

2022 International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP 2022)

**Hyderabad, India
21-23 July 2022**

Pages 1-542



**IEEE Catalog Number: CFP22AD7-POD
ISBN: 978-1-6654-7259-3**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22AD7-POD
ISBN (Print-On-Demand):	978-1-6654-7259-3
ISBN (Online):	978-1-6654-7258-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Role of Materials for Energy Storage in Renewable Systems: A Quick Review	1
<i>Vansh Kumar Varshney, Subhash Chandra</i>	
A Comparative Analysis on 5G Cell Free Massive Mimo in Next Generation Networking Environment	7
<i>Sunita Dhalbisoi, Ashima Rout, Ramesh Kumar Sahoo, Srinivas Sethi</i>	
Underwater Fish Detection and Classification Using Deep Learning	12
<i>Vrushali Pagire, Anuradha Phadke</i>	
Fault Detection of Grid-Connected Looped Microgrid Based on Differential Energy Estimation in Time Domain.....	16
<i>Ankan Chandra, G K Singh, Vinay Pant</i>	
A Review of Architecture and Control Strategies of Hybrid AC/DC Microgrid.....	22
<i>Pragya, Ritula Thakur</i>	
Optimal Integration of Distributed Energy Resources in Radial Distribution Networks Using Levy Flight Based Adaptive Particle Swarm Optimization.....	27
<i>Romio Atha, Sourav Mallick, Abhishek Rajan</i>	
Sizing of Battery Power Pack and Performance Analysis in an Electric Vehicle	33
<i>Rajat Kumar Samantaray, Ashwin Kumar Sahoo, Smaranika Mishra, Sarat Chandra Swain</i>	
Load Frequency Control of Multi Area Power System Using Meta-Heuristic/Artificial Intelligence Techniques.....	39
<i>Junaid Hussain Lanker, Ravi Bhushan, Neeraj Gupta</i>	
Coordinated Control of EV Charging Stations for Grid Frequency Support.....	45
<i>S V Anbuselvi, R P Kumudini Devi, R Brinda</i>	
Load Frequency Control of Power System Using Honey Badger Algorithm.....	51
<i>Mayank Saklani, Nafees Ahamad, Abhay Chhetri, Sonika Singh</i>	
Bird Species Classification Using Deep Learning.....	56
<i>Pureti Anusha, Kundurthi ManiSai</i>	
A Review on Light-Emitting-Diodes Characteristics.....	61
<i>Vinod Kumar Yadav, Vikas Sharma, Ganesh Prajapat, Janardan Kundu, Atul Sharma, N K Gupta</i>	
Disturbance Estimation and Compensation Based on Frequency Response in an Islanded Microgrid.....	67
<i>Yogesh Singh, Ritula Thakur</i>	
Cancer Tumor Detection Using Genetic Mutated Data and Machine Learning Models	73
<i>Aniruddha Mohanty, Alok Ranjan Prusty, Ravindranath C Cherukuri</i>	
A Review on Mechanical Energy Storage Technology.....	79
<i>Gaurav Kishor Joshi, Bhavana Rongali, Monalisa Biswal</i>	
A Novel Fuzzy-Logic UV Controlled Utility-Grid Integrated Solar-PV Based Water-Pumping System	84
<i>Abdulkhudhur Hussein Taresh, Ahmed Mohammed Mohsin Alzubaidi</i>	

Performance of Single-Circuit Six-Phase Transmission System Using Multi- Winding Phase-Convertible Transformer	90
<i>Abbas Jaber Yousif, Ahmed Mohammed Mohsin Alzubaidi</i>	
Review on Battery Management System in EV	96
<i>Spoorthi B, P Pradeepa</i>	
A Review on Electromagnetic and Chemical Energy Storage System.....	100
<i>Devesh Mishra, Shivam Ojha, Monalisa Biswal</i>	
Student Attendance Using Face Recognition Technology	104
<i>Podapati Asmitha, Thella Sunitha</i>	
Power Control of a Variable Speed DFIG Based Wind Turbine Using Two Fuzzy Logic Controllers	108
<i>Satyabrata Sahoo, Pratap Sekhar Puhan, Gayadhar Panda</i>	
Facial Behaviour Realization Using Statistical Features	113
<i>Swapna Subudhiray, Hemanta Kumar Palo, Niva Das</i>	
Investigation on Surface Temperature of Vegetable Oil of 3-Phase Transformer Using Nano Particles	118
<i>Rupali Balabantaraya, Ashwin Kumar Sahoo, Prabodh Kumar Sahoo, Purnendu Sahu, Deepak Mahto, Subrat Panda, Anup Kumar Toppo, Sunil Kumar Sahoo, Satyam Tarai</i>	
Crewman Deployment Model for Improving the Resiliency of the Power System.....	124
<i>Sneha Gope, Imon Dutta, Kairab Roy, Indrayudh Chakrabarti, Dipanjan Bose, Chandan Kumar Chanda</i>	
Power System Operation and Control: A Data-Driven Approach.....	129
<i>Parvaiz Ahmad Ahangar, Shameem Ahmad Lone, Neeraj Gupta</i>	
Prediction of Electric Energy Consumption for Demand Response Using Deep Learning.....	135
<i>Radharani Panigrahi, Nita R Patne, Sumanth Pemmada, Ashwini D Manchalwar</i>	
Investigation on Security Constrained Optimal Power Flows Using Meta-Heuristic Techniques	141
<i>Sunil Ankeshwarapu, Maheswarapu Sydulu</i>	
Stability Prediction Model for Smart Grid Network that Handles Missing Input Variables	147
<i>Kaushik Ram Selvaraj, Jhanavi Chaudhary, Rhea Mantri, Kishore Bingi, B Rajanarayanan Prusty</i>	
ANN Based Shunt Active Power Filter for Harmonic Mitigation in Grid Connected PV System.....	153
<i>Bheesetty Swathi, K Narasimha Rao</i>	
Voltage Profile in a Large Power System Under Power System Contingencies Using FACTS Devices	159
<i>Aditya, Ashwani Kumar Chandel</i>	
Generation of Dark Pulse Using Fiber Laser and Mode-Locking Technique	164
<i>Krishna Ch Patra, Chinu Priyadarshani</i>	
An Efficient Collision Avoidance Scheme for Healthcare Application	168
<i>Prasant Kumar Dash, Madhumita Panda</i>	
Time Series Forecasting Model for Sunspot Number	172
<i>Bhukya Ramadevi, Kishore Bingi</i>	

