

International Virtual Conference on Robotics, Automation, Intelligent Systems and Energy (IVC RAISE 2020)

IOP Conference Series: Materials Science and Engineering
Volume 1055

Online
15 December 2020

Part 1 of 2

Editors:

**S. Shankar
Sundararajan Natarajan
K. Ponappa**

ISBN: 978-1-7138-4570-6
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

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
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PART 1

Preface	
Peer review declaration	
Snake Robots for Rescue Operation	1
<i>V Arun Kumar, B Adithya, P T Bijoy Antony</i>	
Autonomous Underground Water Detection Robot	10
<i>Rahul Krishnan, R Ganesh Babu, K Lalitha, S Vanaja, Keren Naomi Devnesh</i>	
Autonomous Robotic Exploration and Navigation System using Tri-layered Mapping and Geometrical Path Planning Techniques	16
<i>S Gowtham, R Praveen, M Parthiban, P Sai Charan, N Seenu, RM Kuppan Chetty</i>	
Infobot: An Autonomous System for Offline Shopping.....	29
<i>A Balaji, R Ragunathan, R Rithic Sai, V Nithya</i>	
Design and Analysis of six DOF Robotic Manipulator.....	36
<i>V G Pratheep, M Chinnathambi, E B Priyanka, P Ponmurugan, Pridhar Thiagarajan</i>	
Detection of fire prone environment using Thermal Sensing Drone	46
<i>N Nithyavathy, S Arun Kumar, D Rahul, B Satheesh Kumar, E R Shanthini, C. Naveen</i>	
Development of High Yield Farming using IoT based UAV	55
<i>C Bhuvaneshwari, G Saranyadevi, R Vani, A Manjunathan</i>	
Design of Autonomous Vehicle Control using IoT	60
<i>A Manjunathan, A Suresh Kumar, S Udhayanan, C Thirumarai Selvi, Albert Alexander Stonier</i>	
Robust Design of Automatic Sheet Fixing System for Metal Roofing.....	65
<i>A Balaji, R Rithic Sai, J Jason Gousanal, J Mithil</i>	
Design and fabrication of fresh juice vending machine for commercial applications	73
<i>M.J Rooshan, S. Shankar, R. Nithyaprakash</i>	
Monitoring and Automatic Control of various Parameters for Mushroom Farming	82
<i>M Suresh, M Srinivasan, S Gowri Shankar, D Karthikeyan, V Nakhul, A Naveen Kumar, S Sundar, P Maniraj</i>	
A Review on the Mechanical Properties of the Green Concrete	88
<i>T S Mukesh, K Sampathkumar, V Kisshore</i>	
Experimental Investigation on Enhancing the Strength of Porous Concrete by adding Polypropylene Fiber	93
<i>T S Mukesh, K Sampathkumar, C Muthuselvi, M Ranjith, S Nithesh Kumar</i>	
Exergy analysis of forced convection solar flat plate collector using different working fluids.....	99
<i>T Rajagopal, N Prasanna, S Ajay, A Yazharasu, K Aranganathan</i>	

