

2016 4th International Conference on the Developments in Renewable Energy Technology (ICDRET 2016)

**Dhaka, Bangladesh
7-9 January 2016**



**IEEE Catalog Number: CFP1630J-POD
ISBN: 978-1-4673-8255-7**

**Copyright © 2016, United International University (UIU)
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:	CFP1630J-POD
ISBN (Print-On-Demand):	978-1-4673-8255-7
ISBN (Online):	978-984-34-0017-8

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

SIMULINK BASED PERFORMANCE ANALYSIS OF LEAD ACID BATTERIES WITH THE VARIATION OF LOAD CURRENT AND TEMPERATURE	1
<i>M. A. Gaffar ; M. E. H. Sabuj ; F. Mostafa ; T. Istiaque ; M. F. Khan</i>	
ECONOMIC AND ENVIRONMENTAL ASSESSMENTS OF SOLAR HOME SYSTEMS CONSISTING DIFFERENT LIGHTING SOURCES	6
<i>M. M. Rahman ; S. Salehin ; A. K. M. S. Islam</i>	
FIVE YEARS OF SOLAR MINIGRID SERVICE IN SANDWIP ISLAND OF BANGLADESH	12
<i>H. J. Khan ; A. J. Huque ; K. Ahmed ; R. Rahman ; T. Ahmed ; R. Alam</i>	
PERFORMANCE STUDY OF LEAD-ACID BATTERY IN A SOLAR CAR UNDER DIFFERENT TRAFFIC AND WEATHER CONDITIONS.....	15
<i>A. A. Mahmud ; I. B. Jafar ; A. Zaman ; M. Rahman</i>	
DIFFERENTIAL EVOLUTION ALGORITHM BASED LOAD FREQUENCY CONTROL IN A TWO-AREA CONVENTIONAL AND RENEWABLE ENERGY BASED NONLINEAR POWER SYSTEM.....	19
<i>M. A. Zamee ; K. K. Islam ; A. Ahmed ; K. R. Zafreen</i>	
FUZZY LOGIC CONTROL OF BUCK CONVERTER FOR PHOTO VOLTAIC EMULATOR	25
<i>M. T. Iqbal ; M. Tariq ; M. S. U. Khan</i>	
TESTING AND PERFORMANCE ANALYSIS OF 1KW LOCALLY MADE GRID-TIE PHOTOVOLTAIC INVERTER USING THIN FILM SOLAR PANEL.....	31
<i>K. M. Salim ; M. J. Uddin ; M. R. Uddin ; S. I. Annie ; Z. Tasneem</i>	
PERFORMANCE OF CZTS_xSE_{1-x} SOLAR CELL WITH VARIOUS MOLE FRACTIONS OF SULFUR FOR DIFFERENT BUFFER LAYERS	35
<i>S. Saha ; M. Z. E. Rafique ; M. M. S. Hassan</i>	