RFID Based ATM Security System Using IOT	178
<i>Bachu Sricharan, Jakanagari Uma Sanjana, T Vanitha Vani, C.N Sujatha</i>	
Review of Gaussian Mixture Model-Based Probabilistic Load Flow Calculations	184
<i>B Rajanarayan Prusty, Kishore Bingi, Neeraj Gupta</i>	
Parameter Extraction of PV Module Using CamWOA Technique	189
<i>B V Siva Prasad, Nutan Saha, Gayadhar Panda</i>	
Sag Rooting Out in Grid Connected Windfarm by Deploying Deep Learning	194
<i>R Karpagam, T Abhishek Dheeven</i>	
Differential Protection of Microgrid Using Moving Average of Current Sample Data	200
<i>Abinash Nanda, Ranjan Kumar Mallick, Pravati Nayak, Nityananda Giri</i>	
Design and Simulation of a GA Optimized Variable Speed DFIG Based Wind Turbine Using MATLAB	205
<i>Satyabrata Sahoo, E Rajsekhar, Pratap Sekhar Puhan</i>	
Fault Identification Using Fuzzy in Renewable Energy Interfaced IEEE 13 Bus System.....	209
<i>Aradhana Ekka, Anamika Yadav</i>	
Concurrent Optimization of Sizing and Scheduling for Battery Storage in Power Distribution Network	215
<i>Soumyakanta Samantaray, Partha Kayal</i>	
Modelling of a Non-Isolated DC-DC Converter for Low Power PV Application.....	221
<i>Subhasri Kar, Sumit Banerjee, C K Chanda</i>	
Automatic Control Strategy for Smart Integration of Renewable Sources.....	226
<i>Babita Panda, Bhagabat Panda, Subhrajee Rout</i>	
Forecasting Electric Power Generation in a Photovoltaic Power Systems for Smart Energy Management	231
<i>Challa Krishna Rao, Sarat Kumar Sahoo, Franco Fernando Yanine</i>	
Implementation of Common Ground Five-Level Transformerless Inverter Using Virtual DC Link	237
<i>Ravi Chandra Atheli, Swapnajit Pattnaik</i>	
DTCWT-SVM Based Identification of Single and Multiple Power Quality Disturbances	242
<i>Reshma Shahanz Shaik, Rajat Kumar, Md Asif, Dharmendra Yadav</i>	
Optimal Design for Solar Cell and Fuel Cell Renewable Source to Enhance the Power Quality in a Micro Grid System	248
<i>Rajesh Thangella, Srinivasa Rao Yarlagadda, Joseph Sanam</i>	
Transformer-Based Models for Supervised Monocular Depth Estimation.....	254
<i>Arijit Gupta, A Amalin Prince, A R Jac Fredo, Femi Robert</i>	
Nine Switch Multifunctional Converter Configuration for Integrating Dynamic Voltage Restorer and Solar Photovoltaic.....	259
<i>Ashish A Dongre, Jyoti Prakash Mishra, Ravi Kumar Majji</i>	
Open Circuit Fault Detection Method for H-Bridge Using Transistor Logic Fault Detection Module	265
<i>Godvin Joseph, Lalith Kumar Sahu</i>	

