# NEW HORIZON
## COLLEGE OF ENGINEERING

*Golden JUBILEE*
50 YEARS OF EXCELLENCE IN EDUCATION

*Presents*

## INTERNATIONAL CONFERENCE

*on*

# RESEARCH PERSPECTIVES: IoT IN HYBRID GRID INTEGRATED RENEWABLE ENERGY SOURCES

## (ICRPHGIRES-2021)

### CONFERENCE PROCEEDING

Sponsored by:

AICTE
All India Council for Technical Education

# 24th – 26th , March 2021

Bellandur Main Road, New Horizon Knowledge Park, Near Marathalli, Bengaluru, Karnataka, India – 560103

**www.newhorizonindia.edu**

Vakra-Tunda Maha-Kaya
Surya Koti Samaprabha
Nirvighnam Kurume Deva
Sarva-Karyeshu Sarvada

# NEW HORIZON
## COLLEGE OF ENGINEERING

*Presents*

## INTERNATIONAL CONFERENCE
*on*

# RESEARCH PERSPECTIVES: IoT IN HYBRID GRID INTEGRATED RENEWABLE ENERGY SOURCES

## (ICRPHGIRES-2021)

Sponsored by:

## 24th – 26th , March 2021

Bellandur Main Road, New Horizon Knowledge Park, Near Marathalli, Bengaluru, Karnataka, India - 560103

www.newhorizonindia.edu

## CHIEF PATRON

Dr. Mohan Manghnani, Chairman, New Horizon Educational Institution

## PATRONS

Dr. Karisiddappa, Vice Chancellor, Visvesvaraya Technological University, Belagavi
Dr. A. S. Deshpande, Registrar, Visvesvaraya Technological University, Belagavi
Dr. Manjunatha, Principal, New Horizon College of Engineering, Bengaluru

## INTERNATIONAL ADVISORY COMMITTEE

1.  Dr. Hui Helen Li, Florida State University, USA
2.  Dr. Fred C. Lee, Virginia Polytechnic Institute and State University, USA
3.  Dr. Pedro Rodríguez, Loyola University Andalusia, USA
4.  Dr. John Shen, Illinois Institute of Technology, USA
5.  Dr. Krishna Shenai, Northwestern University, USA
6.  Dr. Taylor J, University of Toronto, Canada
7.  Dr. Yuriy V. Sentyabryov, Saint Petersburg State University, Russia
8.  Dr. Jian Sun, Rensselaer Polytechnic Institute, USA
9.  Dr. Lalitha Sankar, Arizona State University, USA
10. Dr. Alexandra von Meier,  University of California, USA
11. Dr. Chester Frost, Stanford University, USA
12. Dr. Jai Ragunathan, Fisheries & Marine Institute of Memorial University of Newfoundland, Canada
13. Dr. P. Sanjeevikumar, Aalborg University, Denmark
14. Dr. Chung, Shu-hung Henry, City University of Hong Kong, Hong Kong
15. Dr. Robert S. Balog, Texas A&M University, Qatar
16. Dr. Udaya K. Madawala, University of Auckland, New Zealand
17. Dr. Vassilios G. Agelidis, Technical University of Denmark, Denmark
18. Dr. Petar J. Grbovic, University of Innsbruck, Austria
19. Dr. Tobias Geyer, ABB Corporate Research, Switzerland & Stellen bosch University, South Africa
20. Dr. Paolo Mattavelli, University of Padova, Italy
21. Dr. Ashwin M. Khambadkone, National University of Singapore, Singapore
22. Dr. Huang-Jen Chiu, National Taiwan University of Science & Technology, Taiwan
23. Dr. Muhammad Irfan, Najran University Saudi Arabia
24. Dr. Ramesh Bansal, University of Sharjah, United Arab Emirates

## NATIONAL ADVISORY COMMITTEE

1.  Padmashri. Prof. R. M. Vasagam, Former Project Director, "APPLE" India's First Geo-Stationary Communication Satellite, Former VC, Anna University and Dr.M.G.R.University
2.  Dr. D. P. Kothari, Chairman, Board of Governors, THDC Institute of Hydropower Engineering and Technology, Tehri, Uttarakhand & Former Director i/c IIT Delhi, Former Principal VRCE, Nagpur, Former VC, VIT Vellore.
3.  Dr. L. V. Muralikrishna Reddy, President, Indian Technology Congress Association & University Space Engineering Consortium India.
4.  Dr.  Sri Niwas Singh, Professor, Department of Electrical Engineering, Indian Institute of Technology, Kanpur
5.  Dr.  V. N. Mani, Principal Scientist-F. Centre for Materials for Electronics Technology(C-MET), Hyderabad

6. Dr. Debapriya Das, Professor, Department of Electrical Engineering, Indian Institute of Technology, Kharagpur
7. Dr. J. Ramkumar, Professor, Department of Mechanical Engineering, Indian Institute of Technology, Kanpur
8. Dr. Anup Kumar Panda, Professor, Department of Electrical Engineering, National Institute of Technology, Rourkela
9. Dr. Ashok S, Professor, Department of Electrical Engineering, National Institute of Technology, Calicut
10. Dr. Jyoti Prakash Mishra, Associate Professor & Head, Department of Electrical Engineering, National Institute of Technology, Silchar
11. Dr. U. Shripathi Acharya, Professor and Dean (Research and Consultancy), Department of Electronics and Communication Engineering, National Institute of Technology Surathkal
12. Dr. Nidul Sinha, Professor, Department of Electrical Engineering, National Institute of Technology, Silchar
13. Dr. Binoy Krishna Roy, Professor, Department of Electrical Engineering, National Institute of Technology, Silchar
14. Dr. Hitesh Dutt Mathur, Head, Department of Electrical and Electronics Engineering, Birla Institute of Technology & Science, Pilani
15. Dr. P N Tekwani, Professor, Department of Electrical Engineering, Nirma Institute of Technology, Ahmedabad
16. Dr. B. V. Ravishankar, Professor & Principal, B.M.S. College of Engineering, Bengaluru
17. Dr. C. P. S. Prakash, Professor & Principal, Dayananda Sagar College of Engineering, Bengaluru
18. Dr. Ciji Pearl Kurian, Professor, Department of Electrical and Electronics Engineering, Manipal Institute of Technology, Manipal
19. Dr. Arabinda Das, Professor, Department of Electrical and Electronics Engineering, Jadavpur University, Kolkata
20. Dr. Snehaprabha, Director – DSA & Professor, Department of Electrical and Electronics Engineering, Presidency University, Bengaluru
21. Dr. Suresh H. Jangamshetti, Professor, Department of Electrical and Electronics Engineering, Basaveshwar Engineering College, Bagalkot
22. Dr. S. Suresh Kumar, Vice-Principal & Professor, Department of Electronics and Communication Engineering, KGISL Institute of Technology, Coimbatore
23. Dr. L. Ashok Kumar, Professor, Department of Electrical and Electronics Engineering, PSG College of Technology, Coimbatore
24. Dr. Shivarudraswamy R, Associate Professor, Department of Electrical and Electronics Engineering, Manipal Institute of Technology, Manipal
25. Dr. Sindhu Thampatty K. C, Associate Professor, Department of Electrical and Electronics Engineering, Amrita Vishwa Vidyapeetham Deemed to be University , Coimbatore
26. Dr. C. Lakshminarayana, Associate Professor, Department of Electrical Engineering, BMS College of Engineering , Bengaluru
27. Dr. T. Sasilatha, Professor & Dean, Department of Electrical and Electronics Engineering, Academy of Maritime Education and Training - Deemed to be University, Chennai
28. Dr. Dhanalakshmi. R, Professor, Department of Electrical and Electronics Engineering Dayananda Sagar College of Engineering, Bengaluru
29. Dr. S. Suja, Associate Professor, Department of Electrical and Electronics Engineering, Coimbatore Institute of Technology, Coimbatore
30. Dr. R. Saravanakumar, Professor, School of Electrical Engineering, Vellore Institute of Technology, Vellore
31. Dr. J. Jayakumar, Professor, Department of Electrical and Electronics Engineering, Karunya Institute of Technology and Sciences, Coimbatore
32. Dr. M. Kowsalya, Professor, School of Electrical Engineering, Vellore Institute of Technology, Vellore

