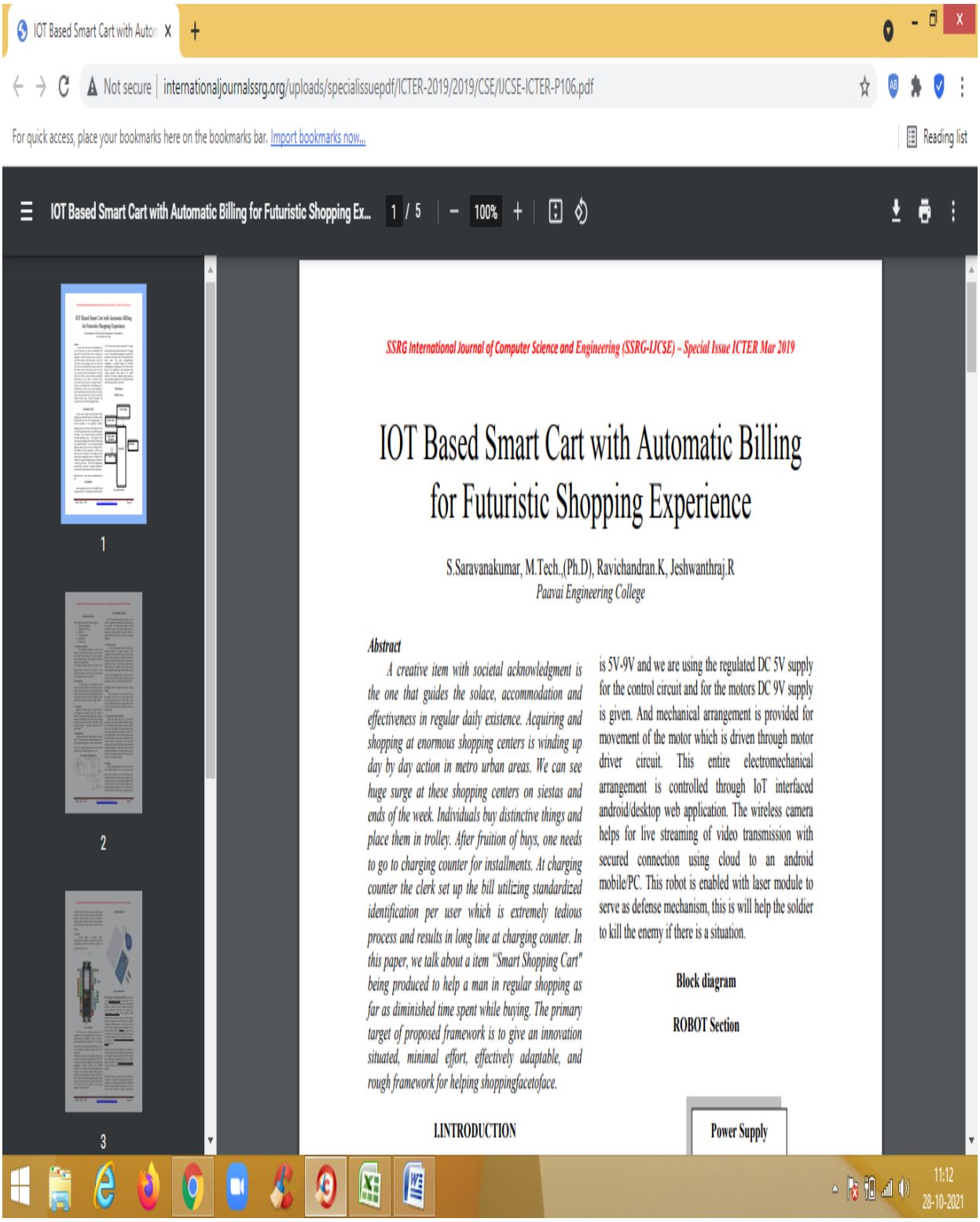

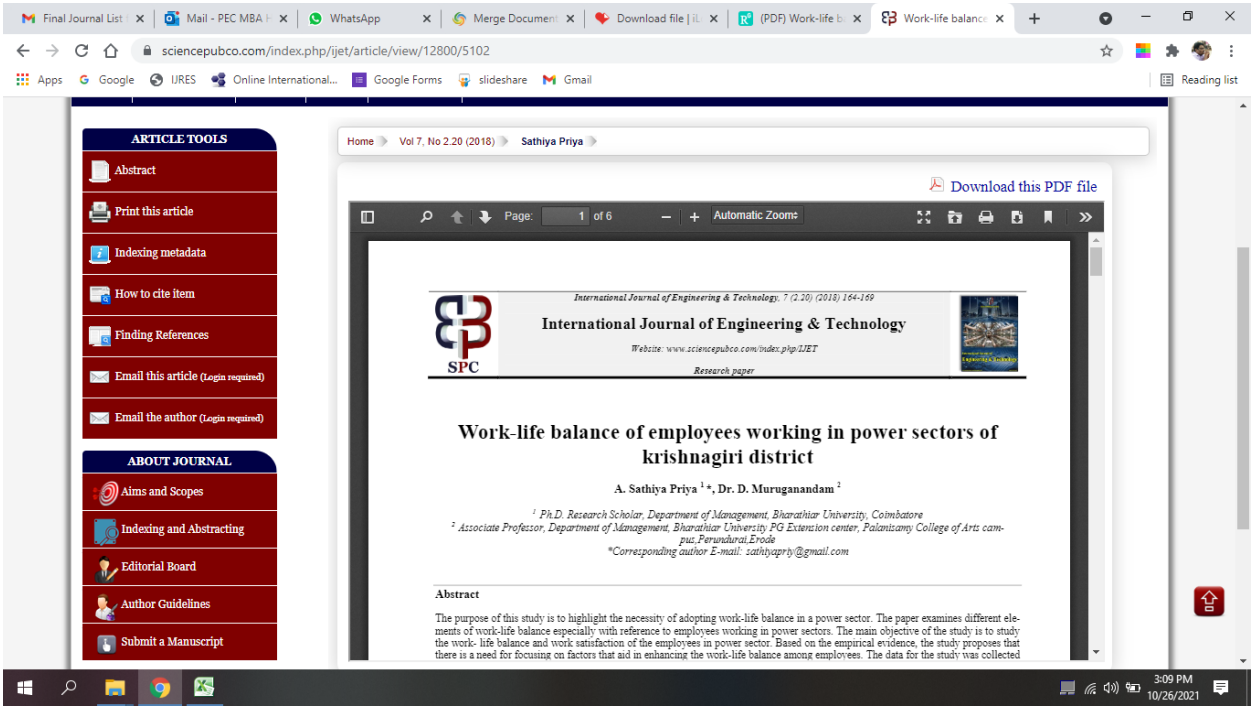

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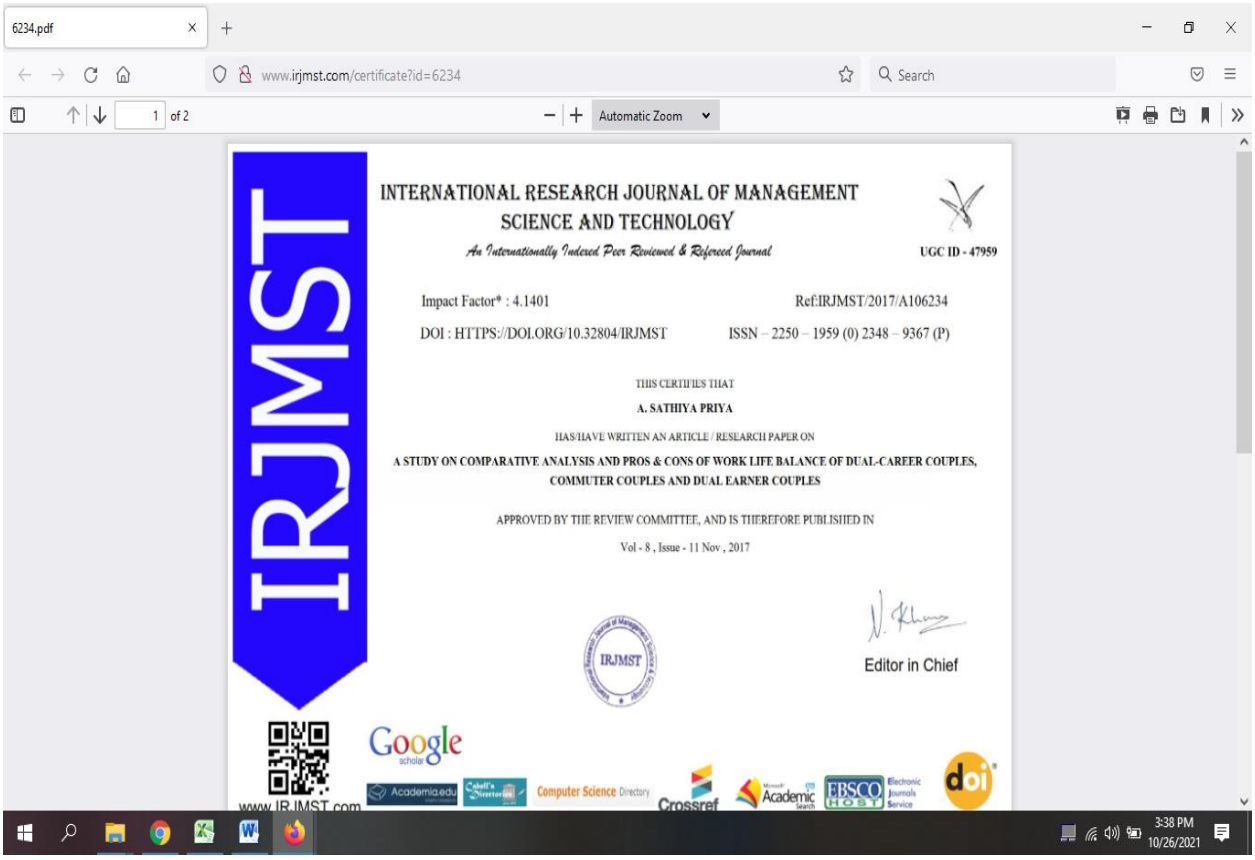

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ORIGINAL PAPER

Some New Oscillatory Behavior of Certain Third-Order Nonlinear Neutral Differential Equations of Mixed Type

M. Sathish Kumar[1] · **S. Janaki**[2] · **V. Ganesan**[3]

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Abstract By applying Riccati substitution techniques triply, we establish some new oscillation and asymptotic nature of solutions to the third-order nonlinear differential equations with mixed neutral type. We present many theorems and related examples in order to illustrate and substantiate the main theory.

Keywords Third-order · Neutral differential equation · Oscillation of solutions · Mixed arguments