Autonomous Power Management for Hybrid AC/DC Nano Grid Using ESS and DG.....	271
<i>Syed Abdul Razzaq, Vairavasamy Jayasankar</i>	
Modeling and Analysis of MPPT Based Solar PV System Under Dynamic Weather Conditions	277
<i>Snehashis Ghoshal, Sumit Banerjee, Souvik Kundu, Debojoyoti Biswas, Ashish Kumar Dayal, Chandan Kumar Chanda</i>	
Modeling and Performance Analysis of a Closed Loop PEMFC in Small Scale Stand Alone DC System	283
<i>Snehashis Ghoshal, Sumit Banerjee, Sweta, Rakesh Maji, Nehal Akhter, Chandan Kumar Chanda</i>	
Performance Analysis of a DFIG Based Wind Turbine with BESS System for Voltage and Frequency Stability During Grid Fault	289
<i>Ankur Adhikary, Niloy Goswami, Kaushik Barua, Ratul Dey, Arindam Barman, Mehedi Azad Shawon</i>	
Performance Analysis of Optimal AGC Regulator for Interconnected Power System Under Restructured Environment.....	295
<i>Ram Naresh Mishra</i>	
Power Grid Parameter Estimation Using Sparse Identification of Nonlinear Dynamics	301
<i>Asif Hamid, Danish Rafiq, Shahkar Ahmad Nahvi, Mohammad Abid Bazaz</i>	
Islanding Detection in Grid Based System Using Clarke Transformation	307
<i>Nenavath Suresh Rathod, Jitendra Kumar</i>	
Optimal Operation of Grid-Tied PV & BESS Powered Smart Home with Electric Vehicle Using AOA	312
<i>Sigma Ray, Kumari Kasturi, Manas Ranjan Nayak</i>	
Capacity Estimation of Lithium-Ion Battery with Least Squares Methods	318
<i>Shivanshu Kumar, Himadri Sekhar Bhattacharyya, Amalendu Bikash Choudhury, Chandan Kumar Chanda</i>	
A Fast Battery Charging Scheme for a Solar Energy System Using Intelligent Bi-Directional Converter.....	324
<i>Arpita Basu, Madhu Singh</i>	
Design of Smart Grid and Monitoring System Using IoT	330
<i>Priyanka Sen, Vandana Jha, Akshaya Aditya Abinash, Sharda Prasad Das, Subhadarsi Srimat</i>	
Combined ALFC-AVR Control of Diverse Energy Source Based Interconnected Power System Using Cascade Controller.....	335
<i>Biswanath Dekaraja, Lalit Chandra Saikia, Satish Kumar Ramoji</i>	
Single-Phase UPC with Lithium-Ion Battery System.....	341
<i>Nishant Patnaik, Sri Vamsi Deevi, Sai Teja Varma Lakkarsu, Sri Sai Wenkat Nizampatnam</i>	
Intelligent Control Based Level Shifted PWM Multilevel Inverter.....	347
<i>Neelakantha Guru, Abinash Prusty, Siddhanta Pani, Kausik Nanda, Ajit Kumar Barisal</i>	
Compensator Design for Magnetic Levitation System.....	353
<i>Mitesh B Astik, Shital D Bhatt, Minesh K Joshi, Paresh R Modha</i>	

Designing of a Microcontroller-Less Overhead Tank Controller for Solarised Homes	358
<i>Subhra J Sarkar, Sarat Kumar Sahoo, Tapas Kumar Panigrahi, P Swati Patro, B Chetan Kumar, Chetan Kumar Sahoo</i>	
Modeling and Analysis of Wind Energy System.....	364
<i>Sudheer Medikonda, G Vanitha, M Ebraheem</i>	
A Modified DE Algorithm Based Solution for Dynamic OPF Problem for Ensuring Security of Power Grids.....	370
<i>B Aruna Kumari, K Vaisakh, N.C Sahoo</i>	
Material Properties and Tool Selection for Friction Stir Welding: A Review.....	376
<i>Sathish Dharmalingam, Aniket P Donga, Chintan R Prajapati, Akshar D Patel, Pranav R Babariya</i>	
Types, Storage Facilities and Performance of Vertical Axis Wind Turbine: A Review	381
<i>Jay T Patel, Helyben N Patel, Rutik P Makwana, Sathish Dharmalingam</i>	
Full-Bridge DC-DC Converter and Boost DC-DC Converter with Resonant Circuit for Plug-in Hybrid Electric Vehicles	387
<i>Lalmalsawmi, Pabitra Kumar Biswas</i>	
Experimental Investigations on Aerodynamic Performances of NACA0012 Airfoil.....	393
<i>Ajay Yadav, Dhruvi Suthar, Hetal Bhatiya, Aniruddh Marakana, Mohammad Shadab Ghanchi, Sathish Dharmalingam</i>	
Design of Conformal Microwave Sensor for Stroke Detection.....	398
<i>Soundar Rajan G, Sakthi Abirami Balakrishnan, Dennis Joshua D, Devi Sowjanya P</i>	
Analysis of Magnetic Fault Current Limiter for Faults Initiating at Different Positions of a Current Waveform.....	403
<i>Subhamoy Das, A B Choudhury, Tapan Santra</i>	
A Smart Solar Charge Controller Based on IOT Technology with Hardware Implementation	408
<i>Sarita Samal, Roshan Kumar Soni, Sarthak Nayak, Prasanta Kumar Barik, Rudranarayan Dash, Geetanjali Dei</i>	
Classification of SSVEP Signals Using Neural Networks for BCI Applications	414
<i>Rebba Prashanth Kumar, Sangineni Siri Vandana, Dushetti Tejaswi, KandagatlaSai Charan, Ravichander Janapati, Usha Desai</i>	
Firefly Algorithm Based STATCOM Controller for Enhancement of Power System Dynamic Stability	420
<i>Subir Datta, Subhasish Deb, Robert Singh, Rahul Roy, Akibul Islam, Shuma Adhikari</i>	
Industrial Revolution 4.0: Energy Monitoring and Load Control System.....	425
<i>Kaushik Ahmed, Mayeen Uddin Emon, Md Yeasib Bin Hassan, Md Shamim Hossen, Dewan Mahnaaz Mahmud</i>	
Seven Level Hf Isolated Inverter for 1-Phase Grid-Connected Solar Photovoltaic System.....	430
<i>Abdul Khadar Shaik, Y Mohamed Shuaib, V Bharanigha, P Meeravali Khan</i>	
Development and Analysis of in GaAs Nanowire Junctionless MOSFET with 10 Nm Gate Length	436
<i>Jeevanarao Batakala, Rudra Sankar Dhar</i>	
Performance Assessment of Three-Phase PV Tied NPC Multilevel Inverter Based UPQC	440
<i>Harin M Mohan, Santanu Kumar Dash, Saswat Kumar Ram, Wahyu Caesarendra</i>	

