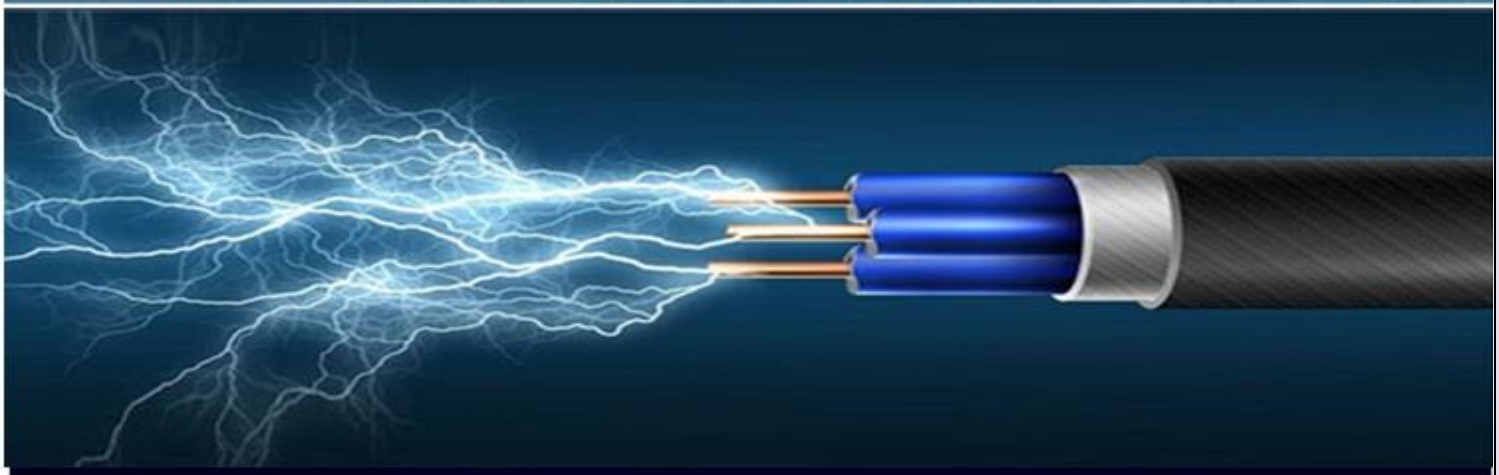
PRAGATI ENGINEERING COLLEGE
(Autonomous)
DEPARTMENT OF E.E.E



RADIANCE

ANNUAL TECHNICAL MAGAZINE

Volume- 6

SEPTEMBER-2021

2020-21
RADIANCE

Address
Department of Electrical and Electronics Engineering
Pragati Engineering College
1-378, ADB Road, Surampalem, E.G.Dt, Andhra Pradesh, India-533437

CONTENTS

VISION & MISSION

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION:

To excel in engineering education and research, inculcating professional and social ethics among the students through academic excellence in the field of electrical & electronics engineering

MISION:

M1: To impart quality technical education for students to make them globally competent and technically strong.
M2: To collaborate with industries and academic institutions to enhance creativity and innovation with professional and ethical values.
M3: To motivate faculty and students to do impactful research on societal needs and to build team work among them.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO1 :To produce graduates with a strong foundation in the basic sciences, mathematics, computing and core knowledge in Electrical and Electronics Engineering problems through high quality technical education.
PEO2 :To prepare graduates for successful and productive engineering careers, with emphasis on technical competency and with an attention to serve the needs of both private and public sectors by developing novel products and solutions for the real-time problems in a socio-economic way.

PEO3: To inculcate professional & ethical attitude, honing effective communication skills and managerial skills to work in a multidisciplinary environment as a technocrat/administrator/entrepreneur and to acquire the knowledge for pursuing advanced degrees in Engineering, Science, Management, Research and Development.

PROGRAM OUTCOMES (POS):

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2 Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO 3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Modern tool usage: Create, select, and apply appropriate techniques, re- sources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6 The engineer and society: Apply reasoning informed by the contextual know- ledge to

assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the
professional engineering practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi- disciplinary environments.

PO 12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest con- text of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOS):

PSO1: Apply the concepts of Power Systems, Power Electronics and utilization of Renewable Energy in implementation of interdisciplinary projects.

PSO2: Acquire the knowledge of Electrical and Electronics Engineering to participate in national and international competitive examinations for success- for higher studies and employment.

ABOUT THE DEPARTMENT

The Department of Electrical and Electronics Engineering (EEE) is fully equipped and caters to the needs of all the students. The passed-outs as well as the current final year students achieved excellent placements in various MNC's. As a befitting reward to its incessant efforts in developing the department, the Department has added a feather in its cap by receiving the prestigious NBA accreditation in 2012 and also added prestigious NAAC with 'A' Grade and AUTONOMOUS in 2016.

Electrical branch has been qualified in AICTE-CII Survey-2015 and has grouped as "GOLD" category at National Level among a total of 2161 applications received by AICTE portal in the AICTE –CII Survey of industry linked technical institutes 2015. Pragati Engineering College has been granted the t-SDI (Technical Skill Development Institute) by APSSDC under G.O.MS.No.05, dated on 25-04-2016.

Progress of Science & Technology in the recent past has made enormous contributions to all walks of life. Research has played an indispensable role in the field of Electrical Engineering. Therefore zeal to pursue the latest advances has to continue.

With this objective in view, the department of Electrical and Electronics Engineering is publishing Technical Magazine to provide a forum for engineering students to update their knowledge & innovative ideas in the field of Electrical Engineering.

Dr. K. Satyanarayana M.Tech, Ph.D, MIE, MIEEE, MISTE, C Eng (Vice-Principal & HOD-EEE) is an Exuberant Person with a 14 Years Experience in The Teaching Field and 4years Experience in Industry. Having A Good Echelon, He Had Been Awarded "BEST TEACHER AWARD" On The Occasion of Sir Raghupati Venkata Ratnam Naidu Birth Day Celebrations By JNTU College Of Engineering, Kakinada On 01/10/2009. He has been awarded with PhD (Doctor of Philosophy) by JNTUK, KAKINADA on 20.06.2013 for the thesis entitled "Performance improvement techniques for Vector controlled Induction Motor Drives" under the guidance of Dr. A.Kailasa Rao, Professor and Director of Pragati Engineering college and Dr. J. Amaranth, Professor in EEE department, JNTUH, Kukatpally, Hyderabad. He has been felicitated by the College on 21.06.2013 for his meritorious achievement.

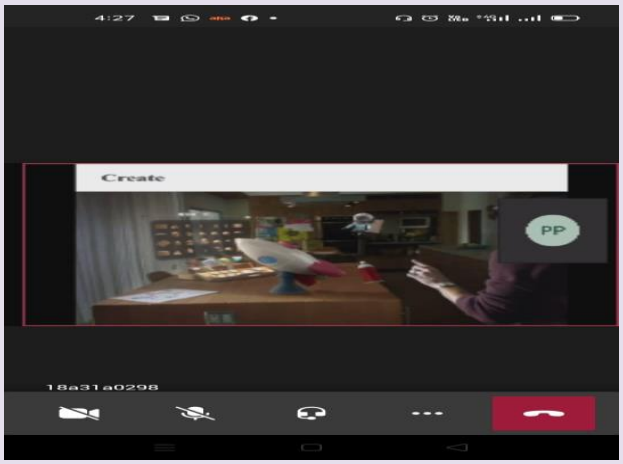
Dr. G. Naresh is appointed as Dean (Administration) of Pragati Engineering College and also awarded PhD in Electrical & Electronics Engineering by JNTUK, Kakinada for the thesis entitled "Design of PSS and TCSC for Multi-Machine Power Systems Employing various Metaheuristic Techniques". He had been honored "BEST TEACHER AWARD" at JNTUK University Auditorium, KAKINADA.

Technical trends

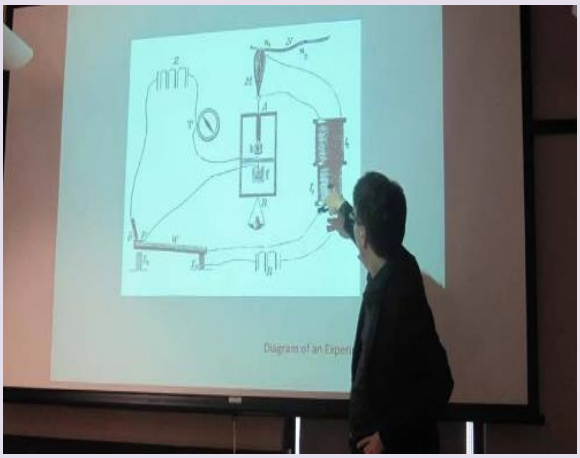
- Paper Presentation
- Project Display
- Elocution
- Workshops
- Seminars

➢ *Technical trends*

Paper Presentation



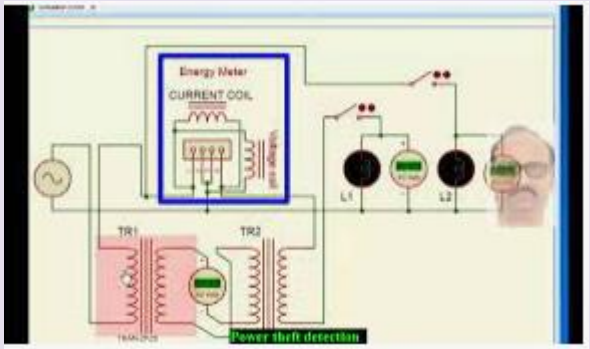
❖ Department of Electrical and Electronics Engineering Student chapter Institution of Engineers(India), chapter code-533437/PEC/EE conducted a PPT on Engineering for A Healthy Planet on the eve of Engineer's day on 15/9/2021



❖ EEE Department Student Chapter, Institution of Engineers (India) in association with Institution's Innovation Council (IIC) of Pragati Engineering College celebrated National Technology Day on 11th May 2021. On this Occasion Powerpoint Presentation is conducted among the students on the topic "Recent Technologies invented by Engineers and Scientists" through MS Teams App.

Project display

❖ Mr.K.Javeed(18A31A0298),Mr.K.Venkatesh(18A31A0294), Mr.D.Premkumar (18A31A0286), Mr. Ch Siva Rama Krishna (18A31A0283), Mr.R V V Satyanarayana, (18A31A02A1),Mr.T. H S S V Mani Vamsi(18A31A02A5) are selected for the Finals in India Innovation Challenge Design Contest IICDC-2019 Organized by DST & Texas Instruments (TI) Inc. powered by AICTE mission, anchored by NSRCEL@IIMB and supported by My Gov with a project title of Power theft detection



Elocution

❖ International Energy Day was celebrated by EEE department on 3rd May 2021. On this Occasion EEE department student chapter Institution of Engineers (India) in Association with IIC-PEC conducted Elocution among the students on the topic "**Initiatives to Save Energy and Protect the Environment**" through MS Teams App

Workshops

EEE Department student chapter, Institution of Engineers (India) in association with APSSDC Organized a one week online Workshop on "**Fundamentals of Drone Technology**" from 24-05-2021 to 29-5-2021. **124** Students of II, III & IV EEE participated and certified through this workshop.