IoT Based Well-organized Hostel Power Consumption and Attendance Administration System	106
<i>V Geetha, V Anbumani, T Selvi, C S Sindhuja, S Vanathi</i>	
Development of Cloud-Based Agriculture Marketing System with Intellectual Weigh Machine.....	115
<i>V Anbumani, V Geetha, V Praveen Kumar, D Sabaree, K Sivanantham</i>	
Manufacturing methods of healthy and edible cups - An integrative review	124
<i>K V Satheesh Kumar, S Vikram, S J Vigneswaran, C T A Sudhanhari</i>	
Treatment possibilities of electrical discharge non-thermal plasma for industrial wastewater treatment - review.....	143
<i>Ramya Suresh, Baskar Rajoo, Maheswari Chenniappan, Manikandan Palanichamy</i>	
Characteristics of Polymer Modified Reclaimed Bitumen and Aggregate as a Sustainable Pavement Material	158
<i>S. Geetha, M. Selvakumar, S. Muthulakshmi</i>	
Automatic Barrier Control in the Zebra crossing of Roads for Pedestrian Safety	167
<i>S J Suji Prasad, P Yugananth, R Kumaravelan, R Suresh Kumar, V Aravindan, VA Harish, S Janani, S D Kausika</i>	
Design and Fabrication of Octopod for Survey and Rescue Operation.....	173
<i>V Arun Kumar, B Meenakshipriya, P T Bijoy Antony, B Adithya, M Hari Vikinesh</i>	
Validation of Point Source Models for Determining Industrial Pollution and Integrating with IOT for vulnerability management.....	181
<i>M. Selvakumar, V. Prasannakumari, S. Geetha, S. Muthulakshmi</i>	
Source localization for underwater acoustics using esprit algorithm	188
<i>N. Kasthuri, S. Balambigai, S. Yuvashree</i>	
Strength characteristics of banana and sisal fiber reinforced composites.....	196
<i>S Vidya Bharathi, S Vinodhkumar, M.M Saravanan</i>	
Automatic Control of Masecuite Temperature in the Sugar Processing Industry	204
<i>C Aravind, S J Suji Prasad, J Aarthi, L Aruna, M Lavanya, T Madhan Kumar</i>	
LABVIEW Based Simulation on Welding Seam Tracking Using Edge Detection Technique	211
<i>R. Parameshwaran, C. Maheswari, N. Nithyavathy, R. Rishab Govind, N. Selvakumar, V. Robin Deva Dharshan, M. Vasanth</i>	
A Review on Fiber Reinforced Concrete using sisal fiber	220
<i>M.P Iniya, K Nirmalkumar</i>	
Experimental investigation on pullout capacity of model pile in Cohesionless Deposits	229
<i>K Raja, J M Hasan Abdul Kader, S Hariswaran</i>	
Machine Vision based quality inspection for automotive parts using edge detection technique.....	237
<i>R Kiruba Shankar, J Indra, R Oviya, A Heeraj, R Ragunathan</i>	
Image recognition based billing system for fruit shop using raspberry PI	247
<i>A Vennila, S Balambigai, G Deepa, M Ilakkia, P Harshikaa Devi, V Naagavignesh</i>	
Treatment of contaminated wastewater from Textile industry: A review	254
<i>V. Naveenraj, Prabakaran, P. Kulanthaivel</i>	