Mathematics Subject Classification 34K11 · 34C10 · 34C15

Introduction

In the present paper, we have focussed on the oscillation and asymptotic nature of third-order nonlinear differential equations with mixed neutral type

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International Journal of Applied Mathematics
Volume 31 No. 6 2018, 821-831
ISSN: 1311-1728 (printed version); ISSN: 1314-8060 (on-line version)
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OSCILLATION OF THE EVEN-ORDER NONLINEAR NEUTRAL DIFFERENTIAL EQUATIONS

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[3] Department of Mathematics
Paavai Engineering College (Autonomous)
Namakkal - 637018, Tamilnadu, INDIA

Abstract: The oscillation criteria are investigated for all solutions of even-order neutral differential equations. The obtained results are based on the new comparison theorems, that enable us to reduce the problem of the oscillation of the higher order equation to the oscillation of the first order equation. The ob-

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Optical Materials

Volume 85, November 2018, Pages 267-274

High performance ethanol and acetone gas sensor based nanocrystalline $MnCo_2O_4$ using clad-modified fiber optic gas sensor

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

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Enhancing the structural, optical and magnetic properties of Cu_2O films deposited using a SILAR technique through Fe-doping

S. Satheeskumar[1] · S. Vadivel[2] · K. Dhanabalan[3] · A. Vasuhi[4] · A. T. Ravichandran[5] · K. Ravichandran[6]

Received: 9 November 2017 / Accepted: 20 March 2018
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Abstract