33. Dr. D. Nirmal, Associate Professor & Head, Department of Electronics and Communication Engineering, Karunya Institute of Technology and Sciences, Coimbatore
34. Dr. Saurabh Mani Tripathi, Assistant Professor, Department of Electrical Engineering, Kamla Nehru Institute of Technology, Sultanpur
35. Dr. S. S. Sivaraju, Professor & Head, Department of Electrical and Electronics Engineering, RVS College of Engineering and Technology, Coimbatore

## INSTITUTION ADVISORY COMMITTEE

Ms. Malathi Madhusudhan, Sr. Executive Director, Accounts & Finance, NHEI
Mr. Surya Prakash, Registrar, NHEI
Prof. Gurucharan Singh, Executive Director, Training & Placements, NHEI
Dr. Girija Srinivasalu, Director, QASDC, NHEI

## INSTITUTION TECHNICAL COMMITTEE

Dr. K. Gopalakrishnan, Dean - Research & Development, NHCE

## CONFERENCE ORGANIZING CHAIRS

Dr. M. S. Ganesh Prasad, Dean & Head - Mechanical Engineering, NHCE
Dr. M. Mahesh, Professor & Head - EEE, NHCE
Dr. Sanjeev Sharma, Professor & Head - ECE, NHCE

## CONFERENCE ORGANIZING SECRETARY

Dr. Sujitha S, Associate Professor  - EEE, NHCE

## CONFERENCE ORGANIZING CO-ORDINATORS

Dr. Vinoth Kumar K, Associate Professor  - EEE, NHCE
Dr. Gunapriya B, Associate Professor  - EEE, NHCE

## STEERING COMMITTEE

Dr. Sridhar Kurse,  Professor & Head - Automobile Engineering, NHCE
Dr. P. S Niranjan, Professor & Head - Civil Engineering, NHCE
Dr. B. Rajalakshmi, Professor & Head - CSE, NHCE
Dr. R. J. Anandhi, Professor & Head - ISE, NHCE

## INSTITUTION ORGANIZING COMMITTEE MEMBERS

Dr. Sheelan Misra, Professor & Head - MBA, NHCE
Dr. Asha, Professor & Head - MCA, NHCE
Dr. Revathi, Professor & Head - Physics, NHCE
Dr. Anusuya Devi, Professor & Head - Chemistry, NHCE
Dr. Srinivasa. G, Professor & Head - Maths, NHCE
Dr. Sowmya, Professor  & Head - Life Skills & Life Long Learning Centre, NHCE
Dr. Anitha Rai, Head - Library & Information Center, NHCE
Dr. Vijilius H Raj, Controller of Examination, NHCE
Ms. Manjula, Director - Human Resources, NHEI
Ms. Aruna, Director - Admissions, NHCE
Dr. Reena Jain, Chief Counselor - Counseling, NHCE
Mr. Krishna Prakash, Head - Head Systems & Networks, NHCE

# ABOUT
# NEW HORIZON COLLEGE OF ENGINEERING

New Horizon College of Engineering is an autonomous college affiliated to Visvesvaraya Technological University (VTU), approved by the All India Council for Technical Education (AICTE) and the University Grants Commission (UGC). It is accredited by the National Assessment and Accreditation Council (NAAC) with an 'A' grade and also by the National Board of Accreditation (NBA). It is one of the top engineering colleges in India as per NIRF rankings, ARIIA – 2020 and an ISO 9001:2008 certified institution. New Horizon college of Engineering is located in the heart of the IT capital of India, Bangalore. The college campus is situated in the IT corridor of Bangalore, surrounded by MNCs and IT giants such as Intel, Accenture, Capegemini, ARM, Symphony, Wipro, Nokia, JP Morgan and Cisco to name a few.

NHCE has a scenic and serene campus that provides a conducive environment for personal and intellectual growth. The infrastructure acts as a facilitator for the effective delivery of the curriculum. NHCE boasts of state -of-the -art facilities for its students. The students are given utmost encouragement in their areas of interest by providing hi-tech facilities backed by faculty support. Innovative programs of instructions that include both, traditional classroom theory and professional skills are very high on their list of priorities. There is a strong impetus on overall personality development of the students with emphasis on soft skills. Students are supported through mentoring and counseling systems. The management offers scholarships to meritorious students. At NHCE, from the moment a student walks into the campus, he/she is well guided to know his/her strengths and choose an area of functional specialization. This enables students to focus on investing their efforts and energies towards gaining a competitive edge. NHCE has the unique distinction of achieving 100% admissions in all its courses year after year.

NHCE has a Centre of Excellence, that is closely connected with and supported by well renowned industries of repute like Adobe, HPE, VMware, Schneider Electric, SAP, Quest Global, CISCO.

# CONFERENCE PREAMBLE

A hybrid smart grid, opens up new avenues for solar power based micro grids, to be controlled and accessed by the Internet of Things technologies. It also makes it possible for the export and import of newly generated and accumulated business models. Solar PV Integration with IoT allows micro grid systems to perform data logging over the cloud and provide remote control of the grid. Energy Internet (EI) has been recently introduced as a new concept, which aims to evolve smart grids by integrating several energy forms into an extremely flexible and effective grid.

The International Conference on **Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources** (ICRPHGIRES-2021) focuses on Internet of Things (IoT) applications, enabled for smart grids and smart environments, such as smart cities, smart homes, smart metering, and energy management infrastructures and in the investigation of the development of the EI based IoT applications. These applications are promising key areas of the EI concept. The IoT is considered one of the most important driving factors of the EI which discusses challenges, open issues, and future research opportunities for the EI concept based on IoT applications and also addresses some important research areas.

ICRPHGIRES-2021 aims to provide an environment where the authors and participants can establish research relations and collaborations with various eminent academicians, research fellows and scientists from India and abroad.

# CHAIRMAN MESSAGE

Dr. Mohan Manghnani
Chairman

"Technology empowers the less empowered. If there is a strong force that can bring a change in the lives of those on the margins, it is Technology. It serves as a leveller and a springboard"

-Shri. Narendra Modi

The future of education is mainly technology-oriented. The rapid fast growth of technology has permitted every sector of our lives, including education to a large extent. The substantial impact of technology has lead to great opportunities in globalization and digitalization.

As an institute fully committed and eager to embrace the latest offerings of technology, New Horizon College of Engineering has formulated a teaching pedagogy where technology is at the forefront. Research is given utmost importance in order to equip our students with the latest path breaking technology and ideas. Our students are given the opportunity to explore technology and understand significant and innovative research methodologies in some of the most advanced countries in the world with our multiple tie ups with universities abroad. I would like to congratulate all those involved in organizing this enlightening 'International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)'. Such conferences are the need of the day and help participants to know more and deliberate on the various latest developments in their fields.
With Best Wishes!

