

2015 International Conference on Advances in Electrical Engineering (ICAE 2015)

**Dhaka, Bangladesh
17 – 19 December 2015**



**IEEE Catalog Number: CFP1589W-POD
ISBN: 978-1-4673-9696-7**

**Copyright © 2015 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 publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1589W-POD
ISBN (Print-On-Demand):	978-1-4673-9696-7
ISBN (Online):	978-1-4673-9695-0

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

	Page No.
Smart Power Grid	
Design & simulation of photovoltaic, wind, battery, grid connected hybrid power system for Patenga, Chittagong, Bangladesh <i>Kazi Meharajul Kabir, Snehadhit Mazumder, Md. Sarwar Uddin Chowdhury, Md. Rashedul Haq</i>	1 – 4
Integration of Smart Hybrid Uninterruptible Power Supply <i>Humdan Islam, Md Mujahidul Islam, Md Rezaul Hasan Rony</i>	5 – 8
Coordination Control of a Hybrid Ac-Dc Micro-grid at Different Generation and Load <i>Rubel Mahmud, Raja Rashidul, Hasan, Md. Tahsinur Rahman, Rasel Mahmud, Saugata Roy</i>	9 – 12
Development of an LCL Filter for a Residential Microgrid System <i>Tabassum Perveen Ananna, A. K. M. Baki, Lopa Ghosh, Md. Saiful Islam, Kd. Shafiqur Rahman, Sharmim Nahar</i>	13 – 17
Grid Connected Hybrid Power System Design Using HOMER <i>Md. Nurunnabi, N. K. Roy</i>	18 – 21
Renewable Energy-I	
Solar PV- Hydrogen Fuel Cell System for Electrification of a Remote Village in Bangladesh <i>Kazi Kawser Hossain, Taskin Jamal</i>	22 – 25
Organic Solar Cells: Historical Developments and Challenges <i>Md Meganur Rahman, M A Matin</i>	26 – 29
Design and implementation of a piezoelectric energy harvesting system using a super capacitor <i>Sajeed Mohammad Shahriat, Abir Ahmed, Tareq Qazi, Sadif Khan Farabi, Ebad Zahir</i>	30 – 33
A Study of Starting Methods for an Induction Motor Using an Arbitrary Waveform Generator <i>Archis Banerjee, Aritra Banerjee, D. P. Saikat Rana and K. N. Shubhanga</i>	34 – 37
Power Generation for Auto Street Light Using PZT <i>Mrinmoy Dey, Tawhida Akand and Sadeka Sultana</i>	38 – 41
Electricity Generation from Sewage Sludge: A Highly Prospective Renewable Energy for Power Problem Solution in Bangladesh <i>Subrata Biswas, Md. Abdullah Shah, Shaikh Bin Mizan, Md. Forhad Hussain</i>	42 – 46
Biomedical Systems and Applications	
Design and Performance Analysis of a Biomedical Implantable Patch Antenna <i>Tamim Hossain, Reazuddin Mahmud, Hajmina Khanom Juhi, Mohammad Rakin Imtiaz, Rashedul Hoque</i>	47 – 50
Design of a Miniaturized UWB Ingestible Antenna for Wireless Capsule Endoscopy <i>Farhadur Arifin, Pran Kanai Saha</i>	51 – 54
Effect of Pump Characteristic (H-Q) Curves on the Efficiency of Total Artificial Heart <i>Md. Rashidul Islam, Meah Imtiaz Zulkarnain</i>	55 – 58
Design and performance measurement of an in-body implantable miniaturized slot dipole rectangular patch antenna for biomedical applications <i>Nasim Al Islam, Aleef Tajwar Abrar, Ussash Arafat, Akib Jayed Islam, Rashedul Hoque</i>	59 – 63
Performance Analysis of SSVEP Based Wireless Brain Computer Interface for Wet and Dry Electrode <i>Md. Kamrul Hasan, Chayan Mondal, Nahid Al Mahmud, and Mohiuddin Ahmad</i>	64 – 67
A Simulation Study on Viscosity Change Effects in Ultrasound Based Carotid Atherosclerosis Diagnosis <i>Dabasish Kumar Saha, A. B. M. Aowlad Hossain</i>	68 – 71