Automatic Turning ON/OFF Bike Indicator Using Offline GPS Navigation System.....	260
<i>S Usha, M Karthik, R Lalitha, M. Jothibas, T Krishnamoorthy</i>	
3D Printing Concrete: A Review.....	270
<i>A.R. Krishnaraja, K.V. Guru</i>	
Review on Online Monitoring and Control in Industrial Automation – An IoT Perspective.....	297
<i>C. Maheswari, A. Ajeesh Babu Perinchery, E.B. Priyanka, K.S. Ambika, S. Narmatha, A. Prenitha, M. Monisha</i>	
Condition Monitoring of 3D Printer Using Micro Accelerometer	305
<i>K. Gomathi, T. Ganesh, J. Bharanidharan, A.P. Arvindh Prajathkar, R. Aravinthan</i>	
Design and Fabrication of Low Cost 3D Printer	315
<i>K Gomathi, K R Arangamuthalvan, S Deepigkashri, C B Dharnieshwaran, S Dhivya, C Praveen</i>	
Smart Mulberry Plant Cutter	323
<i>R. Ranjith Kumar, T M. Navinkumar, P. Aravindh, T. Kavinesh, Y. Sathyanarayanan, P. Sedhumaadhavan</i>	
Natural Fibers in Concrete – A Review.....	330
<i>M Shadheer Ahamed, P Ravichandran, A.R Krishnaraja</i>	
Strength characteristics developed in cement stabilized soil.....	338
<i>K Raja, E Elakky, A T Manikandan, B Surya, M Nekila</i>	
Effect of Addition of Magnesium and Zinc to Obtain Optimal Mechanical Properties of Al-Mg-Zn Alloy.....	348
<i>Murtadha Mohsen Mottar Al-Masoudy, Luay Hashem Abbud, Haidar A.H. Al-Jubouri, Zainab Amer Sabri</i>	
Railway track tracer system for creature detection.....	359
<i>M Deepa, C G Raji, VA Ajina, Ashla, Afsal Azra, George Susanna</i>	
GIS Study on Impact of Urbanisation in Perundurai on Ground Water Quality	365
<i>K Santhoshkumaar, N Muralimohan, K Ponkalidass, S Naveenkumar, K Nirmal</i>	
Study on performance and emission characteristics of split injection CRDi engine fueled with orange peel oil and diethyl ether.....	372
<i>Somasundaram Periasamy, Jegadheesan Chinnasamy, Jeyaprakash Natarajan, Saravanan Ravirajan, Dhavaneeswaran Nagharajan</i>	
Design and Analysis of Bumper Beam and Energy Absorbers by Using Composite Materials.....	385
<i>Jegadheesan Chinnasamy, Somasundaram Periasamy, Vivekanandhan Chinnasamy, H. Prathip Kumar, S. Hariharan, A. Diwakar, B. Piruthiviraj</i>	
Study and Simulation of Autonomous Quadrotor Tracking a Pre-Defined Trajectory Using Matlab.....	398
<i>Jegadheesan Chinnasamy, Somasundaram Periasamy, Ajit Pal Singh, S Mohanesh, R Manikandan, L Gokul, S Deepak</i>	
Design and Development of Mobile AID for Muscular Dystrophy	409
<i>A Tony Thomas, K V Mahesh Kumar, S K Thangarasu, S Naveen Saravanan</i>	
Optimization of mechanical properties of ER-4043 specimens fabricated by WAAM process through Grey Relational Analysis	417
<i>A. Sirisha Bhadrakali, K. L Narayana, T Ram Prabhu, Y. Pratapa Reddy</i>	

Concept of Automated Agriculture - Auto Techno Farming.....	426
<i>R. Sharath Prasanna, V. Karthikeyan, M. Mohamed Armoon Shaliq, ARP Sarath</i>	
Design and Fabrication of a Multinomial Model for Machine Interference Problem	438
<i>D. Venkatesa Prabu, B. Meenakshi Priya, E.B. Priyanka, G. Kalaiarassan</i>	
A Detailed Survey on Improved Groundnut Harvest Automation System Using Wireless Sensor Network Technologies.....	448
<i>R Maneendhar, M Usha</i>	
Performance Analysis of Wi-Fi and LoRa Technology and its Implementation in Farm Monitoring System	455
<i>H Muthukrishnan, A Jeevanantham, B Sunita, S Najeerabanu, V Yasuvanth</i>	
Rheological properties of self compacting concrete with partial replacement of metakaolin in cement and plastic fibre.....	474
<i>M Arun Kumar, S Selvapraveen, P Dharani Prasath, R Bavithran, G Dhanabal</i>	
Development of peanut separator and thruster	481
<i>M Srinivasan, S Nithya Sai, Albert Alexander, N Prabhakaran, C Gokul, G Visalaxi</i>	
Review paper on material properties of high performance concrete	492
<i>M.P. Thiyaneswaran, L Revin Jenova, K.S. Navaneethan</i>	
An Analysis of the Impact of Automation on Supply Chain Performance in Logistics Companies	504
<i>N Andiyappillai</i>	
An experimentation on gravity influence in concentric tube heat pipe heat exchanger using various working fluids.....	519
<i>P Ram Kumar, M Sivasubramanian, C M Vivek, P Raveendiran</i>	
Design and Analysis of Two-Link Discrete Flexible Manipulator.....	533
<i>S Punniyawarthana, T Mohanraj</i>	
Design of Miniaturized Antenna Array for Microwave Imaging Application	545
<i>V Ramkumar, A Balaji, V Chinnammal, S Vanaja, C Malarvizhi</i>	
Investigation of Direct Delta Sigma Receiver for Modern Cellular Systems.....	553
<i>S. Manjula, M. Malleswari, A. Asha</i>	
Experimental investigation on behaviour of RC circular and square columns confined with natural fabrics	558
<i>T. Ravi Prakash, S. Balaji, S. Anandakumar, M. Vignesh</i>	
A low cost and user friendly vehicle crash alert system using arduino	569
<i>L Vijayaraja, R Dhanasekar, R Magesh Krishna, M Mahidhar, D Prakash, P Shashikumar</i>	
A cloud-based user recommender and e-governing system for public welfare	576
<i>Rupa Kesavan, K Meenakshi, L Vijayaraja, R Dhanasekar, P Dhilip Prasad, E Sim Stewart Itchiro</i>	
UWB Sierpinski Fractal Antenna for Breast Tumour Detection Using SAR.....	587
<i>J. Joselin Jeya Sheela, S. Rosaline, S Thanga Mugila, S Shanmathi Sri, V. Praveen Kumar</i>	
Exposure of Crash in Metal Foil Using UWB Antenna	594
<i>S.P. Vijaya Vardan Reddy, S. Vanaja, C. Malarvizhi, Rahul Krishnan</i>	