Seminars

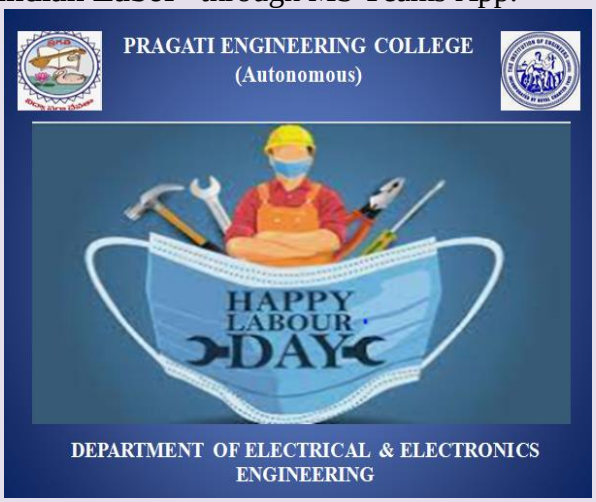
❖ The Department of Electrical and Electronics Engineering , Pragati Engineering College (Autonomous) Organized a one day Awareness programme on **"Electrical Energy Conservation "** on December 16, 2020 in F25 Conference hall under the Student's Chapter- Institution of Engineers (India), Chapter code: 533437/PEC/EE, in Association with APEPDCL , Jaggampeta

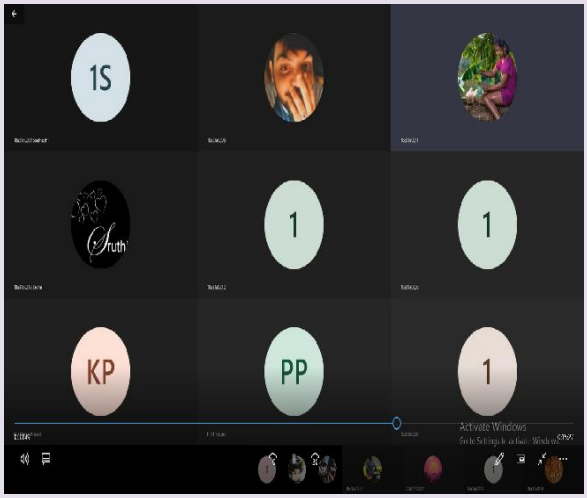
Calendar events:

Important Days Celebrated by EEE Dept Student chapter(IEI):

- **Report on Worlds Labor Day (01.05.2021)**

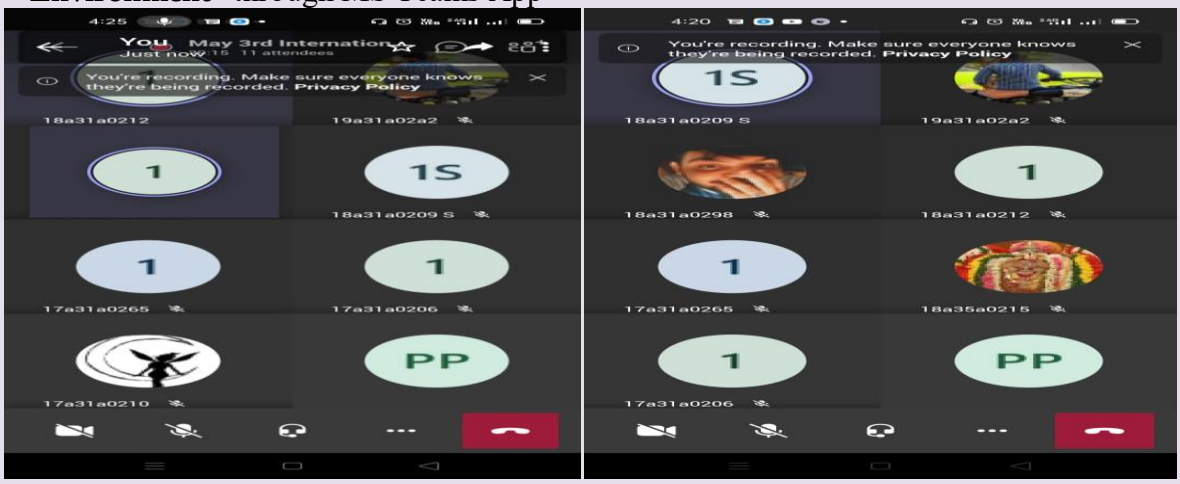
World Labor Day was celebrated by EEE department Student chapter on 1st May 2021. On this Occasion EEE department student chapter Institution of Engineers (India) in Association with IIC-PEC conducted Debate among the students on topic "**The Pandemic is changing the face of Indian Labor**" through MS Teams App.





- **Report on International Energy Day (03.05.2021)**

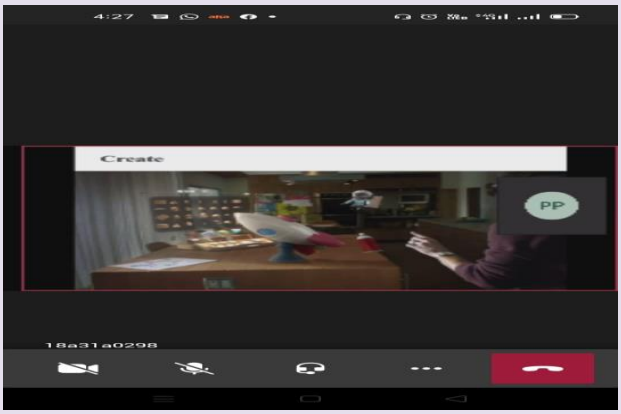
International Energy Day was celebrated by EEE department on 3rd May 2021. On this Occasion EEE department student chapter Institution of Engineers (India) in Association with IIC-PEC conducted Elocution among the students on the topic "**Initiatives to Save Energy and Protect the Environment**" through MS Teams App



- **Report on National Technology Day (11.05.2021)**

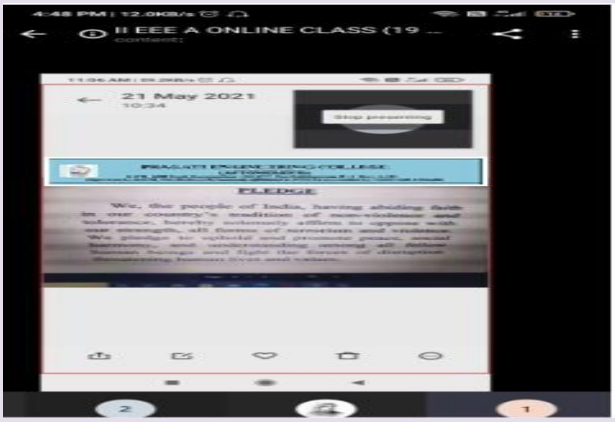
EEE Department Student Chapter, Institution of Engineers (India) in association with Institution's Innovation Council (IIC) of Pragati Engineering College celebrated National Technology Day on 11th May 2021. On this Occasion Powerpoint Presentation is conducted among the students on the topic "Recent Technologies invented by Engineers and Scientists"

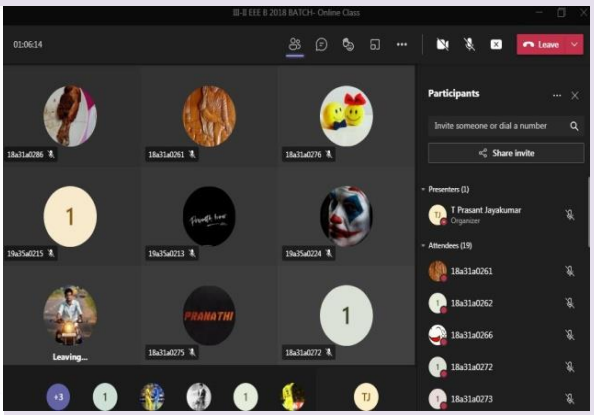
through MS Teams App.



➢ Report on conducting pledge on Anti Terrorism Day on 21-5-2021

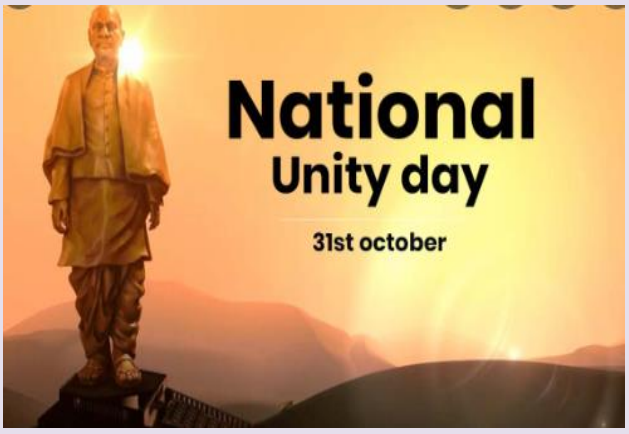
Department of Electrical and Electronics Engineering has conducted an Anti Terrorism Pledge taking ceremony by students and staff members on 21.05.2021 in their respective classes. Around 132 students were participated and took the pledge on Anti Terrorism Day





➢ Drawing competition on Rāṣṭrīya ēkatā divas:

Department of Electrical and Electronics Engineering Student chapter Institution of Engineers(India), chapter code-533437/PEC/EE celebrated the Rāṣṭrīya ēkatā divas and conducted a Drawing completion among the students on 31 October. It was introduced by the Government of India in 2014. The day is celebrated to mark the birth anniversary of Sardar Vallabhai patel who had a major role in the political integration of India



➢ *NPTEL certificates:*

S.No	RollNo.	Name of the Student	Course Name as per MOOCs
1	19A31A0204	D.S.N.L Priyanka	Developing softskills and personality
2	19A31A0206	G.D.S.M.L.Sneha Priya	Developing softskills and personality
3	19A31A0207	G.b.v.nandini	Developing softskills and personality
4	19A31A0208	G.Geetha VenkataLakshmi	Developing softskills and personality
5	19A31A0216	Naidu Srujana	Developing softskills and personality
6	19A31A0217	Parupudi Praharshitha	Developing softskills and personality
7	19A31A0223	Sudheer Kumar Allu	Developing softskills and personality
8	19A31A0225	CH.B.Surya Phani Sri Harsha	Introduction to smart grid
9	19A31A0230	K.praveen Reddy	Introduction to smart grid
10	19A31A0234	K.Dhanush Varma	Developing softskills and personality
11	19A31A0242	Dharma Sai Paruchuri	Developing softskills and personality
12	19A31A0243	P.Sai Nithin	Introduction to smart grid
13	19A31A0249	SH Abid Hussain	Developing softskills and personality
14	19A31A0250	S Rahul	Developing softskills and personality
15	19A31A0251	Ulli Sai Trinadh	Developing softskills and personality
16	19A31A0257	Y sai Krishna sri harsha	Developing softskills and personality
17	19A31A0264	Kapu Naga Haritha Pravallika	Developing softskills and personality
18	19A31A0265	Kasimeda Rojamani	Developing softskills and personality
19	19A31A0274	T.Vineela	Developing softskills and personality
20	19A31A0278	A.N.V.V.D.Satya Prasad	Introduction to Internet of things
21	19A31A0279	Sudheer.A	Introduction to Internet of things
22	19A31A0289	K.Bhaskar	Developing softskills and personality
23	19A31A0294	M.S V Krishna praveen	Developing softskills and personality
24	19A31A0297	Uma Mahesh Narla	Developing softskills and personality
25	19A31A0299	P surya venkata Manoj	Developing softskills and personality
26	20A35A0201	P.Jeevana sushmitha rani	Developing softskills and personality
27	20A35A0204	K Durga Bhavani	Developing softskills and personality
28	20A35A0205	J.John Banion	Developing softskills and personality
29	20A35A0208	Kada Anand	Developing softskills and personality
30	20A35A0209	S Ramanuz	Developing softskills and personality
31	20A35A0210	S.Aharon	Developing softskills and personality
32	20A35A0211	K. Guna Vardhan	Developing softskills and personality
33	20A35A0212	Keerthi Kumar	Developing softskills and personality
34	20A35A0218	U Sai Srinivas	Developing softskills and personality
35	20A35A0223	Nukapeyyi pradeep	Introduction to Internet of things
36	20A35A0225	Atchuth Kumar	Introduction to Internet of things

Student publications:

Authors

Boddeti Priyanka
17A31A0201
B-TECH IV-EEE

Kukkala Ramya
17A31A0206
B-TECH IV-EEE

Nallamilli Sushmareddy
17A31A0212
B-TECH IV-EEE

Sathi Keerthi Priyanka
17A31A0214
B-TECH IV-EEE

Utukuri Mounika
17A31A0217
B-TECH IV-EEE

Performance Improvement of Dual Voltage Source Inverter

This paper presents a dual voltage source inverter (DVSI) scheme to enhance the power quality and reliability of the microgrid system. The proposed scheme is comprised of two inverters, which enables the microgrid to exchange power generated by the distributed energy resources (DERs) and also to compensate the local unbalanced and nonlinear load. The control algorithms are developed based on instantaneous symmetrical component theory (ISCT) to operate DVSI in grid sharing and grid injecting modes. The proposed scheme has increased reliability, lower bandwidth requirement of the main inverter, lower cost due to reduction in filter size, and better utilization of microgrid power while using reduced dc-link voltage rating for the main inverter. These features make the DVSI scheme a promising option for microgrid supplying sensitive loads. The topology and control algorithm are validated through extensive simulation and experimental results.