DESIGN, CONSTRUCTION AND IMPLEMENTATION OF A HIGHLY EFFICIENT, LIGHTWEIGHT AND COST EFFECTIVE BATTERY CHARGER FOR ELECTRIC EASY BIKES	39
<i>K. M. Salim ; M. J. Uddin ; M. I. Rahman ; M. R. Uddin</i>	
ENERGY USAGE PATTERN OF OFF-GRID POPULATION IN BANGLADESH	44
<i>H. J. Khan ; A. J. Huque ; K. Ahmed ; R. Rahman ; T. Ahmed ; R. Alam</i>	
PREDICTION OF SOLAR IRRADIATION IN BANGLADESH USING ARTIFICIAL NEURAL NETWORK (ANN) AND DATA MAPPING USING GIS TECHNOLOGY	48
<i>K. M. Rabbi ; I. Nandi ; A. S. Saleh ; F. Faisal ; S. Mojumder</i>	
CONTROL OF BIDIRECTIONAL DC/DC CONVERTER FOR BACK TO BACK NPC-BASED WIND TURBINE SYSTEM UNDER GRID FAULTS.....	54
<i>M. S. U. Khan ; A. I. Maswood ; H. D. Tafti ; M. M. Roomi ; M. Tariq</i>	
FROM STRAIN TO EXTRACTION - A REVIEW TO PRODUCE BIODIESEL FROM MICROALGAE IN BANGLADESH.....	60
<i>S. Ishmam ; Wasel-Ur-Rahman ; S. B. Karim ; S. Salehin ; A. K. M. S. Islam</i>	
COMPARATIVE STUDY OF MATLAB-SIMULATED AND CONVENTIONAL SI-BASED SOLAR PANEL	66
<i>M. F. Hossain ; M. D. Hossain</i>	
MODELING OF J-V CHARACTERISTICS OF CZTS BASED THIN FILM SOLAR CELLS INCLUDING VOLTAGE AND SPACE DEPENDENT ELECTRIC FIELD IN THE ABSORBER LAYER.....	71
<i>Ayesha ; Kulsum ; S. K. Silvi ; M. I. B. Chowdhury</i>	
A TECHNO-ECONOMIC ASSESSMENT FOR CHARGING EASY BIKES USING SOLAR ENERGY IN BANGLADESH.....	75
<i>M. M. Rahman ; M. A. H. Baky ; A. K. M. S. Islam ; M. A. Al-Matin</i>	
REDUCTION OF COOKING ENERGY AND CO₂ EMISSION USING HEAT RETENTION COOKER FOR RICE COOKING.....	80
<i>S. Salehin ; A. K. M. S. Islam ; A. N. M. Zobayer</i>	
DESIGN AND IMPLEMENTATION OF A MICRO CONTROLLER BASED PORTABLE SOLAR CHARGE CONTROLLER TESTER.....	86
<i>M. Ibrahim ; S. A. Chowdhury ; M. F. Khan</i>	
MESHED PV SYSTEMS	91
<i>W. Commerell ; R. Muller ; V. Shanmuganandam ; S. Bhattacharjee</i>	

