Volume 2 Issue 3, February 2015

International Journal of Advanced Engineering and Nano Technology

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Volume-2 Issue-3, February 2015, ISSN: 2347-6389 (Online)
Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.

S. No		Page No.
1.	**Authors:** Vishal J. Dhore, E. R. Deore **Paper Title:** Experimental Investigation of Compact Flywheel using Inertia Augmentation Mechanisms	1-5

Abstract: Conventional flywheel system uses a single rim flywheel. The performance of the flywheel depends upon its mass, so also it encounters a lot of air friction and leads to more in-efficiency and more occupation. Flywheel releases stored energy by applying torque to a mechanical load, thereby decreasing the flywheels rotational speed. The dissertation work shows the flywheel optimum design model which fulfils minimum criteria of inertia result into safe and efficient working. In this study work on CAD base design and analysis with experimental base model generation in a feasible area of design. For a optimum design consideration of flywheel compare parameters like torque, power, efficiency with respective to speed. The experimental study and analysis shows the feasible area of design with torque Vs speed comparison by showing no changed in a considering design parameter as per the conventional design. The Power and Efficiency Vs Speed characteristics comparison shows that there is approximately in between seven to eight percentage increase in power output and five to six percentage efficient than the conventional flywheel respectively which will also result in increasing fuel economy of the engine efficient.

Keywords: Compact, Conventional, Efficiency, Power, Torque

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2.	**Authors:** Kumar Gaurav, Bhawna Agarwal, Abhishek Singh, Biswaraj Sen **Paper Title:** Simulation based Study on Fisheye State Routing Protocol	6-8

Abstract: Mobile Ad Hoc Networks (MANETs) have gained immense popularity because of its simplicity, low cost and ease of deployment. It also enables mobile node to form a network without any centralized administrator. However, routing in adhoc network has always been challenging due to absence of any fixed infrastructure. It is self-organizing and adaptive wireless network. In this paper a simulation based study of Fisheye State Routing protocol has been made to understand the sensitivity of afore mentioned (Fisheye State Routing) protocol in highly dynamic network topology. The proposed paper is aimed to analyze the various parameters including throughput, jitter and delay involved on the nodes in FSR. Simulation based analysis of the protocol has been done using QUALNET.

Keywords: Mobile Ad Hoc Networks (MANETs), centralized administrator, FSR, QUALNET.

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3.	**Authors:**	**Ricuţa-Vasilica Dobrinoiu, Luminiţa Vişan, Silvana Dănăilă-Guidea, Andrei-Gabriel Ivan, Marius Căruţaşu**
	Paper Title:	**Influence of the Fertilization Pattern on Production and Quality of Sugar Beet Roots Meant for Bio-Ethanol Extraction**

Abstract: Sugar beet growing as raw material for bioethanol production represents an extremely important opportunity for farmers, under the circumstances of some productive varieties use on areas adequately irrigated and fertilized. In comparison with the maize, used as raw material in bio-ethanol production, the sugar beet offers a series of important advantages, such as: the acquirement of a bigger ethanol quantity on the cultivated area (6.300 l bioethanol from sugar beet, in comparison with almost 3.400 l bioethanol obtained from maize grown per hectar), the crop adequacy in colder climate areas, unfavourable to maize, and an irrigation norm with 40 smaller. In this respect, on the one hand, the present work aims at bringing viable and pheasible arguments in favour of sugar beet crops fertilization, in order to obtain an economic effective production, especially during the years with low precipitations and, on the other hand, for a superior valorization of sugar beet production by bioethanol production.

Keywords: bioethanol, foliar fertilization, organic fertilization, sugar beet.

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4.	**Authors:**	**Zafarulla Khan, Feras Kafiah, Hafiz Zahid Shafi, Fayez Nufaiei, Sarfaraz Ahmed Furquan, Asif Matin**
	Paper Title:	**Morphology, Mechanical Properties and Surface Characteristics of Electrospun Polyacrylonitrile (PAN) Nanofiber Mats**