Authors

Mavireddy Vijaya Lakshmi
17A31A0208
B-TECH IV-EEE

Mutya Sai Srikari
17A31A0211
B-TECH IV-EEE

Ch Dharani Chowdary
18A35A0201
B-TECH IV-EEE

Gandharapu Vishali
18A35A0202
B-TECH IV-EEE

Teki Bhavani
18A35A0203
B-TECH IV-EEE

Speed Control Of Induction Motor Using A Second-Order Sliding Mode MRAS Speed Estimator

Variable speed Induction motor drives require wide speed variation and quick response, notwithstanding any disturbances and uncertainties (like load variation, parameters variation and un-modeled dynamics). The advancements done recently in field oriented control have reduced the price of power electronics devices and microprocessors which have created variable speed induction motor drives a cost effective for several industrial applications. For rotor speed estimation, the MRAS based methods are used here, which has the advantages of simplicity, better performance and ease in implementation as in comparison with other speed estimation techniques. The MRAS based on flux is stable and provides good performance. One specific approach to robustcontrol management style is the second order sliding mode control methodology. In this paper, a SMO based MRAS with Artificial Neural Network controller (Function Fitting Neural Network with Levenberg-Marquardt training algorithm) is

designed for an induction motor drive. ANN based methods overcome instability and parameter dependency problems as shown in this paper, and when trained properly, are capable of providing stable operation at all speeds. The comparison in the performances of Induction Motor drive by SMO based MRAS with and without ANN controller is shown in this paper and is simulated in the MATLAB/Simulink software

Authors

Jyothula Rama Lakshmi
17A31A0203
B-TECH IV-EEE

Kakarlapudi Snigdha
17A31A0204
B-TECH IV-EEE

Magapu Vidya
17A31A0207
B-TECH IV-EEE

Vanaparthi Pratyusha
17A31A0219
B-TECH IV-EEE

Yendamuri Bhavyasri
17A31A0222
B-TECH IV-EEE

Decentralized ANFIS Control of Microgrid for Electric Vehicle Charging Station

As already happens with the electric vehicles (EVs) expansion, technology associated with their charge also must be improved. This paper presents a novel decentralized control method for charging stations based on a mediumvoltage direct-current (MVDC) bus. This kind of charging stations is integrated in a microgrid with a PV system, a battery energy storage system, a local grid connection and two units of fast charge. The main contribution of this work resides in the cited decentralized control method based on ANFIS that includes the state of charge of the battery energy storage system as a control variable. This control contains two independent ANFIS systems (one for the battery energy storage system and other for the grid), whose function is to maintain the MVDC voltage and the battery energy storage system stateof-charge within proper thresholds and to keep the power balance stable among the units of fast charge and the rest of the charging station components. The new control method was tested in a considerable number of operating situations (two hundred cases studied) under different conditions of sun irradiance, initial state-of-charge of battery energy storage system and number of EVs connected to the charging station with the objective of showing its correct performance in all the considered scenarios

Authors

Kantipudi Sirisha
17A31A0205
B-TECH IV-EEE

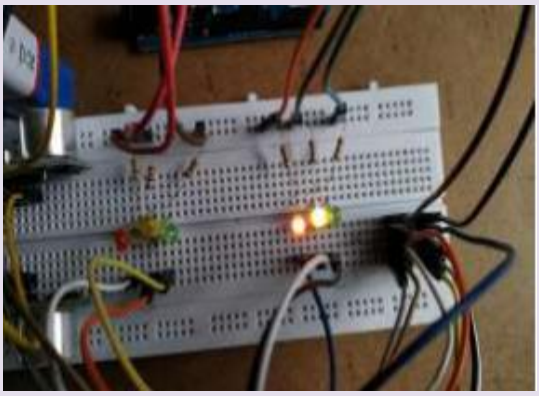
. Implementation of NPC Inverter for Autonomous PV Array Excited Wind Driven Induction Generator for off grid Application

An Isolated renewable energy systems (RES) isfully based on RES, but at the same time reliable

Moparthi Sruti
17A31A0210
B-TECH IV-EEE

S Naga Sri Hari Priya
17A31A0215
B-TECH IV-EEE

V S S V Phanisahitya
17A31A0218
B-TECH IV-EEE



is necessary for meeting the power demands of remote places where utility grid is not available and for which hybrid wind-solar systems plays a crucial role. In this paper, a simplified control scheme has been presented for a stand-alone hybrid PV array-excited wind driven induction generator considering a three phase variable load with or without unbalance. The proposed scheme exploits the ruggedness and cost-effective induction generator as aviable alternative for an expensive permanent magnet synchronous generator (PMSG) which is invariably used in stand-alone small wind turbines. Any stand-alone system employs a battery, however the system is supposed to deliver power even in the absence of battery and the battery less mode of operation is presented in this paper. The control scheme has been validated with simulation results. The validation results have been presented which shows the proposed scheme is expected to be an attractive solution for remote application where utility grid is either not feasible or not economical.

ANFIS based of Optimal Maximum Power Point Tracking Algorithm for Photo-Voltaic Energy Conversion System

Authors

Immandi Sindhu
17A31A0202
B-TECH IV-EEE

Peddinti V L Sai Sruthi
17A31A0213
B-TECH IV-EEE

Sula Sita Maha Lakshmi
17A31A0216
B-TECH IV-EEE

Vennapu Satyavathi
17A31A0220
B-TECH IV-EEE

Photovoltaic (PV) modules play an important role in modern distribution networks; however, from the beginning, PV modules have mostly been used in order to produce clean, green energy and to make a profit. Working effectively during the day, PV systems tend to achieve a maximum power point accomplished by inverters with built-in Maximum Power Point Tracking (MPPT) algorithms. This paper presents an Adaptive Neuro-Fuzzy Inference System (ANFIS), as a method for predicting an MPP based on data on solar exposure and the surrounding temperature. The advantages of the proposed method are a fast response, non-invasive sampling, total harmonic distortion reduction, more efficient usage of PV modules and a simple training of the ANFIS algorithm. To demonstrate the effectiveness and accuracy of the ANFIS in relation to the MPPT algorithm, a practical sample case of 10 kW PV system and its measurements are used as a model for simulation. Modelling and simulations are performed using all available components

provided by technical data. The results obtained from the simulations point to the more efficient usage of the ANFIS model proposed as an MPPT algorithm for PV modules in comparison to other existing methods.

Authors

Ch. Sai manikumar
17A31A0225
B-TECH IV-EEE

Ch Sai Sandeep
17A31A0226
B-TECH IV-EEE

E Nitish Kumar
17A31A0229
B-TECH IV-EEE

Konala Raja
17A31A0235
B-TECH IV-EEE

Vulavala Srihari
17A31A0258
B-TECH IV-EEE

Power Loss minimization of IEEE 33 Bus System with A Generalized Approach of ACDC Hybrid Limited Distribution Systems

This paper proposes a unified load flow (LF) model for AC-DC hybrid distribution systems (DSs). The proposed model can be applied in hybrid DSs with mixed configurations for AC/DC buses and AC/DC lines. A new classification of DS buses is also introduced for LF analysis. A set of generic LF equations has been derived based on comprehensive analysis of the possible AC-DC hybrid system configurations. Three binary matrices, which are used as a means of describing the configuration of the AC and DC buses and lines, have been employed in the construction of the unified power equations. These matrices enable a single configuration at a time to be activated in the power equations. The proposed LF model is generic and can be used for both grid-connected and isolated hybrid DSs. The new model has been tested using several case studies of hybrid DSs that include different operational modes for the AC and DC distributed generators (DGs). As a means of evaluating the effectiveness and accuracy of the proposed model, the LF solution was compared to the solution produced by PSCAD/EMTDC. A comparison of the results reveals the efficacy of the proposed model.

Authors

Gollapalli Jagadish
17A31A0230
B-TECH IV-EEE

J Yogi Naga Sai Ram
17A31A0232
B-TECH IV-EEE

P V Siva Sai Ram
17A31A0242

An Optimal Maximum Power Point Tracking using Particle Swarm optimization algorithm in PV System

In this paper, a modified maximum power point tracking (MPPT) algorithm based on particle swarm optimization (PSO) technique is proposed. This algorithm aims to maximize the power extracted from a photovoltaic (PV) system with Lithium-ion (Li-ion) battery under partial shading condition (PSC). The proposed algorithm aims to

B-TECH IV-EEE

R Abhirama Sasidhar
17A31A0245
B-TECH IV-EEE

V Sai Nandan Varshith
17A31A0252
B-TECH IV-EEE

reduce the time wasted during the exploring phase by using a variable sampling time. To do this, a comparator between the reference voltage given by the PSO algorithm and the output voltage of the PV array is integrated. Once the PV array voltage attains its reference, the corresponding power is stored and the next agent is considered as a new reference voltage for the converter. The whole system modeling and simulation is performed and the algorithm is implemented under Matlab/SIMULINK environment. Simulation results show a good tracking speed; the proposed algorithm, at any condition, can track the global peak (GP) in less than 500 ms

Authors

Burra Surya Sai Raja
17A31A0224
B-TECH IV-EEE

CH Venkata Srinivas
17A31A0227
B-TECH IV-EEE

R Subhash
17A31A0248
B-TECH IV-EEE

V Satya Ravi
17A31A0255
B-TECH IV-EEE

Y Srinivas Manohar
17A31A0258
B-TECH IV-EEE

Advanced Intelligent Control Architectures for Autonomous AC, DC and Hybrid AC/DC Microgrids with Decentralized and ANFIS Control

The microgrid concept is gaining popularity with the proliferation of distributed generation (DG). Control techniques in the microgrid is an evolving research topic in the area of microgrids. A large volume of survey articles focuses on the control techniques of the microgrid; however, a systematic survey of the hierarchical control techniques based on different microgrid-architecture is addressed very little. The hierarchy of control in microgrid comprises three layers, which are primary, secondary, and tertiary control layers. A review of the primary and secondary control strategies for the AC, DC, and Hybrid AC-DC microgrid is addressed in this paper. Furthermore, it includes the highlights of the state-of-the-art control techniques and evolving trends in the microgrid research.

Authors

Kasi Rama Krishna
18A35A0207
B-TECH IV-EEE

K Sai Manikanta
18A35A0208
B-TECH IV-EEE

Kurapati Sai Karthik
18A35A0210
B-TECH IV-EEE

An ANFIS Based Advanced Disturbance Reduction Field-Oriented Control for Six-phase Induction Machine

Generally in these days multiphase induction machines are used in industries to meet the demand of high output power. When these induction machines are subjected to sudden change in the load torque there will be some effect on speed of the machine and reduces the performance. To obtain this, effective disturbance Rotor field oriented control strategy is employed along with

P Sri Rama Sai Hanvesh
18A35A0212
B-TECH IV-EEE

Tummalapalli Kiran Teja
17A31A0251
B-TECH IV-EEE

Authors

Kota Ravindra Sai
18A35A0209
B-TECH IV-EEE

Ch V D Krishna Vamsi
18A35A0205
B-TECH IV-EEE

Vasamsetti Vijay Kumar
18A35A0213
B-TECH IV-EEE

Bonthu Pradeep Kumar
18A35A0204
B-TECH IV-EEE

P.Sudheer
18A35A0211
B-TECH IV-EEE

input of feed forward TL as an identical to q-axis iqL current and controllers like PI, ANFIS and FLC. The performance of proposed method is tested by employing MATLAB/Simulink and the Simulation results shown that FLC, ANFIS are given better performance compared with PI control

A SinglePhase Integrated On board Battery Charger Using Fuzzy Logic Controller for Plug in Electric Vehicles

Plug-in electric vehicles (PEVs) are equipped with onboard level-1 or level-2 chargers for home overnight or office daytime charging. In addition, off-board chargers can provide fast charging for traveling long distances. However, off-board high-power chargers are bulky, expensive, and require comprehensive evolution of charging infrastructures. An integrated onboard charger capable of fast charging of PEVs will combine the benefits of both the conventional onboard and off-board chargers, without additional weight, volume, and cost. In this paper, an innovative single-phase integrated charger, using the PEV propulsion machine and its traction converter, is introduced. The charger topology is capable of power factor correction and battery voltage/current regulation without any bulky add-on components. Ac machine windings are utilized as mutually coupled inductors, to construct a two-channel interleaved boost converter. The circuit analyses of the proposed technology, based on a permanent magnet synchronous machine (PMSM), are discussed in details. Experimental results of a 3-kW proof-of-concept prototype are carried out using a 220-V <subxmlns:mml="http://www.w3.org/1998/Math/ MathML"xmlns:xlink="http://www.w3.org/1999/xlink">rm s</sub> , 3-phase, 8-pole PMSM. A nearly unity power factor and 3.96% total harmonic distortion of input ac current are acquired with a maximum efficiency of 93.1%..

