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Proceedings of  
National Conference on  
**Emerging Trends in  
Smart Grid Technologies**  
(NCETSGT-2020)  
February 7-8, 2020



Organized by  
Department of Electrical and Electronics Engineering



**KONERU LAKSHMAIAH EDUCATION FOUNDATION**  
(Deemed to be University u/s 3 of UGC Act, 1956)  
Green Fields, Vaddeswaram, Guntur Dist., A.P., India. 522 502.  
[www.kluniversity.in](http://www.kluniversity.in)

## About *K L E F*

The K L University is situated in a spacious 60-acre campus on the banks of Buckingham Canal of river Krishna near Vijayawada city in the emerging capital region of Amaravati. The K L University is a pioneer in the field of education and research. It was established as K L College of Engineering in year 1980. The college was made autonomous in the year 2006 and accorded the status of a deemed university in 2009.

The University offers 10 B.Tech programs in engineering, three in non -engineering stream. 11, five – year integrated degree programs and twelve 2 – year M.Tech programs. It also offers full-time / part-time Ph.D programs in Engineering / Commerce / Management and Sciences. The University has five laboratories built in collaboration with industrial organizations like IBM, Microsoft, CISCO, Oracle and Altair Engineering. It has four advanced research centers on Robotics, Embedded Systems, Bio-Processing and Microwave & Antennas with a view to train the young to become highly qualified and innovative engineers.

## About Electrical & Electronics Engineering Department

The Department of Electrical and Electronics Engineering has highly qualified and experienced faculty. The department offers B.Tech and M.Tech programmes with specialization in Power Systems and in Power Electronics & Electrical Drives. The department also offers part-time and full-time Ph.D programme where over 120 scholars are working on topics with wide research base.

## Vision

To be a globally renowned university.

## Mission

To import quality higher education and to undertake research and extension with emphasis on application and innovation that cater to the emerging societal needs through all - round development of students of all sections enabling them to be globally competitive and socially responsible citizens with intrinsic values.

## Messages



### **Er. Koneru Satyanarayana**

#### **President**

It is my privilege to welcome you all to the National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” organized by Electrical & Electronics Engineering Department during February 7 – 8, 2020. The theme of the Conference is very relevant to explore solutions to the present day, challenges faced by our Country in meeting the energy requirements. I am happy to note that there is overwhelming response from academic community to participate and deliberate on the issues related to the proposed topic. More than 100 researchers have submitted their papers to share their thoughts with other participants across the Globe.

The development of smart grid in India would result in minimizing the energy cost and in improved customer service. It would certainly play an important role in addressing global issues like energy security and climate change also. It will also make the energy system a transparent one with the participation of consumers in its operation and control. However the development of smart grid in our country may take a decade or more but when realized certainly yield immense benefits to both the consumers and the power utilities. Thus I strongly believe that this conference will provide sufficient platform by increasing awareness on smart grid and create fresh pool of skill and knowledge to pursue research on smart grid and renewable energy source by the faculty of Electrical and Electronics Engineering.

I convey my best wishes to the organizing committee of Electrical and Electronics Engineering Department, peers and other stake holders who are going to be associated with this conference. I wish all the delegates, distinguished academicians and other participants for a pleasant and fruitful stay at our campus. I also wish the conference a grand success.

**– President**  
**KLEF**



**Sri. K. L. Havish**

**Vice President**

It is my great pleasure to welcome you all to the National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” organized by Electrical & Electronics Engineering Department during February 7 – 8, 2020.

The Technical Program Committee, undertook the difficult job of carefully evaluating the large number of submitted papers, considering the merits of each through detailed reviews and discussions at the committee meetings and selecting a technical program of the highest caliber.

This conference provides all attendees with the opportunities to meet and interact with one another. I take this opportunity to appreciate the organizing committee to conduct this internal conference, chairs and speakers for their participation and contribution; and all the members of various committees for their team work and follow – through. I hope that the conference will be more informative and enjoyable.

Wishing all the very best.

– Vice President  
KLEF

**Sri. K. Raja Harin****Vice President**

It is with great pleasure that I extend a warm welcome to National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” organized by Electrical & Electronics Engineering Department during February 7 – 8, 2020. I am truly proud that the Department of Electrical and Electronics Engineering has managed to organize such an important conference in the field of smart electric grid an important area of electrical engineering, which is attracting academic and industrial participation, nationally and internationally. I am sure that this conference will achieve its intent – to serve as an effective platform for the research community to learn, share and supplement each other’s research, while keeping abreast of the latest trends in this arena.

This conference, I hope, true to its theme, will address some of the design challenges in the design and integration of energy and electrical grids with communication and network technologies, along with substantial questions of security and privacy of different components within the grid. This conference aims at providing an opportunity to discuss various engineering challenges of smart energy grid design and operation by focusing on advanced methods and practices for designing different components and their integration within the grid.

I congratulate Department of Electrical and Electronics Engineering for this astronomical effort.

– Vice President  
KLEF



**Dr. S. S. Mantha**

**Chancellor**

It is my great pleasure to welcome you to National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” organized by Electrical & Electronics Engineering Department during February 7 – 8, 2020.

On behalf of organizing committee of Emerging Trends in Smart Grid Technologies (NCETSGT - 2020), I am honored and delighted to welcome all the delegates and participants.

I congratulate the Program Committee for their thorough and timely reviewing of the papers submitted and selection of papers for presentation, meeting the high standards required for an International Conference. I must appreciate the involvement of Organizing Committee members who have all worked extremely hard in organizing the conference programs and other activities.

– Chancellor  
K L E F





**Dr. Edara Venkat**

**Pro Chancellor**

I am delighted and very happy that the Department of Electrical and Electronics Engineering is organizing the National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” during February 7 – 8, 2020. This conference is a step towards achieving our vision in becoming a world – class academic and research institution.

This conference will be a good platform to interchange knowledge and skills in the area of Smart Electric Grid. It provides an opportunity for the researchers to find new solutions in this area and forecast future trends in order to realize India’s aspiration and to contribute to global needs.

It is a great pleasure to welcome all delegates and participants to this conference; I would like to congratulate the Department of Electrical and Electronics Engineering, K L E F Deemed to be University for their commitment and superb drive in organizing this conference. I am very certain that this occasion will be able to provide a platform towards strengthening our relationships in knowledge sharing while at the same time provide the necessary thrust in joint research collaborations and product commercialization within the research society. It is my aspiration that this conference will be a foundation for the growth of new ideas towards a better tomorrow.

I wish this conference a great success.

– Pro Chancellor  
K L E F



**Dr. L. S. S. Reddy**

**Vice Chancellor**

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I wish this conference a great success.

– Vice Chancellor  
K L University



**Dr. Ramakumar Ambatipudi**

**Pro – Vice Chancellor**

I am delighted that the Department of Electrical and Electronics Engineering is organizing a National Conference on “Emerging Trends in Smart Grid Technologies (NCETSGT - 2020)” during February 7 – 8, 2020. We at KLEF aspire very strongly to expand our research and innovative horizon, especially in the emerging areas such as smart electric grids. Research and development in smart grids is inter disciplinary in nature comprising of Electrical, Electronics and ICT and it helps to change the quality of life of mankind. This conference is addressing some of the challenges and solutions in this important field of Electrical Engineering.

I understand that the conference is filled with lots of expert key note speeches, plenary session, tutorials, research paper presentations and invited talks. This will definitely go a long way in enriching the knowledge of the participants in general and KLU faculty in particular, especially those in the field of EEE. We hope to further sharpen our research skills by organizing more of such international conferences in future.

Sincerely hope that this conference will become a forum for the exchange of research ideas.

I wish the conference a grand success.

– **Pro Vice Chancellor**  
K L University



**Prof. R. R. L. Kantam**

**Registrar**

The National Conference on Emerging Trends in Smart Grid Technologies is the forum for the dissemination of high – quality research in all aspects of smart electric grid technologies for networking and for fostering interaction and exchange of ideas among researchers.

It provides a cross – disciplinary venue for researchers and practitioners to address the challenges in the field of smart electric grids. The Keynote presentations, Panel discussions and planned technical sessions will provide ample opportunities for discussions, debate and exchange of ideas and information among conference participants.

I understand and feel happy that the researchers participating in this International Conference are from different parts of the country.

I wish the conference a great success.

– Registrar  
K L E F Deemed to be University



**Dr. K. Subba Rao**

**Principal, K L College of Engineering, General Chair**

National Conference on Emerging Trends in Smart Grid Technologies aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Emerging Smart Grid Technologies. It also provides the premier interdisciplinary and multidisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns, practical challenges encountered and the solutions adopted in the field of Smart Grid Technologies.

I would like to express my appreciation to all authors for their outstanding contributions and in particular the members of the program committee for their competent evaluation of the large number of submissions, invited session chairs for their careful preparation of the invited sessions.

I wish this conference will be a grand success.

**– Principal**  
K L College of Engineering

**Dr. A. Anand Kumar**

**Professor, EEE department, K L E F, General Chair**

National Conference on Emerging Trends in Smart Grid Technologies aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Emerging Smart Grid Technologies. It also provides the premier interdisciplinary and multidisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns, practical challenges encountered and the solutions adopted in the field of Smart Grid Technologies.

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– **Principal**  
K L College of Engineering



**Dr. S.V. N. L. Lalitha**

**Professor & Head, EEE Department, Conference Chair**

National Conference on Emerging Trends in Smart Grid Technologies (NCSETSGT – 2020) aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Emerging Smart Grid Technologies. It also provides the premier interdisciplinary and multidisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns, practical challenges encountered and the solutions adopted in the field of Smart Grid Technologies.

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I wish this conference will be a grand success.

**– Professor & Head, Conference Chair**  
EEE Department, KLEF



**Dr. Vinod Kumar D M, Professor, NITW**

**Key Note Speaker**

I am glad that K L E F Deemed to be University conducting National conference on Emerging Trends in Smart Grid Technologies. The theme of the conference is a current one with a large number of researchers working now on smart grid attached to multiple micro-grids along with energy storage systems and with electric vehicles as bi-directional resources. Electric networks are large in size, second only to the telephone networks; maintaining the power at required quantity and quality are the big challenges posed to the power engineers.

I understand the conference could get a large number of good papers for presentation. I hope that that the deliberations at the conference will be fruitful to the researchers and wish the conference all success.

**– Key Note Speaker**  
NCETSGT-2020





**Dr. Srinivas Bhaskar Karanki, Assistant Professor, IIT Bhubaneswar**

**Key Note Speaker**

I am happy to be the part of National conference on Smart Grid Technologies. The theme of the conference is a current one with a large number of researchers working now on smart grid attached to multiple micro-grids along with energy storage systems and with electric vehicles as bi-directional resources. Electric networks are large in size, second only to the telephone networks; maintaining the power at required quantity and quality are the big challenges posed to the power engineers,

I hope that that the deliberations at the conference will be fruitful to the researchers and wish the conference all success.

