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Khajuri Kala, BHEL-Piplani, Bhopal (M.P.)-462021, India
Website: www.blueeyesintelligence.org
Email: director@blueeyesintelligence.org, blueeyes@gmail.com
Cell #: +91-9669981618, **WhatsApp #:** +91-9669981618, **Viber #:** +91-9669981618
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1.	**Authors:** S. Singaravelu, S. Seenivasan **Paper Title:** Simulation Study of a Monopole HVDC Transmission System Feeding a Very Weak AC Network with Firefly Algorithm Based Optimal PI Controller	1-9

Abstract: This paper presents a simulation study of a line commutated converter (LCC) –monopole HVDC transmission system feeding a very weak AC network with firefly algorithm based optimal proportional integral (PI) controller for the rectifier and the inverter control and hybrid reactive power compensators (RPC's) at the inverter AC side. The hybrid compensator is an equal mix of fixed capacitor (FC) with any one of the following compensators: synchronous compensator (SC); static var compensator (SVC); static synchronous compensator (STATCOM). The HVDC transmission system model is simulated using Matlab. The transient performances of hybrid RPC's (FC+SC, FC+SVC and FC+STATCOM) are investigated during various fault conditions and the results are compared with the performance of the SC, SVC and STATCOM to focus the supremacy of the hybrid compensators. The simulation results confirm that the equal combination of FC and STATCOM has a steady and fastest response. The outcomes also demonstrate the superiority of the firefly algorithm based optimal PI controller over the conventional PI controller. The harmonic present in the inverter AC side is also observed under steady state operation to assure the quality of power supply.

Keywords: Firefly algorithm, Hybrid RPC's, Monopole HVDC, PI controller, Very weak AC system.

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2.	**Authors:** Essam M. Al-Krargy, Mohamed I. Doma, Gomaa M. Dawod **Paper Title:** Towards an Accurate Definition of the Local Geoid Model in Egypt using GPS/Leveling Data: A Case Study at Rosetta Zone	10-15

Abstract: Nowadays the Global Positioning System (GPS) is one of the most favorite techniques in practical geodesy. A major dilemma in GPS surveying lies in its ellipsoidal-based type of heights, while in engineering practice orthometric heights are usually utilized. Thus, it is important to convert GPS heights into orthometric heights through applying an accurate geoid model. The objectives of this paper are to model a local geoid in the study area using GPS/levelling technique, and to evaluate the performance of several Global Geopotential Models (GGMs) particularly the OUS-91A, EGM96 and EGM2008 in the study area, which is located in the northern Egypt at Rosetta zone area. The accomplished results show that the EGM 2008 represents the most precise global geopotential model to be used for geoid determination in Egypt. Furthermore, the achievable accuracy of local geoid determination in the study area after using regression method models is ranges between 0.059 meter to -0.083 meter, with an average -0.01 meter and standard deviation of ± 0.05 meter. It is concluded that increasing the number of control points with well spatial distribution will result in developing a precise geoid model for Egypt.

Keywords: Global Geopotential Models (GGMs), Global Positioning System (GPS), Local geoid. Orthometric height.

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3.

Authors: **Ankush Sharma**

Paper Title: **Review Paper on Applications of D-Statcom in Distribution System**

Abstract: In recent years the power quality problems is a big issue in distribution system. There are different types of problems in power quality. These problems are power factor, reactive power compensation and harmonic distortion. Different types of FACT devices like as SVC, STATCOM, IPC, DVR, UPFC, TCSC, TCPST and DSTATCOM can be used to solve these types of problems. But now a days D-STATCOM is using to mitigate these problems of power quality. It is a custom power device which is installed in parallel with distribution system. Regarding problems of power quality, these devices are used but for getting better response, D-STATCOM is used. There are various techniques and also control techniques are available for implement these problems. These techniques are PWM, SPWM, SVPWM, PDPWM (modulation techniques) and other techniques are Phase Shift Control, d-q theory, Synchronous Reference Frame (SRF) model etc. And with reference frame model using PI controller the DSTATCOM can be controlled. In this paper the applications of DSTATCOM are discussed. DSTATCOM can be used in distribution system, wind power, solar power generation and also used with fuzzy system. The simulation of test model was carried out with the help of SIMULINK & MATLAB software.