Table of Contents

	Page No.
Development of Low Cost Wireless ECG Data Acquisition System <i>Md. Asif Ahamed, Md. Asraf-Ul-Ahad, Md. Hanif Ali Sohag and Mohiuddin Ahmad</i>	72 – 75
Renewable Energy-II	
Feasibility Assessment of Wind Energy Prospect In Bangladesh And A Proposal of 2MW Wind Power Plant At 'Parky Saikat, Chittagong <i>Khandakar Abdulla Al Mamun, Md. Akram Hossan, Md. Yasin Arafat, Shafait Ahmed</i>	76 – 79
A Feasibility Study of Mini Hydroelectric Power Plant at Sahasradhara Waterfall Sitakunda, Bangladesh <i>Fahmida Sharmin Jui, Sabrina Alam, Md. Didarul Alam, and Sabuj Chowdhury</i>	80 – 83
Designing and Implementation of Small Scale Multi Stage Wind Turbine <i>Mohsin Sajjad, Towsif Ahmed</i>	84 – 87
Optimization of Unit Commitment Problem for Wind-Thermal Generation using Fuzzy Optimization Technique <i>Mohammad Shoaib Shahriar, Md. Juel Rana, Mohammed Afzal Asif, Md. Mahmudul Hasan, Md. Masum Hawlader</i>	88 – 92
Microprocessor, Microcontroller and VLSI	
Design of a Single Chip Digital Weighing Machine Using ATmega32 Microcontroller Architecture <i>Golam Mostafa</i>	93 – 96
Development of an 8-Bit Microcontroller Learning System Using 89S52 Architecture <i>Golam Mostafa</i>	97 – 100
Microcontroller Based Home Automation System Using Bluetooth, GSM, Wi-Fi and DTMF <i>Neaz Md. Morshed, G.M. Muid-Ur-Rahman, Md. Rezaul Karim and Hasan U. Zaman</i>	101 – 104
Performance Analysis of Ternary Content Addressable Memory (TCAM) <i>Md. Atik Foysal, Md. Zahidul Anam, Md. Shoriful Islam, Intisar Tahmid, Kartick Mondal</i>	105 – 108
RF & Microwave Systems, Antenna	
Earthquake Monitoring and Warning System <i>Rahinul Hoque, Shoaib Hassan, Md. Akter Sadaf, Asadullahil Galib and Tahia Fahrin Karim</i>	109 – 112
Influence of Ellipsoid Particle Size Distribution on Microwave and Millimeter Wave Frequencies <i>Mohd Ghazli Hamza, Liza A. Latiff and Abd. S. Alfagi</i>	113 – 116
Design and Analysis of A Low-Profile, Elliptical Patch Super Wide Band (SWB) MIMO Antenna <i>Md. Ashif Islam Oni, Shahriar Hasan Shehab, Shahreen Hassan, Shuvashis Dey</i>	117 – 120
Molecular Simulation of Hydrogen Plasma Irradiation into Bubble-formed Tungsten Material <i>Seiki Saito, Hiroaki Nakamura, Masayuki Tokitani</i>	121 – 124
Demonstration on Performance Characteristics of Microstrip Low-Pass Filter for Various Substrates Employing Tschebycheff Distribution <i>Shakhawat Parvez, Nazmus Sakib, Md. Nurunnabi Mollah</i>	125 – 128
Signal and Image Processing	
Real-Time Hand Detection and Tracking with Depth Values <i>Md. Farhad Zaman, Samma Tasnim Mossarrat, Fahad Islam and Debajyoti Karmaker</i>	129 – 132
Improving Facial Recognition Accuracy by Applying Liveness Monitoring Technique <i>A. Asaduzzaman, A. Mummidi, Muhammad F. Mridha and Fadi N. Sibai</i>	133 – 136
Fabric Defect Classification with Geometric Features Using Bayesian Classifier <i>Md. Mozaharul Mottalib, Md. Tarek Habib, M. Rokonzaman, Farruk Ahmed</i>	137 – 140
Risk Analysis of Buildings using an Expert System: A Case Study in Bangladesh <i>Muhammed Jamshed Alam Patwary, Shakhawat Hossain</i>	141 – 144