Dr. Mohan Manghnani
Chairman-NHEI

# VTU – VICE CHANCELLOR MESSAGE

I am happy to note that New Horizon College of Engineering, Bengaluru is organizing the International Conference on IoT in Hybrid Grid in Integrated Renewable Energy Sources (ICRPHGIRES-2021) with support of AICTE during 24th to 26th March 2021 at "New Horizon Knowledge Park, Marathahalli, Bengaluru".

I am sure that the subject of Renewable Energy is an important and niche area with far reaching implications in the field of Engineering. I am extremely happy to know that, delegates from all over the world are participating in this conference.
An international conference of this magnitude, not only brings all the researches, academicians, industry and students at one platform, but it also includes the research culture, driving towards innovation, thereby developing the nation.

I hope this event will create greater opportunities for the participants by providing a platform for presenting their experiences and contributions in this subject area. The commitment for the excellence should be the mission of the conference.

I congratulate the editorial committee for their efforts in bringing out the proceedings of the conference in the form of souvenir, comprising of useful articles of academic and societal interest.
Wishing ICRPHGIRES-2021, a grand success!!

Dr. Karisiddappa,
Vice Chancellor,
Visvesvaraya Technological University, Belagavi

# VTU – REGISTRAR MESSAGE

I am extremely happy to note that New Horizon College of Engineering (NHCE), Bengaluru is organizing an AICTE Sponsored International Conference on "Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources" (ICRPHGIRES – 2021) during 24th – 26th March 2021.

This Conference provides a unique forum for the exchange of knowledge and information among the professionals across the globe in the areas of Power and Energy, Green Technologies, IoT Applications and Management systems, subjects which have greater significance owing to the emphasis on hybrid smart grid systems. I am sure the conference will provide an ideal platform to disseminate information related to the topic.

On this auspicious occasion, I extend my best wishes to the Management, Principal, Academicians, Research Scholars, Faculty members, Students and participants for the great success of the International Conference.


Prof. A. S. Deshpande
Registrar
Visvesvaraya Technological University (VTU)
Belgaum

# NHCE PRINCIPAL MESSAGE

Dr. Manjunatha
Principal
Today, the role of an institute is not only to pursue academic excellence but also to motivate and empower its students to be lifelong learners, critical thinkers, and productive members of an ever changing global society. Providing ample opportunities in engineering and management education is one of the most fundamental obligations we owe to our students. In New Horizon College of Engineering we are driven by the belief that every student deserves a highest quality education.

The college has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of our students and staff. The highly qualified and dedicated staff have always stood shoulder with the management and have carried out their duties with a  high level of commitment.

The International Conference "Research perspectives: IOT in hybrid grid integrated renewable energy sources" is focused on the future industrial aspects available for engineering professionals. The Conference provides an open forum for scientists, researchers, and engineers to discuss nascent innovations and research advancements in the areas of next-generation technologies. It will be a wonderful opportunity for delegates to gain quality input useful for their future research in this knowledge based society. We are grateful to all authors who trusted us with their work and all the enthusiastic participant of making this conference a great success
Thank you

Dr. Manjunatha
Principal -NHCE

# DEAN R&D MESSAGE

It gives me immense pleasure to be part of this unique initiative of organizing AICTE Sponsored International Conference on "Research Perspectives IoT in Hybrid Grid Connected Renewable Energy Sources" to be held during 24-26, March 2021 in spite of COVID-19 pandemic has affected our preparations of ICRPIHGIRES-2021 for the entire year 2020 at New Horizon College of Engineering using digital platforms.

As in the preceding years, the present NHCE's Conference has also created lot of interest and enthusiasm, which is growing consistently among budding engineers, year after year. Being a passionate event, this provides a unique inter-disciplinary platform for creative young engineering talents and faculty members of Engineering Educational Institutions (EEIs) to show case their innate ability and their talents, when they are in the process of teaching and learning of their engineering programmes and wish to demonstrate their skills to develop products or systems based on their academic pursuits which may lead to their own startups.

I understand from the organizing team that good amount research papers haven submitted by researchers for the publications of proceedings and will be presented by the concerned delegate(s). I also understand that every department of NHCE have played their active role for the successful conduct of this event and have demonstrated their capability which is very evident from the process of organizing ICRPIHGIRES-2021. I strongly believe that ICRPIHGIRES-2021 also wishes to provide platform to promote, and commercialize indigenously developed technologies, that too developed by delegates of ICRPIHGIRES-2021. I congratulate the Department of Electrical and Electronics Engineering for organizing such an important event at NHCE with the support of AICTE! I wish the success of ICRPIHGIRES-2021, A Grand Success!

Dr. K. GOPALAKRISHNAN
Dean (R&D)
New Horizon College of Engineering

# DEAN MECHANICAL MESSAGE

Technological advancement in every field is a way of life in the current competent era. The technology in use a few years back is becoming redundant in today's desideratum. As the whole world is reeling under the adverse environment created by the pandemic disease COVID-19 currently, it is the responsibility of the Engineering and Technology community that the furtherance in the field of Research and Development is not halted.

International Conference on "Research Perspectives IoT in Hybrid Grid Connected Renewable Energy Sources is a unique platform for Engineers, Managers and Research Scholars to showcase and exhibit their innovative ideas. The aim of this event lies in bringing the hidden talents in Research Scholars / Managers/ Engineers to display the project ideas realized through hard work and dedication.

We cordially welcome you all to this great event International Conference on "Research Perspectives IoT in Hybrid Grid Connected Renewable Energy Sources in New Horizon College of Engineering.

"Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution."- Albert Einstein

Dr. M S Ganesha Prasad Dean,
Prof. & Head-ME

# Director - IFCEEAE MESSAGE

It is a great pleasure for me to welcome you to the International Conference on "Research Perspectives IOT in Hybrid Grid Integrated Renewable Energy Sources"- ICRPHGIRES-2021. This symposium is a flagship conference on IoT in Hybrid Integrated Power & Energy Systems and technologies and is supported by Consulate General of France, Bengaluru

Acclaimed for the top quality contents, ICRPHGIRES-2021 is supporting leading cutting edge and advanced techniques in IoT based renewable energy sources for Power & Energy conversion solutions. ICRPHGIRES is unique in our emphasis on IoT applications, presenting the best in applied integrated systems research together with innovations in individual energy conversion components.

2020 and 2021 have been a very challenging years due to the COVID-19 pandemic. With the safety and well-being of our participants as our top priority, ICRPHGIRES-2021, originally planned and scheduled to be hold in Bengaluru, Karnataka, India.

To provide the maximum flexibility for the participants, the ICRPHGIRES-2021 virtual conference program will include on-line technical presentations, as well as live plenary session on specific domain of Science & Technology. This virtual format allows us to still come together to learn, idea-share, and gain insight into the latest innovations within the energy conversion field, and ensures that the current landscape does not hinder anyone's ability to participate.