Authors

Lakkavarapu Lokabhiram
17A31A0236
B-TECH IV-EEE

Modified Cascaded Multiport Converter using Fuzzy Logic Control for SRM based Hybrid Electrical Vehicle Applications

This paper proposes a cascaded multiport switched

Taritla China Babu
17A31A0249
B-TECH IV-EEE

Tentu Kashyap Kumar
17A31A0250
B-TECH IV-EEE

Vatturi Siva Sai Phani
17A31A0254
B-TECH IV-EEE

A.Jagan Mohan
17A31A0223
B-TECH IV-EEE

reluctance motor (SRM) drive for hybrid electric vehicle (HEV) applications, which not only allows flexible energy conversion among the generator/ac grid, the battery bank, and the motor, but also achieves battery management (BM) function for state-of-charge (SOC) balance control and bus voltage regulation. By integrating the battery packs into the AHB converter, the cascaded BM modules are designed to configure multilevel bus voltage and current capacity for SRM drive, which can accelerate the excitation and demagnetization processes during the commutation region, extend the speed range, reduce the voltage stress on the switches, and improve the torque capability and system efficiency. According to the different operation requirements, the multiple driving modes, regenerative braking modes, and charging modes are equipped in the proposed converter. Moreover, with the proposed BM strategy, each battery pack can be separately connected or disconnected from the power supply, which will greatly enhance the fault-tolerance ability and easily avoid the overcharge and overdischarge issues during the motor operation. The feasibility and effectiveness of the proposed cascaded multiport SRM drive are verified by the experiments on a three-phase 12/8 SRM

Grid Connected Wind-PV Hybrid Power generation Using Fuzzy based Voltage Source Converters

Authors

Matta Pavan Kumar
17A31A0240
B-TECH IV-EEE

Ramireddy Raja
17A31A0243
B-TECH IV-EEE

Ravipati Akhil Ganesh
17A31A0244
B-TECH IV-EEE

Kovvuri Venkata Reddy
17A31A0247
B-TECH IV-EEE

Vangalapudi Sai Bhargav
17A31A0253
B-TECH IV-EEE

Photovoltaic and wind are renewable energy resources that widely used and grow rapidly in fulfilling electricity demand. Powers from both technologies depend on sunlight intensity and wind speed. For small scale power generation, DC voltage from both technologies is low and requires step-up converter to raise DC voltage ratio before converted into AC voltage. To optimize this system, step-up converter must have high ratio and efficiency to a distance of wide voltage input. This paper proposed an operation simulation and arrangement of DC-DC converter along with DC-AC from hybrid source PV-Wind which integrated to grid utilities without using storage device. High Gain Integrated Cascade Boost (HGICB) is DC-DC converter that has quadratic voltage ratio and used in this research. Then DC link connected to Voltage Source Inverter (VSI) which interconnected with

utility grid and controlled by current control method. The total installed capacity of hybrid source is 4.4 kW. Wind turbine uses PMSG along with full bridge rectifier. To maximize and stabilize the generated power, MPPT fuzzy is used. Result from the simulation shows that converter capable to maintain maximum power whether from PV and wind turbine which canalized to utility grid in various irradiation condition, wind speed, and grid load alteration

Implementation of a new power factor correction technique using Bridge-less PFC boost converter

Authors

D Ch Likhit Kumar
17A31A0228
B-TECH IV-EEE

G Satya Subhash
17A31A0231
B-TECH IV-EEE

K K Chowdary
17A31A0233
B-TECH IV-EEE

K Uma Sai
17A31A0234
B-TECH IV-EEE

Vemagiri Akhil
17A31A0256
B-TECH IV-EEE

In this planned project a replacement economical bridgeless Cuk rectifier is employed for Power Factor correction (PFC). It's solely 2 semiconductor switches within the current flowing path. Throughout every interval of the switch cycle it end in less conductivity losses Associate in an improved thermal management compared to the standard Cuk greenhouse emission rectifier. To realize nearly unity power issue and low total harmonic distortion of input current, the topologies area unit designed to figure in discontinuous conductivity mode (DCM). The DCM has extra advantage like zero-current stimulation within the power switches, zero current turn off within the output diode. The issues of improvement of power quality area unit reduction in total harmonic distortion and improvement in power factor at input ac, and tight output dc regulation. This work presents a bridgeless AC DC boost convertor operational in CCM. The implementation of input current and output voltage controller is additionally mentioned. Then a comparative analysis supported simulation results of bridgeless and bridge boost rectifier is given. Bridgeless boost AC-DC convertor has outperformed the standard techniques owing to lower conductivity losses, lower ThD of input current and improved input power issue

Speed Control of Hybrid Electric Vehicle using PSO based PID controller

Authors

M Hari Teja
17A31A0237
B-TECH IV-EEE

M Sai Surya Sankar Sandeep

In this paper, a conventional Proportional-Integral-Derivative (PID) and fractional-order PID controller have been designed for the speed control of hybrid electric vehicle. The parameters of both

17A31A0238
B-TECH IV-EEE

M Govardhan Reddy
17A31A0239
B-TECH IV-EEE

P. G Venkata Phanindra Yadav
17A31A0241
B-TECH IV-EEE

S.SaiSatish
17A31A0246
B-TECH IV-EEE

PID and FOPID controller are optimized using Practical Swarm Optimization (PSO) method taking Integral of Absolute Error (IAE) as the fitness function. The performance of the implemented controller is analyzed in terms of transient and steady state specifications. A performance comparison is carried out among the implemented controllers in the presence of vehicle parameter variations.

Intelligent Control based Solar_PV and Battery Storage System for Industrial SRM Drive Applications

Authors

G Lakshmi Samyuktha
17A31A0262
B-TECH IV-EEE

S Padma Manaswini
17A31A0273
B-TECH IV-EEE

Tushara Mantripragada
17A31A0274
B-TECH IV-EEE

Yalla Sai Ram Akhila
17A31A0276
B-TECH IV-EEE

T Naga Sai Amrutha
18A35A0215
B-TECH IV-EEE

Electric vehicles (EVs) provide a feasible solution to reducing greenhouse gas emissions and thus become a hot topic for research and development. Switched reluctance motors (SRMs) are one of promised motors for EV applications. In order to extend the EVs' driving miles, the use of photovoltaic (PV) panels on the vehicle helps decrease the reliance on vehicle batteries. Based on phase winding characteristics of SRMs, a tri-port converter is proposed in this paper to control the energy flow between the PV panel, battery and SRM. Six operating modes are presented, four of which are developed for driving and two for standstill on-board charging. In the driving modes, the energy decoupling control for maximum power point tracking (MPPT) of the PV panel and speed control of the SRM are realized. In the standstill charging modes, a grid-connected charging topology is developed without a need for external hardware. When the PV panel directly charges the battery, a multi-section charging control strategy is used to optimize energy utilization. Simulation results based on Matlab/Simulink and experiments prove the effectiveness of the proposed tri-port converter, which has potential economic implications to improve the market acceptance of EVs

Implementation of a standalone solar photovoltaic Hybrid System using shunt active Power Filter

Authors

Balireddy Kalyani
17A31A0259

This paper proposes a shunt Active Power Filter (APF), supported by Solar Photovoltaic (SPV) system for a grid-connected application that

B-TECH IV-EEE

B Vaishnavi Devi
17A31A0260
B-TECH IV-EEE

M Yamini Satya Sri
17A31A0265
B-TECH IV-EEE

Nelapudi Mounika Sri
17A31A0266
B-TECH IV-EEE

Vodugu Manaswi
17A31A0275
B-TECH IV-EEE

improves power quality. The reference signal for the shunt APF is obtained from the adaptive Proportional Integrative Derivatives (PID), based on an algorithm of Least Mean Eighth (LME) with Unit Vector Template (UVT). The LME algorithm distinguishes the basic weight sections from load currents and estimates the three phase reference source current. These reference currents are used to generate a gate signal for the shunt APF. The DC-link voltage regulator is used to keep the constant DC-link voltage of the shunt APF with an APID controller. To reduce present distortions of electric power distribution systems, a design of a suitable controller is conducted using an intelligent computational technique for predicting the right reference signals. The SPV scheme is designed to obtain the highest energy output from the SPV panel with the maximum power point tracking algorithm (MPPT) scheme and is connected to the power grid. For long-term harmonic mitigation, the SPV system continuously maintains the DC-link of the shunt APF. Mathematically, the presented current reference signal generation scheme is examined and digital simulation outcomes are displayed under distinct steady and dynamic state conditions. Lastly, the complete scheme is validated by using the hardware prototype

Authors

B Lakshmi Tanmai
17A31A0261
B-TECH IV-EEE

Kandavalli Rishitha
17A31A0263
B-TECH IV-EEE

M V Sai Sri Pratyusha
17A31A0264
B-TECH IV-EEE

Shaik Khamur Unnisa
17A31A0272
B-TECH IV-EEE

M Padma Sai Bhavani
18A35A0214
B-TECH IV-EEE

Wind Energy Conversion System with Fuzzy Logic Based Solid State Transformer

In wind energy conversion systems, the fundamental frequency step up transformer acts as a key interface between the wind turbine and the grid. Recently, there have been efforts to replace this transformer by an advanced power electronics based solid state transformer (SST). This paper proposes a configuration that combines the doubly fed induction generator based wind turbine and Fuzzy Logic Based SST operation. The main objective of the proposed configuration is to interface the turbine with the grid while providing enhanced operation and performance. In this paper, SST controls the active power to/from the rotor side converter, thus, eliminating the grid side converter. The proposed Fuzzy Logic Controller system meets the recent grid code requirements of wind turbine operation under fault conditions. Additionally, it

has the ability to supply reactive power to the grid when the wind generation is not up to its rated value. A detailed simulation study is conducted to validate the performance of the proposed configuration. MATLAB/SIMULINK Results shows the effectiveness of the proposed SST based DFIG System

Authors

P Yoga Bhavishya
17A31A0267
B-TECH IV-EEE

P Venkata Sai Nikitha
17A31A0268
B-TECH IV-EEE

Perla Amulya
17A31A0269
B-TECH IV-EEE

P S V L Suneetha
17A31A0270
B-TECH IV-EEE

Rampa Shalini
17A31A0271
B-TECH IV-EEE

Single Phase Single Stage Grid - Connected Photovoltaic System Using enhanced H6 Topology

There has been an increasing interest in transformerless inverter for grid-tied photovoltaic (PV) system because of the benefits of lower cost, smaller volume as well as higher efficiency compared with the ones with transformer. However, one of the technical challenges of the transformerless inverter is the safety issue of leakage current which needs to be addressed carefully. In addition, according to the international regulations, transformerless inverter should be capable of handling a certain amount of reactive power. In this study, a new H6-type transformerless inverter for grid-tied PV system is proposed that can eliminate the threat of leakage current. The proposed topology has also the capability to inject reactive power into the utility grid. Three-level output voltage employing unipolar sinusoidal pulsewidth modulation can be achieved with the proposed topology. The proposed topology structure and detail operation principle with reactive power control are investigated. The relationship among the existing topologies and their reactive power control capability are also discussed. The proposed topology is simulated in MATLAB/Simulink software to initially verify the accuracy of theoretical explanations. Finally, a universal prototype rated 1 kW has been built and tested. The experimental results validate the theoretical analysis and simulation results

Authors

Bokka Sai Kumar
17A31A0281
B-TECH IV-EEE

Geesala Vijay Kumar
17A31A0283

Optimal Placement of Distribution Generations using Autonomous Group Particle Swarm Optimization in a Distributed Power System for Power Loss Minimization and Voltage

This paper proposes a particle swarm optimization (PSO) algorithm for optimal placement of