Table of Contents

	Page No.
Performance Studies of Different Closed Loop Glucose Controllers for Treating Type 1 Diabetes Mellitus <i>Sanaul Haque, Piplu Sony Paul, Md. Shaikh Ahmed, Md. Asif Uz Zaman, Md. Abdul Mannan</i>	145 – 148
Implementation of An EOG Based Security System by Analyzing Eye Movement Patterns <i>Md. Shazzad Hossain, Kristie Huda, S. M. Sadman Rahman and Mohiuddin Ahmad</i>	149 – 152
Development of Rhythm Practice Supporting System with Real-time Onset Detection <i>Masanao Yamada, Akihiro Matsuo</i>	153 – 156
Database Optimization of the Source Code to Recommend Software Developers using Canonical Order Tree Algorithm <i>T.M. Amir-Ul-Haque Bhuiyan, Mehedi Hasan Talukder, Ziaur Rahman, Mohammad Motiur Rahman</i>	157 – 160
Communication Systems and Networks	
A Survey of Spectrum Sensing Techniques in Cognitive Radio Network <i>Md. Zulfikar Alom, Tapan Kumar Godder, Mohammad Nayeem Morshed</i>	161 – 164
A comparative study of WLAN security protocols: WPA, WPA2 <i>Abdillahi Hassan Adnan, Mohamed Abdirazak, A. B. M Shamsuzzaman Sadi, Towfiq Anam, Sazid Zaman Khan, Mohammed Mahmudur Rahman, Mohamed Musse Omar</i>	165 – 169
Interference Free Cooperative Spectrum Sharing in Cognitive Radio Networks using Spatial Modulation <i>Md Fazlul Kader, Soo Young Shin</i>	170 – 173
Improved Quality of Service in ZigBee Network with Statistical Modeling <i>Nazrul Islam, Md. Jaminul Haque Biddut, Asma Islam Swapna, Sayed Asaduzzaman</i>	174 – 177
Dynamic Spectrum Allocation for Cognitive Radio Ad hoc Network <i>Mahdi Zareei, A. K. M. Muzahidul Islam, Nafees Mansoor, Sabariah Baharun</i>	178 – 181
An Experimental Study of WSN Transmission Power Optimisation Using MICAz Motes <i>Yusnaidi Md Yusuf, A. K. M. Muzahidul Islam, Sabariah Baharun</i>	182 – 185
Adaptive Tree-Based Routing for Multi-Channel Wireless Sensor Network <i>Nur Syazwani Ghazali, Sabariah Baharun, A. K. M. Muzahidul Islam, Koichi Wada</i>	186 – 189
Wireless Communications	
An Analysis of Smart Grid Communication Infrastructure & Cyber Security in Smart Grid <i>Sharmin Jahan, Rabeya Habiba</i>	190 – 193
Radio Network Optimization <i>Raisha Nazmul and Hasan U. Zaman</i>	194 – 197
Optimizing and Enhancing Performance of Database Engine Using Data Clustering Technique <i>Md. Hafizur Rahman, Faisal Bin Al Abid, M. N. Zaman, Md. Nasim Akhtar</i>	198 – 201
Behavior Analysis of Minimum Mean Square Error Equalizer of MIMO Wireless Channel <i>Md. Saiful Islam, Md. Shoriful Islam, Nezam Uddin, Devashish Basak</i>	202 – 205
Mobile Phone to Mobile Phone Wireless Power Transfer <i>Hasan U. Zaman, Touhidul Islam, Kazi Shanjidul Hasan, Rifat Kamal Antora</i>	206 – 209
Observation of the Common Phenomena from a MATLAB Model for M/M/1 Queuing System <i>Nourin Kadir</i>	210 – 212
Implementation of Remote Laboratory for Engineering Education in the field of Power Electronics and Telecommunications <i>Emranul Haque, Feroz Ahmed, Saurav Das and Khosru M. Salim</i>	213 – 216
<i>Power Electronics & Drives-I</i>	
Simulation of DC to DC Converter with Embedded Snubber Circuit Maximum Power Point Tracking <i>Ahmad Shaharuddin Bin Mat Su, Rasli Bin Abd. Ghani</i>	217 – 220