Signal Processing Technique Based Transmission Line Protection with and Without Penetration of Wind Energy.....	445
<i>Abhishek Gupta, Ramesh Kumar Pachar, Saloni Sharma, Unnati Kumawat, Satyam Meena, Manali Sharma</i>	
Meta Heuristic Approach for Minimization of ISE in Three Phase Cascaded H-Bridge MLI	451
<i>Debendu Puhan, Kausik Nanda, Siddhanta Pani, Soumya Souraja Panda, Sambit Pradhan</i>	
Reactive Power Control in Hybrid System Using Fuzzy Logic Control	457
<i>B Srinivasa Rao, Pramod Kumar Gouda, Sura Srinivasa Rao, Kintali Manohar</i>	
An Asymmetric Source Configuration of Single-Phase CHB-MLI Topology with a Generalized Reduced-Carrier Modulation Technique	463
<i>Kavya Tammali, Sai Srujan Vangala, Sushmitha Vattikonda, Kowstubha Palle, A Bhanuchandar, Kasoju Bharath Kumar</i>	
Coronavirus Herd Immunity Optimization Based Optimum Accommodation of Renewable DG.....	468
<i>Divyesh Kumar, Sumanth Pemmada, Nita R Patne</i>	
A Smart Agriculture Storaging System with IOT Based.....	474
<i>K Rajesh, K Riyaz, B Pallavi, C.Siva Santhosh Reddy, A Raamkumar, Balakrishnan Baranitharan</i>	
Performance Analysis of Fuzzy-PID Controller in Nuclear, dish-Stirling Solar Thermal and Reheat Thermal Energy Integrated Deregulated Power System.....	480
<i>Ashish Ranjan Behera, Ranjan Kumar Mallick, Ramachandra Agrawal, Pravati Nayak, Sayantan Sinha</i>	
Comparative Performance Analysis and Modelling of Tin Based Planar Perovskite Solar Cell.....	486
<i>Aditi Thakur, Dhawan Singh, Satinderjit Kaur Gill</i>	
Strategic Placement of PV and WTG in Low Power Distribution System for Improving System Efficacy	491
<i>Samarjit Patnaik, Baisakh Sarangi, Ruchira Tripathy, Manas Ranjan Nayak, Meera Viswavandya</i>	
Quality of Service (QoS) Enhancement of IoT Based Wireless Sensor Network Using Fuzzy Best First Search Approach	497
<i>Stitapradyan Lenka, Sateesh Kumar Pradhan, Arabinda Nanda</i>	
Analysis of Conventional and Interleaved Boost Converter with Solar Photovoltaic System	502
<i>Madhav Kumar, Gayadhar Panda, D V Siva Krishna Rao K</i>	
Intelligent Control of a Two-Phase Interleaved Boost Converter-interfaced Fuel Cell Electric Vehicle	508
<i>Ashish Laddha, Satyanarayana Neeli</i>	
Comparison of DTC and SVM - DTC of Induction Motor Drive for Electric Vehicle Application	514
<i>Sambit Pradhan, Anjan Kumar Sahoo, Ranjan Kumar Jena</i>	
Circular Polarized Triple Band Micro-Strip Patch Antenna for S-C- X Band Communication.....	520
<i>Rajesh Kumar Nema, Amit Kumar Nema, Puran Gour</i>	
Harmonic Mitigation in a Grid Interfacing PV Assisted Three-Phase Multilevel Switched Capacitor Inverter	525
<i>Sumant Kumar Dalai, Satyavarta Kumar Prince, Kaibalya Prasad Panda, Gayadhar Panda</i>	

Design of Ultrawide-Band MIMO Antenna with Polarisation Diversity	531
<i>Ayushi Ojashwi, Aryan Sachdeva, Aastha Saini, Kuldeep Singh, Ankit Sharma</i>	
Adaptive DC-Link Voltage-controlled Split-capacitor DSTATCOM for Power Quality Improvement	537
<i>Amruthavarsha Siripuram, Mogali Srivarun, Karuppiah Natarajan</i>	
Optimal Control and Voltage Regulation of a Hydrogen Fuel-Cell	543
<i>Konark Patra, Debendu Puhan, Siddhanta Pani, Samikshya Mishra</i>	
Integration of Battery Swapping Station into Microgrid: A Review	548
<i>Prasanta Kumar Mohanty, Premalata Jena, Narayana Prasad Padhy</i>	
IoT Based Hybrid EV Charging System with Data Processing.....	553
<i>Manoj Saini, Shagufta Khan, Vipul Dutt Mishra, Manav Mehra, Deeksha Singh, Gopal Sengar</i>	
Power Optimized Low Pass Digital FIR Filter Using Five Modular Redundancy and Parallel Adding Methods	558
<i>R Durgagopal, D N Rao</i>	
Design an Efficient Cuk Converter for a BLDC Motor Drive.....	564
<i>Shivangi Burman, Manisha Dubey</i>	
Identifying Fake Images Through CNN Based Classification Using FIDAC	570
<i>Shraddha Pawar, Gaurangi Pradhan, Bhavin Goswami, Sonali Bhutad</i>	
Wiener Filter Equalization for Source Non-Linearity in Large-core 1mm SI-POF Link	576
<i>Sandip Roy, Joseph John</i>	
A Novel SEPIC Converter with Magnetic Coupled Inductor for High Static Gain	580
<i>Sanjeev Kumar Suman, Swapnajit Pattnaik</i>	
Approaches for Finding Optimal Number of Clusters Using K-Means and Agglomerative Hierarchical Clustering Techniques	586
<i>Punyaban Patel, Borra Sivaiah, Riyam Patel</i>	
Bright Sunshine Duration Index-Based Prediction of Solar PV Power Using ANN Approach	592
<i>Damodhara V Siva Krishna K Rao, B Rajanarayan Prusty, Hareesh Myneni</i>	
Implementation of Security System Using Computer Vision and Temperature Detection	597
<i>Aryan Dali, Anand Mane, Husain Challawala, Jai Damani</i>	
Fuzzy-HCC Based Shunt Active Power Filter Integrated Hybrid Energy System for Compensation of Harmonics	602
<i>Smarak Pani, Sarita Samal, Byamakesh Nayak, Babita Panda, Alivarani Mohapatra, Prasanta Kumar Barik</i>	
A Survey on Fast and Scalable Incremental Frequent Item Set Methods for Big Data.....	608
<i>Borra Sivaiah, R Rajeswara Rao</i>	
Optimized T2FFOPID Regulator for Interconnected Power Grid.....	613
<i>Smrutiranjan Nayak, Sanjeeb Kumar Kar, Subhransu Sekhar Dash</i>	
Broad Band Antenna for S-Band Wireless Communication	617
<i>Rajesh Kumar Nema, Amit Kumar Nema, Puran Gour, Swati Nema</i>	

