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1.	**Authors:**	**Oke A. O., Ajala F.A., Baale A. A.**	1-6
	Paper Title:	**Internet of Things-Based Water Level Management System**	
	Abstract: Water is one of the most important basic needs for all living things. It is a limited resource and is very important for all and sundry. Unfortunately, a huge amount of water is being wasted by uncontrolled use. This problem is quietly related to poor water allocation, inefficient use, and lack of adequate and integrated water management. Therefore, the need for an intelligent expert system for home or office water management arises which is the problem this project aims to solve. At the end of the research, an intelligent internet of things based water level management system which was capable of detecting water level and preventing water overflow was designed and implemented. **Keywords:** Internet of Things (IOT), Water, Intelligent, Expert system, WIFI Module. **References:** 1. Zachos, N., Kosmatopoulos, C., Laopoulas, TH. (2008) "A Wireless Network of Remote Measuring Stations: Application in Water Level Monitoring", IEEE Catalogue No.95TH8081. 2. Zulhani, R., Hamzah, H., Shahrieel M.M.A., (2009) " Application And Evaluation Of High Power Zig bee Based Wireless Sensor Network In Water Irrigation Control Monitoring System", IEEE Symposium On Industrial Electronics and Applications (ISIEA), October 4-6, Kuala Lumpur, Malaysia. 3. Brito, N., Ribeiro, P., Soares, F., Monteiro, C., Carvalho, V., Vasconcelos, R., (2009) " A Remote System For Water Tank Level Monitoring And Control - A Collaborative Case-Study", 978-1-4244-4654-4/09/$25.00 ©2009 IEEE . 4. Zhang, Z., Lisheng, H.U., (2011) " Performance Assessment For the water Level Control System In Steam Generator of The Nuclear Power Plant ", Proceedings Of The 30th Chinese Control Conference July 22-24, Yantai, China 5. Komeswarakul, P., Saengsatcha, A., Jomtarax, K., Suksomboon and Lewlomphaisarl, U., (2011) " Remote Terminal Unit For Automatic Dam Monitoring System Using A Microcontroller ", SICE Annual Conference September 13-18, Waseda University, Tokyo, Japan. 6. Matiur rahman, S.A.M., Abdullah M.A.M., Ahmed, N.U., Ahmed, N., Sharafat M.A., Monirul M.I., (2014) "Design Automatic Controlling System For TAP Water Using Floating Level Sensor", IEEE International Symposium On Robotics. 7. Mehta, V.K (2012): Principles Of Electronics (117-205, Transistors, and General References), Published By S. Chand & Company LTD 8. Oke A. O., Adigun A. A. and Olaniyi O. M. (2015): Automated Capacitance-based Fuel Level Monitoring System for Networked Tanks. International Journal of Electronics Communication and Computer Engineering (IJECCE). 6(4): 497-501. 9. Hallmark, C., (1986): IC Cookbook (Pin Configurations of All the ICs)		
2.	**Authors:**	**Adeyemo, I. A., Ojo, J. A., Babajide, D. O.**	7-13
	Paper Title:	**Artificial Intelligence Approach to Real-Time Selective Harmonic Elimination in Voltage Source Multilevel Inverter**	
	Abstract: Real-time application of Selective Harmonic Elimination-Pulse Width Modulation (SHE-PWM) technique is limited due to the heavy computational cost involved in solving a specified number of transcendental nonlinear equations known as Selective Harmonic Elimination (SHE) equations that contain trigonometric functions. Traditional methods of solving SHE equations include numerical techniques, and derivative free evolutionary algorithms. However, none of these methods can compute the switching angles in real time.In this paper, a two-phase adaptive algorithm is proposed for real-time generation of optimal switching angles in multilevel inverters. In the firstphase, optimal switching angles are calculated offline using real coded genetic algorithm (RCGA). In the second phase, results of RCGA are used to train an ANFIS model. Simulation of an 11-level inverter in MATLAB/Simulink reveals that the proposed method is highly efficient for online harmonic reduction in multilevel inverter. **Keywords:** Multilevel Inverter, Real Coded Genetic Algorithm (RCGA), Adaptive Neuro-Fuzzy Inference System (ANFIS), and harmonics. **References:** 1. K. A. Corzine, "Multi-Level Converters," The Handbook on Power Electronics, Edited by T.L. Skvarenina, CRC Press, 2002, pp. 6-1 - 6-23 2. J. Rodríguez, J. Lai, F.Peng, "Multilevel inverters: a survey of topologies, controls and applications," IEEE Transactions on Industry Applications, vol. 49, no. 4, Aug. 2002, pp. 724-738. 3. S. Khom foi, L. M Tolbert, Chapter31.Multilevel Power Converters. The University of Tennessee.pp.31-1 to 31-50. 4. J. Kumar, B. Das, and P. Agarwal, "Selective Harmonic Elimination Technique for Multilevel Inverter,'' 15th National Power System Conference (NPSC), IIT Bombay, 2008, pp. 608-613. 5. J. Chiasson, L. M. Tolbert, K. McKenzie, and Z. Du, "Elimination of Harmonics in a Multilevel Converter using the Theory of Symmetric Polynomial and Resultant,'' Proceedings of the 42ndIEEE Conference on Decision and Control, Dec. 2005, pp. 216-223. 6. F. Swift and A. Kamberis, "A New Walsh Domain Technique of Harmonic Elimination and Voltage Control In Pulse-Width Modulated Inverters," IEEE Transactions on Power Electronics, volume 8, no. 2, 1993, pp. 170–185. 7. T. J. Liang and R. G. Hoft, "Walsh Function Method of Harmonic Elimination," Proceedings of IEEE Appl. Power Electron.Conference,1993, pp.847–853. 8. T. J. Liang, R. M. O'Connell, R. M. and R. G. Hoft, "Inverter Harmonic Reduction Using Walsh Function Harmonic Elimination Method," IEEE Transaction on Power Electron, volume 12, no. 6, 1997, pp. 971–982. 9. B. Ozpineci, L. M. Tolbert, and J. N. Chiasson, "Harmonic Optimization of Multilevel Converters Using Genetic Algorithm,''35 Annual IEEE Power Electronics Specialists Conference, Germany, 2004. 10. N. Vinoth, and H. Umeshprabhu, ''Simulation of Particle Swarm Optimization Based Selective Harmonic Elimination, "International Journal of Engineering and Innovative Technology (IJEIT) Volume 2, Issue 7, 2013, pp. 215-218. 11. A.Adeyemo, O. O. Okediran, and C. A.Oyeleye, "Particle Swarm Optimization Approach to Harmonic Reduction in Voltage Source Multilevel Inverter," International Journal of Soft Computing and Engineering,Volume 5, Issue 5, Nov. 2015, pp. 1-5. 12. K. Sundareswaran,K. Jayant, and T. N. Shanavas, "Inverter Harmonic Elimination through a Colony of Continuously Exploring Ants," IEEETransactions on Industrial Electronics, volume 54, no. 5, 2007, pp. 2558-2565. 13. A.Adeyemo, O. A. Fakolujo, and G. A. Adepoju, "Ant Colony Optimisation Approach to THD Analysis in Multilevel Inverter with Different Levels", International Journal of Innovative Research in Science, Engineering andTechnology,Volume 4, Issue 9, Sept. 2015, pp. 9071-9082. 14. Kavousi, et. al., "Application of the Bee Algorithm for Selective Harmonic Elimination Strategy in Multilevel Inverters," IEEE Transactions on Power Electronics, Vol. 27, No. 4, April 2012, pp.1689-1696. 15. M. Azab, "Harmonic Elimination in Three-Phase Voltage Source Inverters by Particle Swarm Optimization," Journal of Electrical Engineering and Technology, Vol. 6, No. 3, 2011,pp. 334-341. 16. H. Abu-Rub, A, Iqbal, S. M. Ahmed, F. Z. Peng, Y. Li, and G. Baoming, "Quasi-Z Source Inverter-Based Photovoltaic Generation System With		