"Best Wishes to ICRPHGIRES-2021"

Prof. Thomas BRIERE
    Technical Expert in Electricity, Automation
    and Nuclear Sciences (MENJS/FEI)
    Director of the Centre of Excellence
    (IFCEEAE), NHCE, Bangalore - INDIA

## TRACK: 1

### Smart Grid Architectures, Smart Grid Interconnection, Smart Grid Implementation

## TRACK: 2

### Power and Energy Engineering, Clean and Renewable Energy, Automation and Smart Cities

| | | |
|---|---|---|
| 141 | Comparison of Multi & Taper Leaf Spring, Variable thickness optimization of Taper Leaf Spring<br><br>**Basava Kumar KG, Chetan Kumar DS** | 28 |
| 148 | Review of Clamped Type based Single-Phase Single-Stage Transformerless Current Source Inverters for Residential grid connected Solar PV systems<br><br>**Jagadeesh C. B** | 29 |
| 152 | Microwave Assisted Synthesis of Activated Carbon from Parthenium Hysterophorous for Electrical Double Layer Supercapacitors<br><br>**Sandhya S, Anusuya Devi V, Parashuram L, K. Yogesh Kumar, M S Raghu** | 30 |
| 158 | Efficient Energy Management using IoT for Industrial Applications<br><br>**Monika Gupta, Aditya Jakkaraddi,  Manoj N, Rajeev Kumar, S Sharan** | 31 |
| 159 | Review of Clamped Type based Single-Phase Single-Stage Transformerless Current Source Inverters for Residential grid connected Solar PV systems<br><br>**Surya Prabha J, Nisha KCR** | 32 |
| 160 | IoT based component for smart museum (I-SMART)<br><br>**Santhosh Krishna B V, Sanjeev Sharma** | 33 |
| 161 | Google Assistant Controlled Scrolling Display<br><br>**Santhosh Gowda M, P Naveen Krishna, Nehna Manoj, Nikitha M S, Richard Lincoln Paulraj** | 34 |
| 163 | Effect of MIMO Scaling on Energy Efficiency of Beamforming Systems<br><br>**Ashok K, Anush G R, Tessy Tomy** | 35 |
| 164 | A Review of Multi-Legged Bio-Inspired Robot Designs<br><br>**Aditi Raj, M Ravikumar** | 36 |
| 165 | Bit Error Rate Analysis of Passband Digital Transmission Techniques Over Awgn Channel<br><br>**Parag Jain, Sanjeev Sharma** | 37 |
| 168 | Development of a Home Security Robot with Facial Recognition using Deep Learning and IoT<br><br>**Vinayak P B, Shravan Aruljothi, Harshit Shivakumar, Sharad Dewanand Parate, Nehal Dinesh Andani** | 38 |

## TRACK: 3

### Internet of Things, Artificial Intelligence, Management and Emerging Technologies

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

2021

| | | |
|---|---|---|
| 133 | Digital Twin in The Automotive Industry: Driving Physical-Digital Convergence<br><br>**Mohammed Farooq, M. S. Ganesha Prasad, Chetan Kumar** | 52 |
| 135 | Four-legged Spider Robot to Walk Over and Clean Vertical Glass Surfaces<br><br>**Venkata Naga Tanuja G** | 53 |
| 136 | Design and Optimization of Intake Manifold in Automotive<br><br>**Divyesh K Patil** | 54 |
| 138 | A study on Implementation of Design Thinking and Innovation – Contribution Towards Atmanirbhar Bharat<br><br>**Saumi Roy, Sheelan Misra** | 55 |
| 142 | IoT Data Link Layer Communication Protocols Frame Format in Controller Area Networks<br><br>**Sreekanth R** | 56 |
| 144 | Predicting Accuracy of Loan Using Machine Learning Techniques<br><br>**Latha R, Naganandan P, Pavan D, Subham Sharma, Tiyasha Dasgupta** | 57 |
| 145 | Prediction of Crop Yield and Cost by Finding Best Accuracy using Machine Learning Approach<br><br>**Swathi, Soja Rani** | 58 |
| 147 | An Overview of Machine Learning on Heart Disease<br><br>**Clara Kanmani, Harshitha M** | 50 |
| 150 | Blockchain Technology: A Systematic Literature review<br><br>**Manish Kumar, Jaya** | 60 |
| 162 | Random Number Generator Using Sound<br><br>**Abhishek Francis S, Pamela Vanitha Eric** | 61 |
| 166 | A study on Employee Turnover and its impact on organization performance<br><br>**Jayashree. N** | 62 |
| 167 | Stress -The Major Obstacle In Experiencing Euphoria<br><br>**Poojasri. P, Bavatharini. S, Gnanadesika. R, Briny Lumina, Gunapriya.B** | 63 |
| 172 | A Comprehensive Study on Consumer's Behaviour with respect to Electric -Bikes in Bangalore Region<br><br>**Priyameet Kaur Keer, Sheelan Misra** | 64 |

# 1
# TRACK

## SMART GRID ARCHITECTURES
## SMART GRID INTERCONNECTION
## SMART GRID IMPLEMENTATION

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 101**

# Comparison of Different Passive Filter Topologies for Harmonic Analysis of a Line Commutated Converter based HVDC System

**Amal Nair**
Student
Department of Electrical Engineering
Pandit Deendayal Energy University
Gandhinagar, India
amal.nmtee19@sot.pdpu.ac.in

**Bhinal Mehta**
Assistant Professor
Department of Electrical Engineering
Pandit Deendayal Energy University
Gandhinagar, India
bhinal.mehta@sot.pdpu.ac.in

***Abstract*** **-** In the modern power system, the usage of high voltage direct current (HVDC) transmission is increasing rapidly for grid interconnections and integration of renewable energy sources, particularly offshore wind farms. Research on applications like providing infeed connections to grids of large cities by HVDC, replacing Extremely High Voltage AC (EHVAC), is going on. In all the applications, it is required to carry out harmonic analysis and maintain harmonic levels as per grid codes. In this paper, a traditional Line-Commutated Converter (LCC) based HVDC system is modeled using DigSILENT Power Factory and its harmonic analysis is performed. Based on the results, passive filters with different topologies are designed, implemented, compared and discussed.

***Keywords*** **-** *HVDC, harmonics, harmonic analysis, passive filters*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 107**

# Implementation of smart E-vehicle charging station powered by renewable energy

**Dr. Vinoth Kumar K**
Associate Professor
Department of EEE
New Horizon College of Engineering
Bengaluru- 560103, Karnataka, India
vinoth4krishnan@gmail.com

**Vinith G A**
**Pragathi Prakash**
**Meghana I L , Divya S V**
B.E EEE Students
Department of EEE
New Horizon College of Engineering
Bengaluru- 560103, Karnataka, India
vinith5s999@gmail.com

*Abstract  -* Electric vehicles are a moderately on-going innovation that is looking for its spot on the lookout. It has a few favorable circumstances, for example, the decreased nursery outflows, fuel reserve funds and its convenience. Lately, establishment of sustainable power offices is expanding quickly in light of the development to stifle the arrival of nursery gasses answerable for the warming of the earth and to save petroleum products, which are becoming progressively valuable. Besides, the expense of photovoltaic frameworks is diminishing step by step. Along these lines, it is accepted that cost of photovoltaic force will be falling later on. Nonetheless, in Japan, the enormous measure of surplus power from photovoltaic frameworks applies an awful impact on the force network. In this project, an EV charging station using sustainable power is proposed. The proposed EV charging station draws energy from photovoltaic frameworks and wind turbine at a low cost and uses that ability to charge a fixed battery. At that point the force is being utilized to charge electric vehicles; it also presents a few opportunities for electric force supply from sustainable wellsprings of electric vehicle charging stations. An additional main supply is also added in order to maintain regular power supply to the system, here we are using proteus software to simulate the circuit.