Field Investigation of Solar Photovoltaic Modules Digression Against Manufacture's Claim and Application of Machine Learning Model in Life Prediction: A Case Study	623
<i>K A V Sameer, K Haritha, N Ramchander, B Koti Reddy, K Rayudu, K Rajkumar Reddy</i>	
Class Topper Optimization for the Problem of Portfolio Optimization with a Restricted Set of Assets	629
<i>Pankaj Kumar Choudhary, Subinaya Mohapatra, Dushmanta Kumar Das</i>	
Modeling and Simulation of On-Board Charger for Electric Vehicles	634
<i>Anvesh Domakonda, Karuppiah Natarajan, Rajalingam Sakthivilsamy</i>	
Intelligent Surveillance System with Mask Detection and Temperature Monitoring.....	639
<i>R Sivapriyan, N Pavan Kumar, CV Mohan, N Sakshi</i>	
Convolutional Neural Network Based Fault Detection for Transmission Line	645
<i>Anshuman Bhuyan, Basanta K Panigrahi, Kumares Pal, Subhendu Pati</i>	
A Wind Diesel Hybrid System Simulation for Power Generation Using PMSG	649
<i>Uliya Mitra, Anoop Arya, Sushma Gupta</i>	
Indoor PV System for IOT Applications with Battery Charge Microcontroller.....	655
<i>Jacob John, Anna Merine George, Ciji Pearl Kurian</i>	
Prediction of Cryptocurrency Prices Using Transformers and Long Short Term Neural Networks	660
<i>Ayush Tanwar, Vinod Kumar</i>	
Deep Neural Network-Based Single Object Tracking.....	664
<i>Shiv Kumar, Sandeep Kumar Singh</i>	
Analysis of Cell Balancing Techniques in BMS for Electric Vehicle.....	670
<i>Amar Nath, Bhooshan Rajpathak</i>	
A Framework for Weed Detection in Agricultural Fields Using Image Processing and Machine Learning Algorithms	676
<i>Balajee Maram, Smritilekha Das, T Daniya, R Cristin</i>	
Improving Indoor Occupancy Estimation Using a Hybrid CNN-LSTM Approach	682
<i>E Ramanujam, Arpit Sharma, J Javid Hussain, Thinagaran Perumal</i>	
Estimation of Weibull Parameters by Different Methods for Assessment of Wind Energy Potential.....	687
<i>Mansi Mangroliya, Ramani Bhoomi, Sravankumar Jogenuri, D.K Vyas</i>	
Power Quality Enhancement Based on a Recursive Digital Filter by Using Cascaded Distributed Grid-Solar PV System	693
<i>Gundreddy Chaithanya, L Shanmukha Rao, Kancherla Pavani Priya, Chaitanya Siva Nagaraju Polepalli, Alakunta Vikash</i>	
Improved Power Quality SOGI Based Grid Integrated PV System Under Abnormal Conditions by Using Interweaved GI.....	699
<i>Guru Bhavani Naga Santhoshi Lala, L Shanmukha Rao, P Bhavani Shankar, K Naga Venkata Sravani, J Lokesh</i>	
Performance and Stability Improvement of Fractional Order RC-Phase Shift Oscillator	705
<i>Sumit Swain, Rohit Meher, Madhab Chandra Tripathy, Sribatsa Behera</i>	
Weather Prediction Using Machine Learning Algorithms	711
<i>Aiswarya Shaji, A.R Amritha, V.R Rajalakshmi</i>	