Wheeled wall climbing robot with suction chamber: A study on forces and moments for stability	602
<i>Sathish Eswaramoorthy, Florence Gnana Poovathy John</i>	
Frequency sextupling millimeter wave generation by using lithium niobate mach zehnder modulator without an optical amplifier	611
<i>P K Anand Prem, C Pranit Jeba Samuel, S Nagaraj, G R Subhashree, S Albert Alexander</i>	
Experimental Investigation for the usage of Diesel - Jatropha – Rice bran Biodiesel Mixture Blends in Four Stroke Diesel Engine.....	622
<i>K S Karthi Vinith, A Soundar, S Mahalingam, S Sujai, P K Guru Prasad</i>	
Design of prescriptive model using nano-enabled sensors for water treatment and precise drip irrigation	634
<i>N Anitha, R Devi Priya, C Baskar, D Jaikaran</i>	
A novel method for sample preparation of SMA spring for micro-structural studies	642
<i>R Santhanam, Y Krishna, M S Sivakumar</i>	
Detection & Defensive Approach for Primary User Emulation Attacking Cognitive Radio Network.....	651
<i>K. Gokulakrishnan, B. Kiruthiga, N. Jayapal, S.P. Karthi, Albert Alexander Stonier</i>	
Optimizing Wireless Multimedia Sensor Networks Path Selection using Resource Levelling Technique in Transmitting Endoscopy Biomedical data	659
<i>C.N. Vanitha, S Malathy</i>	
Mitigating DoS attacks in IoT using Supervised and Unsupervised Algorithms – A Survey	676
<i>S.B. Gopal, C. Poongodi, D. Nanthiya, R. Snega Priya, G. Saran, M. Sathya Priya</i>	
A Multi-syndrome Pathology for Breast Cancer through Intelligent Learning	685
<i>C.N. Vanitha, S. Malathy</i>	
Marketing decision making using sentiment score with co-extracting opinion target words from reviews	692
<i>T M Saravanan, T Kavitha, S Hemalatha, Gourav Kumar</i>	
Multi stratagem analysis of sentiments on twitter data using partial phrase harmonizing.....	699
<i>T M Saravanan, T Kavitha, S Hemalatha, Ankit Kumar</i>	
Investigation of Strength and Security of Pseudo Random Number Generators.....	708
<i>K Sathya, J Premalatha, Vani Rajasekar</i>	
An Enhanced Anti-phishing Scheme to Detect Phishing Website	720
<i>Vani Rajasekar, J. Premalatha, K. Sathya, S. Dhanesh Raakul, Muzafer Saracevic</i>	
Smart bins for garbage monitoring in smart cities using IoT system	727
<i>V R Ravi, M Hema, S SreePrashanthini, V Sruthi</i>	

PART 2

Food management and surveillance using Viola Jones algorithm and Local Binary Pattern Histogram	735
<i>K Manoj Senthil, P Nirmala Devi, K G Praveen Raj, M Kavini</i>	
Smart Water Management towards Quality and Improvement using IoT	742
<i>P Revathi, T Mrunalini, M Niranjana, C Prithivi Raj, J Siva Prakash, K Sudharsan</i>	