MODELING OF GRAPHENE/SIO₂/SI(N) BASED METAL-INSULATOR-SEMICONDUCTOR SOLAR CELLS	94
<i>M. J. Islam ; M. M. Hasan ; R. Sami ; M. I. B. Chowdhury</i>	
A WAVE-TO-WIRE MODEL OF OCEAN WAVE ENERGY CONVERSION SYSTEM USING MATLAB/SIMULINK PLATFORM	98
<i>J. Hossain ; S. S. Sikander ; E. Hossain</i>	
DYE-SENSITIZED SOLAR CELLS: SENSITIZED WITH TRIPLE DYES IN ULTRAVIOLET TO NEAR INFRARED	104
<i>A. Islam ; M. Akhtaruzzaman ; T. H. Chowdhury ; I. M. Bedja ; L. Han ; A. Mirloup ; R. Ziessel</i>	
IMPACTS OF RENEWABLE ENERGY INTEGRATION INTO THE HIGH VOLTAGE (HV) NETWORKS	108
<i>G. Shafiullah</i>	
HIGH PERFORMANCE AND STABLE MOLYBDENUM TELLURIDE PV CELLS WITH INDIUM TELLURIDE BSF	115
<i>M. Dey ; M. Dey ; M. A. Matin ; N. Amin</i>	
TECHNO-ECONOMIC ANALYSIS OF A HYBRID PV-WIND-DIESEL ENERGY SYSTEM FOR SUSTAINABLE DEVELOPMENT AT COASTAL AREAS IN BANGLADESH	119
<i>S. A. Shezan ; A. Z. M. Salahuddin ; M. Farzana ; A. Hossain</i>	
A SUSTAINABLE ENERGY PLANNING ENDEAVOR FOR SELECTING A WASTE-TO-ENERGY OPTION	125
<i>S. Islam ; S. G. Ponnambalam ; H. L. Lam</i>	
DESIGNING OF AN OPTIMIZED BUILDING INTEGRATED HYBRID ENERGY GENERATION SYSTEM	131
<i>M. R. Sharif ; M. N. Rahman ; M. H. R. Chowdhury ; M. A. Shoeb</i>	
IMPACTS OF FIXED SPEED WIND GENERATORS ON STATIC VOLTAGE STABILITY OF DISTRIBUTION SYSTEMS	137
<i>M. H. Haque</i>	
DEVELOPMENT AND TESTING OF A TWO-AXIS TRACKING SPHERICAL SOLAR COOKER	141
<i>M. Rafsunjani ; E. B. Joyee ; A. N. M. M. Rahman</i>	
DEVELOPMENT AND PERFORMANCE TEST OF AN EVACUATED TUBE SOLAR WATER HEATER	147
<i>N. A. Badhan ; F. M. Ela ; A. N. M. M. Rahman</i>	
PERFORMANCE OF DROOP BASED LOAD CONTROLLER IN INTERCONNECTED MICRO HYDRO POWER PLANTS	151
<i>R. Dahal ; S. K. Jha ; B. Adhikary</i>	
DESIGN AND ECONOMIC FEASIBILITY ANALYSIS OF AUTONOMOUS HYBRID ENERGY SYSTEM FOR RURAL BANGLADESH	156
<i>H. M. R. Leon ; M. A. Shoeb ; M. S. Rahman ; M. U. Ahmed ; M. S. Islam</i>	
AN INVESTIGATION INTO THE EFFICIENCY OF SILICON CARBIDE BASED POWER INVERTERS	162
<i>A. I. Maswood ; L. Benbrahim ; P. Harikrishnaraj</i>	
BIOGAS BASED CHAIN BUSINESS: A ROAD TO SUSTAINABLE RURAL DEVELOPMENT	168
<i>M. A. Ehsan ; C. K. Das ; M. Hasan</i>	
ASSESSING A RURAL ELECTRIFICATION PROGRAM IN MALAYSIA: SYSTEM PERFORMANCE ANALYSIS ON 11 SOLAR PV-DIESEL HYBRID SYSTEMS	173
<i>A. M. Mahmud ; R. E. Blanchard</i>	
RET SCREEN BASED FEASIBILITY STUDY ON THE PROSPECT OF WIND POWER GENERATION ALONG THE COASTAL REGION OF CHITTAGONG, BANGLADESH	178
<i>S. M. N. Uddin ; M. Bodrudduza ; B. K. M. M. Rahman ; M. F. Khan</i>	
100% ELECTRIFICATION AND RENEWABLE BASED ETHIOPIAN POWER SECTOR DEVELOPMENT STRATEGIES	183
<i>M. A. H. Mondal ; E. Bryan ; C. Ringler ; M. Rosegrant</i>	
PSPICE BASED STUDY OF ENVIRONMENTAL EFFECT ON THE PERFORMANCE OF THE SOLAR PV MODULE	187
<i>A. Saha ; N. N. Nipu ; M. F. Khan</i>	
A STUDY ON DATA ACCURACY BY COMPARING BETWEEN THE WEIBULL AND RAYLEIGH DISTRIBUTION FUNCTION TO FORECAST THE WIND ENERGY POTENTIAL FOR SEVERAL LOCATIONS OF BANGLADESH	193
<i>S. E. Reza ; P. Zaman ; A. Ahammad ; I. Z. Iffy ; M. F. Nayan</i>	
DEVELOPING AN OPEN ACCESS MONITORING DEVICE FOR OFF-GRID RENEWABLES	198
<i>R. Blanchard ; M. Little</i>	