Table of Contents

	Page No.
Hardware Implementation of Grid connected transformer-less semi-Z-source inverter topology to mitigate common mode leakage current and THD <i>Shameem Ahmad, Tofael Ahmed, Saad Mekhilef, Shuvra Saha, Nasim Al Islam, Ussash Arafat, Hasna Rahman Hashi</i>	221 – 225
Input Switched High Performance Single Phase Single Switch C ^{uk} AC-DC converter <i>Md. Shamsul Arifin, Mohammad Jahangir Alam</i>	226 – 229
An Efficient Wind Speed Sensor-less MPPT Controller Using Adaptive Neuro-Fuzzy Inference System <i>M. M. Atiqur Rahman, A. H. M. A. Rahim</i>	230 – 233
Generation of Switching Pulses for Operating a Double Purpose Converter Using Microcontroller <i>Adnan Mohammad, S. M. Baque Billah, Syed Khalid Rahman, Omar Ahmed, Md. Ariful Islam and S. A. M. Shah Ul Amin</i>	234 – 237
Design & Simulation of Grid Connected Photovoltaic System using Simulink <i>Saiful Islam Rasel, Rahanuma Nireen Ali, Md. Sarwar Uddin Chowdhury, Mohammed Mahedi Hasan</i>	238 – 242
Robotics, Control and Automation	
Performance Improvement of PID Controller for AVR System Using Particle Swarm Optimization <i>Sheikh Abid Hossain, Sourav Roy, Animesh Karmaker, Md. Rafiqul Islam</i>	243 – 246
A Comparative Analysis of Two Different PCF Structures for Gas Sensing Application <i>Md. Faizul Huq Arif, Kawsar Ahmed and Sayed Asaduzzaman</i>	247 – 250
Home Appliances Control Using Mobile Phone <i>Md. Tanvir Ahammed, Partha Pratim Banik</i>	251 – 254
Remotely Operated Underwater Vehicle with Surveillance System <i>Bhuiyan Muhammad Muktashif Anwar, Md Aliul Ajim, Sabrina Alam</i>	255 – 258
A Cost-Effective Design and Development of A Surveillance Robot <i>Md. Ariful Islam, Wahidul Ahad, Mohammad Faisal, Hasan U. Zaman</i>	259 – 262
Power Systems-I	
Development of a Bright Display Electrical Energy Meter using ATmega8 Architecture <i>Golam Mostafa</i>	263 – 266
Frequency Transient Analysis of Countrywide Blackout of Bangladesh Power System on 1 st November, 2014 <i>Md. Arifur Kabir, M. Mahmudul Hasan Sajeeb, Md. Nazrul Islam, A. Hasib Chowdhury</i>	267 – 270
Implementation of Fuzzy Unified Power Flow Controller to Control Power Flow Dynamically in Transmission Line <i>Shameem Ahmad, Fadi M. Albatsh and Saad Mekhilef, Farhana Choudhury, Al Amin Hossain, Md. Mahmudul Hasan, Shaikat Kanti Nath</i>	271 – 275
Different Perspectives of Energy Market in Bangladesh <i>Tanzia Mahub Redi, Nawshin Islam, Anna Mostarin, Taskin Jamal</i>	276 – 279
Comparison of Series and Combined Series Shunt Compensation on East-West Interconnectors of Bangladesh Power System <i>M. Shafiul Alam, A. Hasib Chowdhury, Md. Nazmul Hasan</i>	280 – 283
Power Electronics & Drives-II	
Torque Sensor Based Electrically Assisted Hybrid Rickshaw-Van with PV Assistance and Solar Battery Charging Station <i>F. R. Khan, A. T. Aurony, A. Rahman, F. Munira, N. Halim and A. Azad</i>	284 – 287
Design and Performance Analysis of a Single Phase Rectification System by using Cuk converter and EMI filter <i>Md. Khurshedul Islam, Md. Nurul Azim Talukdar, Md. Imtiaz Mahmud, Sk. Md. Golam Mostafa</i>	288 – 292