B-TECH IV-EEE

Gode Sai Krishna
17A31A0284
B-TECH IV-EEE

Joga Veera Sri Nanda
17A31A0285
B-TECH IV-EEE

M Krishna Kanth
17A31A0296
B-TECH IV-EEE

R Sai Sunandh
17A31A02A7
B-TECH IV-EEE

distributed generation (DG) in a primary distribution system to minimize the total real power loss. The PSO provides a population-based search procedure in which individuals called particles change their positions with time. During flight, each particle adjusts its position according to its own experience, and the experience of neighboring particles, making use of the best position encountered by itself and its neighbors. Initially, the algorithm randomly generates the particle positions representing the size and location of DG. Each particle will move from its current position using the velocity and the distance from current best local and global solution reached. The velocity consists of inertia of the particle, memory, and cooperation between particles. The proposed PSO algorithm is used to determine optimal sizes and locations of multi-DGs. Three types of DG are considered and the distribution load flow is used to calculate the exact loss. Test results indicate that PSO method can obtain better results than the simple heuristic search method on the 33-bus and 69-bus radial distribution systems. The PSO can obtain maximum loss reductions for each of three types of optimally placed multi-DGs. Moreover, voltage profile improvement and branch current reduction are obtained

Authors

J Sai Vathsav
17A31A02A8
B-TECH IV-EEE

Sattiraju Dattatreya
17A31A02A9
B-TECH IV-EEE

Thotakura Krishna Babu Naidu
17A31A02B3
B-TECH IV-EEE

V Naga Saikiran
17A31A02B5
B-TECH IV-EEE

V Yadava Ramesh
17A31A02B7
B-TECH IV-EEE

Highly Efficient and Reliable PV Inverter Configuration for Leakage current elimination in a Grid connect PV System

This paper presents an improved Cascaded Multi-Level Inverter (CMLI) based on a highly efficient and reliable configuration for the minimization of the leakage current. Apart from a reduced switch count, the proposed scheme has additional features of low switching and conduction losses. The proposed topology with the given PWM technique reduces the high-frequency voltage transitions in the terminal and common-mode voltages. Avoiding high-frequency voltage transitions achieves the minimization of the leakage current and reduction in the size of EMI filters. Furthermore, the extension of the proposed CMLI along with the PWM technique for 2m+1 levels is also presented, where m represents the number of Photo Voltaic (PV) sources. The proposed PWM technique requires only a single carrier wave for all 2m+1

levels of operation. The Total Harmonic Distortion (THD) of the grid current for the proposed CMLI meets the requirements of IEEE 1547 standard. A comparison of the proposed CMLI with the existing PV Multi-Level Inverter (MLI) topologies is also presented in the paper. Complete details of the analysis of PV terminal and common-mode voltages of the proposed CMLI using switching function concept, simulations, and experimental results are presented in the paper

Fopid Based Coordinated Control Strategies for DG units in an Unbalanced Micro-grid

Authors

B Janardhana Reddy
17A31A0280
B-TECH IV-EEE

K Satyanandham
17A31A0287
B-TECH IV-EEE

Bakki Chandra Vamsi
18A35A0216
B-TECH IV-EEE

Chitikina Gowrinath
18A35A0218
B-TECH IV-EEE

Katta Manoj Kumar
18A35A0220
B-TECH IV-EEE

This paper presents the positive sequence, negative sequence and zero sequence voltage and current control schemes in dq-frame for the Voltage Source Converter (VSC) based Distributed Generation (DG) units in order to compensate for voltage unbalance in a microgrid. The objective of these schemes is to control the positive, negative and zero sequence components (separately and independently) of the voltage at the Point of Common Coupling (PCC) and the VSC currents to their respective reference commands. Dynamically varying limits have been proposed for the positive and negative sequence references for the current control schemes in order to protect the VSC from overloading (under unbalanced conditions) and unsymmetrical faults. The active power control, frequency control and the reactive power–voltage droop control schemes decide the references of the positive sequence voltage control scheme in order to fulfill the objective of using the same control schemes for the grid connected and the islanded modes of operation of the microgrid, thereby eliminating the need for islanding detection. The performance of the various control schemes employed for controlling the VSC based DG unit have been tested on two identical VSC based DG units feeding power to the IEEE 34 node distribution network implemented in PSCAD/EMTDC.

Fuzzy Control Based Adaptive Maximum Power Point Tracking Control Algorithm for Wind Energy Conversion Systems

Authors

Boddu Pavan Teja
17A31A0279
B-TECH IV-EEE

this paper presents an Fuzzy control based adaptive

Damodhara Naveen
17A31A0282
B-TECH IV-EEE

Kutha Vishal Reddy
17A31A0294
B-TECH IV-EEE

Mandapalli Sam Moses Sastry
17A31A0298
B-TECH IV-EEE

P Teja Venkata Siva Ganesh
17A31A02A4
B-TECH IV-EEE

maximum power point tracking (MPPT) algorithm for small scale wind energy conversion systems (WECSs) to harvest more energy from unstable wind. The proposed algorithm combines the computational behavior of hill climb search, tip speed ratio, and power signal feedback fuzzy control for its adaptability over wide range of WECSs and fast tracking of maximum power point. In this paper, the proposed MPPT algorithm is implemented by using buck– boost featured single ended primary inductor converter to extract maximum power from full range of wind velocity profile. Evaluation of the Fuzzy based MPPT controller is done on MATLAB/SIMULINK Environment. Matlab Simulation results show that tracking capability of the proposed System under sudden and gradual fluctuating wind conditions is efficient and effective.

An Isolated Bidirectional DC to DC Converter for Photovoltaic Systems with Improved H6 Topologies

Authors

A B N V Vara Prasad
17A31A0278
B-TECH IV-EEE

K Raviraj
17A31A0291
B-TECH IV-EEE

K B Siva Ganesh
17A31A0293
B-TECH IV-EEE

M L S Swamy Naidu
17A31A0296
B-TECH IV-EEE

N Phaneendra
17A31A02A1
B-TECH IV-EEE

In this paper a new high step-up DC-DC converter suitable for photovoltaic applications is investigated. Boosting the low input voltage in the proposed topology is implemented by using coupled inductors and one semiconductor switch. By using a passive regenerative clamp circuit, the energy of leakage inductor is absorbed and this provides a wider possible range of output power. Moreover, using just one semiconductor switch with low voltage rating and soft turn on, results in lower switching losses and therefore higher efficiency. In this topology, bipolar outputs are generated and by connecting the negative terminal of the PV module to the output neutral point, the unwanted ground leakage currents in the PV systems is reduced drastically. Easy control due to employing one MOSFET switch is another feature of this topology. Theoretical analysis and principal operation of the circuit are discussed. An experimental prototype is implemented to verify the performance of the proposed inverter. The experimental results confirm the aforementioned features and the theoretical analysis of the converter operation

Authors

G G Sri Sai Sidhardha
17A31A0285
B-TECH IV-EEE

P Raghavendra
17A31A02A5
B-TECH IV-EEE

Sesetti Mehar Aditya
17A31A02B0
B-TECH IV-EEE

Rachapalli Adarsh
18A35A0224
B-TECH IV-EEE

Vanamadi Prabhu Raju
18A35A0226
B-TECH IV-EEE

An alternative to charging stations based On-Board Charging station using an Intelligent Controller

Greener transportation is the motivation to shift from conventional vehicles to electrical vehicles (EV). EV's being the present technology, charging of the EV's battery with best charger in secured environment is the challenge. The EV's fast charging DC has advantages in reducing charge time, but maintaining the optimal temperature for the battery and availability of charging stations have benefited on-board charging (through AC supply). The constant current constant voltage (CCCV) battery charger has reduced the peaking currents during initial stages and promotes charging of cells with different capacities at the final stage. The environment to charge must be safe, so as the battery never damages. In onboard charging, due to fault currents inducing in the supply might damage the battery, so an intelligent controller is required to detect theses faults and can open the circuit breaker associated with it. The idea of this work is to charge the EV's battery with CCCV battery charger through on-board charging system where the supply is derived from grid and solar. The supply system has intelligent controllers operating to detect the faults and to work respectively. The backup generator has been provided during faults in grid.
The intelligent controller used to generate the control signals for circuit breakers is Arduino Uno. The solar has been converted to AC by using a three-level neutral point clamped based State Vector Pulse Width Modulated (SVPWM) inverter. To generate the control signals from Arduino Uno, the Proteus Professional software has been utilized and to simulate the present work, MATLAB/Simulink software has been used respectively


Staff
Activity

ORGANIZED

S.no	Academic Year	Title of the STTP	Name of the Resource Person(s)	Date (s)	No.of Participants
1	2020-21	Short Term Training programme (Phase-I) on "Recent Trends in Electric Vehicles	1.**Dr.Ch.Sai Babu**,Professor of EEE and Director of foreign university Regulations,JNTUK 2.**Dr. Krishna Swami naidu**, Assistant Professor, Dept. of EEE, IIT Varanasi, Uttarpradesh. 3.**Dr. B.Dastagiri Reddy**, Assistant Professor, Dept. of EEE, NIT Karnataka,Surathkal. **4.Dr.N.Viswanathan**, Professor, Dept. of EEE, NIT Warangal. **5.Dr.P.Satish Kumar**, Asst. Prof., Dept. of EEE,University college of Engineering,Osmania, HYD **6.Dr.V.Sandeep**, Assistant Professor & HOD-EEE, Dept. of EEE,NIT Andhra Pradesh **7.Dr.Kumaravel S**, Assistant Professor, Dept. of EEE,NIT-Calicut **8.Dr.P.Shankar**, Assistant Professor, Dept. of EEE,NIT Andhra Pradesh **9.Dr.S.Senthil kumar**, Associate Professor, Dept. of EEE,NIT ,Tiruchirappalli **10.Dr.Chandrasekhar Yammani**, Assistant Professor, Dept. of EEE, NIT Warangal	30.11.2020 to 05.12.2020	155
2	2020-21	Short Term Training programme (Phase-II) on "Recent Challenges & Emerging Opportunities in Electric Vehicles	**1. Sri AVLK Jagannadha Sharma,** Executive Engineer, State Nodal Agency for EV Policy for A.P State operations, APEPDCL &APPCC Vidyuth Soudha/Vijayawada, Andhra Pradesh **2. Dr. C.Carunaiselvane**, Assistant Professor, Dept. of EEE SRM University. **3.Dr. Prajof.P**, Assistant Professor, Dept. of EEE, NIT Karnataka, **4. Dr.N.Manoharan**, Former Defence & Bank Executive. **5. Dr.Venkata Ramana Naik**, Asst. Prof., Dept. of EEE,NIT Roorkela,Odisha. **6. Dr.Raveendra Dogga** , Founder & Director of Technical Zunik Engineers Pvt. Ltd. **7. Mr.Jayatheerth S** , Managing Director , EO	07.12.2020 to 12.12.2020	177

			smart charging stations , Saurashakthi, Hyderabad. **8. Mr.M.Suresh**,Managing director, Shalem Enterprises, Hyderabad.		