COMPUTATIONAL AND EXPERIMENTAL STUDY OF AN ULTRA-LOW HEAD TURBINE	204
<i>P. Parajuli ; P. Koirala ; N. Pokharel ; H. P. Neopane ; S. Chitrakar ; R. K. Maskey</i>	
PERFORMANCE COMPARISON OF MIRROR REFLECTED SOLAR PANEL WITH TRACKING AND COOLING.....	208
<i>S. M. S. Alam ; A. N. M. M. Rahman</i>	
STUDY OF TRADITIONAL AND Z-SOURCE CONVERTER UNDER VARIABLE FUEL-FLOW-RATE OF PEMFC	212
<i>M. M. Roomi ; A. I. Maswood ; M. S. U. Khan ; M. Tariq</i>	
INCORPORATING THE INSTITUTIONS' PERSPECTIVE INTO A PROPOSED MODEL FOR ASSESSING SUCCESS OF SOLAR HOME SYSTEM IMPLEMENTATIONS.....	218
<i>H. Holtorf ; T. Urmeel ; M. Calais ; T. Pryor</i>	
ANALYSIS OF AIR FOILS AND DESIGN OF BLADES FOR A LOW-SPEED 250W HORIZONTAL AXIS WIND TURBINE SUITABLE FOR COASTAL AREAS OF BANGLADESH	225
<i>M. Murshed ; M. Y. Arafat ; M. A. Razzak</i>	
DESIGN AND ANALYSIS OF AN IN-RUNNER PERMANENT MAGNET ALTERNATOR FOR LOW-SPEED WIND TURBINE	231
<i>M. Y. Arafat ; M. Murshed ; M. A. Razzak</i>	
SOCIO-ECONOMIC IMPACT OF A RURAL MICROGRID.....	236
<i>S. K. Jha ; P. Stoa ; K. Uhlen</i>	
SOLAR POWER CONTROLLER TO DRIVE LOAD AT CONSTANT POWER UNDER INSUFFICIENT SOLAR RADIATION.....	240
<i>M. T. Ahammed ; M. R. Islam</i>	
ELECTRIC EFFICIENCY OF THE LIGHTING TECHNOLOGY OF AUTO INDUSTRY: RECENT DEVELOPMENT AND FUTURE PROSPECT.....	244
<i>M. S. A. Chowdhury ; A. M. Rahman</i>	
ELECTRICITY GENERATION FROM PRETREATED PALM OIL MILL EFFLUENT USING KLEBSIELLA VARIICOLA AS AN INOCULUM IN MICROBIAL FUEL CELL.....	249
<i>M. A. Islam ; M. R. Khan ; A. Yousuf ; W. C. Wai ; C. K. Cheng</i>	
BRYOPHYLLUM PINNATUM LEAF FUELED CELL: AN ALTERNATE WAY OF SUPPLYING ELECTRICITY AT THE OFF-GRID AREAS IN BANGLADESH.....	253
<i>M. Hasan ; K. Alam</i>	
INTERNAL QUANTUM EFFICIENCY OF SI-DRIFT SOLAR CELLS WITH NONUNIFORMLY AND HEAVILY DOPED EMITTER	258
<i>M. R. Huque ; M. I. B. Chowdhury</i>	
RAMP RATE ANALYSIS OF ROOF-TOP PV ON DISTRIBUTION GRIDS FOR LARGE CITIES IN AUSTRALIA	262
<i>M. R. Islam ; H. P. I. Waldl</i>	
A SNAPSHOT OF ENERGY EFFICIENT OFF GRID APPLIANCE MARKET IN BANGLADESH	267
<i>H. J. Khan ; A. J. Huque ; M. S. Hoque ; K. Ahmed ; R. Rahman ; T. Ahmed ; R. Alam</i>	
PROTOTYPE DESIGN AND OVERVIEW OF A LOW PRICE MICROBIAL FUEL CELL	271
<i>S. S. Uddin ; A. H. M. Shatil ; K. S. Roni ; A. B. Walid</i>	
PROSPECT OF KARANJA (PONGAMIA PINNATA) BIODIESEL AS AN ALTERNATIVE ENERGY SOURCE IN BANGLADESH	277
<i>R. Subnom ; M. Z. Alam ; J. F. Mugdho</i>	
COMPARATIVE ANALYSIS OF CARRIER SCHEMES FOR PWM IN MULTILEVEL PUC INVERTER FOR PV APPLICATIONS.....	281
<i>M. Tariq ; M. T. Iqbal ; A. Iqbal ; M. Meraj ; M. M. Roomi ; M. S. U. Khan</i>	
PROSPECT OF SOLAR PV BASED POWER GENERATION IN THE MARSHY LANDS OF BANGLADESH: AN ANALYSIS THROUGH RETSCREEN SOFTWARE.....	287
<i>K. N. Nikita ; S. N. Islam ; M. S. Islam ; M. Saha ; M. F. Khan</i>	
DESIGN, HARDWARE IMPLEMENTATION AND PERFORMANCE ANALYSIS OF CONVENTIONAL SEPIC CONVERTER FOR PHOTOVOLTAIC SYSTEM APPLICATIONS	293
<i>M. T. Ullah ; M. H. Uddin</i>	

Author Index