IoT Based Home Automation System using Raspberry Pi 4.....	749
<i>T Maragatham, P Balasubramanie, M Vivekanandhan</i>	
Enforcement of Highly Secured Dynamic ATM Pin Entry.....	755
<i>K Ranjith Kumar, R Reegha Shreyaa, K M Thiyaneswaran, R Santhosh, S Gururajan</i>	
A Comprehensive Review of Applications of Internet of Things for Covid-19 Pandemic	762
<i>S Malliga, S V Kogilavani, P S Nandhini</i>	
Security Concerns during Photo Sharing in Social Network Platforms	771
<i>T Maragatham, P Yuvarani, J Sowndarya Shree</i>	
Design And Fabrication Of Semi-Automated Facsimile Stamping Machine.....	779
<i>S Praveen Kumar, R Hehma Gayatri, S Nathiya, R Hemachander</i>	
Design and Fabrication of IoT Switch with Manual Override	785
<i>S. Praveen Kumar, D. Srihariharan, K. M. Sai Harish Adithya, R. Hemachander</i>	
Categorization of Diabetic Retinopathy using Deep Learning Techniques.....	793
<i>N T Renukadevi, K Saraswathi, S Karunakaran, B Anguraj</i>	
A Survey of Machine Learning Techniques using for Image Classification in Home Security.....	800
<i>R Ganesh Babu, K Dhineshkumar, Rohit Sharma, R Krishnamoorthy</i>	
Intrusion Detection Using Machine Learning in Sensor Network.....	809
<i>R Ganesh Babu, M Vijay, G Parameswaran, C Anandhan, Sudhanshu Maurya</i>	
Role of Artificial Intelligence in the Internet of Things – A Review	814
<i>G Yashodha, P R Pameela Rani, A Lavanya, V Sathyavathy</i>	
A Machine learning approach to monitor Brain Health and epilepsy detection.....	823
<i>M Manimegalai, P Nirmala Devi, V Mekala, S Haripriya, B Jawahar, M Mageshkumar</i>	
Consumer product preference prediction towards online shopping.....	837
<i>S Deepa, R Suguna, P Sathishkumar, C Jamunadevi, E N Vidhya</i>	
A Nematic 5CB Liquid Crystal based Dual Band Microstrip Patch Antenna using Moth Flame Optimization.....	846
<i>G. Srilekha, P. Pardhasaradhi, G Srinivas, N Praveen, B.T.P. Madhav, M.C. Rao, M. Venkateswara Rao</i>	
Aerial Image Based Calamity Monitoring Using Deep Learning For Emergency Responsive Applications.....	853
<i>R Ram Prashath, N Priyadharshini, CB Lakshmi</i>	
Artificial intelligent third umpire runout decision making using image processing.....	859
<i>P Nirmala Devi, K Manoj Senthil, S Selvavignesh</i>	
Min-Time TS: task resource mapping algorithm in cloud computing.....	868
<i>G K Kamalam, T Kalaiyarasi, S V Monaa, B Gurudharshini</i>	
A Scale and Rotation Invariant Fast Image Mining for Shapes.....	876
<i>M. Narayana, P. Tamilarasu, S. Karunakaran, Ch. Subrahmanyam</i>	
Effective Pre-Migration Mechanism for Dynamic Load Balancing In Cloud Computing Environment	884
<i>D. Nanthiya, P. Keerthika, S.B. Gopal, V. Gokul</i>	