Table of Contents

	Page No.
Transformer less, Lower THD and Highly Efficient Inverter System <i>Md. Khurshedul Islam, Md. Mizanur Rahman, Md. Fazle Rabbi</i>	293 – 296
The Next Generation of Irrigation <i>Hasan U. Zaman, Rakibul Islam Dinar, Sk Ibtesham Ahmed, A.S.M. Foysal</i>	297 – 300
Transformerless Dual Inverter Based Series Injected Shunt Active Power Filter <i>Medha Pandey, Anirban Sinha Ray, Avik Bhattacharya</i>	301 – 305
Experimental Assessment of PV Arrays Connected to Buck-Boost Converter using MPPT and Non-MPPT Technique by Implementing in Real Time Hardware <i>Deepak Kumar Chy, Md. Khaliluzzaman</i>	306 – 309
A Novel DMC based SST for Voltage and Frequency Regulation of PMSG based WECS <i>Haris Ahmed, Avik Bhattacharya</i>	310 – 313
Power Systems-II	
Development of a Single Phase Prepaid Electrical Energy Meter using 89S8252 Microcontroller Architecture <i>Golam Mostafa</i>	314 – 319
Continuous Wavelet Transform Based Analysis of Low Frequency Oscillation in Power System <i>Md. Juel Rana, M. Shafiu Alam, Md. Shariful Islam</i>	320 – 323
Problem Analysis and Probable Solution of Existing Interconnected Grid System of Chittagong Region <i>Md. Khurshedul Islam, Md. Mizanur Rahman, Md. Fazle Rabbi</i>	324 – 327
Loss Minimization in Rural Distribution Systems from Double Digit to Single Digit <i>S. K. Roy, N. K. Roy</i>	328 – 331
A Tabu-based Heuristic Optimization Algorithm for Load Shedding Minimization <i>Jannatul Ferdous, Swakkhar Shatabda and Mohammad Nurul Huda</i>	332 – 335
Nanotechnology, MEMS and NEMS	
Temperature Effect on Electronic Properties of Armchair Graphene Nanoribbon <i>Turja Nandy, Asif Hassan, Arin Dutta, Ahmad Tawsif</i>	336 – 339
Strain-dependent Optical Properties of [113]-oriented InGaAs/GaAs Quantum Well <i>Sourav Roy, Mehedi Hassan, Animesh Karmaker, Swadesh Poddar, Md. Shazzad Hossain</i>	340 – 343
Effect of Lightly Doped Drain on the Electrical Characteristics of CMOS Compatible Vertical MOSFETs <i>D. H. Rubel, Kai Sun, S. Hall, P. Ashburn and M. M. A. Hakim</i>	344 – 347
Numerical Analysis of Performance Improvement of Modified ITO Based Organic Light Emitting Diode <i>Riku Chowdhury, Md. Rashedul Haq, Sukanta Paul, Md. Sarwar Uddin Chowdhury</i>	348 – 351
Characteristics of Triple Material Gate AlGaIn/GaN High Electron Mobility Transistor <i>Md. Tashfiq Bin Kashem, Samia Subrina, Member</i>	352 – 355
Electronic Structure of Stacking Dependent Tri-layer Graphene on Cu Substrate <i>Tahmid Sami Rahman, Emroz Khan, Samia Subrina</i>	356 – 359
Intensity and Phase Noise of Semiconductor Lasers Operating in Single Mode <i>Farhan-Bin-Tarik, Rawdah Mahmood, Sazzad M.S. Imran</i>	360 – 363
Effects of the Field-dependence of the Carrier Mobility on the Base Transit Time of SiGe HBTs Having Non-uniformly Doped Base <i>Md. Mahfuzul Haque, Md. Iqbal Bahar Chowdhury</i>	364 – 367
Analytical Modeling of J-V Characteristics of CIGS Based Thin Film Solar Cell Considering Voltage and Space Dependent Electric Field in the Absorber Layer <i>Ashiq Been Rahim, Abdullah Sakib Hasan, Protik Biswas, Aman Ullah, Md. Iqbal Bahar Chowdhury</i>	368 – 371