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3.

Authors: **Arindam Roy, Susmita Roy, Partha P. Biswas**

Paper Title: **Minimizing Loss in a Larger Distribution Network by Optimal Network Reconfiguration and DG Allotment using an Advanced Adaptive Differential Evolution**

Abstract: Power Loss minimization at the highest extent possible in an Electrical network is more important than generating the same lost power. Recent distribution network is expanding rapidly and power loss minimization is the challenging task to the automation system. This paper presents an advanced integrated optimal method for network reconfiguration along with distributed generation allocation in the large scale distribution system with an objective of minimization of network power loss and enhancement of system voltage stability & reliability as a consequence. Linear population size reduction technique of success history based adaptive differential evolution (L-SHADE) has been applied to execute this optimization assignment. In addition to the adaptation of scaling factor (F) and the crossover rate (CR) as in the previous algorithm SHADE [13], the control parameter population size (Np), over successive generations in the algorithm, is also linearly reduced. The algorithm optimizes DG size along with corresponding location (bus number) and also reconfigures the network simultaneously. Therefore, this optimization assignment is a combination of continuous (rating) and discrete (location) variables. IEEE 119 bus standard radial distribution network has been utilized for testing. The simulation results have been compared with that of other available equivalent algorithms in the large scale distribution system and found as the best among them.

Keywords: Larger Distribution System, Network Power Loss Minimization, Voltage Profile, Optimal Reconfiguration, Distributed Generation, L-SHADE Algorithm.

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4.