Automatic Classification and Accuracy by Deep Learning Using CNN Methods in Lung Chest X-Ray Images	894
<i>V Thamilarasi, R Roselin</i>	
A Unique Technique to Improve the Performance of Antipodal Vivaldi Antenna for Microwave Imaging Application	900
<i>A. Balaji, J. Karthi, V. Chinnammal, C. Malarvizhi, S. Vanaja</i>	
Recommended System For Wellness Of Autistic Children Using Data Analytics and Machine Learning	908
<i>Kusumalatha Karre, Y Rama Devi</i>	
Enhanced Crow Search Algorithm for Task Scheduling in Cloud Computing	915
<i>K R Prasanna Kumar, K Kousalya, S Vishnupriya, S Ponni, K Logeswaran</i>	
A Survey on metaheuristic nature inspired computations used for Mining of Association Rule, Frequent Itemset and High Utility Itemset	922
<i>K Logeswaran, R K S Andral, S T Ezhilmathi, A Harshath Khan, P Suresh, K R Prasanna Kumar</i>	
BettaNet: A Deep Learning Architecture for Classification of Wild Siamese Betta Species	942
<i>Voravarun Pattana-Anake, Pimsiri Danphitsanuparn, Ferdin Joe John Joseph</i>	
Detection on sarcasm using machine learning classifiers and rule based approach	948
<i>K. Sentamilselvan, P. Suresh, G K Kamalam, S. Mahendran, D. Aneri</i>	
Blockchain technology using consensus mechanism for IoT-based e-healthcare system	956
<i>P Arul, S Renuka</i>	
A hybrid artificial neural network classifier based on feature selection using binary dragonfly optimization for breast cancer detection	961
<i>S Parvathavarthini, D Deepa</i>	
Secure data sharing for mobile cloud computing using RSA	972
<i>M Arumugam, S Deepa, G Arun, P Sathishkumar, K Jeevanantham</i>	
Counterfeit drugs prevention using block chain techniques	979
<i>M Arumugam, S Deepa, G R Sreekanth, G Arun, S Nilesh</i>	
Advancement in Precision Medicine and Recommendation System for Clinical Trials Using Deep Learning Methods	985
<i>A.P. Ponselvakumar, S Anandamurugan, K. Logeswaran, S. Nivashini, S.K. Showentharya, S. Swetha Jayashree</i>	
LRFM model for customer purchase behaviour using K-Means algorithm	993
<i>C Jamunadevi, S Tamil Selvan, M Govindarajan, C Saravanan, B R Janaki Raman</i>	
Machine learning approach for detection of keratoconus	1001
<i>S Shanthi, K Nirmaladevi, M Pyingkodi, K Dharanesh, T Gowthaman, B Harsavardan</i>	
Highly scalable and load balanced web server on AWS cloud	1009
<i>M Mangayarkarasi, S Tamil Selvan, R Kuppuchamy, S Shanthi, S R Prem</i>	
An empirical research on consumer online buying behaviour during the COVID-19 pandemic	1017
<i>C Jamunadevi, S Deepa, K T Kalaiselvi, R Suguna, A Dharshini</i>	