*Keywords -* *Electric vehicles, Smart E-vehicle, Renewable energy.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 112

# Weather Forecasting for Renewable Energy System using Machine Learning Techniques in Smart Grid: A Review

**R.Meenal**
Department of Electrical and Electronics Engineering
Karunya Institute of Technology and Sciences
Coimbatore, India
meenasekar5@gmail.com

**Prawin Angel Michael**
Department of Electrical and Electronics Engineering
Karunya Institute of Technology and Sciences
Coimbatore, India
legnaprawin@gmail.com

**E.Rajasekaran**
Department of Science and Humanities
VSB Engineering College
Karur, India
ersekaran@gmail.com

*Abstract* - Energy crisis and climate change are the major concerns which has led to a significant growth in the renewable energy resources which includes mainly the solar and wind power generation. In smart grid, there is a increase in the penetration level of solar PV and wind power generation. The solar radiation received at the earth surface is greatly dependent on various atmospheric parameters. Forecasting of solar radiation and photovoltaic power is a major concern in terms of efficient integration of solar PV plants in the power grid. There are significant challenges in smart grid energy management due to the variability of large-scale renewable energy generation. Renewable energy forecasting is critical to reduce the uncertainty related to renewable energy generation for a wide range of planning, investment and decision-making purposes. As Renewable energy sources are highly intermittent and variable, all the forecasting models available in the literature contain errors. This paper presents an inclusive review of solar radiation and wind speed forecasting techniques. It is observed that, despite having no clear understanding on atmospheric physics, the artificial intelligence based methods such as machine learning and deep learning method produces reasonable weather forecasting results.

*Keywords* - *Renewable energy, Machine learning, Wind speed, solar radiation, Forecasting*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Transient Stability Prediction using Artificial Neural Networks and Synchronized Measurements

**Chandrashekhar P K**
Research Scholar
VTU Research Centre
Central Power Research Institute
Bengaluru, India
pkcsmce@gmail.com

**Dr. Srivani S G**
Associate Professor
Department of E & EE
RV College of Engineeing
Bengaluru, India
srivanisg@rvce.edu.in

*Abstract* **-** In this paper an post-fault transient stability assessment (TSA) method in terms of transient stability margin (TSM) prediction using artificial neural networks (ANN) and synchronized or PMU measurements is proposed. A post-fault multi-machine system is converted into a suitable OMIB using Single Machine Equivalent (SIME) concept. By using SIME Pa-$\delta$ trajectory, a normalized transient stability margin is calculated. By using pre and during fault synchro phasor measurements as input ANN model is trained to predict normalized stability margin. Using the synchronized measurements available at generator buses and the trained ANN model, post-fault TSA is carried out in terms of TSM prediction. If the predicted margin is negative then the post-fault system is declared unstable and if the predicted margin is positive then the system is declared stable. The proposed assessment method is implemented using New England 39 bus test system. The results are compared with time domain simulations.

*Keywords* **-** *Artificial Neural Networks (ANN), Single Machine Equivalent (SIME), Transient Stability Assessment (TSA), Transient Stability Margin (TSM)*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Design and Performance of savonius wind turbine for Smart Grid Power Systems

**Jency Joseph J**
Department of Electrical and Electronics Engineering
Karunya Institute of Technology and Sciences
Coimbatore, Tamil Nadu, India
jencyjoseph@karunya.edu

**Anitha Mary X**
Department of Robotics
Karunya Institute of Technology and Sciences
Coimbatore, Tamil Nadu, India
anithamary@karunya.edu

**Josh F T**
Department of Electrical and Electronics Engineering
Karunya Institute of Technology and Sciences
Coimbatore, Tamil Nadu,
josh@karunya.edu

*Abstract* - The sensor nodes in smart grid power systems are being operated with conventional power source battery using thermal energy. However wind energy is being explored nowadays due to its accessibility and competitively. The blades play the vital rote for the energy generation. The new type of Savonius rotor is a vertical axis wind turbine which is inexpensive, modest for manufacture and used as low speed turbine. In this work, different design geometries of the Savonius rotor blade were experimentally studied. The Savonius rotor was designed with the rotor diameter of 0.2 m and the height of 0.4 m. The Velocity to speed testing has been done on two, three and four blades savonius rotors. It is observed that two blades rotors are found to give better performance than three and four blades.

*Keywords* - *Savonius rotor blade, wind turbine, battery, wind tree, power output.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 120**

# Study on Dynamic Behavior of Photovoltaic Mixer Grinder

**Priyabrata Adhikary**
Dept.of Mechanical Engineerng
New Horizon College of Engineering
Bangalore, India
priyabrata24@gmail.com

**Susmita Kundu**
Dept.of Electrical Engineering
Meghnad Saha Institute of Technology
Kolkata,India
*susmita@nsit.edu.in

***Abstract*** **-** This paper presents the dynamic behavior of a PWM controlled mixer motor drive fed from a PV panel. In particular, qualitative changes that occur in the behavior of motor current have been explored against variation in irradiance and load torque. The output from PV panel is used to charge a battery using a buck-boost converter whose duty cycle is controlled by applying perturb and observe algorithm for the purpose of maximum power point (mppt) tracking. This battery in turn supplies a mixer motor through a PWM controlled buck converter using PI controller. The buck converter has been operated in voltage mode control. In this study a universal motor has been considered for the mixer grinder application. The proposed application of PV panel for a 0.5hp mixer motor has been simulated using MATLAB software.

***Keywords -*** *bifurcation, chaos, mixing, mppt, photovoltaic, universal motor*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 123**

# Revolution of IoT in Energy Efficient Smart Building

**Dr. B. Gunapriya**
Department of Electrical & Electronics Engineering New Horizon College of Engineering Bangalore

**C. Sasikumar**
Department of Electrical & Electronics Engineering Kumaraguru College of Technology, Coimbatore

**J. Darshankumar**
Department of Aeronautical Engineering Kumaraguru College of Technology, Coimbatore

**Dr. T. Rajesh**
Department of Electrical & Electronics Engineering Malla Reddy Engineering College Telangana

**M. Karthik**
Department of Electrical & Electronics Engineering Sri Ramakrishna Engineering College, Coimbatore

**Rashmi Ramachandra**
Department of Electrical & Electronics Engineering New Horizon College of Engineering, Bangalore

*Abstract* - Internet of Things (IoT) is endeavoring to improve current structures into energy productive, brilliant, and associated structures, by giving abilities like constant observing, situational mindfulness and knowledge, and shrewd control. Digitizing the in vogue day building climate utilizing IoT improves resource perceivability and creates energy reserve funds. This paper gives a study of the job, effect, and challenges and suggested arrangements of IoT for brilliant structures. It likewise presents an IoT-based answer for beat the test of wasteful energy the executives during a shrewd structure climate. Web of Things (IoT) arrangements offer a way higher incentive if these can work inside the setting of brilliant structures. Such progressed data and correspondence innovation (ICT) applications in business structures, schools, libraries, malls, and so forth offer ease yet profoundly compelling checking and control openings. An IoT sensor stage has been created which has given a bound together correspondence stage which will coordinate data from divergent sources and supply one control order. It is an amazing, minimal effort, open-design programming stage that can screen and control major electrical burdens (e.g., HVAC, lighting and attachment loads), just as sunlight based PV frameworks, energy stockpiling units and different IoT sensors in business structures.