Solar Irradiance Forecasting Using an Artificial Intelligence Model	716
<i>Pravat Kumar Ray, Anindya Bharatee, Pratap Sekhar Puhan, Sourav Sahoo</i>	
Predicting the Monthly Average Incident Shortwave Solar Energy for Hubli, India by Using Training Functions in ANN	721
<i>S Lakshmi Prasanna, Kumaresha Pal, Debesha Mandal</i>	
BLDC Motor Driven Solar Powered Air-Cooling System.....	725
<i>B Thanya Narayane, A Lavanya, P Thevamudhan, Muhammed Arshad Javad, M Vijayalaxmi</i>	
Adversarial Attacks Against Machine Learning Classifiers: A Study of Sentiment Classification in Twitter	730
<i>K S Elisha Mary, Sruthy Sudhan, A G Hari Narayanan</i>	
PV and BESS Integration in Radial Distribution Network Using Dragonfly Algorithm	736
<i>Sigma Ray, Kumari Kasturi, Manas Ranjan Nayak</i>	
Performance Evaluation of Four Meta-Heuristic MPPT Algorithms for a DC-DC Converter Based PV System Under Dynamic Weather Conditions (DWC)	742
<i>Vinay Kumar, Yash Dagar, Prakash Chittora</i>	
Comparative Study of Butterfly and Firefly Optimization Algorithm Based Maximum Power Point Tracking for Photovoltaic Systems.....	748
<i>P Thevamudhan, M Vijayalaxmi, S Nivedha</i>	
Study on Impact of Power System Inertial Stability by Renewable Energy Sources	754
<i>Sweety Kumari Yadav, S.T Nagarajan</i>	
Power Quality Improvement Using Different Control Techniques in Hybrid Filters.....	760
<i>Tapas Kumar Panigrahi, Soumya Ranjan Das, Rajasri Tripathy</i>	
A Graph-Theoretic Approach to Assess the Power Grid Vulnerabilities to Transmission Line Outages.....	765
<i>Samita Rani Pani, Rajat Kanti Samal, Pallav Kumar Bera</i>	
Design and Economic Optimization of Community Load Based Microgrid System Using HOMER Pro	771
<i>Jyoti Ranjan Baral, Smruti Ranjan Behera, Twinkle Kisku</i>	
OTP Based Authentication Model for Autonomous Delivery Systems Using Raspberry Pi	776
<i>S Soja Rani, Shreya Pradeep, Rahul Musaliyah Dinesh, Shivanand G Prabhu</i>	
Fault Diagnosis in PV System Using DWT and Ensembled k-NN Machine Learning Classifier.....	781
<i>S Ramana Kumar Joga, Chidurala Saiprakash, Alivarani Mohapatra, Pampa Sinha, Byamakesh Nayak, M K Maharana</i>	
A Comprehensive Analysis of Induction Motor Direct Torque Control for Electric Vehicle Applications.....	786
<i>Anjan Kumar Sahoo, Ranjan Kumar Jena</i>	
A Multi Objective Approach for Optimal Design of Solar/ Wind/ Biomass/ Battery-Based Grid Connected Microgrid System	791
<i>Yadala Pavankumar, Ravindra Kollu, Sudipta Debnath, Subrata Paul</i>	
Solar Irradiance Forecasting Using FFNN with MIG Feature Selection Technique	797
<i>Kamireddy Rahul Reddy, Pravat Kumar Ray</i>	

Hardware Designing of Automatic Changeover for Single Phase Load.....	802
<i>Ankur Kumar Gupta, Rishi Kumar Singh, Uliya Mitra</i>	
Hybrid Multiple Filter Embedded Political Optimizer for Feature Selection.....	808
<i>Bibhuprasad Sahu, Amrutanshu Panigrahi, Saroja Kumar Rout, Abhilash Pati</i>	
Prediction of COVID-19 Through Chest X-Ray Images Employing Various Machine Learning Techniques.....	814
<i>Shaik Khasim Saheb, B Narayanan, Thota Venkat Narayana Rao</i>	
Frequency Regulation Scheme for PV Integrated Power System Using Energy Storage Device	819
<i>Balvinder Singh, S K Bishnoi, Mandeep Sharma</i>	
Hybrid Array Configurations to Reduce Mismatch Loss of a PV Array Under Partial Shading Conditions	826
<i>Chidurala Saiprakash, Alivarani Mohapatra, Abhranil Manna, Arindam Nandi</i>	
Impact on Electrical Distribution Networks with the Integration of Shunt Capacitor Model Using Exhaustive Search Based Load Flow Algorithm.....	832
<i>Joseph Sanam, Yenimireddy Venkata Rajeswari, Eeda Uma Sri, Kajjam Harsha Spandhana, Chandu Bhavana Laxmi, Nandhiraju Gayathri</i>	
Voltage Mode Control of Buck Converter Using Practical PID Controller	837
<i>Dayyala Ravi, Arnab Ghosh</i>	
Face Detection Using Artificial Neural Network and Wavelet Neural Network.....	843
<i>Kumares Pal, Ashok Kumar Akella, Kumari Namrata, Subhendu Pati</i>	
Power Flow Analysis of Power Distribution System Integrated with Solar Photovoltaic Based Distributed Generation	848
<i>Shubham Kumar Saw, H Girisha Navada, K N Shubhangna</i>	
Harmonic and TIF Analysis in Distribution System with Integration of PV and Wind Systems	854
<i>Arnab Ari, Aashish Kumar Bohre</i>	
Stationary Object Detection Using RetinaNet and Kalman Filter	860
<i>Kunapaneni Sai Ajay Kumar, Yanamala Maneesha Reddy, Kilaru Babji, Chitturi Sai Naveen Kumar, Man Pawan Aditya, Dinesh Naraharasetty, Usha Kumari, Shuvendu Rana</i>	
Energy Management of a DC Microgrid for Its Voltage and SOC Regulation	866
<i>Lakavath Tejaswini, Pravat Kumar Ray, Anindya Bharatee</i>	
Design of a Digitally Controlled Two-Phase Interleaved DC-DC Boost Converter for DC Microgrid.....	871
<i>Moumita Pramanik, Tuhin Kumar Barui, Hiranmay Samanta, Konika Das Bhattacharya, Chandan Kumar Chanda, Hiranmay Saha</i>	
Energy Management and Control of Grid-Connected Microgrid Integrated with HESS	877
<i>Shreyank Dutt Dwivedi, Pravat Kumar Ray</i>	
Dimensionally Reduction Based Machine Learning Approaches for Code Smells Detection	883
<i>Seema Dewangan, Rajwant Singh Rao, Pravin Singh Yadav</i>	
Secure Virtual Machine Allocation for Prevention of Side Channel Attacks in Cloud Computing	887
<i>Chinmayee Rout, Srinivas Sethi, J Chandrakanta Badajena, Ramesh Kumar Sahoo</i>	