Brain tumor detection from MRI images using deep learning techniques.....	1025
<i>P Gokila Brindha, M Kavinraj, P Manivasakam, P Prasanth</i>	
A Review on Speckle Noise Reduction Techniques in Ultrasound Medical images based on Spatial Domain, Transform Domain and CNN Methods.....	1032
<i>S Pradeep, P Nirmaladevi</i>	
Optimization of ductility and yield strength on Al2024/B ₄ C composite material using Taguchi Technique.....	1041
<i>L Bharath, M Sreenivasa Reddy, H N Girisha, G Balakumar</i>	
A Survey on Current Semantic level Algorithms for improving Performance in CBIR	1051
<i>A Arun, P Nirmaladevi</i>	
Diffusion convolution recurrent neural network – a comprehensive survey	1063
<i>K Tamil Selvi, R Thamilselvan, S Mohana Saranya</i>	
Generative Adversarial Networks in Disease Gene Drug Relationships	1074
<i>S. Vijaya</i>	
Wireless Sensor Network to Connect Isolated Nodes using Fuzzy Based Link Assessment Technique.....	1082
<i>R Ganesh Babu, P Elavarasi, GA Nivedaa, M Rani Krishna, G Manikandan</i>	
Prediction of Students Performance using Machine learning.....	1088
<i>J. Dhilipan, N. Vijayalakshmi, S. Suriya, Arockiya Christopher</i>	
Optimization of aluminum alloy by CO ₂ laser cutting using genetic algorithm to achieve surface quality.....	1096
<i>V SenthilKumar, A Nagadeepan, L Hubert Tony Raj, P Sabarish, Albert Alexander Stonier</i>	
Adaptive Resource Management Utilizing Reinforcement Learning Technique in Inter-Cloud Environments.....	1102
<i>Vadla Pradeep Kumar, Kolla Bhanu Prakash</i>	
Real Time Cognitive State Prediction Analysis using Brain Wave Signal.....	1111
<i>S. Sophia, D. Devi, S. Maheswari</i>	
Enhanced Algorithm for Bio Metric Based Secret Data Hiding.....	1120
<i>M Kavitha, S Syedakbar, T Meenal, R Sarath Kumar, Albert Alexander Stonier</i>	
An Intelligent Framework for Traffic Management System Using Narrow Band-IoT	1127
<i>R Rajaguru, M Mathankumar, A Balakumar, J R Dinesh Kumar, Albert Alexander Stonier</i>	
A Research Survey on Microgrid Faults and Protection Approaches	1136
<i>D Sarathkumar, M Srinivasan, Albert Alexander Stonier, Ravi Samikannu</i>	
Design of Intelligent Controller for Hybrid PV/Wind Energy Based Smart Grid for Energy Management Applications.....	1151
<i>D Sarathkumar, M Srinivasan, Albert Alexander Stonier, Ravi Samikannu, D Vijay Anand</i>	
Reactive Power Control of Single Phase Grid Connected Photovoltaic System.....	1162
<i>V Iniya, P Maniraj, S Anushiya, M Sarathapriya, S Sowmiya, M Suresh, M Srinivasan</i>	
Measurement and Analysis of Power Quality Issues Due to Electric Vehicle Charger	1168
<i>M. Sabarimuthu, N. Senthilnathan, A.M. Monnisha, V. KamaleshKumar, S. Krithika Sree, P. Mala Sundari</i>	

Overview on Various Techniques for Reduction of cogging torque and torque ripples of Permanent Magnet motors of different rotor configurations	1176
<i>B Ravisankar, N Senthilnathan, P Sethupathi</i>	
Fault Diagnosis and Asset Management of Power Transformer Using Adaptive Boost Machine Learning Algorithm	1191
<i>Sujatha Balaraman, R. Madavan, S. Vedhanayaki, S. Saroja, M. Srinivasan, Albert Alexander Stonier</i>	
Photovoltaic - Battery Operated Electric Vehicle with an Energy Management Strategy	1200
<i>S. Gomathy, M. Sabarimuthu, S. Krithika Sree, J. Radha, R. Vennila, M.P. Krishna</i>	
Renewable Energy Sources Efficient Detection in Triangulation for Wireless Sensor Networks.....	1209
<i>B Barani Sundaram, Nunu Srinivas, N Kannaiya Raja, Manish Kumar Mishra, Dhanabal Thirumoorthy, NR Reddy</i>	
Mathematical Model Approach for AC and DC Regulators Excitation Systems (ES).....	1219
<i>Diresie Yirgu Demeke, Balachandra Pattanaik, Syed Masood Hussain, Abate Abibual, Balanaidu Sundaram</i>	
Optimal Design, Re-engineering and Testing of a 50:5A Current Transformer for Medium Voltage Industrial Requirements.....	1224
<i>S Chandrasekar, M Pavudharani, J Priyadharshini, E Sakthi Muruganandam, S Yogesh</i>	
Investigation on PMSM for electric vehicle applications using co-simulation of MATLAB and magnet software	1240
<i>A Sheela, M Atshaya, S Revathi, N Jeyapaul Singh</i>	
Review of internet of things: distributed power in smart grid	1252
<i>Nandish B M, V Pushparajesh</i>	
Mitigation and analysis of sub synchronous resonance for DFIG based wind farm using STATCOM controller	1260
<i>S. Arockiaraj, S. Karunakaran, P. Tamilarasu</i>	
Design of Bidirectional Battery Charger for Electric Vehicle.....	1268
<i>M Srinivasan, Albert Alexander Stonier, G Visalaxi, M Revanth, K Sanjeevkumar, B Sinduja, S Subiksha</i>	
Review on different control techniques for induction motor drive in electric vehicle	1280
<i>H B Marulasiddappa, V Pushparajesh</i>	
Smart hybrid power supply system for home appliances	1288
<i>N Vini Antony Grace, Karthika Ganesan, L Aquiline Lydia, S Shalini</i>	
Development of Optimal Day-Ahead Electricity Pricing Scheme using Real Coded Genetic Algorithm under Demand Response Environment.....	1295
<i>M. Krishna Paramathma, D. Devaraj, V. Agneshidhayaselvi, M. Karuppasamy Pandian</i>	
Hybrid PV-Wind System With Power Quality Improvement Using PV-DVR	1312
<i>T M Navinkumar, R Aruljothi, M. Srinivasan, Albert Alexander Stonier</i>	
Online estimation of control parameters of FACTS devices for ATC enhancement using artificial neural network.....	1322
<i>M Karuppasamy Pandiyan, V Agnes Idhayaselvi, D Danalakshmi, A Sheela</i>	