*Keywords* - *Energy Efficient, Building Automation, Smart Building.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 124**

# A short range under water data transmission using Li-Fi and PWM Techniques

**Dr. N. Prabhakaran[#], Md Sagar Khan[*], Lokare Ashwini Balasaheb[#], Md Usman Khan[#], Kulshrestha Utkarsh Alok[#]**

Department of Electrical and Electronics Engineering,
New Horizon College of Engineering, Bengaluru-560103
[1]nprabhakaran4684@gmail.com
[2]sagarhajrat@gmail.com

***Abstract*** **-** In recent days, the under-water vehicles are implemented for various applications like military application, ocean mapping etc. In this regards, the data communication between Vehicle to Vehicle or Vehicle to Infra-structure is very essential for critical informative wirelessly. In this proposed research article data transmission from one vehicle to another vehicle is obtain using Li-Fi and PWM Techniques for under water application. The Li-Fi Technology is constructed to build the wireless data transmission for the various application proposed in this research article. The PWM Technique is additionally programmed in the proposed model to decode the various numerical values. These techniques are framed to communicate wirelessly between two devices through the water medium.

***Keywords*** *- under-water vehicles, data communication, Li-Fi, PWM Techniques, wirelessly*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 125**

# Distributed Generation impact on voltage profile improvement in agriculture feeder –a case study

**Sunil.S.K**
Dept. of Electrical & Electronics Engineering
New Horizon College of Engineering
Bangalore, India
sunilmpcl@gmail.com

**Prabhu .U.V**
Dept. of Electrical & Electronics Engineering
BMS College of Engineering Bangalore
prabhuudbal@gmail.com

*Abstract  -* In this paper, analysis regarding agriculture feeder network with integration of DG fo voltage profile improvement and loss reduction , DG with solar energy resources on integration with optimal locations on distribution feeders, which reduces loss reduction and improve in voltage profile. deciding the appropriate location for DG integration in agriculture feeder simulations are performed in power world simulators and verified with MI power which quantify the loss reduction and system improvement by having distributed generation. Finally The analysis reveals the improvement in voltage profile, significant energy loss reduction in distribution network and an increase in network capacity.

*Keywords -* *Distributed generation, agriculture feeder network, voltage profile.*

---

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 126**

# Speed Control and Torque Ripple Reduction of SRM Using Fuzzy Gain Scheduling PI Controller

**Rekha P S**

Department of Electronics and Communication Engineering

SJB Institute of Technology

Bengaluru-560060, Karnataka, India and Affiliated to Visvesvaraya Technological University, Belagavi- 590018, Karnataka, India

rekhas.venkatesh@gmail.com

**Dr. Vijayakumar T**

Department of Electronics and Communication Engineering

SJB Institute of Technology

Bengaluru-560060, Karnataka, India and Affiliated to Visvesvaraya Technological University, Belagavi- 590018, Karnataka, India

tvijaykumar@sjbit.edu.in

*Abstract  -* The controlling of SRM is difficult due to high nonlinear nature with high torque ripple and Acoustic noise. In this work the dynamic behavior of SRM is examined using Fuzzy Gain Scheduling PI Controller (FGS-PI) to mitigate torque ripples and to control the speed of the motor. The PI controller parameters are tuned to achieve better performance of the speed using fuzzy gain scheduling technique. Fuzzy gain scheduling method fine tunes the torque reference value to reduce torque ripple at low speeds. The proposed system is designed and implemented in MATLAB/Simulink environment and performance analysis at various torque and speed is investigated. The simulation results verify that the proposed novel control method, DTC using FGSPI improves the speed control effectively and suppresses the torque ripple.

*Keywords -* *Speed control, Torque ripple, Switched Reluctance Motor, Fuzzy Gain Scheduling (FGS), PI controller*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 127**

# Design and implementation of COBOTS to Assist with Healthcare Workers

**A. Singaravelan, P. Sridharan, Pooja V, S.P. Sriram, Sarika M**

New Horizon College of Engineering, Bangalore

a.singaravelan2013@gmail.com, srihanu1999@gmail.com, sriramsp2000@gmail.com, poojavishu26@gmail.com, sarikamurugan1999@gmail.com

*Abstract - * The pandemic situation such as ongoing corona virus outbreak (COVID-19) has increased the demand for PPE (personal protective equipment) globally. To reduce both the demand for PPE and severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) exposures, we have developed a COBOTs system which will be able to perform the tasks of healthcare workers inside an intensive health care unit (ICU) room, which will reduce both the PPE use and exposure. The aim of the project is to assist the healthcare workers with a robotic assistant in monitoring and serving the patients during pandemic in a quick and secure way.

*Keywords - Cobot, Health worker, Automation, AutoCAD, Simulation, Simulink.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 146

# Parameter Space of a PWM chopper controlled dc series drive system

**Susmita Kundu**
Meghnad Saha Institute of Technology, Dept. of Electrical Engineering, Kolkata, India.
Susmitakunduadhikary@gmail.com

**Priyabrata Adhikary**
New Horizon College of Engineering Dept. of Mechanical Engineering, Bengaluru, India

*Abstract* - In this paper a study is made on the bifurcation behavior for speed response of a chopper fed dc motor drive system. The key idea is to identify the operating conditions over the allowable range of load torque for stable operation of the motor drive system. With only speed loop operative investigation is made by numerically simulating the drive system and also performing laboratory experiment on a 0.5 hp, 220V and 1800 rpm dc series motor.

*Keywords* – *chopper, pwm, bifurcation, chaos, chopper, period one.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# A Study on Free Space Optical Communication-Opportunities and Challenges

**Lipsa Dash**

New Horizon College of Engineering Dept. of ECE, Bengaluru, India

lipsad@newhorizonindia.edu


**Mamta B. Savadatti**

New Horizon College of Engineering Dept. of ECE, Bengaluru, India

mamtabs@newhorizonindia.edu

*Abstract* - In today's communication scenario where it has become increasingly important to meet the high data rate requirement, we have to look for alternative ways of communicating rather than depending fully on the prevalent mainstream communication systems. Free space optical (FSO) communication proves to be one of the best candidates to meet these requirements. It resolves the last mile bottleneck connectivity issues especially in local area access networks and acts as a supplement to conventional RF/microwave links. This is because of its inherent advantages of license free long range communication, high bandwidth, high data rates, low cost implementation, relatively low power requirement and security compared to existing RF technologies. This paper reviews all the possible opportunities and attached challenges with FSO implementation.

*Keywords* – *FSO, MIMO, Atmospheric turbulence, Space time coding.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Design of ARM based Data Acquisition from Underwater Sensor

**Deepak Kumar S Nadiger**
Dept of ECE
New Horizon college of Engineering
Bengaluru
sdeepaknadiger@gmail.com

**Lokesh B**
Dept of ECE
C Byregowda Institute of Technology, Kolar
lokesh4010@gmail.com

*Abstract  -* In today generation the importance of underwater vehicles are increasingly high as it can collect the data that is difficult for human beings to gather. This paper deals with acquiring the data from the underwater using specified sensors. Data Acquisition is the process of sampling signals that measure real world physical conditions and converting the resulting samples into digital numeric values. Acquiring the data from the underwater using specified sensors and arm controller and analyzing it using MATLAB in system and also feeding it to cloud.