Energy Trading in Prosumer Based Smart Grid Integrated with Distributed Energy Resources	893
<i>Krishna Mohan Boddapati, Nita R Patne, Ashwini D Manchalwar</i>	
Prediction of Indian Government Stakeholder Oil Stock Prices Using Hyper Parameterized LSTM Models.....	898
<i>Aditya Kumar Singh, Joyjit Patra, Monalisa Chakraborty, Subir Gupta</i>	
Effect on Coil Voltage by Varying the Size of Galfenol in Magnetostrictive Energy Harvester	904
<i>Subhashis Dey, Shamik Dasadhikari, Cherosree Dolui, Debabrata Roy</i>	
An Empirical Analysis of Naïve Bayes, SVM, Logistic Regression and Random Forest to Spot False Information in Real-World Networks	909
<i>Deepjyoti Choudhury, Tapodhir Acharjee</i>	
Deepfake Audio Detection with Neural Networks Using Audio Features	915
<i>Abu Qais, Akshar Rastogi, Akash Saxena, Arpit Rana, Deependra Sinha</i>	
A Solar-PV/BESS Powered Multi-Input DC-DC Boost Converter Fed BLDC Motor Drive	921
<i>Anandamani Sanam, L.Sharmukha Rao, Raveli Kommineni, Sony Shaik, Vijaybabu Regulagadda, Govinda saiakhil Doddi</i>	
Detection of Ventricular Fibrillation by Combining Signal Processing and Machine Learning Approach	927
<i>Soumik Kundu, Subhankit Prusti, Samarjit Patnaik</i>	
Measurement of Resistivity of Soil with Moisture Level and a Frequency Function.....	933
<i>Amireddy Sainath Reddy, K Chandrasekaran</i>	
Performance Analysis of a Solar Energized Air-Conditioning System.....	938
<i>Shikha Singh, Shubham Mishra</i>	
Maximum Power Generation from Solar Panel by Using P & O MPPT.....	943
<i>Rahul Kumar Sahu, Arnab Ghosh</i>	
Dynamic Stability Improvement of a Micro Grid System by Optimized PSS Controller	947
<i>Narayan Nahak, Rajeev Kumar Singh, Subrat Parida, Samarjeet Satapathy, Pravati Nayak</i>	
Structured Compression-Sensing Method for MIMO-OFDM in ITU_VB and DVB_T2 Channels	953
<i>P.N Jayanthi, Supriya K Patel, Prakash Biswagar</i>	
Impact on Voltage Profile and Power Loss in Electrical Distribution Networks with the Integration of DG Using Exhaustive Search Based Load Flow Algorithm	959
<i>Joseph Sanam, Pabbisetty Aaryani Nagasri Vasavya, Burramsetti Venkata Hema Syamala Lakshmidevi, Arthimalla Bhavanika, Sannidhi Rupa Venkata Sai Lakshmi, Keerthi Reddy Challa</i>	
Matrix Pencil Method Based Oscillation Monitoring - A Case Study in 240-Bus WECC Test System	965
<i>Karan Katariya, Ashok Kumar Pradhan, Prabodh Bajpai</i>	
Classification of Fault Using Artificial Neural Network and Power Quality Improvement Using DVR in a PV Integrated Hybrid Power System	971
<i>Kumares Pal, Ashok Kumar Akella, Kumari Namrata, Subhendu Pati</i>	
Protection Study in 9-Generator Power System Under Grid-Connected Mode of Operation	975
<i>Shanti S Rath, Prakash K Ray, Gayadhar Panda, Aishwarya A Jena, Suvendu M Baral, Rachita R Sarangi, Asit Mohanty</i>	