FFNN Based MPPT Controller for PEMFC Powered Non-Isolated High Gain DC-DC Converter with SPWM Inverter Fed BLDC Motor	1335
<i>B. Karthikeyan, V. Kalyanasundaram, S. Vidyasagar, K. Sundararaju, R. Palanisamy</i>	
Driving technology in the path of renewable energy-a review	1347
<i>R Dhanasekar, L Vijayaraja, R Anandan, G M Gurusharan, M Keerthana, E Mahalakshmi</i>	
Multilayer electromagnetic wave absorber by a dielectric material in direct to home system	1361
<i>S Snega, K Narmadha, R Yuvashree, M Arunkumar, R Dhanasekar, L Vijayaraja, Rupa Kesavan</i>	
Design of off-grid solar photovoltaic system using DC-DC topologies for BIUST classrooms	1376
<i>B A Tlhabologo, G Molosiwa, O Ongadile, Ravi Samikannu</i>	
Solar Powered Battery Charging System Using Optimized PI Controller for Buck Boost converter	1388
<i>D Sivamani, D Shyam, A Nazar Ali, K Premkumar, S Narendiran, S Albert Alexander</i>	
A Technical Review on Classification of Various Faults in Smart Grid Systems	1399
<i>D Sarathkumar, M Srinivasan, Albert Alexander Stonier, Ravi Samikannu, Narasimha Rao Dasari, Raymon Antony Raj</i>	
A Technical Review on Self-Healing Control Strategy for Smart Grid Power Systems	1410
<i>D Sarathkumar, M Srinivasan, Albert Alexander Stonier, Ravi Samikannu, Narasimha Rao Dasari, Raymon Antony Raj</i>	
IoT Based Smart Energy Metering System for Monitoring the Domestic Load Using PLC and SCADA	1425
<i>R Amudhevalli, T Sivakumar</i>	
Analysis of Three Phase Nine Level Diode Clamped Multi Level Inverter	1435
<i>L Nagarajan, A Anne Rosaline, R Baladhandapani, A Nazar Ali, Albert Alexander Stonier</i>	
Augmentation of Low Voltage Ride through (LVRT) Capability using ANN based electric spring for a Grid-tied Wind Energy Conversion System	1447
<i>M.D. Udayakumar, A. Saradha Devi, E. Raja, A Nazar Ali, Albert Alexander Stonier</i>	
Anticipation of Battery Condition Using Internet of Things	1456
<i>A. Subramaniya Siva, P. Parthasarathy, K. Gijipriya, N. Vinothini, Albert Alexander Stonier</i>	
Design and development of microcontroller-based temperature monitoring and control system for power plant generators	1464
<i>Sukumar Ponnusamy, Ravi Samikannu, B A Tlhabologo, W Ullah, Srinivasan Murugesan</i>	
A Novel IoT Based Power Monitoring System	1473
<i>S. Suriya, R Agusthiyar, N.V Vijayalakshmi, J. Shyamala Devi</i>	

Author Index