**– Key Note Speaker**  
NCETSGT-2020



**Dr. N. Jayaram, Assistant Professor, NITW**

**Key Note Speaker**

I am extremely delighted to associate with National conference on Smart Grid Technologies. The theme of the conference is a current one with a large number of researchers working now on smart grid attached to multiple micro-grids along with energy storage systems and with electric vehicles as bi-directional resources. Electric networks are large in size, second only to the telephone networks; maintaining the power at required quantity and quality are the big challenges posed to the power engineers. I hope that that the deliberations at the conference will be fruitful to the researchers and wish the conference all success.

**– Key Note Speaker**  
NCETSGT-2020

**Mr. Sri Rama Moorthy, Superintendent of Engineer, APCRDA-APSPDCL**

**Key Note Speaker**

I am delighted to participate in National conference on Smart Grid Technologies. The theme of the conference is very much related to emerging needs of Indian power scenario. I believe Technical committee has done an excellent scrutiny and made a good platform for exchange of valuable thoughts. I hope that that the deliberations at the conference will be fruitful to the researchers and wish the conference all success.

**– Key Note Speaker**  
NCETSGT-2020



**Dr. J. Somlal**

**Convener, NCETSGT-2020**

I feel proud to be the Convener for National Conference on Emerging Trends in Smart Grid Technologies during 7-8, February 2020, organized by the Department of Electrical and Electronics Engineering, College of Engineering, K L E F Deemed to be University. This National Conference – (NCETSGT-2020) provides an opportunity to bring together the academia, the practicing engineers as well as the researchers from educational institutions, and research organizations to ‘exchange views, experiences and expertise. These aspects will in turn lead to development of new technologies in Smart Electric Grid. I am sure that Technical papers presented during the conference will be quite useful for all Academicians, Researchers, Scientists and Practicing Engineers.

There is an overwhelming response for this conference. A total of 146 papers were out of which 70 papers are selected for Oral Presentation at the conference and will be presented in four technical sessions. I thank all the sponsors. I take this opportunity to invite all the Researchers, Practicing Engineers for active participation in the International Conference.

I am whole heartedly thankful to our beloved President of KLEF, Er. K Satyanarayana garu for his motivation, constant encouragement and continuous support without which, it is impossible to conduct this event. I am very much thankful to our Vice Presidents Sri. K. Lakshman Havish and Sri. K. Raja Harin for their inspiration and motivation in conducting this event. I thank Honorable Chancellor of KLU, Dr. S.S. Mantha for his encouragement to organize the conference. I also thank Honorable Vice Chancellor of KLU, Dr. L.S.S. Reddy for his valuable guidance and instinct support in organizing this conference, extend my thanks to entire faculty of department of EEE, K L University and Student Volunteers and Non – Teaching staff of the department and the college for their help in various stages of organization of the conference. I am thankful to all those who have directly or indirectly contributed to make this International Conference a memorable event. I take this opportunity to thank the reviewers and session chairs for sparing their valuable time to review the papers.

– Convener  
NCETSGT-2020

## Committees

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Dr. Venkat Edara, Pro-Chancellor, KLEF

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Mr. M. Saikrishna Reddy, Asst. Prof., Dept. of EEE, KLEF

Mr. D. Kalyan, Asst. Prof., Dept. of EEE, KLEF

## Program Schedule



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Green Fields, Vaddeswaram, Guntur Dt. A.P., 522 502

National Conference on  
**EMERGING TRENDS IN SMART GRID TECHNOLOGIES**  
**(NCETSGT-2020)**  
 February 07– 08, 2020

Organized by  
 Department of Electrical and Electronics Engineering

**Day 1: February 07, 2020 (Friday)**

Time	Program	
8:30 AM -9.30 AM	Registrations	
9:30 AM – 10:50 AM	Inauguration Venue: Peacock Hall	
10:50 AM-11:00 AM	Tea Break	
11:00 AM- 12:00 Noon	Key Note Lecture: Speaker: Dr. N. Jayaram, NIT Andhra Pradesh Venue: Peacock Hall	
12:00 Noon -1:00 PM	Technical Session-A	
	Track 1: Power Electronics for Smart Devices Venue: C 322	Track 2: Smart Power Delivery Venue: Peacock Hall
1:00 PM-1:45 PM	Lunch Break	
1:45 PM-3:00 PM	Industry Expert Talk: Resource Person: Mr. Sri Ramamoorthy, SE, APCRDA, APSPDCL Venue: Peacock Hall	
3:00 PM-3:15 PM	Tea Break	
3:15 PM-5:30 PM	Technical Session-B	
	Track 1: Power Electronics for Smart Devices Venue: C 322	Track 2: Smart Power Delivery Venue: Peacock Hall

**Day 2: February 08, 2020 (Saturday)**

<b>Time</b>	<b>Program</b>	
<b>9:00 AM- 10:00 AM</b>	<b>Session Chair Message:</b> <b>Resource Person: Dr. Srinivas Bhaskar Karanki, IIT Bhubaneswar</b> <b>Venue: Sunflower Hall</b>	
<b>10:00 AM- 10:20 AM</b>	<b>Tea Break</b>	
<b>10:20 AM-12:00 Noon</b>	<b>Technical Session-C</b>	
	<b>Track3:Smart Energy Systems</b> <b>Venue: Sunflower Hall</b>	<b>Track 4: IoT for Smart Grid</b> <b>Venue: Rose Hall</b>
<b>12:00 Noon-1:00 PM</b>	<b>Lunch Break</b>	
<b>1:00 PM-2:00 PM</b>	<b>Session Chair Message :</b> <b>Resource Person: Dr. D. M. Vinod Kumar, Professor, NIT Warangal</b> <b>Venue: Rose Hall</b>	
<b>2:00 PM-4:00 PM</b>	<b>Technical Session-D</b>	
	<b>Track 3: Smart Energy Systems</b> <b>Venue: Sunflower Hall</b>	<b>Track 4: IoT for Smart Grid</b> <b>Venue: Rose Hall</b>
<b>4:00 PM – 4.10 PM</b>	<b>Tea Break</b>	
<b>4.10 PM- 5.00 PM</b>	<b>Valedictory Function</b>	

## Technical Sessions

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National Conference on

## EMERGING TRENDS IN SMART GRID TECHNOLOGIES

(NCETSGT – 2020)

February 07 – 08, 2020

Organized by

Department of Electrical and Electronics Engineering

### Technical Sessions

	Track 1 Power Electronics for Smart Devices		Track 2 Smart Power Delivery	
Session-A 7 <sup>th</sup> February 2020 12.00 Noon -1.00 PM	NC20003	Venue: C 322	NC20002	Venue: Peacock Hall
	NC20006		NC20004	
	NC20008		NC20005	
	NC20010		NC20007	
	NC20016		NC20009	
Session-B 7 <sup>th</sup> February 2020 3.15 PM -5.15 PM	NC20017	Venue: C 322	NC20014	Venue: Peacock Hall
	NC20020		NC20018	
	NC20027		NC20019	
	NC20028		NC20031	
	NC20030		NC20045	
	NC20034		NC20048	
	NC20035		NC20049	
	NC20047		NC20051	
	NC20050		NC20062	
	NC20054		NC20063	
	Track 3 Smart Energy Systems		Track 4 IoT for Smart Grid	
Session-C 8 <sup>th</sup> February 2020 10.30 AM -12.00 Noon	NC20015	Venue: Rose Hall	NC20011	Venue: Sunflower Hall
	NC20021		NC20025	
	NC20022		NC20026	
	NC20023		NC20032	
	NC20024		NC20033	
	NC20029		NC20036	
	NC20038		NC20037	
Session-D 8 <sup>th</sup> February 2020 2.00 PM -4.00 PM	NsC20039	Venue: Rose Hall	NC20043	Venue: Sunflower Hall
	NC20040		NC20044	
	NC20041		NC20057	
	NC20042		NC20058	
	NC20046		NC20064	
	NC20052		NC20065	
	NC20053		NC20066	
	NC20060		NC20067	
	NC20068			

**Track 1: Power Electronics for Smart Devices**

<b>Paper ID</b>	<b>Paper Details</b>
<b>NC20003</b>	<b>Selective Harmonic Elimination in Cascaded Multilevel Inverter for Harmonic Reduction Using Controller Implementation and Design of Neuro Fuzzy Controller</b> <i>Y Lalitha Kameswari</i>
<b>NC20006</b>	<b>A Review on Analysis of Voltage Stress in Reduced Switch Count of 7 Level Multilevel Inverter</b> <i>Karri Nanajee</i>
<b>NC20008</b>	<b>LED Street Lights Based On DC-DC Converters Of Modular Drives</b> <i>G. Koteswara Rao</i>
<b>NC20010</b>	<b>Fast Charging of EV by Reducing Grid Side Harmonics in Rectifier using Five Phase Supply</b> <i>Arisetti Manoj</i>
<b>NC20016</b>	<b>High Frequency Inverter for Induction Cooking</b> <i>Y Bhavya Sree</i>
<b>NC20017</b>	<b>Comparative Analysis of Cascaded Multilevel Inverter Using Level Shift PWM Techniques</b> <i>K Keerthi</i>
<b>NC20020</b>	<b>Control Technique for Power Electronic Converter in Hybrid Electric Vehicle</b> <i>Mathi.Venkata Rishika</i>
<b>NC20027</b>	<b>Reduced Switch Topologies for Multi-Level Inverters with m-Carrier SPWM</b> <i>Yaswanth Sai Kanigolla</i>
<b>NC20028</b>	<b>Novel Field Oriented Direct Control Using SVPWM for Analysis of Induction Motor</b> <i>G.Nageswara Rao</i>
<b>NC20030</b>	<b>Single-phase multipurpose AC/DC converter for electrical vehicle external charging station</b> <i>Swathi Karike</i>
<b>NC20034</b>	<b>Compensation Technique of Dead time for 3 phase split source inverter</b> <i>UBA Pravallika</i>
<b>NC20035</b>	<b>Analysis of modified quasi-ZSI in DCC and CC modes</b> <i>S Venkat Ramana</i>
<b>NC20047</b>	<b>Design and Implementation of Novel Multi level inverter</b> <i>Bhargavi Relangi</i>
<b>NC20050</b>	<b>A multilevel inverter with reduced switch count analysed by various switching techniques</b> <i>K Sumanth</i>
<b>NC20054</b>	<b>Power quality improvement of wind and solar hybrid energy sources interface to the grid using UPQC</b> <i>Ms. Boga Jyothi</i>