S.no	Academic Year	Title of the FDP/STTP	Name of the Resource Person(s)	Date (s)	No.of Participants
1	**2020-21**	one week AICTE-ISTE Sponsored Refresher/Induction Programme Phase-I on "Hybrid Energy Storage Systems-DPE"	1. Dr. M Ramalinga Raju, Vice Chancellor JNTUK 2. Dr. Chandrasekhar Perumalla, Assistant Professor of Electrical Sciences, IIT Bhubaneswar 3. M P Selvan, Associate Professor of EEE, NIT Tirchy 4. Dr P Sankar, Assistant Professor, NIT Andhra Pradesh 5. Dr. Ravindra Kollu, Associate Professor of EEE, UCEK, JNTUK 6. Dr S Moorthi, Associate professor of EEE NIT Tiruchi 7. Dr Deepak R Pullaguram**,** Assistant Professor - Electrical Engineering Department NIT Warangal 8. Dr S Mageshwari, Assistant professor of EEE, NIT- Trichy 9. Dr. Sheshadri Sravan Kumar Assistant Professor of EE, IIT Hyderabad 10. Dr. Srinivas Bhasker Karanki, Assistant Professor of Electrical sciences, IIT Bhubaneswar 11. Dr Y Chandra Shekar, Assistant Professor - Electrical Engineering Department NIT Warangal 12. Dr. B Dastagrireddy, Assistant Professor in EEE, NIT surathkal 13. Dr Ravindra Dogga, Founder and director of Zunic energies Ltd. Hyderabad	**24-03-2021 to 31-03-2021**	**64**
2	**2020-21**	one week AICTE-ISTE Sponsored Refresher/Induc	1. Dr Josephine. R. L Assistant Professor of EEE, NIT Trichy 2. Dr. Chandrasekhar Perumalla, Assistant Professor of Electrical	**28-04-2021 to 04-05-2021**	**73**

		tion Programme Phase-II on "Hybrid Energy Storage Systems-DPE"	Sciences, IIT Bhubaneswar 3. M P Selvan, Associate Professor of EEE, NIT Tirchy 4. Dr P Sankar, Assistant Professor, NIT Andhra Pradesh 5. Dr. Ravindra Kollu, Associate Professor of EEE, UCEK, JNTUK 6. Dr S Moorthi, Associate professor of EEE NIT Tiruchi 7. Dr Deepak R Pullaguram**,** Assistant Professor - Electrical Engineering Department NIT Warangal 8. Dr S Mageshwari, Assistant professor of EEE, NIT- Trichy 9. Dr. Srinivas Bhasker Karanki, Assistant Professor of Electrical sciences, IIT Bhubaneswar 10. Dr Y Chandra Shekar, Assistant Professor - Electrical Engineering Department NIT Warangal 11. Dr. B Dastagrireddy, Assistant Professor in EEE, NIT surathkal 12. Dr Ravindra Dogga, Founder and director of Zunic energies Ltd. Hyderabad		
3	**2020-21**	one week AICTE-ISTE Sponsored Refresher/Induction Programme Phase-III on "Hybrid Energy Storage Systems-DPE"	1. Dr. Chandrasekhar Perumalla, Assistant Professor of Electrical Sciences, IIT Bhubaneswar 2. M P Selvan, Associate Professor of EEE, NIT Tirchy 3. Dr P Sankar, Assistant Professor, NIT Andhra Pradesh 4. Shri. AVLK Jagannadha Sharma,Dy. Executive Engineer, AP Power Coordination Committee (APPCC),Vidyuth Soudha,Vijayawada 5. Dr S Moorthi, Associate professor of EEE NIT Tiruchi 6. Dr Deepak R Pullaguram**,** Assistant Professor - Electrical Engineering Department NIT Warangal 7. Dr S Mageshwari, Assistant professor of EEE, NIT- Trichy 8. Dr. Sheshadri Sravan Kumar Assistant Professor of EE, IIT Hyderabad 9. Dr. Srinivas Bhasker Karanki, Assistant Professor of Electrical sciences, IIT Bhubaneswar 10. Dr Y Chandra Shekar, Assistant Professor - Electrical Engineering	**19-05-2021 to 25-05-2021**	**77**

			Department NIT Warangal 11. Dr. B Dastagrireddy, Assistant Professor in EEE, NIT surathkal 12. Dr Ravindra Dogga, Founder and director of Zunic energies Ltd. Hyderabad		

Faculty membership in professional bodies

The mission of the professional societies is primarily educational and informational. Their influence flows from their continuing and highly visible functions: to publish professional journals, to develop professional excellence, to raise public awareness, and to make awards**.**

s.no	Faculty name	Committee
1	Dr. K.Satyanarayana	1. Life member of Indian Society for Technical Education 2. MIE Life member of Institute of Engineers (INDIA)
2	Dr. G.Naresh	1. Member of Indian Society of Technical Education (ISTE) 2. Members of International Association of Computer Science and Information Technology (IACSIT)
3	Dr.A.Mohan durga kumar	Life member of Institute of Smart Structures and Systems (ISSS)
4	Mr.M..Harish	1. Computer Science Teachers Association (CSTA). 2. International Association of Engineers (IAENG)
5	Mr.T.P.Jaya Kumar	1.Computer Science Teachers Association (CSTA). 2.International Association of Engineers (IAENG)
6	Mr.R.S.Sudhakar	Member of The Indian Society for Technical Education (**ISTE**)
7	Mr.Ch.Pavan Kumar	Computer Science Teachers Association (CSTA).
8	Mr.B.Rathan Kumar	1.Computer Science Teachers Association (CSTA). 2.International Association of Engineers (IAENG)
9	Mrs. P.VijayaPrasuna	Member of International Association of Engineers (IAENG)
10	Mr.S.Ashokreddy	
11	Mrs.K.Sandyarani	
12	Mr.M.V.Chandrakumar	
13	Mr.M.Manishankar	
14	Ms.S.Varalakshmi	
15	Ms.S.Sravani	
16	Mr.K.Sree Harsha	
17	P.Sandhya	
19	Mr.K.Sivasankar	

Faculty reviewers for journals

s.no	Faculty name	Reviewer/member in Journal/Conference
1	Dr. K.Satyanarayana	1.Taylor & Francis (Electric Power Components & Systems 2.International Journal of Engineering and Advanced Technology 3. International Journal of Scientific & Engineering Research -IJSER
2	Dr. G.Naresh	1.International Transactions on Electrical Energy Systems,Wiley 2.CPSS Transactions on power Electronics and Applications , A Publication of China Power Supply Society 3.International Energy Journal(IEJ),Regional Energy sources information Centre (RERIC) journals ,Asian institute of Technology,Thailand 4. Computers & Electical Engineering ,Elsevier Publishers 5.Electric Power Components & Systems Journal ,Taylor and Francis
3	Dr.A.Mohan durga kumar	1.Taylor & Francis Journal of Electronics 2.PEDES(Conference) 3.ICC(Conference)
4	M.Satya Harish	Journal of Emerging technologies and innovative Research*(JETIR-ID 113692)*

Faculty achievements

1. **Dr.K.Satyanarayana, Professor & HOD-EEE** received a grant of **1.54 Lacks** from **AICTE to conduct a** Short Term Training Programmes **(STTPs)** on "**Recent Trends in Electric Vehicles**" Under **AQIS**
2. **Dr.K.Satyanarayana, Professor & HOD-EEE received** an allotment letter to conduct an Induction/Refresher programme on "**Hybrid Energy Storage Systems – DPE" from AICTE-ISTE with a grant of 282000/-**.
3. **Dr.K.Satyanarayana, Professor & HOD-EEE received grant of 11.06 Lacks from AICTE under the scheme of MODROB** with title of the Project: "**Voltage Sag/Swell Mitigation using FPGA controller based Unified Power Quality Conditioner**"

Faculty publications:

Authors

Dr.K.Satyanarayana
Professor&HOD-EEE,
hod_eee@pragati.ac.in

AUTHOR
Mr.S.Ashok Reddy
Assistant Professor
ashokreddy.s@pragati.ac.in

Mrs.K.Sandhyarani
Assistant Professor
sandhyarani.k@pragati.ac.in

Performance Improvement of 3 Level DCMLI based BLDC Motor using Adaptive Neuro Fuzzy Inference System

In this project ANFIS based control of BLDC motor is presented. Brushless DC motors (BLDC) find wide applications in industries due to their high power density and ease of control.To achieve desired level of performance the motor requires suitable speed controllers. The mathematical model of BLDC motor and a back propagation Adaptive Neuro-Fuzzy Inference Systems (ANFIS) algorithm are considered and included to replace the conventional method of Proportional Integral and Fuzzy. ANFIS it integrates both neural networks and fuzzy logic principles, it has potential to capture the benefits of both in a single framework. Its inference system corresponds to a set of fuzzy IF–THEN rules that have learning capability to approximate nonlinear functions. Hence, ANFIS is considered to be a universal estimator. The analysis of overshoot, rise time and steady state error for the speed range which indicates that the proposed adaptive neuro-fuzzy inference systems has successfully improved the performance of the BLDC motor drive. According to new proposed approach speed control of BLDC motor drive and analysis using adaptive Neuro-Fuzzy inference systems to carry off the weakness of fuzzy logic controller (Steady-state error).Further the ANFIS controller provides low torque ripples and high starting torque. The proposed ANFIS controller is evaluated by using MATLAB/SIMULINK software

Control and design for FOPID Based line-side converter of the Brushless Doubly Fed Induction Generator

A control system of line side converter for a doubly fed induction generator with active power filter and load balancing capability is presented. The control scheme is based on the model of the system on synchronously rotating reference frame (d-q axis). The d-q axis current components are used to control active power and reactive power, respectively. In this reference frame, the d-q current components of the nonlinear load are composed of dc and ac

Mrs.Ch.V.V.Mangalakshmi
Assistant Professor
mangalakshmi.chvv@pragati.ac.in

Ms.S Varalakshmi
Assistant Professor
lakhmi.sv@pragati.ac.in

Mrs.M Mangalakshmi
Assistant Professor
mangalakhmi.m@pragati.ac.in

M.Satya Harish
Assistant Professor
satyaharish.m@pragat.ac.in

Mr.M.V.Chandrakumar

quantities. The dc component of d-axis current represents the fundamental of active current while ac components represents harmonic currents and unbalanced load currents. The q-axis current correspond to reactive power, harmonic currents and unbalanced load currents. The elimination of ac component of the d-axis current and q-axis current by appropriate compensation ensures that the converter is operating at unity power factor with active power filter function and load balancing capability. Simulation results of a line side converter with unbalanced nonlinear load confirm good performance of the proposed control method

Voltage Regulation of Hydro Standalone 1-Ø Micro Grid Using Fuzzy Logic Based Adaptive Sliding Mode Control Algorithm

This paper presents an adaptive sliding mode control (ASMC) of an improved power quality standalone single phase microgrid system. The proposed microgrid system integrates a governor-less micro-hydro turbine driven single- phase two winding self-excited induction generator (SEIG) with a wind driven permanent magnet brushless DC (PMBLDC) generator, solar photo-voltaic (PV) array and a battery energy storage system (BESS). These renewable energy sources are integrated using only one single-phase voltage source converter (VSC). The ASMC based control algorithm is used to estimate the reference source current which controls the single-phase VSC and regulates the voltage and frequency of the microgrid in addition to harmonics current mitigation. The proposed ASMC estimates the reference real and reactive powers of the system, which is adaptive to the fluctuating loads. The sliding mode control is used to estimate the reference real power of the system to maintain the energy balance among wind, micro-hydro, solar PV power and BESS, which controls the frequency of standalone microgrid. The proposed microgrid is implemented in real time using a DSP (Digital Signal Processor) controller. Test results of proposed microgrid shows that the grid voltage and frequency are maintained constant while the system is following a sudden change in loads and under intermittent penetration of wind and solar energy sources.

Development of Soft-Switching PWM Full-Bridge DC-DC Converter with charging Applications

This paper proposes a high-frequency-link soft is witching pulse-width dc–dc converter for battery chargers. Zero-voltage switching of power switches is achieved from light load to full load. Reverse recovery losses can be reduced in the secondary side output diodes without using any additional circuit components. Zero-current switching of output diodes is achieved by using the series-resonant circuit in the secondary side .The circulating current in the primary side full-bridge circuit can be changed by the operation modes of the output diode current. As a result, a high efficiency

Assistant Professor
chandrakumar.mv@pragat.ac.in

can be achieved for EV on-board battery chargers. The performance of the proposed converter is evaluated throughout Matlab Simulation results for a 2.0- kW circuit

Authors

Ch.Pavan Kumar
Assistant Professor
pavankumaru567@gmail.com

Mr.M.Mani Shankar
Assistant Professor
manishankar.m@pragat.ac.in

S Sravani
Assistant Professor
sravani.s@pragat.ac.in

AUTHOR
Mrs. P.Vijayaprasuna
Assoc. Professor
Prasuna.pv@pragati.ac.in

Design of full bridge modular multilevel converter for low energy storage Requirements for HVDC Transmission system with Fuzzy Inference system

This paper proposes a hierarchical Fuzzy Interface System (FIS) Predicated control architecture designed for an arbitrary high voltage multi terminal dc (MTDC) network. Modular multilevel converter (MMC)s a well-proved circuit topology in voltage-source converter-based high voltage direct current (VSC-HVdc) transmission systems. As is known, the conventional half-bridge submodule (HBSM)-based MMC-HVdc s not suitable for overhead line transmission applications. In addition, high energy storage requirements, .e., large capacitance is nevitable. The conventional design of the full-bridge submodule (FBSM)-based MMC usually does not utilize the negative voltage state of FBSM in normal operation. Considering the same dc voltage as with the HBSM case and utilizing the negative voltage state of the FBSM, this paper presents the design method of the power transmission capability of a single FBSM. Meanwhile, an optimized energy storage capacitance design method of the FBSM is proposed. With this method, the capacitance of FBSM can be reduced significantly. The correctness and effectiveness of the proposed method is verified by the simulation of a±160kVVSC-HVdc MMC and the comparison results of the dc short fault blocking and ride through capability are also provided.