Keywords: SVC, STATCOM, IPC, DVR, UPFC, TCSC, FACT, TCPST, DSTATCOM, SIMULINK, MATLAB.

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4.

Authors: **Vipin Venugopal, Haritha Chandrasekhar, Krishna Nilayangode**

Paper Title: **Password Protected Vehicle Access System**

Abstract: Password Protected Vehicle Access System aims to provide keyless access to vehicles along with enhanced security features. In this system, the key used to lock/unlock the vehicle is replaced by a password. High security is provided by an alarm system which is triggered when number of incorrect entries exceed the set limit. Additional security measures include a GSM Module which alerts the owner through SMS n case of a theft attempt. The system based on PIC16F877A microcontroller also incorporates a built in digital speedometer.

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	Keywords: Access control, Embedded System, GSM. **References:** 1. Mohammed Ali Mazidi, PIC Microcontroller And Embedded Systems: UsingAssembly and C for PIC18, Pearson Education, 2009 edition. 2. Boylstead & Nashlsky, Electronic Devices and Circuits, Pearson Education, 9th edition. 3. http://www.engineersgarage.com 4. http://www.electronicsforu.com/electronicsforu/lab 5. http://www.microchip.com 6. http://www.circuitstoday.com 7. http:// www.touchscreens.com 8. http://www.elotouch.com	
5.	**Authors:** **Gaurav Gupta, Harsh Kapil, V. H. Patil** **Paper Title:** **Radar based Missile Navigation**	
	Abstract: In today's world enemy's warfare is an important factor in any nation's security. The national security mainly depends on Army (ground), Navy (sea), Air Force (air).The important and vital role is played by the army's artillery such as scud missile, bo - force guns etc. The main objective is to send the coordinates of the target to the gun. There are 2 types of coordinates that we are sending. One is the longitude and latitude of the missile and secondly the X & Y coordinates of missile. In our project we have come up with an idea of detecting the incoming buggy whether it is enemy or friendly with the help of higher encryption and decryption routine using some wireless protocol. **Keywords:** Microprocessor LPC2138, RC4 algorithm,RS232, MAX232, Regulator LM317, ultrasonic sensors. **References:** 1. Mantin, A. Shamir, "A Practical Attack on Broadcast RC4," Fast Software Encryption 2001 (M.Matsui,ed.), vol.2355 of LNCS, pp.152-164, Springer-Verlag, 2001 2. S. Fluhrer, 1. Mantin, A. Shamir, "Weaknesses in the Key Scheduling Algorithm of RC4," SAC2001 (S.Vaudenay,A.Youssef,eds.), vol.2259 of LNCS, pp.I-24, Springer-Verlag,2001. 247 3. G. Paul, S. Maitra, "RC4 State In formation at Any Stage Reveals the Secret Key", In Proceedings of SAC2007, http://eprintiacr.org/2007/208.pdf, 2007. 4. A Klein, Attacks on the RC4 Stream Cipher, http://cage.ugent.be/- kleinIRC4IRC4-en. 5. Mironov,1.:(NotSo) Random Shuttles of RC4. In: Yung, M.(ed.) CRYPT02002. LNCS, vol. 2442, pp.304-31 9. Springer,2002. 6. Ruxue Bai, Hongyan Liu, and Xinhe Zhang, "AES and its software implementation based on ARM920T," Journal of Computer Applications, Vol.31 No.5, May 2011, pp.1295-1301 . 