Undoped and Ferrous (Fe)-doped Cu_2O thin films were deposited onto glass substrates using successive ionic layer adsorption and reaction method. The variation in the concentration of Fe has significant impact on the final film properties, Fe doping with 5 wt% exhibited major property improvements compared with undoped and Fe doped films. The structural, optical, morphological, magnetic properties and atomic force microscope of the films were systematically investigated. The X-ray diffraction analysis showed that all the films had good crystalline quality and the preferential orientation along (111) plane. Optical studies show that the transmittance and optical band-gap values are maximum (2.5 eV) for the Fe doping level of 5 wt%. The relative errors are calculated for crystallite size and optical energy band gap values. The photoluminescence study confirms the presence of various defects in the Cu_2O matrix. The Fourier transform infrared results confirmed the presence of expected compounds in the samples. The field emission-scanning electron microscope images indicate that

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Journal of ELECTRONIC MATERIALS
https://doi.org/10.1007/s11664-018-6457-5
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A Facile Route to the Synthesis of Zn-Doped CdO Nanostructures and a Comparative Investigation on Humidity-Sensing and Photocatalytic Applications

G. BALAJI,[1] A. RATHINAM,[1] and S. VADIVEL [2,3]

1.—Department of Electrical and Electronics Engineering, Paavai Engineering College (Autonomous), Namakkal, Tamilnadu 637 018, India. 2.—Department of Physics, Paavai Engineering College (Autonomous), Namakkal, Tamilnadu 637 018, India. 3.—e-mail: vadivel.physics@gmail.com

Pure and zinc-doped CdO nanoparticles were synthesized via a novel microwave combustion method. The structural, morphology, chemical composition and optical properties of the samples were systematically investigated. The powder x-ray diffraction patterns reveal that both pure and doped samples are of a single crystalline nature with a cubic Fm3m CdO structure. Spherical-shaped morphology with an average diameter of around 25–35 nm was observed by field emission scanning electron microscope analysis. Optical stud-

Optical Fiber Technology 48 (2019) 218–224

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Development of ethanol and acetone gas sensing performance of $MgCo_2O_4$ nanosensors by clad modified fiber optical method

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

[a] Department of Electrical and Electronics Engineering, Paavai Engineering College (Autonomous), Namakkal 637 018, Tamilnadu, India
[b] Department of Physics, Paavai Engineering College (Autonomous), Namakkal 637 018, Tamilnadu, India

ARTICLE INFO

Keywords:
$MgCo_2O_4$
Spinel-type oxides
Hydrothermal
Fiber optic
Ethanol gas
High sensitivity

ABSTRACT

We have successfully synthesized large scale magnesium cobalt oxide ($MgCo_2O_4$) nanosheets (NSs) was synthesized by a facile hydrothermal route. These $MgCo_2O_4$ NSs were characterized by X-ray diffractometry, N_2 adsorption Brunauer-Emmett-Teller method, scanning electron microscopy and transmission electron microscopy analysis. XRD and TEM results suggest that $MgCo_2O_4$ was cubic structure with nanosheets and sizes in the range of 200–250 nm diameter and 10–15 nm thickness. The N_2 adsorption–desorption analysis indicates that the BET surface area of $MgCo_2O_4$ nanoparticles is calculated to be 98.5 m^2/g and the pore size distribution is mostly centered at 30 nm. The $MgCo_2O_4$ sensor was exposed two type of reducing gases like ethanol and acetone

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ORIGINAL PAPER

Relative Role of Particle Size and Shape on the Magnetic and Catalytic Behavior of Nanozinc Chromite

G. Raja[1] · C. Ragupathi[2] · G. Sivaraman[3]

Received: 13 May 2018 / Accepted: 16 August 2018
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Abstract

The purpose of this study is to define an effective synthesis for spinel-type zinc chromite ($ZnCr_2O_4$) nanoparticles by a simple microwave combustion method. The synthesized material was analyzed by X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), and from optical properties. A magnetic property for the material was examined through the vibrating sample magnetism. The distribution of the external magnetic lines of force and the self-generated magnetic field of ferromagnetic materials was taken into account in the presence of an external magnetic field. Zinc chromite showed good performances in catalytic oxidation, and the role of particle size and shape is highlighted.

Keywords Zinc chromite · Crystallinity · Optical properties · Magnetic properties · Spinel