Protection Coordination of Distributed System with Distributed Generation	980
<i>Hitesh Agarwal, J.N Rai</i>	
Application of Optimization Techniques for Temperature Control of Surface Condenser	986
<i>Sweta Panda, Tapas Kumar Panigrahi, Soumya Ranjan Das, M Uma Maheswar Rao</i>	
Evaluation of MPPT Algorithms for PV System Under Partial Shading Conditions.....	991
<i>Divya Shetty, N S Jayalakshmi, M Arjun, Poojashree Hebbar</i>	
Design of Smart Building System and Monitoring Using IoT	997
<i>Theddu Srihari, Merugu Venkat Sai, N Srinivas</i>	
SHO Algorithm Based PID Controller for Automatic Generation Control of Multiarea Multiunit Power System with Renewable Energy Source	1003
<i>Nimai Charan Patel, Sujesh Kumar Yadav, Sunil Kumar Yadav, Partha Sarathi Pradhan</i>	
Geospatial Clustering: Methods, Applications and Future Directions	1009
<i>Akshat Sahay, Adarsh Pandit, Minakhi Rout, Rabindra K Barik</i>	
Load Frequency Control in Two Area Interconnected Hydro-Thermal Power System Utilizing ALO Based FPI Controller.....	1014
<i>Nimai Charan Patel, Karisma Mohanty, Bhabatosh Giri, Subash Kumar Ekka</i>	
Evolving Fault Detection Algorithm for Transmission Line Protection.....	1020
<i>Anup Kumar, Himanshu Sharma, Ram Niwash Mahia</i>	
A Solar-PV Integrated Novel Reduced-Switch UPQC Device for Power-Quality Improvement	1026
<i>Sai Venkat Vemala, L.Shanmukha Rao, Teja Yarroju, Sai Kiran Utsa, Subhani Shaik</i>	
Design of Novel Non-Isolated Modified SEPIC Converter Based Onboard PEV Charger.....	1032
<i>Ramu Vanapalli, M.V.Narasimha Murthy, L.Shanmukha Rao, Bharath Kolduri, Divya Jonnalagadda, Vidyadar Rao Ithamraju</i>	
Analysis of Gate Oxides in LDMOS for Radiation Hardening Against SEGR.....	1038
<i>Jayadev Pavuluri, Sanjeev M Ranjan, Alok Naugarhiya</i>	
Compact Switched-Capacitor Boost Active-Neutral-Point-Clamped Multilevel Inverter	1044
<i>Racharla Saikiran, Sanagapalli Srinivas, Kaibalya Prasad Panda, V Sandeep</i>	
Hybrid FA-GA Controller for Path Planning of Mobile Robot.....	1050
<i>B K Patle, Nitin Pagar, D R.K Parhi, Sudarshan Sanap</i>	
Quadcopter Control Using Different Controllers	1056
<i>Rohit Khandait, Vasant Kumar, Vivek Bhurse, Vivek Tiwari, Swapnil Khubalkar</i>	
Differential Protection of Single-Phase Transformer Using LabVIEW	1062
<i>Ranjith kumar Gatla, A Satish Kumar, P Sridhar, Devineni Gireesh Kumar, D.S Naga Malleswara Rao</i>	
Compact Quadruple Boost Switched Capacitor Multilevel Inverter	1066
<i>Chintapalli Venu, Srinivasa Shyam Praneeth Mamillapalli, Kaibalya Prasad Panda, V Sandeep</i>	
A Novel Multi-Objective Based Optimal Reconfiguration of a Distribution Network by a Closed Switch Heuristic Method	1072
<i>Alan Sam, Suyash Sanjay Daraskar, Harsh Vardhan Gotham, Sumanth Pemmada, Nita R Patne</i>	

IoT Based Smart Grid Communication with Transmission Line Fault Identification.....	1077
<i>Achhi Pradyumna, Sai Madhav Kuthadi, A Ananda Kumar, N Karuppiah</i>	
Automatic Voltage Regulator Using Global Optimization Algorithms Based on Traditional Controller	1082
<i>Gundala Srinivasa Rao, Ch.Naga Sai Kalyan, CV Vijay Kumar, B Srikanth Goud, M Kiran Kumar, Ch Rami Reddy</i>	
Internet Activity Forecasting Over 5G Billing Data Using Deep Learning Techniques	1087
<i>Vaibhav Tiwari, Chandrasen Pandey, Diptendu Sinha Roy</i>	
Island Detection Based on Voltage Ratio and Artificial Neural Network for Inverter-Based Distributed Generation	1091
<i>Ashutosh Mohanty, Bidyadhar Rout</i>	
Development and Testing of V-8 Electromagnetic Engine	1097
<i>Vraj Patel, Jayant Vagaiyani, Rushikesh Nayi, Dhaval Sagar, Jay Rakholiya, Sathish Dharmalingam</i>	
Design and Analysis of a Simplified Non-Isolated Bidirectional DC-DC Converter for Energy Storage Systems	1102
<i>Gaurav, Nakka Jayaram, Sukanta Halder, Kaibalya Prasad Panda, P S V Kishore</i>	
Protection and Relay Coordination Study in Solar Photovoltaic Integrated Hybrid Power System	1108
<i>Aishwarya A Jena, Suvendu M Baral, Shanti S Rath, Prakash K Ray, Ajit Kumar Barisal, Rachita R Sarangi, Asit Mohanty</i>	
A Generalized Single Phase Cascaded Modular Multilevel Inverter Based on Inter and Intra Module Configurations.....	1114
<i>Raghavendra Reddy Karasani, Abhiram Tikkani</i>	
Performance Improvement of PID Controller for PMSM Using ANFIS Controller	1120
<i>Abhishek Saware, Navdeep Gavkar, Shubham Shinde, Priyanka Kulkarni</i>	
Coordinated Synthetic Inertia Control Provision from Distributed Energy Resources and Energy Storage Systems	1126
<i>Sumit Nema, Vivek Prakash, Rohit Bhakar, Hrvoje Pandžić</i>	
Comparative Analysis to Emphasize on Islanding Detection Techniques in Integrated Distributed Generation System	1131
<i>Indu Bhushan, Subhash Chandra</i>	

Author Index