**Track 2: Smart Power Delivery**

<b>Paper ID</b>	<b>Paper Details</b>
NC20015	<b>Improvement of Power Quality by Using UPQC</b> <i>K. Srinivas</i>
NC20021	<b>Active Power Filter Controller For Balanced And Unbalanced Non-Linear Load</b> <i>G Nageswara Rao</i>
NC20022	<b>Recent trends in power system by using computational intelligence technique</b> <i>Amit Baban Kasar</i>
NC20023	<b>Power Quality Enhancement for Nonlinear loads using Active Power</b> <i>G. Nageswara Rao</i>
NC20024	<b>Model Predictive Control based Extended Kalman Filter to Improve Power Quality in Micro Grid with Improved Particle Swarm Optimized Selective Harmonic Elimination</b> <i>N Narender Reddy</i>
NC20029	<b>Design And Analysis Of Z-Source Inductor Type Circuit Breaker For Micro Grid Applications</b> <i>K. Srinivas</i>
NC20038	<b>Multi-Objective Approach For Placement Of Dg And Capacitor Along With Avr In Distribution Network</b> <i>K R K V Prasad</i>
NC20039	<b>Control Of Single-Phase Grid-Connected Inverters For Voltage Regulation With Non-Linear Loads</b> <i>Namburi Chandu</i>
NC20040	<b>Recent trends in power quality improvement and demand side load management in smart grid</b> <i>Ravindra. P. Joshi</i>
NC20041	<b>A Novel optimal placement of phasor measurement units using PSO based intelligent algorithm for power system observability</b> <i>Preeti Kabra</i>
NC20042	<b>Optimal Scheduling of electrical vehicles at charging station by genetic Algorithm</b> <i>K Navya</i>
NC20046	<b>Review of various optimization techniques employed in distribution generation</b> <i>Srikanth Goud B</i>
NC20062	<b>A Novel control strategies to manage the power in hybrid Micro-grid</b> <i>B Krishna Reddy</i>
NC20063	<b>performance improvement of electric distribution system through HPFC</b> <i>Ch Vineela</i>

**Track 3: Smart Energy Systems**

<b>Paper ID</b>	<b>Paper Details</b>
NC20015	<b>Image Processing Based Smart Automation System For Energy Saving In Commercial Buildings</b> <i>P Anil Kumar</i>
NC20021	<b>Analysis Of Photo Voltaic Based Active Boost Inverter For Asynchronous Motor Drives</b> <i>Abdul Khadar Shaik</i>
NC20022	<b>Adapted Technologies In Integrated Photovoltaics - Energy Transformation</b> <i>Dr.M.S.Giridhar</i>
NC20023	<b>Enrichment Of Fault Ride Through Potential Of Grid Connected PV-Wind Hybrid System</b> <i>Phani Pallagani</i>
NC20024	<b>An Improved And Smart Battery Management System To Optimize Charging Time And Life Time Of The Battery</b> <i>Aryasomayajula Sirisha</i>
NC20029	<b>Modeling Simulation And Performance Comparision Of Bidirectional DC-DC Convertersk</b> <i>S Ravi Kumar</i>
NC20038	<b>Smart Approach Of Harvesting Rainwater And Monitoring Using IOT</b> <i>V S P Chandrika Kota</i>
NC20039	<b>Multi-Purpose Electrical Vehicles For Agriculture Application</b> <i>M. Jagadeeswara Reddy</i>
NC20040	<b>UDE Based Current Control Of Grid Connected PV Inverters</b> <i>M Mounika Muppavarapu</i>
NC20041	<b>Intelligent Control Strategy For Energy Management System With FC/Battery/SCR</b> <i>Sai Chandan</i>
NC20042	<b>Adapted Technologies In Integrated Photovoltaics - Energy Transformation</b> <i>Munigoti Giridhar</i>
NC20046	<b>Energy Management In A DC Microgrid With Energy Storage System</b> <i>T Vijay Muni</i>
NC20052	<b>Power coefficient improvement of bottom quadrant of vertical axis wind turbine with down- stream deflectors</b> <i>Naveen yadav Jathi</i>
NC20053	<b>Grid connected cross tied configuration of dc-dc converters under various climate configuration</b> <i>V Harshini</i>
NC20060	<b>Optimization Technique For Improvement Fuel Economy In Fuel Cell Hybrid Vechicles</b> <i>Yamini Krishna</i>
NC20068	<b>A review on hybrid AC/DC microgrids: optimal sizing, stability control and energy management approaches</b> <i>P Bhavana</i>

**Track 4: IoT for Smart Grid**

<b>Paper ID</b>	<b>Paper Details</b>
NC20011	<b>Comparative Study on Performance of Document Classification Using Supervised Machine Learning Algorithms: KNIME</b> <i>Srikanth Sattenapalli</i>
NC20025	<b>Statistical quartile deviation-based software reliability growth estimation measure for reliability prediction</b> <i>Y Prasanth</i>
NC20026	<b>Electromechanical and RF investigations of fixed-fixed configuration-based RF MEMS switch</b> <i>G.V.Ganesh</i>
NC20032	<b>Power Consumption Optimization by DC-DC Buck Converter for D2D Communication Device</b> <i>Bh. Sai Gargeya</i>
NC20033	<b>A novel approach to modified advanced encryption standard algorithm</b> <i>N Siddaiah</i>
NC20036	<b>A tool for analysing and mitigating application vulnerabilities in any web application</b> <i>V. Sri Jyothi Mopidevi</i>
NC20037	<b>Implementation of first-order All pass filter using CMOS 45nm Miller Amplification technique</b> <i>N Siddaiah</i>
NC20043	<b>statistical quartile deviation-based software reliability growth estimation measure for reliability prediction</b> <i>Y Geetha Reddy</i>
NC20057	<b>Identity adversity into the multicultural manoeuvre in Philip Roth's the human stain</b> <i>Vasundhara Singh</i>
NC20058	<b>Role of education for the emancipation and empowerment of Dalits</b> <i>Yash Raj</i>
NC20064	<b>A dual full bridge dc dconverter with reduced circulating current,of rectifier stagefor RFPower generation app</b> <i>P Hari Krishna Prasadh</i>
NC20065	<b>Design, model and simulation of automatic material sorting machine</b> <i>MD. Hira Hashimi</i>
NC20066	<b>Checkerboard Electromagnetic Band Gap(EBG) structured S-shaped antenna for wearable applications</b> <i>K Koteswara rao</i>
NC20067	<b>An improved control scheme of electric spring for voltage regulation in distribution system with renewable energy sources</b> <i>K K Deepika</i>





## **Comparative Study on Performance of Document Classification Using Supervised Machine Learning Algorithms: KNIME**

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V. Joshi Manohar, Associate Professor, Department of EEE, Presidency University, Bangalore, India.

### **Abstract:**

This paper proposes grid system and its controlling techniques to regulate the continuous changes in operational requirements and deregulation problems. In the present scenario, the distribution energy systems play an important role in maintaining the power system reliability and stability in distribution domain. The proposed grid is a structure of PV and hybrid system. To achieve the maximum operation from the renewable sources an MPPT methods is proposed. This paper also proposes a concept for controlling of reactive power in single phase grid connected PV system. In order to achieve this reactive power control, this paper is implemented with different current regulated controllers such as conventional PI controller, PR controller, ASDM controller and Fuzzy Logic Controller. This proposed system with different controllers are tested and verified in MATLAB environment.



## **Improvement of power Quality by Using UPQ**

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Dr.A.Anad Kumar, Professor, KLEF Dept of EEE, VIJAYAWADA.

**Abstract:** This paper present improvement of power factor in a long transmission lines. In a transmission system to transfer the maximum power power factor is important role. Here improving the power factor means reducing the losses and increasing the efficiency.in order to achieving good power quality in this paper using UPQC The advance power electronic devices reduces harmonics in the supply system which creates a problem in the quality of power deliver .Good Power Quality is very much important for our day to day use of appliances in both industrial and domestic sectors. Researchers have tried and implemented many useful technology for removing all the voltage and current related harmonic occurrence problems which in turn improves the quality of power deliver to the power system. In this paper introduces different configurations of UPQC system for single phase and three phases. at the same time and helps in reduction of Total Harmonic Distortion.



## **ACTIVE POWER FILTER CONTROLLER FOR BALANCED AND UNBALANCED NON-LINEAR LOAD**

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**Abstract:** The active power filter produces equal but opposite harmonic currents to the point of connection with the nonlinear load. This results in a reduction of the original distortion and correction of the power factor. A three-phase insulated gate bipolar transistor based current controlled voltage source inverter with a dc bus capacitor is used as an active filter. The firing pulses to the shunt active filter will be generated by using sine PWM method. The models for three-phase active power filter controller for balanced and unbalanced non-linear load is made and is simulated using Matlab/simulink software.

## **Selective Harmonic Elimination in Cascaded Multilevel Inverter for Harmonic Reduction Using Controller Implementation and Design of Neuro Fuzzy Controller**

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**Abstract**— In PWM methods, APF devise controls are constant frequency, sliding form, hysteresis, and triangular waveform manage are worn to control in the APF with occasion field advance. The major inadequacy scheme is to, in direct to obtain best grades, comparatively high switch frequencies are essential, afterwards guide to high switching sufferers. Currently soaring hurry processor obtainable to decrease computational time in practical. It may be occasion field or occurrence domain approach, the conservative APFs are also compound and expensive in sensible, while the amount to be forced vary more than a broad scope. Hence an increasingly pretty choice is to employ artificial clever organize schemes such as fuzzy logic, neural network, embedded system etc. The anticipated method be able to remove vocal with optimally choose the switching angles. Vocal production preserve be avoid in multilevel inverters with select best possible angles.

## **RECENT TREND IN POWER SYSTEM BY USING COMPUTATIONAL INTELLIGENCE TECHNIQUES**

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**Abstract:** Electric power frameworks, around the globe, are becoming different as far as shape, activity, the board and possession because of specialized, money related and ideological reasons. Power framework continues expanding regarding topographical zones, resources augmentations, and infiltration of most recent advances in age, dispatch & appropriation. This makes the electric power framework multiplex, vigorously pushed and accordingly defenseless against course blackouts. The customary courses in assurance the office framework style, arranging, activity and the executives issues are horribly widely utilized for different applications anyway these ways experience the ill effects of numerous challenges in light of needs of spinoff presence, giving imperfect arrangements, and so forth.(CI) techniques can give better arrangement in a few conditions and are as a rule generally connected in electrical building supplications. So this paper features the utilization of computational knowledge techniques in electrical power framework issues. Different kinds of CI ways, which are generally utilized in power framework, are likewise talked about in the short  
Keywords: Power frameworks, computational insight, man-made brainpower.