*Keywords – Underwater Vehicles, sensors*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 153**

# Development of a Residential Microgrid using Home Energy Management Systems for effective energy conservation

**Anitha. A**
Dept. of EEE
New Horizon College of
Engineering, Bangalore
anithaa@newhorizonindia.edu

**Vikesh Kumar**
Dept of EEE
New Horizon College of
Engineering, Bangalore
vikikadadi876@gmail.com

**Altamash Pasha**
Dept of EEE
New Horizon College of
Engineering, Bangalore
gulnaz.pr@gmail.com

*Abstract* **-** Now a day's there is a shift from conventional to non-conventional sources of energy for power production because of less pollution and eco-friendly. Depending on such single source of energy results in unstable operation caused due to inaccessibility and climatic variations. The proposed system allows two or more sources to supply the load depending on the availability of the energy sources and priority. This paper presents a new system configuration of solar and wind integration for automatic energy management system of renewable energy source. Microcontroller based control ensures the optimum utilization of resources and it also increases the efficiency of the combined system as compared to the individual mode of generation.

*Keywords* – *hybrid system, energy management system*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 154

# Real time safety monitoring system for COVID-19

**Karthika M[1], Richard Christopher C[2], Kureti Venkat Nishit[3]**
[1]Senior Assistant Professor
[2,3] Student,  New Horizon College of Engineering, Bangalore

*Abstract  -* In this paper, a cost-effective microcontroller-based system is proposed to reduce and control the COVID-19 virus spread. The proposed system is used to identify the mask through image recognition, to measure the temperature of human and can be used as an automatic hand sanitizing dispenser. All these functions can be performed without any human contact. This eliminates the need of a human and ensures all safety protocol checks as an individual enters a closed premise.

*Keywords – Cobot, image-recognition, health care, contact-less temperature sensing.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 155**

# An Efficient and Robust Audio Steganography Using MATLAB

**Ishani Mishra**
Senior Assistant Professor
Electronics and Communication Department
New Horizon college of Engineering Bangalore
India
ishani.nhce@gmail.com

**P Ramanamma**
Assistant Professor
Electronics and Communication Department
New Horizon college of Engineering Bangalore
India
maturyrama@gmail.com

*Abstract -* In present day to day life, effective data hiding methods are needed due to attack made on data communication. This paper presents the technique for the above requirement. In this proposed method, secret message is embedded within carrier audio file (.wav) . In the transmitter end the output will be similar to the carrier with secret message embedded inside. The hacker will be blinded by the transmitted signal. At the receiver end the original message can be retrieved without any loss. The entire proposed system is simulated and their corresponding waveforms proved the effectiveness of this method.

*Keywords –* *Image Steganography, Echo hiding, Feature coding, Audio Steganography, Video Steganography*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 156**

# Network–on–Chip Router Microarchitecture for Future Communication: A comprehensive review

**Ramanamma Parepalli**
Assistant Professor
Electronics and Communication Department
New Horizon college of Engineering Bangalore India
maturyrama@gmail.com

**Dr. B Mohan Kumar Naik**
Professor
Electronics and Communication Department
New Horizon college of Engineering Bangalore India
mohan72003@gmail.com

*Abstract -* Network-on-Chip (NoC) is fast emerging as an on-chip communication alternative for many-core System-on-Chips (SoCs). NoC architecture is a preferable communication backbone for today's multiprocessor platforms. NoCs utilize routers at each node to direct traffic. However, designing a high performance, low latency NoC with low area overhead has remained a challenge. Conventional NoC router micro-architecture has main drawbacks in terms of circuit complexity, high critical path delay, resource utilization, timing, and power efficiency. The growing reliance on intellectual properties exposes SoCs to many security vulnerabilities and is raising more and more concerns. At the same time, with the quick increase in chip density and deep scaling of feature size, current billion-transistor chip designs introduce more challenges to manufacturing fault-free chips. The research presented in this paper has investigated these issues in detail and wants to develop a low latency, low-power and high-performance NoC router architecture that is applicable to a wide range of FPGA families.

*Keywords – NoC router, VC allocator, Switch allocator, Switch traversal.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 157**

# RFID Based Attendance System using PHP and MySQL

**T Muni Prakash[1], Anshuman Biswal[2], Utkarsh Bhardwaj[3] & Amartya Thakur[4]**

Sr.Asst. Prof, Dept. of EEE, New Horizon College of Engineering, Banglore[1]

UG Scholars, Dept. of EEE, New Horizon College of Engineering, Banglore[2,3&4]

***Abstract - *** The main aim of this paper is to design a RFID based attendance system using MySQL and PHP which helps in replacing the old and tedious way of marking the attendance using register and pen. The new system is cost effective, error free and capable of handling large storage database precisely. This paper analyses the recent development and implementation of IoT attendance system using the concept of Radio Frequency Identification (RFID) for automatic attendance system and it provide very higher accuracy and performance than conventional paper-based system.

*Keywords – RFID, MySQL, PHP & Arduino*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 169**

# IoT in Hybrid Grid Integrated Management System

**G.Arun Kumar**
Department of Electrical and Electronics Engineering
Mahatma Gandhi Institute of Technology
Hyderabad, India
gvlak206@gmail.com

**Ch.Vinay Kumar**
Department of Electrical and Electronics Engineering
Mahatma Gandhi Institute of Technology
Hyderabad, India
vinayee.mgit@gmail.com

**P.Lakshmi Supriya**
Department of Electrical and Electronics Engineering
Mahatma Gandhi Institute of Technology
Hyderabad, India
plsupriya18@gmail.com

*Abstract* **-** The control and monitor of system with advanced technology gives the qualitative and quantitative analysis in any field of engineering. It reduces the time of operation to solve any issue in a system. The necessity of these technologies is very high in integrated electrical system which gives the fast response. Internet of things (IoT) is a new environment helps us in hybrid integrated renewable energy source management system. This is the new era in electrical engineering to improve the smart grid operation over the cloud with remote access using internet. In this paper, the IoT approach to evaluate the smart grid management system is described. The potential of IoT in the grid integration from the basics are also covered in this paper.

*Keywords – Hybrid Integrated grid, IoT (Internet of Things), smart grid.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 170**

# Airport Automation using GSM

**J. Joshua Daniel Raj**
Electrical and Electronics Engineering
New Horizon College of Engineering
Bangalore, India

joshuadanielraj4research@gmail.com

**K.Ezhilarasan**
Electronics and Communication Engineering
Sambhram Institute of Technology
Bangalore, India
murali981983@gmail.com

**S.Ramakrishnan**
Electrical and Electronics Engineering
New Horizon College of Engineering
Bangalore, India
leoramkrish84@gmail.com

**Samson Immanuel. J**
Electronics and Communication Engineering
Karunya University
Coimbatore, India
samsonimmanuel566@gmail.com

**Karthik. P**
Electronics and Communication Engineering
K. S. School of Engineering and Management
Bangalore, India
karthikpae@gmail.com

*Abstract* **-** Automation refers to " The Automatic controlling of a Task ". Airport Automation deals with the Automatic controlling of tasks of the Airport like check in, security check , announcements , aircraft arrival and departure information , baggage control,.etc. This reduces the risk of manual errors during task execution , which may lead to accidents and delays at the Airport.

