

2022 International Virtual Conference on Power Engineering Computing and Control: Developments in Electric Vehicles and Energy Sector for Sustainable Future (PECCON 2022)

**Chennai, India
5 – 6 May 2022**



**IEEE Catalog Number: CFP22BU2-POD
ISBN: 978-1-6654-8593-7**

**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:	CFP22BU2-POD
ISBN (Print-On-Demand):	978-1-6654-8593-7
ISBN (Online):	978-1-6654-8592-0

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

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Design of SRM Based Powertrain for E-Rickshaw Application	1
<i>S. Rani, R. Jayapragash</i>	
A Comprehensive Study on the Impact of Artificial Intelligence in Autonomous Vehicles	7
<i>A. Balasundaram, Manas Ranjan Prusty, Ayesha Shaik</i>	
Performance of ECC Algorithm Using Game Theory for Aadhaar Card	12
<i>R. Felista Sugirtha Lizy, V. Joseph Raj, K. Balasubramanian</i>	
Comparative Analysis of Asymmetric Cascaded H Bridge Multilevel Inverter with Control Topologies	18
<i>G. Ratnaiah, G. Ramya</i>	
LOT Based Hazardous Gas Detection & Control	24
<i>S. Krithiga, A. R. Kalaiarasi, T. Deepa, S. Angalaeswari, D. Subbulekshmi</i>	
Investigation of Potential Benefits and Challenges of Using Gravity Energy Storage in Residential Sectors	29
<i>Laya M. A. Al-Hilfi, Stella Morris, A. Peer Fathima, Morris Ezra</i>	
OPTIMAL PLACEMENT and SIZING of DG and D-STATCOM in a DISTRIBUTION SYSTEM: A REVIEW	35
<i>Suma Deepthi Veeraganti, A. Mohamed Imran</i>	
A New Energy-Efficient Ohmic Heating Based Instant Rice Preparation	48
<i>S. Vijayalakshmi, R. Sridhar, J. Reka, M. Marimuthu, D. Lakshmi, M. Nethra</i>	
Intelligent PSO- PID Controller Based Maximum Power Point Tracking (MPPT) for Photovoltaic System	54
<i>I. M. Mustafa Eltigani, Uma Nangia</i>	
Comparison of Sliding Mode Controllers on a DFIG-Wind Turbine Generator for Improving LVRT	60
<i>Ravikiran Hiremath, Tukaram Moger</i>	
Solution to Linear Programming Patterns Using Machine Learning	64
<i>V. Joseph Raj</i>	
Reducing Grid Dependency and Operating Cost of Micro Grids with Effective Coordination of RES and EV Storage	67
<i>Arava Sudhakar, B. Mahesh Kumar</i>	
OPTICAL CHARACTER RECOGNITION FOR VISUALLY CHALLENGED PEOPLE WITH SHOPPING CART USING AI	73
<i>S. Samundeswari, V. Lalitha, V. Archana, K. Sreshta</i>	
A Simple Number Plate Detection Technique with Support Vector Machine for On-Road Vehicles	78
<i>K. Anusha, S. Nachiyappan, M. Braveen, K. V. Pradeep, Siva Reshma Yarlagadda</i>	
Analysis of Slope and Azimuth Angle of Solar Panel with Different Solar Trackers	84
<i>S. Vinoth John Prakash, P. K. Dhal</i>	
Hybrid Activation Function in Deep Learning for Gait Analysis	90
<i>P. Privietha, V. J. Raj</i>	