## Power Quality Enhancement for Nonlinear loads using Active Power

K.Ramalingeswara Prasad, G.Nageswara Rao, J.V.Pavan Chandh, J.Siva Vara Prasad, Lakireddy Bali Reddy College of Engineering Electrical & Electronics Eng Dept

**Abstract:** The active power filter produces equal but opposite harmonic currents to the point of connection with the nonlinear load. This results in a reduction of the original distortion and correction of the power factor. A three-phase insulated gate bipolar transistor based current controlled voltage source inverter with a dc bus capacitor is used as an active filter. The firing pulses to the shunt active filter will be generated by using sine PWM method. The models for three-phase active power filter controller for balanced and unbalanced non-linear load is made and is simulated using Matlab/simulink software.

## **A Review on Analysis of Voltage Stress in Reduced Switch Count of 7 Level Multilevel Inverter**

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Dr. A. Pandian, Professor, Dept of EEE, KLEF, Vaddeswaram, Guntur, A.P, India-522502

**Abstract:** In the power conversion technology multilevel inverters are very bright technology among the existing technologies. It provides the stair case wave shape output voltage from constant multiple DC sources which has nearly sinusoidal wave shape. The importance of reduced switch count has merits in modular structure in decreasing the size. As the cascaded H-bridge topology got more attention in the high power medium voltage applications, those topologies are being used extensively. But, increasing of switch count with increase in levels is the only drawback of cascaded H-bridge multilevel inverters. Therefore, in this paper a reduced switch count topology is analyzed for seven level output voltage and the voltage stress analysis is also done. The voltage stress analysis gives the required voltage rating of each switch in the circuit. The work is carried out by using Matlab/simulink software and the results are presented.



## **LED Street Lights Based On DC-DC Converters Of Modular Drives**

G. Koteswara Rao, G. Vijay, Dr. B. Jyothi, M. Srikanth

**Abstract**—This paper proposes a led street lights based on dc-dc converters of modular drives to save energy and if one of the coverters get damaged other converter doesn't get comporise so the LED does'nt stop working and by using this method the LED doen't get damage and increase life-period. In this paper, Light Emitting Diode (LED) electric light unit for street lights based on DC-DC converters were proposed. The driver consists of two modules which are basically converters that are DC-DC type. The foremost in position is a Buck-Boost converter which is obligated to decrease total harmonic distortion (THD) and the second module which is obligated for decreasing the voltage which leads to the control of power. These two converters operate in Discontinuous Conduction Mode(DCM), to construct the system in opposition to failure. Each circuitry contributes their individual LEDS if any of the converters is malfunctioned the system cannot be completely failed. In this paper the input ac supply of 127V is rectified and the rated power of 50 W are performed.



## **THE IMPLEMENTATION OF QUADRATIC METHOD USING BI-DIRECTIONAL CONVERTER IN CLOSED LOOP CONTROL WITH PI CONTROLLER**

P. Jyothi, P.Bhavana, Arisetti Manoj, M. Srikanth

**Abstract:** In this enormous development of technology, the requirements are new per each day. The needs must be satisfied but fulfilling each requirement will generate new desire or need. The technology is evolving day by day because of this recycling process. The invention of fuel-based vehicles shows some de-merits to evolve and shift over to the electrical vehicles. The proposed paper concentrates its main application to be the electrical vehicles, With an improved form of boost as well as buck converter with high voltage gain and efficiency. This shows close loop operation because of its ability to control a drive or electrical vehicle in the place of load. The bi-directional converter adopts quadratic method in proposed model for highly efficient utilization. This paper focuses on the high efficient utilization of bi-directional converter with quadratic

## Model Predictive Control based Extended Kalman Filter to Improve Power Quality in Micro Grid with Improved Particle Swarm Optimized Selective Harmonic Elimination

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**Abstract-** Distributed Generation (DG) units have some desirable features such as environment support, energy expansion, lower infrastructure costs and deregulation of energy market. DG, which is connected to the grid via point of common coupling, has many advantages such as peak shaving in order to reduce the overall cost of power by generating power during peak load hours, and also act as a standby generation to provide electrical power during outages. Due to the availability of parallel connected UPS, increasing the number of DG's is one of the feasible solutions to enhance the quality of power. In this paper we propose a novel Model Predictive Control Algorithm with Extended Kalman Filter (MPC-EKF) are employed for dynamic harmonic state estimation of hybrid DC micro grid to improve the power quality. The MPC control methodology decomposes the control object into steady-state and transient sub problems separately and enhances the transient and steady state responses which also identifies the harmonics present in the system with the help of EKF and after that an Improved Particle Swarm Optimized Selective harmonic Elimination (IPSO-SHE) is employed by adding adaptive inertia weight to reduce the harmonics and improve the power quality. Our proposed control system has been designed in MATLAB/SIMULINK and tested with different load conditions. The simulation results of the proposed control system and comparison with existing control systems shows the significance of the proposed work in terms of accuracy and faster computational time.

## A Review on Hybrid AC/DC Microgrids: Optimal Sizing, Stability Control and energy management approaches

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**Abstract.** The Electricity is the greatest gift of science to humanity reached for civilization where electricity is used for all purposes. However, in recent times a paradigm shift is evolving in the generation of electrical energy from the concept of using major generating plants to minor generating units allied to the distribution systems in the form of microgrids with alternative energy sources called renewables. Around the world renewable energy use is on the rise and these alternate energy sources can generate pollution-free electrical energy to the society. Although these are new centers and units with diminishing cost, there are still many challenges in operation and control of islanded and grid-connected microgrids configured in both AC and DC. Uniting the benefits of microgrids of AC and DC, Hybrid AC-DC Microgrids (HACDC) were developed. Thus, it is relatively imperative to investigate the optimal size, stability control, and strategies of economic efficiency operation of HACDC microgrid. Hence a great review on optimal sizing methods, stability control, and energy management strategies using various iterative and intelligence techniques published in different articles proposed by many authors were presented in this paper.

## **MINIMIZE OF HARMONIC DISTORTION AND POWER QUALITY ANALYSIS USING A NEW DISCONTINUOUS SVPWM OF MULTILEVEL INVERTER**

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**Abstract:** The paper proposed space vector pulse width modulation is comparing the author Rama Krishna Maheshwari and Joan Nicolas reference in the paper. In speed control strategies for the recruitment engine has driven their use in nearly every single electrical drive. For better execution the high control acceptance machines are planned at medium voltage (mv) rating. In the event that single power semiconductor switch is legitimately associated with medium voltage, it might harm. Too, customary inverters produce high recurrence normal mode voltage. Staggered inverter is an elective answer for high control and medium voltage A.C. drive. It begins from three levels. The staggered inverter topology blends a sinusoidal voltage from a few degrees of voltages got from capacitor voltage sources. In this paper, a way to deal with diminish total harmonic distortion utilizing four level diodes clamped staggered inverter (DCMLI) for three stage enlistment engine drive is proposed.



## **Image Processing Based Smart Automation System for Energy Saving in Commercial Buildings**

P. Anil Kumar, A. Madhuri, V. Sai Pranay, B. Loveswara Rao

**Abstract**—The main objective of this project is to implement a prototype for controlling various appliances in commercial buildings automatically without interference of human requirement. Due to the negligence of the people most of the commercial building appliances are keep on running even though when there is no requirement or no human presence. So, energy consumption increases rapidly and wastage of electricity increase. To solve this problem we go for alternatives like home automation system for controlling appliances automatically with the help of various automation techniques. In this project we are implemented home automation system with the help of image processing for controlling home appliances automations which gives better results than previously used automation techniques.

## **ELECTROMECHANICAL AND RF PERFORMANCE ANALYSIS OF SERIES CONFIGURATION BASED MEMS SWITCH**

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**Abstract:** The paper presents a RF MEMS (Radio-Frequency-Micro-Electro-Mechanical-System) of cantilever series switch which is developed with low actuation voltage which depends upon the beam characteristics and the gap between the plane and metal beam. The MEMS series switch that designed is operating with a frequency range (0-60GHz) and it provides control of the other devices. The RF MEMS switching component consists of a electrode with tuning fork shaped which is fixed using anchor points on coplanar waveguide lines to decrease the actuation voltage and the insertion loss of the switch. The Air gap in between the tuning fork shaped electrode and actuation electrode of RF MEMS series switch is designed to boost the isolation attributes of the switch with less actuation voltage. The switching voltage for designing the switch is 18 V. The designed RF MEMS series switch can be used for sub-system level for broadband applications and communication devices.



## **DESIGN AND ANALYSIS OF Z-SOURCE INDUCTOR TYPE CIRCUIT BREAKER FOR MICRO GRID APPLICATIONS**

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**Abstract:** This paper present implementing of inductor based circuit breaker for micro grid with renewable energy source are being visualized as dc power systems. The main purpose of micro grid dc power system to eliminate the power conversion steps i.e. step down and step up voltages. According to the system components there are various loads such as solar panel, fuel cells and batteries etc..With power conversion which is readily available. The main limitation is that interrupting a current arc and arc current doesn't zero . in this reason this paper present new type of circuit breaker implementing provide an efficient power conversion between source and load in wide range of electric power conversion applications. Here Circuit breaker important role to protect the system from under abnormal condition. It works as a DC-DC inverter and also utilized for a short conduction path which lies between the breakers and loads as well as mutual coupling to automatically and rapidly switch off response to a fault. The proposed breaker also utilized the crowbar type switch in the output so that it can be used as a dc switch. Mathematical and simulation we can analysis the proposed topology of the new switch are included.

## **High Frequency Inverter for Induction Cooking**

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**Abstract**—In this paper a High Frequency Resonant Inverter is designed to get higher efficiency for induction cooking. A sinusoidal waveform is produced by the resonant inverter at high frequency i.e., at 33KHz. A parallel resonance circuit in this paper represents the energy transfers constantly in back and forth between the two energy storing elements which results the zero current and zero energy being drawn from the supply. Maximum power is delivered to the load by the resonant inverter at resonant frequency to reduce the losses at power frequencies and to perform high frequency operations[1]. In view of all this induction cooking can be evolved since it has less energy consumption, fast heating, safe and have higher efficiency. Power circuit is examined in both MATLAB Simulink model, PSPICE model and hardware test.