7. Shaonan Han, and Xiaojiang Li, "Compatible AES-128、AES-192、AES-256 Serial AES Encryption and Decryption Circuit Design," Micro electronics & Computer, Vol.27 No.11, Nov 2010, pp.40-50. 8. Shaonan Han, and Xiaojiang Li, "Compatible AES-128、AES-192、AES-256 Serial AES Encryption and Decryption Circuit Design," Micro electronics&Computer, Vol.27 No.11, Nov 2010, pp.40-50. 9. US patent 3617859, Robert C. Dobkin & Robert J. Widlar, "ELECTRICAL REGULATOR APPARATUS INCLUDING A ZERO TEMPERATURE COEFFICIENT VOLTAGE REFERENCE CIRCUIT", issued 1971-11-02, assigned to National Semiconductor Corporation. 10. Louis Nashelsky, Robert L. Boylestad (1997). Electronic Devices and Circuit Theory 6 Edition, p. 822. Prentice-Hall, India. ISBN 8120311760.	**22-25**
6.	**Authors:** **ASM Delowar Hossain, Zory Marantz, Djafar Mynbaev** **Paper Title:** **Current Electronics Curriculum at Two-Year Engineering-Technology Programs: Academic Preparation vs. Industry Expectations**	
	Abstract: It is a challenge to teach electronics in career-oriented two-year programs due to the practical knowledge that must be taught within a limited amount of time. The challenge stems from the balance that must be achieved between theory and practice. There is a huge gap between the fundamentals of electronics that we are still teaching in traditional electronics courses and the real-world electronics used for building modern devices and gadgets. This survey investigates whether it is possible to teach modern electronics for modern industry, particularly in two-year programs. In an attempt to find a solution, various sources are investigated in academia, industry, and professional societies. The goal is to begin a productive discourse to find a solution to this dilemma. **Keywords:** Curriculum Development, Modern Engineering Education, Pedagogy. **References:** 1. John Robertson et al., "The Technology World Is Changing Rapidly – Can Higher Education Match the Pace?", Proceedings of 2008 ASEE Annual Conference, June 22-25, 2008, Pittsburgh, Pennsylvania. 2. Vivek Wadhwa. (2012, June) Forbes. [Online]. http://www.forbes.com/sites/singularity/2012/06/25/most-innovative-decade-in-history/ 3. A. Tavares et al., "Industry trends, learner needs," in Global Engineering Education Conference (EDUCON), 2012 IEEE, 2012, pp. 1-8. 4. Joseph J. DeFrance, General Electronics Circuits. New York: Holt, Rinehart, and Winston, 1976. 5. Robert L. Boylestad, Introductory Circuit Analysis: Prentice Hall, 2010. 6. Electronics Tutorial about Bipolar Junction Transistors, http://www.electronics-tutorials.ws/transistor/tran_1.html 7. Texas Instruments, http://www.ti.com/ 8. Electronics Tutorial about Junction Field Effect Transistors, http://www.electronics-tutorials.ws/transistor/tran_5.html 9. Introduction to FinFET, http://ziyang.eecs.umich.edu/~dickrp/eecs312/student-presentations/finfets.pdf. 10. Ciena, http://www.ciena.com 11. Electronics Technician [Online] http://jobview.monster.com/Electronics-Technician-Job-Stafford-VA-125045760.aspx	**26-30**