OPTIMIZATION OF SOLAR ENERGY SYSTEM FOR CHARGING OF EV AT AN INSTITUTION CAMPUS.....	95
<i>T. Praveen, J. Nishanthy, S. Charles Raja, S. Arockia Edwin Xavier</i>	
Monitoring and Saving Humidity & Temperature Through the Internet of Things	100
<i>S. Vijayalakshmi, M. Marimuthu, B. Paranthagan, V. Sathish Kumar, S. Sanjay, A. Vikash</i>	
TWO-STAGE VOLTAGE REGULATOR FED VOLTAGE CONTROL USING PIC MICRO CONTROLLER.....	106
<i>S. Vijayalakshmi, S. Magibalan, M. Marimuthu, S. Emmanuvel, M. Dinesh, B. Paranthagan, V. Gokul</i>	
Malware Identification in Advanced Interconnects on SOC	112
<i>Galle Sangeeth, D. Jayanthi, Raji Krishna, P. Ilanchezhian, D. S. Shylu Sam</i>	
Review and Analysis of Techniques to Mitigate Sub Synchronous Resonance Using FACTS Devices	119
<i>G. Ramya, P. Suresh, J. Jayashree, A. Antony Charles, T. Daniya</i>	
A Comprehensive Analysis on the Performance of SiC and GaN Devices.....	123
<i>Ranjeeta Patel, Babita Panda, Snehalika, Prajna Dash</i>	
Modeling a Series Topology for 27-Level Multilevel Inverter with Reduced Number of Switches and Voltage Sources	128
<i>Lipika Nanda, Babita Panda, Aman Sharma, Arjadhara Pradhan, Chitrlekha Jena, Sudip Nandi</i>	
An Optimized MPPT Method for PV System with Fast Convergence Under Rapidly Changing of Irradiation	134
<i>G. Vijayakumar, M. Sujith, S. Saravanan, Dipesh B. Pardeshi, M. A. Inayathullaa</i>	
Electric Vehicle Charging Using a Bidirectional DC-DC Converter and an ANFIS Controller	138
<i>Aman Chaudhary, Akash Sirra, Shailesh Singh Dhanganal</i>	
A Review on LVRT and HVRT Requirements and Enhancement Methods for DFIG Wind Turbines in INDIA	144
<i>Kambam Gireeshma, S. Chandramohan</i>	
CNN Trained Speaker Recognition System in Electric Vehicles	150
<i>Pavani Budiga, B. Bhavana, Gourimahadevi Gunisetty, Nalini Devi Moka, G. V. Subba Reddy</i>	
Hybrid Control Algorithm for BLDC Drive Involving Battery and Supercapacitor in E-Bikes	156
<i>S. Vishnu, Abinash Dash, P. S. Praveena Krishna, M. Arjun, N. S. Jayalakshmi</i>	
SOLAR ENERGY MONITORING SYSTEM (SEMS).....	162
<i>Dipen Dutta, Suvashis Das Arpan, Tarak Hossain, Shamim Al Mamun, Daman Kumar Shah, Sachin Mishra</i>	
Gesture Control Integrated Wheelchair	166
<i>M. Nirmala, S. Pranesh, T. Kavin, Raja V. Kavin</i>	
28.81 % Efficient, Low Light Intensity and High Temperature Sustainable Ultra-Thin IBC Solar Cell	172
<i>M. Mahfuzur Rahman, Amirjan Bin Nawabjan</i>	
Energy Storage System with Artificial Neural Networks Using PI Hybrid Controllers.....	178
<i>Tushar Aggarwal, Sarthak Thareja, Shwetang Bahadur, Janardan Prasad Kesari</i>	

A Novel Supercapacitor Assisted Regenerative Braking Scheme for Electric Vehicle	185
<i>V. Muralidharan, R. Narayanan, J. Nithish, J. L. Febin Daya</i>	
Performance Analysis of State of Charge Estimation Techniques for Two-Wheeler Electric Vehicles	192
<i>Pragya Tyagi, L. Padmavathi, Anand Abhishek</i>	
An Improved Version of Analyzing Detailed Model of Type-4 Wind Turbine Generator Using PSCAD/EMTDC	197
<i>Sai Geetha Lakshmi Valluru, Devika Rani Mothukuri, P. Muthukumar</i>	
Performance Assessment of Grey Wolf Technique for AGC of Multi-Source Intertied System	202
<i>Ahmed Nura Mohammed, Shamik Chatterjee</i>	
Modeling of Two-Phase Polyvinylidene Fluoride Polymer-Based Nanocomposites for Energy Storage	208
<i>Ritanjali Behera, K. Elanseralathan</i>	
Voltage Dependent Load Models for EV Chargers to Improve the Accuracy of Grid-Impact Studies	212
<i>Arjun Visakh, M. P. Selvan</i>	
12-Pulse Power Inverter with Fixed Switching Angle for Grid-Connected PV Array	218
<i>B. Vishnu Priya, D. R. Binu Ben Jose, Asima Singh</i>	
Model Predictive Control of Dual Active Bridge DC-DC Converter Based on PWM Plus TPS Modulation for Automotive Applications	223
<i>Trupti Hagawane, M. R. Sindhu, Rohit Patankar</i>	
Intelligent Load Management of a Grid Integrated Microgrid System Using Icos ϕ Controller	229
<i>R. Divya, Anjana Anilkumar, Manjula G. Nair</i>	
Performance Analysis of Adaptive Integrated Power Conversion System for Electric Vehicles	235
<i>P. Arunkrishna, C. A. Asha, P. K. Preetha</i>	
A Neural Network Based Hybrid Energy Storage System Connected to a DC Standalone PV System	240
<i>R. Pallavi Mohan, R. S. Sreelekshmi, Manjula G. Nair</i>	
Optimal Scheduling and Sizing of Energy Storage System Using Hybrid Algorithm for Electric Vehicles	245
<i>S. Dhivya, R. Arul, S. Maheswari, R. Kanimozhi, N. Karthik</i>	
A Survey on Controlling Techniques Employed in Microgrid	250
<i>A. Vivekanandhan, P. Rathi Devi, P. Sivakumar, S. Vijayalakshmi, G. Sundararajan, P. John Britto, S. Karthikeyan</i>	
Simulation and Analysis of Proposed Technique for BLDC Motor Drive Running on Deduced Hall Sensor Equivalent Signals	256
<i>Kamma Ranjani, Mini Sreejeth</i>	
Experimentation Methodology of Orthogonal Frequency Division Multiplexing Signals Process Using Radio Over Fiber (RoF) System	262
<i>A. Sathishkumar, Sankararao Majji, Tulasi Radhika Patnala, Santoshachandra Rao Karanam, Ashok Kumar, Mula Malyadri</i>	