## Comparative Analysis of Cascaded Multilevel Inverter Using Level Shift PWM Techniques

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Bhavana Pabbuleti, EEE Department, Koneru Lakshmaiah Education Foundation, Guntur, Andhra Pradesh  
B Jyothi, EEE Department, Koneru Lakshmaiah Education Foundation, Guntur, Andhra Pradesh  
S Ravi Teja, EEE Department, Koneru Lakshmaiah Education Foundation, Guntur, Andhra Pradesh

**Abstract**—Multi Level Inverter (MLI) is becoming very popular and commonly used in industrial applications where low rating devices are used for high rating applications. Among all Cascaded MLI is used for its well-known topologies and for both single and three phase conversions cascaded MLI is used. In this paper, comparative analysis of cascaded MLI by using level shift carrier pwm techniques (PD, POD, APOD) is presented. For the proposed inverter, the voltage total harmonic distortion is analyzed by Fast Fourier Transform (FFT) analysis. THD is compared for a cascaded MLI by using Level Shift PWM (LSPWM) techniques such as PD, POD and APOD. Simulation is done in MATLAB and waveforms and THD values are analyzed and compared.

## **MULTI-OBJECTIVE APPROACH FOR PLACEMENT OF DG AND CAPACITOR ALONG WITH AVR IN DISTRIBUTION NETWORK**

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K. Ravindra, Electrical & Electronics Engineering, UCEK, JNTUK, A.P, INDIA

**Abstract**— In recent years, many of the researches are leaning towards distributed generation (DG) allocation studies, due to several technical benefits offered by DG units. The allocation of DG near the load center enhances the system voltage, minimizes the energy losses and line loading in distribution network. To upgrade the voltage profile, the allocation of capacitor is essential and it is quite economical, but its improvement of network performance is limited, because it will inject only reactive power. By examining the above downsides, non dominated sorting genetic algorithm-II (NSGA-II) based optimization technique for allocation of DG and capacitor along with AVR is suggested in this paper. The proposed algorithm (NSGA-II) is implemented on standard IEEE 33 bus and 69 bus test systems. The results shows that the proposed method gives better performance improve the reliability of the distribution network..

## **CONTROL OF SINGLE-PHASE GRID-CONNECTED INVERTERS FOR VOLTAGE REGULATION WITH NON-LINEAR LOADS**

Vemuri Sai Chand, Namburi Chandu Srinivasa Manikantha Surya, M.Srikanth, B.Jyothi

**Abstract:** This work deals with the development of renewable energy sources. In this project we are going to present the working simulation model of solar panel using SIMULINK in MATLAB. The main objective is combined application of renewable energy concepts and control systems for the qualitative and quantitative improvement of electricity generated from solar and wind sources. The power generated from the general solar and wind sources is generally at a certain level. But the addition of solar and wind sources and control systems will surely be more in quantity and by the application of power electronic converters the power generated will be more efficient. By synchronizing this generated power with smart grid, the consumer as well as the producer will get profited and satisfied.

## Control Technique for Power Electronic Converter in Hybrid Electric Vehicle

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Mathi.Venkata Rishika, dept. Electrical and Electronics Engineering, KL University, Vijayawada, India  
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**Abstract**—In this paper a Power train is designed in such a way that to control the switching states of the converter. In order to have both charging and discharging states in battery of an Electrical vehicle in the paper implemented a Bi-directional converter which acts as both buck and boost converters. A DC-interface communicates frequently with the HEV-related three power train branches, interfacing a three-stage rectifier, a three-stage inverter, and a bidirectional DC / DC converter. Dynamic converter usability models are developed and a method is introduced to adjust the voltage of the DC-connect depending in the ratio between the battery and the voltage of the DC-interface. As implemented a PI-controller in closed Loop and Fuzzy Logic with PI-controller comparing both PI controller and Fuzzy logic with PI-controller.

## **analysis of photo voltaic based active boost inverter for asynchronous motor drives**

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**Abstract:** This project deals with the modification with the switch position in order to minimize the voltage stress for active boost inverter (ABI). The performance of conventional ABI is analyzed with voltage stress and THD for RL loads. Similarly the estimation for the performance of the modified ABI is analyzed with same load parameters and it is compared with conventional ABI, which results in degrade of voltage stress. The variation in the irradiance of PV is analyzed with modified ABI to obtain the voltage stress. The optimization of coupled inductor  $L_1$  and  $L_2$  is utilized in obtaining the variation with voltage stress. The effects of voltage stress results in the deviation of temperature distribution for MOSFET. The temperature distribution in MOSFET is observed using Finite Element Analysis (ANSYS). The Asynchronous motor is connected to the proposed ABI to determine its suitable applications.



## **Adapted Technologies in Integrated Photovoltaics - Energy Transformation**

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**Abstract**—In this paper the authors discuss the latest adapted technologies in Integrated Photovoltaics their development, growth in the market and their applications for energy transformation. The need for efficient, environment friendly, electrical energy utilization has been achieved with the adaption of Integrated Photovoltaics technologies. Here, the demand electrical energy in the commercial, Industrial, Agro, Road transport, Building loads have been supplied through Integrated Photovoltaics as UIPV's, VIPV's, BIPV's and OIPV's. Their Advantages, Challenges in implementation have been presented.

## Enrichment of Fault ride Through Potential of Grid Connected PV-Wind Hybrid system

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Jarupula Somlal ,Professor, Department of EEE ,Koneru Lakhmaiah Education Foundation ,Vaddeswaram, Guntur, A.P, India-522503

**Abstract:** PV Wind hybrid power system the major task is to address intermittent nature. This paper proposes strategy and implementation of a compound sliding mode monitor (CSMM) for wind device. It includes a flexible-switching sliding mode spectator (FS-SMS) and a nonsingular sliding mode Monitor (NSMM). FS-SMS is used to look at the interruptions, NSMM is used as speed control. CSMM approach famous robustness towards nonlinearities and outside disturbances. Incremental conductance technique is used to obtain the greatest electricity from PV device. PV and Wind structures attached to the common DC link, then related to the converter. Hybrid device is attached to the grid through a transformer. DVR used to improve the fault Ride through capability with the help of PI controller. Different fault situations are tested for enhancing the FRT capability.



## **AN IMPROVED AND SMART BATTERY MANAGEMENT SYSTEM TO OPTIMIZE CHARGING TIME AND LIFE TIME OF THE BATTERY**

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**Abstract**—The growing world leaves fossil fuels apart and put a hand forward to green energies. Among the available sources of energy resources, batteries are the best choice of energy source for EV's. As the battery source is very essential it should be monitored and protected. The most attainable aspect in the forthcoming hybrid vehicles is a reliable and efficient battery charging. Charging batteries in hybrid electric vehicles are done by various methods. There are many battery charging techniques in order to charge a battery. Constant voltage and constant current charging are few among them gives an optimized result whereas normal charging techniques doesn't give such optimized result. This paper demonstrates that the optimized charging methods can reduce charging time, improve charging performance and extend battery life cycle comparing with conventional charging methods. The charging characteristics of a battery using this CC and CV charging have been observed.



## **Electromechanical and RF investigations of fixed-fixed configuration-based RF MEMS switch**

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**ABSTRACT:** A shunt structure RF MEMS switch model and assessment are given in this paper to tunable applications. Switch capacities dependent on the guideline of electrostatic incitation. The electromechanical and electromagnetic recreation results are contrasted and the hypothetical determined switch parameters. The impact of various materials, for example, channel and dielectrics and parameters, for example, air hole, pillar length on the switch's electromechanical parameters is assessed to get a low actuation voltage, high exchanging recurrence, and great capacitance proportion, loss of return, loss of inclusion, and loss of protection. The state capacitance of the here and there switch is 40.9fF and 4.45pF separately.



## Power Consumption Optimization by DC-DC Buck Converter for D2D Communication Device

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**Abstract**—In this paper a unique switching methodology is proposed for the SMPS with DC-DC Buck converter present in the Power Management Unit of a mobile device, focused on in case of D2D communications. During D2D communications it is observed that the power requirements of the participating parts of the device alter frequently, demanding changes in voltage shifts by the supplying converter. It is so because of the nature of device to device communications to shift between different levels of frequencies and power levels of transmission and reception that this loss arises. During this high frequency shifting of voltages, in actual, there is high frequency switching taking place. It is performed in two modes-PWM and PFM. The transition between the two modes is done to operate accordingly in high power and low power mode, is where the switching losses occur. Improving the switching cycles and methodology we can attempt to achieve improvement in the power transfer thus increase overall efficiency in power consumption.

## Reduced Switch Topologies for Multi Level Inverters with m-Carrier SPWM

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**Abstract**— This paper presents the transformer based multilevel inverter topologies with a m-carrier based level shift sinusoidal pulse width modulation method. Two topologies are presented in which the first topology has two bridges, one gives quasi square wave output and the other gives pulse width waveform. The outputs of two bridges are energized with the two different ratio transformers. The secondary terminals of two transformers are cascaded to attain 19 level output voltage wave form. The second topology has only one bridge and it contains 8 switches and two DC sources. The bridge output is given to the transformer and it acts as an isolation. The output of the topology gives the 7-level output. This topology has less number of components to reduce the cost and provides inbuilt isolation, to enhance the reliability of converter. The paper uses the common level shift SPWM method with modified carrier that is m-carrier to attain the maximum amplitude and the harmonics are shifted to very high level without change in the frequency. The paper topologies are validated with experimental results.

## **Novel Field Oriented Direct Control Using SVPWM for Analysis of Induction Motor**

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**Abstract**— This paper indicates three degree neutral reason clamped converter drew in induction motor with direct field certain union control abuse house vector heartbeat estimation standard structure. The general analysis of significant degrees of advancement converter for diminishing of torsion swells in sharp degree underwriting motor. The key house vector heartbeat estimation change alliance approach is associated with real reason cut inverter (NPC) by supports that of estimation of reference torsion. The anticipated framework deals with insightful degree extended by and large execution in decline of torsion swell structure. The searing subject certain relationship of two stage SVPWM point is isolated and foreseen 3-parts SVPWM theme. The torsion swell of the assertion motor is management led by abuse SVPWM based all around standard talking direct control certain control technique. The redirection results unit of estimation offered to handles that farthest point of two stage and three stage FOC association abuse SVPWM structure.



## UDE BASED CURRENT CONTROL OF GRID CONNECTED PV INVERTERS

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### Abstract

The LCL filter is commonly used as a grid-to-grid interface. Nonetheless, due to the features of LCL filter and process uncertainties, designing a controller with proper parameters is complex. In this paper, with the LCCL filter, the order of the inverter control system can be reduced from third order to first order and a strategy for controlling the inverter connected to the grid based on uncertainty and disturbance estimator is proposed with LCCL filter. The main purpose of this paper is to improve the efficiency of grid-connected PV inverters with proposed LCL filter.