Performance Improvement of the Grid Connected PV Inverter System With ANN Controller

The implementation of the PV system and its integration into the grid has been increased. In this process some power quality issues arise i.e. harmonics, voltage sags / surges, interruptions, flickers, transients, and this is due to non-linear loads, arc furnaces, frequent starting / stopping of electric motors, oscillating loads and interactions of different semiconductor devices. Within these interharmonics is one of the emerging power quality issues in grid-connected photovoltaic (PV) systems. Based on previous case studies and field measurements, evidence of interharmonic emission from maximum power point tracking is one of the leading causes of interharmonics in PV inverters. In this regard, MPPT parameters such as sampling rate and perturbation step size have a strong impact on the interharmonic characteristic of PV system, and to overcome these problems, a mitigating solution has been previously proposed , namely modifications of the MPPT algorithm so as to randomly select the sampling rate between the fast value and the slow value. By implementing this technique with

an artificial neural network controller for the control of the inverter. With the proposed method, the voltage perturbations of the DC-link voltage as well as the harmonics of the grid currents are reduced and the performance of the MPPT and PV system has been increased. The performances of the proposed system has been validated on a MATLAB / SIMULINK software environment.

Authors

Mr.R.S.Sudhakar
Assistant Professor
Sudhakar.r@pragati.ac.in

Ms.S Varalakshmi
Assistant Professor
lakhmi.sv@pragati.ac.in

Optimal Fuel Consumption using Fuzzy Based RSC control strategy on wind driven DFIG, DG and Solar PV Array

This paper presents a green energy solution to a microgrid for a location dependent on a diesel generator (DG) to meet its electricity requirement. This microgrid is powered by two renewable energy sources namely wind energy using doubly fed induction generator (DFIG) and solar photovoltaic (PV) array. The solar PV array is directly connected to common DC bus of back-back voltage source converters (VSCs), which are connected in the rotor side of DFIG. Moreover, a battery energy storage (BES) is connected at same DC bus through a bidirectional buck/boost DC-DC converter to provide path for excess stator power of DFIG. The extraction of maximum power from both wind and solar, is achieved through rotor side VSC control and bidirectional buck/boost DC-DC converter control, respectively. A modified perturb and observe (P&O) algorithm is presented to extract maximum power from a solar PV array. Moreover, the control of load side VSC, is designed to optimize the fuel consumption of DG. A novel generalized concept is used to compute the reference DG power output for optimal fuel consumption. The microgrid is modelled and simulated using SimPowerSystems tool box of MATLAB, for various scenarios such as varying wind speeds, varying insolation, effect of load variation on a bidirectional converter and unbalanced nonlinear load connected at point of common coupling (PCC). The DFIG stator currents and DG currents, are found balanced and sinusoidal. Finally, a prototype is developed in the laboratory to validate the design and control of it.

Authors

Mrs.K.Sandhyarani
Assistant Professor
sandhyarani.k@pragati.ac.in

FOGI-FLL Algorithm Based fuzzy lozic control Used with Recursive Digital Filter for power Quality Improvement of a Grid tied solar PV System

This paper presents a fuzzy logic based fourth order generalized integrator (FOGI) frequency locked loop (FLL) based control for optimal operation of solar energy conversion system (SECS) having distribution static compensator (DSTATCOM) capabilities along with supplying active power to the distribution network. The proposed SECS is multifunctional having capabilities of power factor correction, load balancing and harmonics mitigation in a three phase distribution system. The FOGI-FLL has higher order filtering capabilities compared to conventional algorithms. The frequency tracking capabilities of proposed control technique,

K.Siva Sankar
Assistant Professor
Sivashankar966@gmail.com

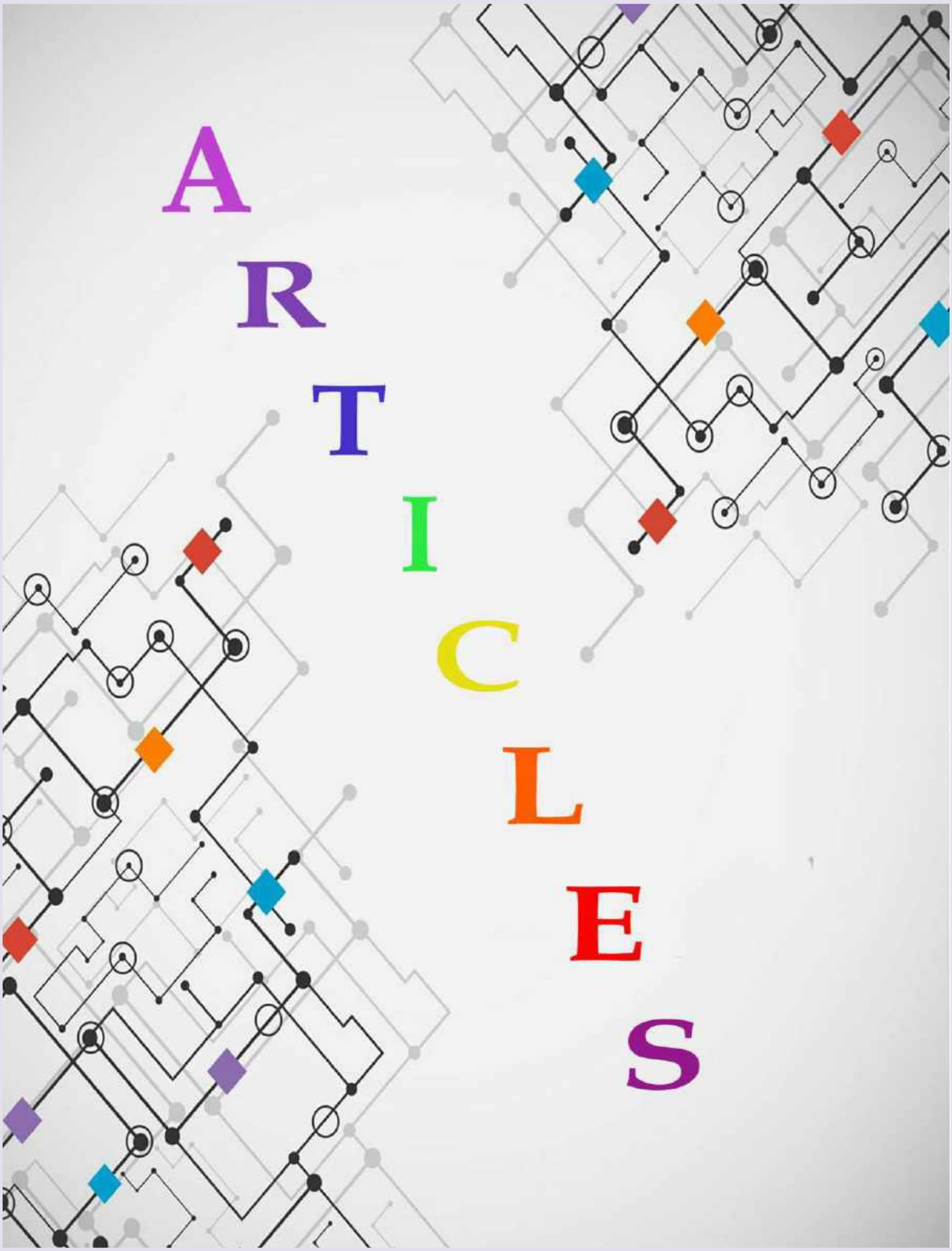
exhibit better performance as compared to a conventional algorithm. The comparative performance of harmonics filtering and frequency tracking capabilities, is demonstrated between FOGI-FLL and various conventional algorithms. Simulation results demonstrate the behaviour of the system at various conditions. To validate the proposed algorithm, a prototype is developed and test results demonstrate the reliable performance of the system at various conditions such as load unbalancing, variable insolation, solar photovoltaic (PV) to DSTATCOM mode at abnormal grid conditions such as distorted grid voltages, unbalanced grid voltages, voltage sag and swell. The total harmonics distortions (THDs) of grid voltages and currents are found well within limit of an IEEE 519 standard.

Authors

Dr.A.Mohan Durga Kumar
Assistant Professor
mohan.a@pragati.ac.in

Small-signal model and control approach for a dual input boost converter with VMC

The dual-input boost converter (DIBC) with voltage multiplier cell (VMC) and operating in continuous conduction mode (CCM) is feasible for applications with high voltage from low voltage renewable energy sources (RES). To achieve a high voltage gain, DIBC is operated with two VMC, and overlapping switch signals, i.e. at duty ratio higher than 0.5; these complicate the modelling and control design. The objective here is to achieve output voltage regulation under load and input voltage disturbances with the proposed feed-forward plus feedback (FFFB) control strategy for DIBC with two VMC. Nevanlinna–Pick interpolation method and MATLAB SISOtool are used to design the optimally stable feed-forward controller and feedback controller, respectively. The study of the non-minimum phase behaviour of the converter, followed by the control design, is done based on the derived averaged state-space small-signal transfer function models. The analytical model is validated using MATLAB and PSIM software and experimentally. A converter prototype of 250 W is built and experimentally tested; the control is realised using FPGA. The simulation and experimental results ensure that the converter with this proposed control design provides satisfactory voltage regulation.


ARTICLES

INFRARED PLASTIC SOLAR CELL

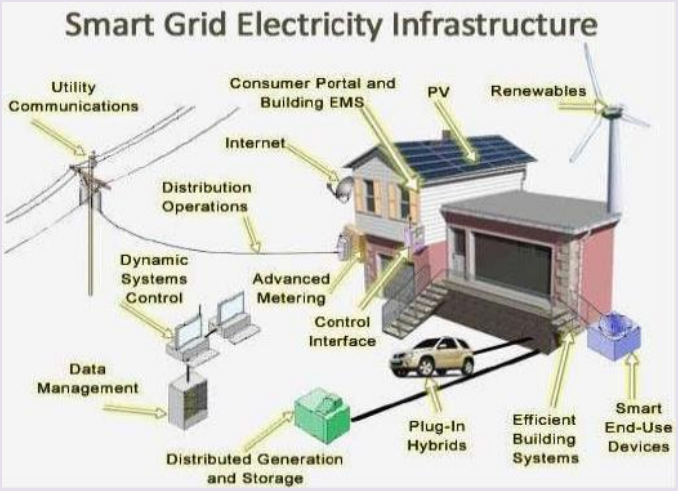
Nanotechnology is the nexus of sciences. Nanotechnology is the engineering of tiny machines - the projected ability to build things from the bottom up using techniques and tools being developed today to make complete, highly advanced products. It includes anything smaller than 100 nanometers with novel properties. As the pool of available resources is being exhausted, the demand for resources that are everlasting and eco-friendly is increasing day by day. One such form is the solar energy. The advent of solar energy just about solved all the problems. As such solar energy is very useful. But the conventional solar cells that are used to harness solar energy are less efficient and cannot function properly on a cloudy day. The use of nanotechnology in the solar cells created an opportunity to overcome this problem, thereby increasing the efficiency. This paper deals with an offshoot in the advancement of nanotechnology, its implementation in solar cells and its advantage over the conventional commercial solar cell.

P. Nancy Rachel

SMART GRID

Today's Alternating current power grid evolved after 1896, based in part on Nikola Tesla's design published in 1888 (see War of Currents). At that time, the grid was conceived as a centralized unidirectional system of electric power transmission, electricity distribution, and demand-driven control. In the 20th century power grids originated as local grids that grew over time and were eventually interconnected for economic and reliability reasons. By the1960s, the electric grids of developed countries had become very large, mature and highly interconnected, with thousands of 'central' generation power stations delivering power to major load centers via high capacity power lines which were then branched and divided to provide power to smaller industrial and domestic users over the entire supply area. The topology of the 1960s grid was a result of the strong economies of scale of the current generation technology: large coal-, gas- and oil-fired power stations in the 1 GW (1000 MW) to 3 GWscale are still found to be cost-effective, due to efficiency-boosting features that can be cost effectively added only when the stations become very large.

A **smart grid** is a digitally enabled electrical grid that gathers, distributes, and acts on information about the behavior of all participants (suppliers and consumers) in order to improve the efficiency, importance, reliability, economics, and sustainability of electricity services.