Smart Energy Management System for University Campus Using Sine-Cosine Optimization Algorithm	267
<i>Irshad Hussain, Ibrar Ullah, Ramar Ramalakshmi, Tanzila, Muniba Ashfaq, D.-E. Nayab</i>	
A More Efficient Induction Machine Based on Hill Climbing Local Search Optimization	273
<i>R. Srimathi, P. Ponmurugan, Atif Iqbal, V. Kamatchi Kannan, M. Lakshmanan, E. S. Nadin</i>	
A Comparative Analysis of Power Generation Using Solar and Fuel Cell for Charging EVs	279
<i>B. Tejesh, G. Udaya Baskar, B. Nanda Krishna, K. Deepa, P. V. Manitha, V. Sailaja</i>	
High Resolution MP Based Electro Thermal Modelling of PV Inverter for Junction Temperature Estimation.....	284
<i>Sainadh Singh Kshatri, Javed Dhillon, Sachin Mishra</i>	
Comparative Performance Evaluation of PV Configurations Under Various Shaded Conditions	291
<i>Asadi Suresh Kumar, Vyza Usha Reddy</i>	
IOT Enabled Smart Inverter for Rural Applications	295
<i>R. Pradyumna, N. Kaushik Raja, M. C. Akash, J. Meenakshi, Nilanjan Tewari</i>	
Wind Turbine Power Output Forecasting Using Artificial Intelligence	301
<i>Tejas Bhardwaj, Sumit Mehenge, B. Sri Revathi</i>	
Application of V2V Energy Sharing in Electric Vehicles with Source Switching	306
<i>Yawar Badri, Suresh Kumar Sudabattula, Ikhtlaq Hussain</i>	
Time Series Analysis and Forecasting of Wind Turbine Data	312
<i>P. Sriramalakshmi, V. Subhasree, Srimathnath Thejasvi Vondivillu, L. Sanjeev Prakash</i>	
A PMU-Based Protection Relay in the Presence of STATCOM	321
<i>Kiruthiga Manoharan, Somasundaram Periasamy, Kumudini Devi Raguru Pandu</i>	
Physically Secure and Privacy Preserving Blockchain Based Authentication Scheme for IoT Enabled Farms.....	327
<i>S. Jegadeesan, S. Kaviya Dharshini, M. Jeevitha, R. Saranya</i>	
Design and Development of a 3.2 kW Wireless Battery Charger for an Electric Vehicle with a High-Frequency Full-Bridge Converter Using ANSYS Simplorer	334
<i>Abhishek Ranjan, Prabhat Ghosh, Utkarsh Alset, Hrishikesh Mehta</i>	
Design and Development of a 3.2 kW Wireless Battery Charger for an Electric Vehicle with a High-Frequency Full-Bridge Converter Using MATLAB Simulink.....	338
<i>Abhishek Ranjan, Prabhat Ghosh, Utkarsh Alset, Hrishikesh Mehta</i>	

Author Index