## MODELING SIMULATION AND PERFORMANCE COMPARISON OF BIDIRECTIONAL DC DC CONVERTERS

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**ABSTRACT :** Bidirectional power flow is more important when an electrical braking is employed in the electric vehicle . For electrical applications, a bidirectional DC-DC converter is much more preferred when compared to the unidirectional DC-DC converter. To facilitate energy recovery in regeneration mode, a bidirectional DC-DC converter is being used in electric vehicles. The improvement of efficiency can be further increased by using a non-isolated bidirectional DC-DC converter. In this paper , various non-isolated bidirectional DC-DC converters have been simulated and compared and a novel DC-DC converter has been discussed in detail and the results have been obtained by using PSIM and MATLAB.



## Single Phase Multi-Purpose AC/DC Converter for Electric Vehicle External Charging Station

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**Abstract**— Even though the Vehicle customers are aware of the environmental issues and willing to maintain non pollutant electric vehicles because of non-available charging stations and more charging time still electric vehicles are not prominently used. Much important charging stations are non-profitable for the owners because of its more initial and maintenance costs. Hence a charging station with less installation and maintenance cost with fast charging capabilities is much needed. This paper presents a multi-purpose AC to DC converter with a single-phase bridgeless topology and fast charging. The electric vehicle battery can be either charged through slow charging or fast charging with the same converter. With the proposed bridgeless topology, a secondary DC/DC converter is not necessary to obtain the power conversion which reduces the number of components, component losses, installation and maintenance cost of the charging station significantly. The proposed converter can also access the communication lines of the vehicle through charger cable along with the terminals to charge battery. Depend on the accessed data like State of charge and temperature of the battery, charging strategy will be decided by the proposed converter. The operating switching sequence, conversion topologies, duty ratio calculation, safety functionalities and characteristics of the proposed AC to DC converter are analyzed and validated with simulation results for 12-kW AC slow Charging mode and 32-kW Fast-Charging mode.

## **DEAD-TIME COMPENSATION TECHNIQUE FOR THREE PHASE SPLIT- SOURCE INVERTER**

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**Abstract:** Mostly Inverters are of step-up type converters. Generally inverters are considered as VSI but here in VSI an extra step-up type chopper is essential to eliminate its step down limitation. Recent studies put more concentration on ZSI which is as single stage DC-AC converter, which means it doesn't require boosting stage. Recent studies put more concentration on impedance or Z source inverter (ZSI), which is a single stage inverter that means it doesn't require boosting stage. In this paper split source inverter (SSI) is implemented which is a single stage converter. The SSI is designed to reduce the cost, size and weight of the inverter. The major drawback of the SSI compared to ZSI is, like as VSI there should be sufficient dead-time. The dead-time effects are resulted in distortion in the output current and unwanted characteristics. So, in this paper generated delay time is reduced for SSI because, the switching logic is same as like VSI.



## A NOVEL APPROCH TO MODIFIED ADVANCED ENCRYPTION STANDARD ALGORITHM

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**ABSTRACT:** The Internet of Things (IoT) is a self-ruling framework for web availability, furnished with sensors, applications, PCs and system collaboration so as to associate using an obscure remote system for data trade. As of late, IoT systems command the world by having different capacities and constant correspondence data. Other than the powerful highlights of IoT gadgets, they are staggeringly battery driven, conservative and convoluted and face numerous snags due to perilous media. Albeit numerous issues exist, the issue of vitality is currently turning into the most significant concern. Advancement of vitality utilization calculations was not straightforwardly considered. A few calculations at that point center around the equipment district to essentially alleviate and streamline it in security issues.

However because of the ongoing coming of IoT gadgets, the principle issue is to keep up humble security and lower control utilization rates. We present MAES, a light weight form that fulfills the determination, with the Advanced Encryption Standard (AES). In planning a crisp condition, a fresh1-dimensional substitution box is proposed to develop a square framework in the MAES phase of fondness preparing. The exhibition pace of bundle transmission is around MAES 18.35%, recommending that for asset compelled conditions MAES utilizes less power than AES.

## **Smart Approach of Harvesting Rainwater and Monitoring Using IoT**

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### **ABSTRACT:**

The groundwater level in depending on the rate of water sink into the earth layers, due to multiple reasons rate at which water is taken from the ground is not equal to the rate at which water goes back into the ground hence leads to scarcity of water at various places on earth. This paper deals with the effective way of monitoring the rain water and analyze the data using IoT (internet of things). Rainwater harvesting (RWH) is the accumulating and storing, of rain for reprocess, before it reaches the formation. Rain collected from the roofs of homes, tents and native establishments will build a very important contribution to the supply of potable. The rain water harvest home (RWH) system as a prototype is analyzed as a various supply of water at K L University (KLEF) in the state of Andhra Pradesh, India. The expected outcome of the study is that the development of rainwater harvesting system for catchment area. The developed system satisfies the social necessities and may be enforced in rural areas by considering most the technical side. The proposed model is solar based rainwater harvesting monitoring using IOT, uses the solar panel to charge the battery via charge controller. IOT (internet of things) is adopted to visualize the data over the cloud. Thin speak website is to used cloud platform to collect the whole data of the rainwater aimed to increase the ground storage capacity.

## Recent Trends in Power Quality Improvement and Demand Side Load Management in Smart Grids

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### **Abstract:**

The growing consumer demand on electrical energy sources every day and the aging transmission and distribution power grid infrastructure is causing new challenges for electrical engineers. In recent years, the focus of power system engineers and consumers has been shifted to “power quality” due to increased usage of voltage sensitive equipment such as computers, servers, network infrastructure and precision electronic manufacturing equipment by consumers. Power quality is determined by performance of end user equipment and productivity. Any power problem in terms of voltage, current or frequency variations that result in failure or malfunctioning of consumer equipment is considered as a power quality problem. The variations in voltage and current mainly occur due to electromagnetic transients, harmonic distortion due to power electronic switching equipment, voltage sag, swell and flicker due to switching of large capacitor banks in power grid. In addition, recently there have been numerous small to mid-size installations of renewable energy sources such as solar photovoltaic (PV) systems and wind power generation which are connected to the grid at the distribution side. The nature of these renewable energy sources is that they produce intermittent power generation based on solar and wind energy availability during the day and their high penetration poses problems of voltage and frequency instability in the grid.

Another cause of poor power quality is that load demand is not predictable and consumption or daily behaviour of load patterns is not known, hence there is difficulty in matching the demand and supply of power. Demand side management helps the energy providers to reduce their peak load demand and reshape the load profile to a certain extent. Several publications of state-of-the-art technologies for improvement of power quality such as passive and active filters, active power line conditioning, static VAR compensation, electric spring and smart loads are reviewed in this paper. Also various methods of demand side management such as estimation of load patterns, peak clipping, valley filling, intelligent load switching, electric spring and smart loads for reducing the peak demand on utilities are discussed.

## **A TOOL FOR ANALYZING & MITIGATING APPLICATION VULNERABILITIES IN ANY WEB APPLICATION**

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**Abstract:** A lot of users used web applications nowadays. they depend on the number of web applications to use various services. Web application acts as a key user and webserver function. Users can also use web applications for their activities at a time when hackers use the same to target different web applications. If any such sort of web services happen on a website are not going to work properly. The users can use their acts to deal with so many disturbances. Web applications are to be facing a lot of hacker attacks. hackers can apply different types of attacks. They are divided by xss-(cross-site-scripting) attacks, Session-hijacking attacks, URL-interruption attacks like dos attacks, phishing attacks etc... these are very risky attacks for web applications are facing vulnerability problems. In this paper, we implement a tool to evaluate how such vulnerability attacks can be established.



## ANALYSIS OF MODIFIED QUASI-ZSI IN DCC AND CC MODES

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**Abstract:** This paper presents a novel technology of Modified Quasi ZSI to improve the voltage gain of converter without using additional passive components unlike the other traditional converters. In the proposed converter the gain of the converter is boosted by connecting one auxiliary switch and diode, so that the converter operates in two modes. I.e. continuous current and discontinuous current mode. These modes of operation are distinguished by changing the switch position and load parameters. Operating theory, steady state analysis, current stress, stored energy analysis, power loss, voltage stress, THD and efficiency are performed. Proposed converter operation is simulated and results are tested experimentally.

## Implementation of First order All pass filter using CMOS 45nm Miller Amplification technique

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**Abstract---** This paper presents a fully coordinated CMOS all-pass channel with a very low 2Hz post recurrence. It has a band swell of 0.08-dB and an area of 0.029-mm<sup>2</sup>Si. It has 0.38-mW power use with  $\pm 0.6$ -V control supplies in strong reversal. In the sub-edge, it has a calm power of 0.64- $\mu$ W and operates with  $\pm 200$ -mV dc supplies. The increase of the mill operator is used to get a large proportionate capacitor without exceeding the top si region. Through fluctuating the miller speaker's addition, the post recurrence can be changed from 2 to 48 Hz. The findings of discovery and re-enactment of a 45 nm CMOS engineering test chip model are in line with the circuit suggested.





## **STATISTICAL QUARTILE DEVIATION-BASED SOFTWARE RELIABILITY GROWTH ESTIMATION MEASURE FOR RELIABILITY PREDICTION**

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### **Abstract**

Software reliability growth models are used to predict the quality of the software systems using statistical learning models. However, a large number of faults are remained undetected in small and medium applications. A large number of traditional reliability measures are used to test the software faults in the application development and testing process. But in real-time, new faults are included in the software testing and maintenance phases in order to find the reliability estimation. The main problem in the existing SRGMs include, difficult to handle large reliability data and these models are not applicable to statistical dependencies and independency measures. In the proposed model, a novel statistical dependency and independency-based quartile density distribution model is implemented to improve the reliability prediction rate. Experimental results proved that the present model has high reliability estimation probability than the traditional growth models in terms of skewness and peak-ness.



## Multi-functional Electrical Vehicle for Agricultural Applications

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**Abstract**— In order to avoid various problems which affects agricultural fields, agricultural electrical vehicle is needed, to fulfil the objectives like weed detection, irrigation, crop protection and Bug Spray. This paper illustrates the design aspects of electric vehicle which is eco-friendly in nature and automated. The various technologies used are sensor technology and IoT. Sensors used are temperature, humidity, LDR, Ultrasonic, Soil moisture, IR, and Rainfall sensor. IoT technology includes Bluetooth module and image processing object detection. The embedded controllers used are Raspberry Pi and Arduino. Servo and Geared DC motors are used for traction. The designed EV not only uses battery power but also uses renewable energy in order to perform all its operations. The proposed model is cost effective and reliable and suitable for linear agricultural applications.