Abstract: This paper explores the effect of solution and electrospinning parameters on the morphology, mechanical properties and surface characteristics of Polyacrylonitrile (PAN) electrospun nanofiber mats. PAN/DMF (Dimethylformamide) solutions with different concentrations were electrospun under various parameters. The results show that the average fiber diameter increase from 208 nm to 881 nm with an increase in PAN concentration from 6 wt% to 12 wt%. Feed rate has inconsistent trend on the fiber diameter; however with increasing feed rate from 0.8 ml/hr to 1.4 ml/hr, the average fiber diameter more than doubledfrom400nm to 895nm. Average fiber diameter decreased slightly from 383 nm to 332 nm up to a certain threshold value of voltage, and then increased significantly to 750 nm when voltage was increased beyond this threshold. Somewhat surprisingly, when the distance between needle tip and collector was increased from 100mm to 150 mm, average fiber diameter increased almost four times (200 to 750 nm).Increasing the needle diameter was found to decrease average fiber diameter and has a direct effect on Taylor cone shape and jet length. The increase in PAN concentration from 6 to 12% increased the tensile strength, failure strength and ductility of electrospun nanofiber mats by 346%, 229% and 504%, respectively. PAN concentrations have a significant effect on the wettability of the nanofiber mats as determined by the contact angle measurements. The electrospun mats became increasingly more hydrophobic with increase in PAN concentration.

Keywords: PAN, electrospinning, nanofiber morphology, solution and process variables, mat.

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5.

Authors:	**Bikramjit Singh, Narinder Singh, Hardeep Singh Rai, Satinder Preet Kaur**
Paper Title:	**Building Model Checker for Automated Code Compliance**

Abstract: This paper presents an automated code checking system Pristine that enables quick and easy compliance assessment and assists designers in finding potential problems early. There has been an extensive amount of research conducted internationally in the area of automated code compliance for the Architecture, Engineering and the Construction (AEC) industry. There is an increased uptake of building information modeling (BIM) and the Industry Foundation Classes (IFC) open standard data model for interoperability due to a recent productivity improvement and innovation in the AEC industry. The availability of high performance personal computers, efficient web-based technology, and new initiatives in legal knowledge representation modeling should make the development of commercial compliance checking systems more viable than ever. However, the quest for an industry agreed unified approach seems to be far from over. The system allows for checking of model for different model attributes using the ifcXML schema which is created using either ArchiCAD or Revit architectural soft wares. Once the checking is completed, the interactive reporting interface offers a viewing option of the validated file.

Keywords: IFC, BIM, Automated Code Compliance, J2SE.

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6.

Authors:	**Suha I. Al-Nassar**
Paper Title:	**Study the Effect of Ablation Time on the Spectroscopic Characteristics of Zinc Oxide Nan particles Synthesized by Liquid-Phase Pulsed Laser Ablation Technique**

Abstract: This work was devoted for producing ZnO nanoparticles by pulsed laser ablation (PLA) of Zn metal plate in the aqueous environment of cetyl trimethyl ammonium bromide (CTAB) using Q-Switched Nd:YAG pulsed laser with wavelength= 1064 nm, Rep. rate= 10 Hz, Pulse duration =6 ns and laser energy 50 mJ. Solution of nanoparticles is found stable in the colloidal form for a long time. The effect of ablation time on the optical and structure of ZnO was studied is characterized by UV-visible absorption. UV-visible

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absorption spectrum has four peaks at 256, 259,265,322 nm for ablation time (5, 10, 15, and 20 sec) respectively, our results show that UV–vis spectra show a blue shift in the presence of CTAB with decrease the ablation time and blue shift indicated to get smaller size of nanoparticles. The blue shift in the absorption edge indicates the quantum confinement property of nanoparticles. Also FTIR transmittance spectra of ZnO2 nanoparticles prepared in these states show a characteristic ZnO absorption at 435–445cm−1.

Keywords: Ablation time, CTAB solution, pulsed laser ablation technique, Zinc oxide nanoparticles.

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7.	**Authors:**	**Kalhapure Vrushali Arun**
	Paper Title:	**Implementation of Carving Machine Controller Based on L293D**

Abstract: A design project of implementation of Carving Machine Controller based on L293D platform is introduced in this paper. ARM (Advanced RISC Machines) is the kernel processors of the control system which takes MATLAB as the software development platform and implements to develop a complete independent system that will automatically carve names or any other design on front surface of thermacol as a material. L293D is selected as motor driving IC of numerical control device and ARM7 as central processing unit of controller. The carving machine with low cost, high speed, good accuracy with easy HMI human machine interaction. It is proved that the control system can effectively improve the efficiency and the machining quality of carving machine.

Keywords: ARM7, Carving machine, HMI, MATLAB.

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