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7.

Authors:	**S. Arun, K. Vinoth Kumar, R. Adharsh**
Paper Title:	**Experimental and Comparison Studies on Drying Characteristics of Grapes in a Solar Tunnel Greenhouse Dryer and in the Open Sun Drying Method**

Abstract: A natural convection solar tunnel greenhouse dryer was designed and developed in Pollachi region of Tamil Nadu (India) for studying and comparing the drying characteristics of grapes with the open sun drying method during the month of April, 2014. About 30 kgs of grapes were loaded into the dryer and it was repeated for three trails. The drying time and product quality were the main drying parameters which are taken into account. The grapes which has an initial moisture content of 80% was reduced to 10% in solar tunnel greenhouse dryer over a time period of 55 hours whereas the grapes dried in the open sun drying method took 149 hours for the reducing the moisture content of the grapes to the same level. The high temperature and low relative humidity inside the solar tunnel greenhouse dryer helps the dryer to dry the grapes at an earlier time than the open sun method. Also, the greenhouse effect is responsible for the high temperature and low relative humidity inside the dryer that prevents fungal and bacterial infections, damage by birds and animals, etc. which ensures the production of superior quality of grapes in the dryer than in the open sun drying method.

Keywords: Drying time, grapes, moisture content, open sun drying, product quality, solar tunnel greenhouse dryer.

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Authors:	**S. Arun, K. Vinoth Kumar, P. Kumaran**
Paper Title:	**Experimental and Comparison Studies on Drying Characteristics of Green Chilies in a Solar Tunnel Greenhouse Dryer and in the Open Sun Drying Method**

Abstract: A natural convection solar tunnel dryer was designed and developed for carrying out the experimental and comparison studies on drying characteristics of green chillies in Negamam region of Pollachi, Tamil Nadu (India) during the month of April, 2014. About 50 kgs of green chillies were carried out in the dryer and is repeated for three trails. The drying parameters such as product quality and drying time were taken into account for finding the best suitable method of drying of products. The solar tunnel greenhouse dryer dried the green chillies which has an initial moisture content of 88.5% to

a final moisture content of 7.4% over a time period of 55 hours whereas the open sun drying method took 125 hours for the same. Also the quality of green chillies obtained from the solar tunnel greenhouse dryer was found to be of superior quality to that of open sun dried green chillies.

Keywords: Drying time, green chillies, moisture content, open sun drying, product quality, solar tunnel greenhouse dryer.

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Authors:	**S. Arun, K. Velmurugan, K. Vinoth Kumar**
Paper Title:	**Optimization and Comparison Studies of Solar Tunnel Greenhouse Dryer Coupled with and without Biomass Backup Heater**

Abstract: A natural convection solar tunnel greenhouse dryer coupled with biomass heater was designed and developed in Nallampalli region of Pollachi, Tamil Nadu (India) and also a natural convection solar tunnel greenhouse dryer without biomass heater (existing dryer) was designed and developed in Negamam region of Pollachi, Tamil Nadu (India) for the comparison and optimization of the existing solar tunnel greenhouse dryer by conducting a drying test in both the dryers with coconut as the drying product during the month of March, 2014. About 5000 coconuts were loaded into those two respective dryers and it was repeated for three trails. The mass of fuel added to the biomass heater was about 7.5kg/hr. The biomass heater was ignited when there is a fall in sunshine (after 5PM) in order to maintain the temperature inside the dryer. The drying parameters (product quality and drying time) were also taken into account for the optimization of the existing dryer. The solar tunnel dryer coupled with the biomass heater dried the coconuts which has an initial moisture content of 53.84% to a final moisture content of 7.003% over a time period of 44 hours whereas the solar tunnel greenhouse dryer without the biomass heater took 56 hours for reducing the moisture content to the same level. The drying time of the coconuts in the solar tunnel greenhouse dryer coupled with the biomass heater was less than that of the solar tunnel greenhouse dryer without the biomass heater which is due to the effect of biomass heater that supplied sufficient heat to the dryer so that the temperature inside the dryer would be increasing steadily even at night time. Also the quality of the coconuts obtained from the solar tunnel greenhouse dryer coupled with biomass heater was found to be superior to that of the coconuts obtained from the solar tunnel greenhouse dryer without the biomass heater which is due to the high temperature and low relative humidity prevailed all the time inside the dryer irrespective of fall in sunshine.

Keywords: Biomass backup heater, coconuts, drying time, moisture content, open sun drying, product quality, relative humidity, solar tunnel greenhouse dryer, temperature.

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Authors: **Anoop Mathew, Joseph Kuncheria, Yadukrishnan S, Gifty Raju, Haritha Chandrasekhar**

Paper Title: **Car Black Box**

Abstract: Black box refers to collection of several different recording devices used in transportation: the flight recorders (flight data recorder and cockpit voice recorder) in aircraft, the event recorder in railway diesel locomotives, the event data recorder in automobiles and the voyage data recorder in ships. Car black box is an Event Data Recorder. When two cars collide, the sensor detects an accident and stores information regarding the car's speed, whether the seatbelts are fastened, the status of indicators and headlights and whether the driver hit the brakes before a collision. The number plate of the nearby vehicle is extracted from the captured images when accident was detected and the data is stored.

Keywords: Black box, devices, Data Recorder, collide, collision.

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