## INTELLIGENT CONTROL STRATEGY FOR ENERGY MANAGEMENT SYSTEM WITH FC/BATTERY/SC

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**Abstract:** The Hybrid Electric System (HES) is a desirable issue by integrating different, hopeful technologies like Fuel Cell, a Battery and a Super Capacitor. Because of its reliability, this system is configured for electric vehicle purposes. In this paper hybrid system performance is analyzed and evaluated by using MATLAB /Simulink. Based on a multi-input and multi-output state-space model, a model comprising a battery, a proton exchange membrane fuel cell (PEMFC), and super-capacitor were developed. A reliable energy management system for hydrogen fuel usage, and state fluctuations throughout the super-capacitor or battery were analyzed and assessed to regulate load demand and to examine supply sources. The simulation outcomes could substantially confirm overall performance using MATLAB / Simulink environment.



## ADAPTED TECHNOLOGIES IN INTEGRATED PHOTOVOLTAICS - ENERGY TRANSFORMATION

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*Abstract*—In this paper the authors discuss the latest adapted technologies in Integrated Photovoltaics their development, growth in the market and their applications for energy transformation. The need for efficient, environment friendly, electrical energy utilization has been achieved with the adaption of Integrated Photovoltaics technologies. Here, the demand electrical energy in the commercial, Industrial, Agro, Road transport, Building loads have been supplied through Integrated Photovoltaics as UIPV's, VIPV's, BIPV's and OIPV's. Their Advantages, Challenges in implementation have been presented.

## **AN IOT BASED AUTOMATIC ACCIDENT DETECTION AND TRACKING SYSTEM FOR EMERGENCY SERVICES**

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### **ABSTRACT**

Road accidents are serious cause of deaths, injuries and loss of property every year in India. The present accidents are enlarged to a larger extent. An according to the NCRB (National Crime Records Bureau) 2018 information 682,985 accidents are recorded. Mainly 172,736 traffic related deaths are recorded in India. Year by year the number is rapidly rising. The emergency vehicle is to arriving at the accident location is delay. Because in major cases an accidents location and to the hospital is involving to the traffic. As a result, an insistent requirement is to recognize the deterioration situation in road accident injuries and deaths to find take action. In case of traffic; it is important to have vital management of the complete scenario to organize access to calamity services. This proposed system is mainly focusing on reducing the number of deaths and traffic control in road accidents. Thus, we implemented a method for real world emergency traffic monitoring using sensing technology and the Internet of Things (IoT). In Proposed method, crash sensors are applied to identify the accidents and pass the information to close to calamity services and family members through GSM. An accident position is finding by using Google map, manages the traffic signals and serving towards arrive at the hospital in time. Our proposed system is completely works automatically. In our proposed work, an integration of Ultrasonic, mic sensors and MEMS are used for accidents detection.

## **RELIABILITY ANALYSIS OF CYBER PHYSICAL DISTRIBUTION SYSTEM CONSIDERING MITM ATTACKS**

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**Abstract:** Study of an active cyber physical distribution system incorporated with an Intrusion Tolerant System (ITS) in detail is presented in this paper. Cyber-attacks by intruding into the distribution system are affecting the reliability of the overall power system. Semi Markov Process (SMP) analysis is used to illustrate the process of either penetration or normal attacks done against the ITS by modelling the transition probabilities in between states of SMP and by evaluating mean sojourn time of each SMP state in order to find Mean Time To Compromise (MTTC) of the system. Then Monte Carlo Simulation (MCS) is used to find the reliability of the given 8 bus test system. Finally, all the distribution system reliability indices with and without cyber-attack are calculated for the given test system. The obtained results show the impact of cyber-attacks on physical distribution system.



## **A MULTILEVEL INVERTER WITH REDUCED SWITCH COUNT ANALYSED BY VARIOUS SWITCHING TECHNIQUES**

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### **Abstract**

This paper is mainly aiming at comparing the reduced switch inverter with general switching and three PWM techniques. Reducing switch count helps to get cost cut down of inverter by large scale. This also makes compact, logic easy and also easy control. These kinds of inverters are very useful for low power rating or medium power ratings [1]. But high-power rating requirements we have to use normal inverters. Here in this paper we are testing the proposed model by 4 different techniques. Such as normal switching and 3 of level shift PWM techniques.



## **A NOVEL OPTIMAL PLACEMENT OF PHASOR MEASUREMENT UNITS USING PSO BASED INTELLIGENT ALGORITHM FOR POWER SYSTEM OBSERVABILITY**

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**Abstract**— This paper presents the PSO algorithm technique for best location of PMU so that the system is completely observable. Particle swarm Optimization (PSO) is modern heuristic algorithm for optimized placement of PMU. Phasor Measurement Unit (PMU) is an advanced device for wide area real time monitoring of power system which measures magnitude along with angle with universal time synchronization. As PMU is very expensive device it is necessary to minimize the number of devices with all buses should be observable. PSO algorithm provides the minimum number of PMU's for IEEE-14 bus and its location gives better result compared to other optimization algorithms.

## **Energy Management in a DC Microgrid with Energy Storage System**

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**Abstract---** The rapid penetration of Renewable Energy Source based Distributed Generation (DG) in the conventional power grid scenario forms a new type of power system, the Microgrid. Microgrid reduces the emission of green house gas and the necessity of fossil fuels. Interfacing DG with the utility power supply has heightened the worry about the microgrid control and power sharing among multiple DGs. A control strategy with active power control is applied for power sharing among multiple DGs both in grid connected and autonomous mode of microgrid operation. The frequency of the microgrid is taken as a common signal among the multiple DGs for control over the power injected by DG. Hence real power-frequency (P-f ) droop control is applied for DGs. The control strategies for the purpose power sharing, power quality enhancement and stability analysis are evaluated with the help of MATLAB/SIMULINK platform.





## Design And Implementation Of Novel Multi-level Inverter

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*Abstract*— In this project there is a modern dc-ac inverter with multi-levels. The suggested multi-level inverter produces an output voltage of seven stages when designing the correct gate signals. Also, the low pass channel can be utilized to limit the absolute euphonious mutilation of the sinusoidal voltages. In this proposed staggered inverter, the changing misfortunes and the voltage weight of influence frameworks can be diminished. The suggested inverters working standards and the adjusting framework for the info capacitor voltage were discarded. Finally, a multi-level laboratory inverter system with an input voltage of 400-V and an output of 220Vrms/2 KW is introduced. The computerized sign processor (DSP) TMS320LF2407 controls the staggered inverter with the adjustment of the sinusoidal pulse-width (SPWM). Experimental results present peak performance of 96.7 percent and full load efficiency of 94.5 percent. Staggered inverters have been broadly acknowledged for high-control high-voltage applications. Their effectiveness is profoundly better than that of traditional two-level inverters because of diminished euphonious mutilation, lower electromagnetic obstruction and higher dc contact voltages. . It has certain weaknesses, yet, for example, expanded part numbers, complex heartbeat width control and voltage balance issues.





## **Optimal Scheduling of Electric Vehicles at Charging Station by Genetic Algorithm**

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**ABSTRACT:** This paper uses both the photovoltaic (PV) power system and the power grid to research the optimum charging plan for electric vehicles in a workplace charging station. Due to intermittency of the solar energy and random Electric Vehicles (EVs) charging requirements it becomes more challenging. To solve this problem we consider the energy from power grid. This paper mainly deals with the minimum usage of energy from power grid and maximize the usage of solar energy such that it maximize the benefit to the owner of the charging station. We use the Genetic Algorithm (GA) technique to solve this issue. The results of the simulation will show the performance of GA based workplace charging station.



## **REVIEW OF VARIOUS OPTIMIZATION TECHNIQUES EMPLOYED IN DISTRIBUTION GENERATION**

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**ABSTRACT:** Distributed Generators are playing a vital role and had achieve lot of attention due to their greater impact on various distribution systems. This approach encourages small scale technologies to produce electricity to the need at consumer end by utilizing the renewable energy sources. Power quality and reliability of distributed power can be attained by proper placing of Distributed Generators at appropriate location. Optimization tools were predominantly increasing their importance in integration of distributed generation. This paper proposes various reviews on recent optimization techniques being used over the years to the problem solving and sizing of DG units. In contrast this paper analyses the economical, technological, environmental etc., which are rapidly growing interest on integration of distributed generation by overcoming all the challenges. At last it presents several optimization techniques of the integration of distribution generation from renewable energy sources.



## SMART CITES MISSION IN INDIA-ISSUES AND CHALLENGES

Dr. K. Bhavana Raj  
Dr. Mohmad Mushtaq Khan

**Abstract:** Every city has is unique, be it culture-wise or identity-wise. To nurture, preserve and renew the urban fabric with changing times, the old cities need to upgrade themselves. However, there is also a requirement to create new cities. A city is an economy of agglomeration; it provides various advantages and opportunities. That's why we all flock to the cities in search of a far better future. However, things would become very difficult to sustain if there are no limits. What was once a village grows into a town, a city, a metropolis, a mega-polis then slowly begins to decay into a 'necropolis'. India's economy is expanding rapidly. By 2030 it's expected to possess grown by five times, buoyed largely by the country's urban centers. During an equivalent period, the country's labor force is predicted to grow by 270 million workers, with urban jobs accounting for 70% of that growth. This paper conceptualizes the issues and challenges related to the mission of smart cities in India.

## POWER COEFFICIENT IMPROVEMENT IN BOTTOM QUARDENT OF VERTICAL AXIS WIND TURBINE WITH DOWN STREAM DEFLECTORS

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**Abstract:** One of the significant wellsprings of sustainable power source is wind. To meet the present electrical demand we should capture the maximum wind energy. Availability of small wind mills with less efficient in energy capture. In this paper, we will model and simulate power coefficient improvement in bottom deflector optimization with vertical axis wind turbine in ANSYS Fluent a two-dimensional vertical hub wind turbine (VAWT) and computational fluid dynamics (CDF) is used to solve the K-epsilon (RNG). First of all, open rotor design was optimized with the required parameters, to the impact speeding up that had on the turbine execution at the open rotor design 24.7208% achieved as a maximum efficiency. And the array of curved upstream deflector was used, in order to efficiency improvement at odds with the original rotor design. Arrange of deflector will represent the liquid type stream redirection from the returning turbine sharp edge, results negative torque actuated on the framework diminishes, redirector width edge of 45 and 36 degrees were found improve the exhibition of turbine by almost 1%.

## **Grid connected cross tied configuration of integrated converters with MPP Tracking under various climatic conditions**

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**Abstract:** The central inverter design of integrated photovoltaic cells consists of different configurations of PV modules. These configurations of PV modules are exposed to shading effects and cause power losses. To reduce to effect of shading and to extract the maximum power a MPP controller is used along with the developed architecture. In this paper all the string integrated converters are total cross tied and a MPPT controller is integrated to it. For the maximum power extraction perturb and observe and incremental conduction MPPT techniques are used. The performance of both the techniques are compared and examined under different shading conditions.