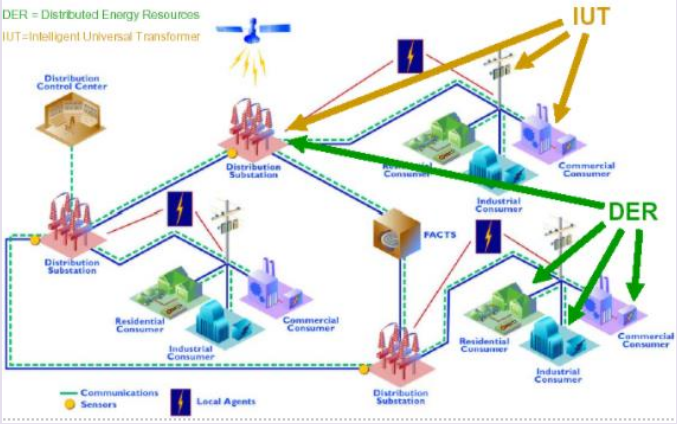


Y. Yogitha chowdary

INTELLIGENT MANAGEMENT OF ELECTRICAL SYSTEMS IN INDUSTRIES

The automation of public electricity distribution has developed very rapidly in the past few years. The same basis can be used to develop new intelligent applications for electricity distribution networks in industrial plants. Many new applications have to be introduced because of the different environment and needs in industrial sector. The paper includes a system description of

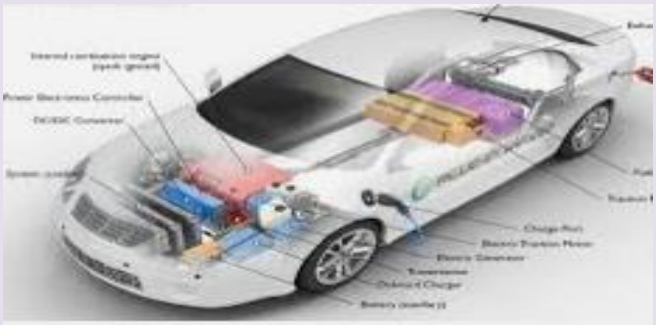
industrial electric system management. The paper discusses on the requirements of new applications and methods that can be used to solve problems in the areas of distribution management and condition monitoring of industrial networks.



A.Ramya

GASOLINE-ELECTRIC HYBRID CAR

A 'gasoline-electric hybrid car' or 'hybrid electric vehicle' is a vehicle which relies not only on batteries but also on an internal combustion engine which drives a generator to provide the electricity and may also drive a wheel. It has great advantages over the previously used gasoline engine that drives the power from gasoline only. It also is a major source of air pollution. The objective is to design and fabricate a two wheeler hybrid electric vehicle powered by both battery and gasoline. The combination of both the power makes the vehicle dynamic in nature. It provides its owner with advantages in fuel economy and environmental impact over conventional automobiles.



Hybrid electric vehicles combine an electric motor, battery and power system with an internal combustion engine to achieve better fuel economy and reduce toxic emissions. In HEV, the battery alone provides power for low-speed driving conditions where internal combustion engines are least efficient. In accelerating, long highways, or hill climbing the electric motor provides additional power to assist the engine. This allows a smaller, more efficient engine to be used. Besides it also utilizes the concept of regenerative braking for optimized utilization of energy. Energy dissipated during braking in HEV is used in charging battery. Thus the vehicle is best suited for the growing urban areas with high traffic. Initially the designing of the vehicle in CAD, simulations of inverter and other models are done. Equipment and their cost

B.Roopasri

UNDER GROUND ELECTRIC TRANSMISSION LINES

The need of underground electric power transmission is becoming more and more of interest to solve the transmission requirements of today and tomorrow. The increasing use of electric power requires higher power ratings, even with improved energy efficiency of devices and loads. The classical technology used for power transmission is overhead line with typical high voltage ratings of 110–800 kV and in some cases even 1200 kV for bulk power transmission. The distribution voltage levels are typically between 10 and 50 kV and are often used in cities and densely populated areas. Underground cables are used since the 1800s, mainly in cities. Today's needs are going toward higher voltage levels and longer distances.

Bheemana Sri Devi

HYBRIDSOLAR-WINDPOWERGENERATION

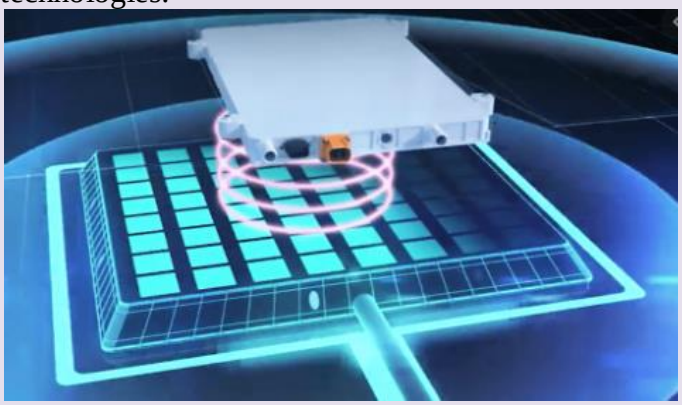
Renewable energy has been on increasing demand in the recent due to over stress on non-renewable resources and their increasing cost. Thus producing electricity with the use of renewable resources like Wind and Solar are needed to be implemented. By using this hybrid system technique any circumstances like power failure then there will be continuous power supply without producing any noise pollution. Since there are both types of input

systems the applications will also be improved. This project is to develop an optimal design of a hybrid wind solar energy plant, where we can use both the sources of energy sources to generate the power with a main goal to minimize the plant establishment cost, to utilize the land used for the same in most suitable way and to give earth a healthy environment by using this renewable sources of energy. The motto of the project is to produce the energy in an eco-friendly way by using renewable sources of energy. This System Include PV Array, Wind Turbine, Aero-Wind Generator, Solar Controller, Wind Controller, Battery Bank , Inverter.

. *B.Jagadeeswari*

WITRICITY

The aim of this paper is to introduce a new system of transmitting the power which is called wireless electricity or witricity. Witricity is based upon coupled resonant objects to transfer electrical energy between objects without wires. The system consists of a Witricity transmitter (power source), and devices which act as receivers (electrical load). It is based on the principle of resonant coupling and microwave energy transfers. The action of an electrical transformer is the simplest instance of wireless energy transfer. There are mainly two types of transfers i.e. short range and long range transmission. The short range are of 2-3metres whereas the long range are of few kilometers. Wireless transmission is ideal in cases where instantaneous or continuous energy transfer is needed, but interconnecting wires are inconvenient, hazardous, or impossible. The tangle of cables and plugs needed to recharge today's electronic gadgets could soon be a thing of the past. The concept exploits century-old physics and could work over distances of many metres. Consumers desire a simple universal solution that frees them from the hassles of plug-in chargers and adaptors. "Wireless power technology has the potential to deliver on all of these needs."With wireless energy transfer, the efficiency is a more critical parameter and this creates important differences from the wireless data transmission technologies.



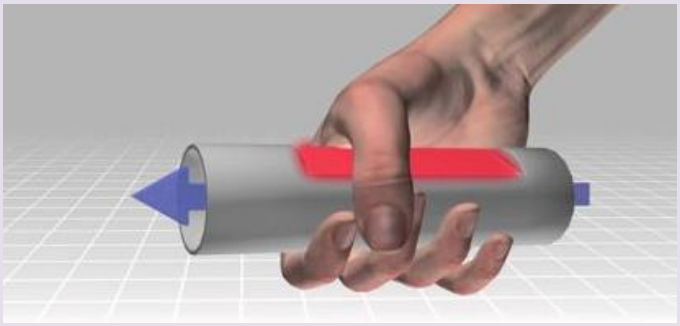
To avoid the conflicts like recharging and carrying its appliances of electrical and electronic devices, wireless power transmission is desirable. Wireless power transmission was originally proposed to avoid long distance electrical distribution based mainly on copper cables. This can be achieved by using microwave beams and the rectifying antenna, or rectenna, which can receive electromagnetic radiation and convert it efficiently to DC electricity. Researchers have developed several technique for moving electricity over long distances without wires. Some exist only as theories or prototypes, but others are already in use. Magnetic resonance was found a promising means of electricity transfer because magnetic fields travel freely through air yet have little effect on the environment or, at the appropriate frequencies, on living beings and hence is a leading technology for developing witricity.

I.Jahnavi Rishika

HOLLOW FLASHLIGHT USING PELTIER EFFECT

The Abstract deals with the proper usage of unused energy generated by humans in the form of heat by making it in glowing a Flashlight. Thereby the Flashlight runs solely on the heat of human palm

without using any batteries. Ann Makosinski of Canada had invented HOLLOW FLASHLIGHT, which won the Google Science Fair. The basic principle of the proposed technology is Peltier Effect. Makosinski's flashlight runs on four Peltier tiles, which convert heat into energy using the temperature differential between a person's hand and the ambient air.



Allu Sai Venkata Sri

SOLAR TREE

The sun is a hydrodynamic spherical body of extremely hot ionized gases(plasma), generating energy by the process of the thermonuclear fusion. The temperature of interior of sun is estimated at 8*10^6 k to 40*10^6 k, where energy is released by fusion of hydrogen and helium. Solar energy is available in abundance and considered as the easiest and cleanest means of tapping the renewable energy. For direct conversion of solar radiation into usable form, the routes are: solar thermal, solar photovoltaic and solar architecture. However the main problem associated with tapping solar energy is the requirement to install large solar collectors requires a very big space. To avoid this problem we can install a solar tree in spite of a no of solar panels which require a very small space.

A.Harsha Kumar

SMART ANTENNA

Smart antennas are antenna arrays or group of antenna with smart processing algorithms used to identify spatial signal signature. A smart antenna takes advantage of diversity effect at the source (transmitter), the destination (receiver), or both. Diversity effect involves the transmission and/or reception of multiple radio frequency (RF) waves to increase data speed and reduce the error rate. Smart antenna technology can overcome these capacity limits as well as improve signal quality and let mobile telephones operate on less power. Smart antenna are also known as adaptive array antennas, MIMO & multiple antennas.

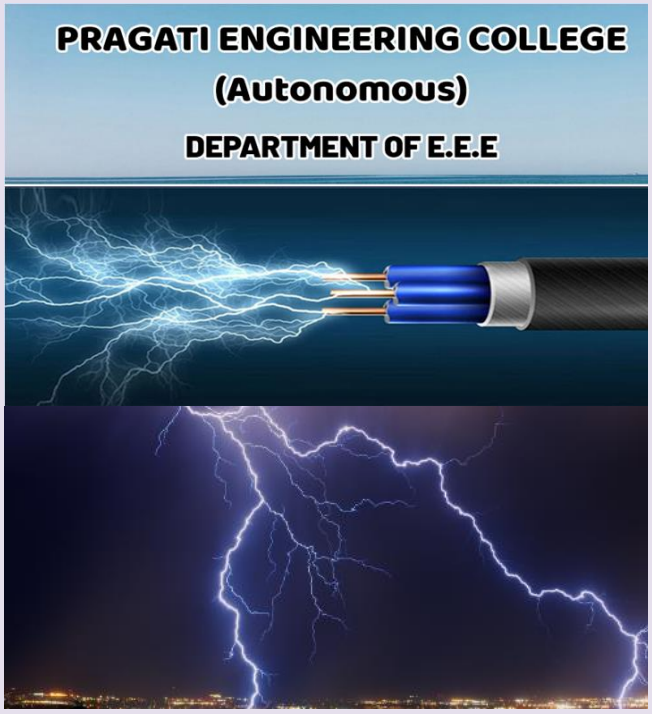
B.RamKireeti

ARTIFICIAL INTELLIGENCE IN POWER SYSTEMS

A continuous and reliable supply of electricity is necessary for the functioning of today's modern and advanced society. Since the early to mid 1980s, most of the effort in power systems analysis has turned away from the methodology of formal mathematical modeling which came from the areas of operations research, control theory and numerical analysis to the less rigorous and less tedious techniques of artificial intelligence (AI). Power systems keep on increasing on the basis of geographical regions, assets additions, and introduction of new technologies in generation, transmission and distribution of electricity. AI techniques have become popular for solving different problems in power systems like control, planning, scheduling, forecast, etc. These techniques can deal with difficult tasks faced by applications in modern large power systems with even more interconnections installed to meet increasing load demand. The application of these techniques has been successful in many areas of power system engineering.

T.Ch.Bhanu Teja

OUTSTANDING ALUMNI


PRAGATI ENGINEERING COLLEGE
(Autonomous)
DEPARTMENT OF E.E.E