Authors: **Ako Rita Erhovwo, Okpako Ejaita Abugor**

Paper Title: **A Causality Learning of E-banking Operational Risk using Tree Augmented Naïve Bayes Classifier**

Abstract: E-banking systems have been shown to increase and modify particularly Operational Risk (OR). It has increased the technical complexity of the banks operational and security issues. The mode of occurrence, magnitude, and consequences often takes on new dimensions. It has become increasingly important to effectively identify potential OR issues underlying the E-banking operations, their causal relationships, the effectiveness of controls implemented, the inherent risk exposure level, and the residual risk. This research work seeks to propose Tree Augmented Naïve Bayes (TAN) Classifier in the modeling of the causal relationships among operational risks factors. To validate the proposed use of TAN classifier, we comparatively analyzed the performance of the TAN classifier with three other soft

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computing tools; C4.5 Decision Tree, Naïve Bayes (NB) and Artificial Neural Networks (ANN). These soft computing tools were evaluated in terms of the CPU training time complexity, classification measured by prediction accuracy, ranking measured by AUROC, and the Mean and Relative absolute error rate. The dataset was pre-processed and transformed by conducting a factor analysis procedure using SPSS statistical measurement tool, to identify risks that may require urgent actions and to reduce the dimensionality of the dataset into a smaller subset of most significant measurable variables. WEKA was then used as the developmental tool for training and testing the soft computing classifiers. Through causality learning from the collected E-banking Customers' data, we demonstrated that the proposed classifier cannot only discover causalities but also perform better in prediction than other algorithms, such as C4.5, NB, and ANN. The TAN network structure revealed the interdependencies among operational risk factors..

Keywords: Causal Relationships, Operational Risk, Soft Computing, Classifiers, E-banking.

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5.

Authors: **N. Kaur, M. S. Devgan**

Paper Title: **Comparative Analysis of Routing Protocol in VANET**

Abstract: VANET is a vehicle communication platform in which the vehicles can communicate with other vehicles either directly or through infrastructure unit named as RSU (road side unit). The density of the network depends upon several factors and condition of roads. In urban cities, the densities of vehicles are high whereas in rural area, the density can vary. Therefore, vehicle to vehicle communication faces problems in while communicating through VANET and the developer needs to design an infrastructure that can resolve this problem. In this paper, we are presenting a comparative analysis of various routing techniques used in VANET. The main issue that find in VANET communication is the selection of an appropriate routing protocol. Therefore, to know about the advantages, disadvantages and application of four different routing algorithms named as position based, geo based, cluster based and topology based a comparative analysis has been performed.

Keywords: VANET, Routing Protocols, Position Based, Geo Based, Cluster Based and Topology Based.

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6. — **43-47**

Authors: **Varsha Tiwari, Vivek Sharma**

Paper Title: **MODLEACH- An Energy-Efficient Clustering Formation of LEACH for Wireless Sensor Networks**

Abstract: Wireless Sensor Networks (WSNs) consists of a small group of sensor nodes used to gather data from the area which they deployed. The nodes are cannot be charged so there is a need for Energy-Efficient protocol to choose a better cluster. The nodes are grouped into cluster and election of Cluster Head (CH) is a vital task in WSNs. This paper presents a better energy-efficient model for WSNs. The proposed model called MOD-LEACH presents a novel idea in election of CH with the specified parameters such as residual energy, distance, threshold energy, total nodes of cluster and forms a cluster in order to work in an efficient manner. The proposed scheme is suitable for large scale networks where the energy is one of the main constraints. Efficiency is also enhanced by utilizing the power amplification models of the proposed scheme. By the simulation results obtained K-LEACH is comparatively better in energy-efficient model for WSNs.

Keywords: Energy Efficient Protocol, Cluster Head Election, Threshold Energy, Power Amplification.

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7. — **48-52**

Authors: **K. Umamaheswari, Ramachandran M, Sathya.S, Preetha Sukumar**

Paper Title: **Optimization Techniques for Improved Power Factor and Energy Efficiency**

Abstract: Poor power quality like reduced power factor and elevated levels of harmonic distortion generate a number of problems for electrical utilities, and large industrial consumers are typically charged consequently. Condensed power factor is such a common problem based on typical loads that techniques are frequently applied to improve power factor when it is less than certain levels. Traditional procedures for increased power factor typically consist of adding power factor correction capacitors to deliver the reactive volt-ampere reactive (VARs) near the location that inductive loads are absorbing VARs. In adding up to inductive loads creating reduced lagging power factor, power electronic devices often reduce power factor similarly. Power electronic devices have become so commonly used that sophisticated techniques have been developed to improve power factor and reduce current total harmonic distortion for such devices.

A common technique utilized for processes that must provide a large range of possible voltages is to include added transformer taps coupled with the power electronic devices. In addition to traditional methods for increasing power factor, by careful consideration during the design phase of processes and load cycles that have a repetitive nature, power factor can be improved. Such a method uses a computer algorithm approach to find the ideal compromise of the relevant design parameters for improved energy efficiency and power factor.

Keywords: Power Factor, Energy Efficiency, THD, Industrial Process, Optimization Technique, VAR.

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