## Power Quality Improvement of Wind and Solar Hybrid Energy Sources Interface to the Grid Using UPQC

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**Abstract**— In distribution systems with non-conventional energy sources, power electronic converters are being utilized. The enhancement of power quality characteristics for the wind, solar energy systems merge with grid connected system is predominantly concentrated in this paper. The wind, solar energy power plant is designed by using the corresponding equations. The inverter is used to feed the power in to transmission grid and it is used as a power converter-based shunt active power filter. Every function may be accomplishing either separately or concurrently. The UPQC is regulated based on the PWM controller and is formulated depending on the conviction of PQ theory. Nevertheless, in the existence of non-linear load also balanced load currents are acquired by using this control. This work is done in MATLAB and simulation results are verified.

## **HYSTERESIS CURRENT CONTROLLER BASED SHUNT ACTIVE POWER FILTER FOR POWER QUALITY IMPROVEMENT IN SYNCHRONOUS GENERATOR**

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**Abstract:** Active power filters are used to improve the quality of power and are normally connected to standard coupling(PCC) in parallel with the load. These are used to compensate for the harmonic structure of nonlinear loads to compensate for reactive energy and to balance main current. The result of using active power filter is to improve the quality of output power of simplified synchronous generator with distorted EMF back. To recreate active power filter and proposed generator, a Simulink mat lab for design for improved synchronous generator is being worked out. The results of the simulation of the active power filter will show significant changes in the output current of the generator and reduced THD in the process.





## Identity Adversity into the Multicultural Manoeuvre in Philip Roth's *The Human Stain*

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Dr. SARIKA TYAGI, Dr. SARIKA TYAGI, Associate Professor (Head of Department), Department of English, Vellore Institute of Technology, Vellore.

**Abstract** -This paper embarks on with the opinion on identity adversity in the American society for people of other root. America has diverse culture and it includes various race, religion, ethnic etc. Like all other Jewish-American writers Roth's novels also convey theme of identity crisis because of his Jewish root. Taking catch from Roth's theme of identity and multiculturalism, *The Human Stain*, which recollects his drills of pluralism, ethnic mosaic, multiracialism, fusion, existence and self. The paper illustrates the American society in which there exist numerous distinct ethnic and cultural groups and searching for identity.





## Role of Education for the Emancipation and Empowerment of Dalits

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Dr. Siva Nagaiah Bolleddu, Associate Professor, Department of English

**Abstract:** - School and college is a place where young minds are nurtured and allow them to Understand the values of life by teaching them the different aspects of the same such as honesty, discipline, togetherness, equality, respectability etc which are the fundamental issues of one's life. They learn new things about the world and get to familiarize with different worldly affairs. But what will happen when school and college differentiate among the students on the grounds of caste and creed. Scenario for Dalit children in the Indian edification system was very poor. Dalit children were forced to sit down outside the classrooms, listening on the gallery while those in higher castes would be taught inside the classrooms. Teachers didn't want to come in the contact of the Dalit children. They would fling bamboo canes on them from the distance hence making them realize that they are polluted. The Dalit children would be essentially scared into not attending school. The study also shows that Dalits since time immemorial are not allowed to avail the facility of education. Although they went to school and colleges but they were denied the fundamental rights implicitly through different devious means.



## **Educating Women for Emancipation and Cultural Empowerment: A Critical Study of Sudha Murty's *Three Thousand Stiches***

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**Abstract:** Sudha Murty is a prolific Indian women writer and eminent philanthropist whose writings are purposed with creating awareness of social struggles undergone by the destitute, which are accustomed to being overlooked by the self-centered world, and remind the duty of charity to fellow needy. Sudha Murty writes both in English and Kannada. The present story “Three Thousand Stiches” is centered around the miserable lives of women struck in the practice of a social evil called *devadasi* system and prostitution. The short story further throws light on how education would be a key instrument in the life of those devadasi women which amplified for their liberation and empowerment.

## Optimization Technique for Improvement Fuel Economy in Fuel Cell Hybrid Vehicles

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**Abstract:** Energy management strategies applied to hybrid vehicles powered by fuel cells and batteries plays a crucial role. A comparative study of fuel consumption according to different drive cycles is to be implemented. As the drive cycles give the data to implement the work in simulation. This paper is to present optimal fuel consumed by using Equivalent Consumption Minimization Strategy (ECMS) and to compare which of the driving cycles enhance the driving capability of the system.

## Dynamic Performance Analysis of Grid Connected Single Stage PV-System

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**Abstract---** For Grid-connected PV-system control aspects, MPPT tracking, harmonic output current reduction, and grid synchronization are all done at a single stage for improved efficiency and simple power converter topology. All control aspects of this paper have been done using soft techniques. In these, the adaptive neuro-fuzzy inference method (ANFIS) controller is used instead of the traditional PI controller. This paper also discusses a three-phase single-stage PV-system that is linked to the IEEE-33 bus distribution network with a modified control strategy. The CGVD (compensator for grid voltage disturbance / dip) block is proposed modified block used to eliminate harmonics in the ac side of the grid for improved controller performance and also for the use of real and reactive power controllers. For the purpose of regulating the dc-link voltage, the proposed FBL (feedback linearization) voltage controller is used with the PV-current feed forward signal. In this article, p-q technique is used for real and reactive power control by using the d-q components of the grid present. The proposed model is tested in different conditions, e.g. dynamic performance is evaluated on the MATLAB platform.

## **A Novel Control Strategy to Manage the Power in Hybrid Micro Grids**

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**Abstract---** Due to the attributes of solar irradiance and PV panels, batteries are generally used in photo voltaic power systems to reduce the power variations. Due to this attributes, the power management and control algorithms are required to manage the power flows in hybrid micro grid system. Control algorithms for the system must be able to stable the voltages of the buses and to control power flows. So this paper suggesting a power management system (PMS) for hybrid micro grid system with DC and AC buses, for the islanded and grid connected cases. The suggested PMS is effective in stable the frequency and control the DC and AC bus voltages flexibly, monitoring the voltage and power of each circuit and dynamically matching the system power flows in different working conditions independently of the disturbances induced by operational modes of coupling, radiation and temperature variations and load adjustments.

## Performance Improvement of Electric Distribution System through Hybrid Power Flow Controller (HPFC) Modeling

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**Abstract**— The modern trends of distribution systems by using distribution generation resources, smart loads and storage equipment created challenges for distribution feeders operation. This can be handled effectively by power electronics controllers. But the capital cost of these controllers became a main obstacle for their wide use. The Hybrid Power Flow Controller (HPFC) is one of the FACTS controllers which provide a satisfactory solution to widen the application of FACTS controllers to distribution systems. Thus in this paper the dynamic model of HPFC is developed and implemented in MATLAB, to operate this controller in distribution system applications properly, such as voltage sags concord with feeder faults and power flow fluctuations due to recurrent renewable generation using a benchmark network as an elucidative example with a suitable controller.

## A Dual Full-Bridge DC–DC Converter with Reduced Circulating Current, Output Filter, of Rectifier Stage for RF Power Generator Application

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**Abstract-** In this paper, a hybrid dual full-bridge dc– dc converter for radio frequency (RF) power engenderer application is proposed to overcome the drawbacks of a conventional phase-shift full-bridge (PSFB) converter such as the large circulating current of the primary side and large output filter size. The proposed converter adopts a dual full-bridge hybrid structure with a small series capacitor in the primary side and a full-bridge rectifier with two additional low-voltage-rated diodes in the secondary side. With this structure, the proposed converter has advantages of reduction of circulating current, zero-voltage switching (ZVS) operation of all primary switches, size reduction of the output inductor, and low conduction loss of the rectifier stage. Additionally, the proposed converter can regulate the output voltage very wide by changing the operational mode according to the output voltage. These advantages result in the improvement of whole load efficiency. The operational principle and analysis of the proposed converter are presented and analyzed.



## **Design, model and simulation of automatic material sorting machine**

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**Abstract---**The design of automatic material sorting system is a complex process and a sophisticated problem. The need of the system has to satisfy the industry requisition. The process is designed and implemented as automated sorting of objects using belt conveyors. This concept of conveyor belt has better technology that would reduce human effort to sort the materials of non-ferrous metals having different shapes, sizes and separate the varieties and sequentially moves them towards the confined basket by the modulation of the PLC adopting a proximity sensor to detect the range of the objects. In this work, the sorting time of selected materials such as plastic, steel and wood together sorted to their appropriate position to record the average sorting time. As a consecutive attempt to develop the manufacturing sector in sorting of materials and to generate the listed materials with respect to the setup of sorting mechanism.



## Checkerboard Electromagnetic Band Gap (EBG) Structured S-Shaped Antenna for Wearable Applications

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**Abstract:** A miniaturized wearable antenna with a compact EBG with checkerboard structure is designed. The structure is placed on a denim jeans material with thickness of 0.7mm and having dielectric constant of 1.7 and a loss tangent of 0.02. The antenna operates at a frequency of 2.5 GHz and has 0.33GHz bandwidth and 13.2% impedance bandwidth for ISM band applications. The prototype is robust as well as compact and adheres to the wearable applications. The EBG is used to improve the gain and reduces the Specific Absorption Rate (SAR) which is an essential in wearable applications. The gain of 6.5dBi and SAR of 0.0312W/Kg is achieved, satisfying the required conditions of the antenna in the presence and absence of EBG to assess the changes caused in the performance of the antenna due to the insertion of EBG.



## **AN IMPROVED CONTROL SCHEME OF ELECTRIC SPRINGS FOR VOLTAGE REGULATION IN DISTRIBUTION SYSTEMS WITH RENEWABLE ENERGY SOURCES**

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Dr. J. Vijaya Kumar, Professor, Dept. of EEE, ANITS, Visakhapatnam, Andhra Pradesh.  
Dr. G.Kesava Rao, Professor, Department of EEE, KLEF, Vijayawada, Andhra Pradesh

### **Abstract**

Penetration of renewable energy sources in the distribution systems paved way to the development of smart load device, Electric Springs (ES) that makes voltage regulation more flexible. The voltage disturbances are caused due to the power electronic converters, solar irradiation and wind speed variations. This paper implements Radial Chordal Decomposition technique to stabilise the voltage profiles at the chosen six locations in the distribution system. Performance of Electric springs based on PI controller and RCD controller is compared and verified on a modified IEEE-15 distribution network. Demonstration of the results is carried out in MATLAB Simulink GUI environment.