*Keywords – Automation, Airport, GSM, Control system.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 171**

# Fuzzy Elman-Jordan Neural Network Based Space Vector Modulation for VSI Fed Induction Motor Drive

**Dr. R.Mohan Das**
Associate Professor, New Horizon College of Engineering, Bengaluru
mohandass31@gmail.com

**Vinod Kumar . S**
Senior Assistant Professor, New Horizon College of Engineering,  Bengaluru

**Dr.M.P.Mohan Das**
Assistant Professor, KIT- Kalaignar Karunanidhi Institute Of Technology, Coimbatore

*Abstract -* The space vector modulation is one of an optimal pulse width modulation approach employed for variable speed drive application. This Paper develops a fuzzy ELMAN JORDAN neural network model to perform space vector modulation for a voltage source inverter. The developed fuzzy- ELMAN JORDAN neural network (Fuzzy-EJNN) is one of the computational intelligent technique and the proposed method is noted to be independent of the switching frequency and employs gradient descent learning rule for training the network process. The ELMAN JORDAN neural network employs recurrent architecture model and gets hybridized with fuzzy system module and performs space vector modulation (SVM). Using this fuzzy-neural approach, SVM operation becomes much faster and the algorithm trains itself to achieve minimal training and testing error and gets converged within minimum number of iterations. The recurrent architecture of the ELMAN neural model makes it to get converged faster and result in better total harmonic distortion (THD) in comparison with the traditional drive modules. Simulation results of the proposed technique are verified experimentally with Dspace module. Results prove the superiority of the proposed model in comparison with that of the individual other neural network models considered.

*Keywords* – *Space Vector Modulation, Total Harmonic Distortion, Voltage Source Inverter, Random Space Vector Pulse Width Modulation.*

# 2
# TRACK

**POWER AND ENERGY ENGINEERING
CLEAN AND RENEWABLE ENERGY
AUTOMATION & SMART CITIES**

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 109**

# Interleaved Boost Converter for Electric Vehicles

**T.Saravanakumar**
Research Scholar
School of Electrical Engineering
Vellore Institute of Technology,
Vellore, India
tsaravanan.best@gmail.com

**R. Saravanakumar**
Professor
School of Electrical Engineering
Vellore Institute of Technology
Vellore, India
rsaravanakumar@vit.ac.in

***Abstract*** *-* A novel interleaved boost converter has been proposed which is suitable for Electric Vehicle due to its high voltage gain. The real voltage conversion ratio, however, may be greatly decreased by the circuit's parasitic resistance effect because at a high step-up operation, the input current will be large and thus the voltage drop cannot be overlooked. This paper analyzes the effects on the voltage gain and experimentally tests the outcome. Consequently, it is found that the voltage gain is mainly influenced by resistance and the number of turns increases in the integrated magnetic portion of the proposed converter, and particularly when the duty cycle is greater than 0.5.

***Keywords -*** *Voltage Gain, Coupled-Inductor, Duty Cycle, Electric Vehicles, High Step-up Converter*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 111

# Experimental Investigation of Cryogenically Treated Tool in Turning

**D.M.Dalwe**
Mechanical Engineering Department,
S. T. B. College of Engineering
Maharashtra, Tuljapur, India
dalwedm2007@gmail.com

**R.G.Tated**
Mechanical Engineering Department
Matoshree College of Engineering,
Maharashtra, Nashik, India
rgtated@yahoo.com

*Abstract* **-** In this research work experimental investigations on the wear resistance of Powder Metallurgy tools in turning operation are carried out. The tool steel is exposed to various cryogenic actions beside with the conservative heat treatment. For this a Taguchi's orthogonal array method is applied to finalize experimental investigations. The effect of cryogenic treatment on hardness and micro hardness of tool steel is found. Scanning electronic microscopy is used for analysis of effect of cryogenic treatment on the microstructure of tools. Electronic Dispersive Spectroscopy (EDS) method is used to obtain composition of specimen as a whole and the composition of individual components.

*Keywords* **-** *Powder Metallurgy-steel tools, cryogenic treatment, Taguchi O. A., hardness, wear resistance.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# A Studies on Static Analysis of Link Chain-A Case Study

**Naresh K S**
Mechanical Engineering Department,
New Horizon College of Engineering
Bengaluru, Karnataka, India
nareshreddy044@gmail.com

**Rakshith K U**
Mechanical Engineering Department
New Horizon College of Engineering
Bengaluru, Karnataka, India
rakshith.ku@gmail.com

*Abstract* - Industrial companies, manufacturing factories use chains as the basic equipment to carry the raw material, move equipment one location to another for process. Ships use theses chains link or slings for lifting loads. Bigger link chains are as anchor chains. In this study, 3D modeling and FE analysis were performed taking the two models of a link chain, one non-welded model and another welded model. The static study on these models is done at different load conditions. The stress- strain concentrations and the deflection of the models on loading is observed. This study gives the stress-strain concentration patterns on the model on different loads and observe the locations where the minimum and maximum concentration occurs and where the maximum and minimum deformations take are observed on applying different load conditions. In this paper, we study the stress-strain concentrations, deflection on different load conditions on both non-welded and welded models of a link chain specimen.

**Keywords -** *chain link, FE analysis, welded, non-welded, Lifting load.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Electrochemical studies of GdAlO3:Eu3+

**Sumitha K S**
Department of Physics
East Point college of Engineering and
Technology, Bangalore- 560049

**P.K. Jisha**
Department of Physics
New Horizon College of Engineering, Bangalore-
560103, India

*Abstract* **-** Evaluation of the electrochemical performance of GdAlO3:Eu3+ electrodes, in neutral KOH electrolytes. The electrical conductivity of GdAlO3:Eu3+ was measured using cyclic voltammetry. The cyclic voltammetry measurements indicate that the reversibility of the electrode reaction increases. Cyclic voltammograms (CVs) analysis used for understand the electrochemical performance of the Eu3+ doped GdAlO3 electrode for super capacitor during charging and discharging processes.

*Keywords -* *GAG, electrical conductivity, cyclic voltammetry (CV).*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 140**

# $SiO_2@$ $CaTiO_3{:}Ho^{3+}$, $Li^+$ core shell nanostructure: enhanced photoluminescence for optoelectronic applications

**Vijaya V. Shanbhag**
Department of Physics, GFGC, Vijayanagar, Bengaluru-560040, India

**K.M Girish**
[d]Department of Physics, Dayananda sagar academy of technology and management, Bangalore 560060, India

**H. Nagabhushana**
Prof. CNR Rao Center for Advanced Materials, Tumkur University, Tumkur, 572103, India

**S.C. Prashantha**
Research Center, Department of Physics, East West Institute of Technology, VTU, Bengaluru-560091, India

**V. Revathi**
Department of Physics, New Horizon College of Engineering, Bangalore 560103, IndiaH. Nagabhushana, Prof. CNR Rao Center for Advanced Materials, Tumkur University, Tumkur, 572103, India

**Ramachandra Naik**
Department of Physics, New Horizon College of Engineering, Bangalore 560103, India

***Abstract   -*** This work involves the systematic analysis of Core-shell (C-S) CaTiO3:Ho3+ (3 mol%), Li+ (0.25-1 mol%)/SiO2 nanoparticles (NPs). C-S NPs were prepared using combustion method. Photoluminescence (PL) properties of NPs and C-S NPs were studied and enhancement was observed in C-S NPs which indicate that, by creating C-S structure with SiO2 as core, PL intensity can be increased. The CIE (Commission International de I'Eclairage) chromaticity co-ordinates were calculated from emission spectra. These analysis shows that the synthesized material is suitable for optoelectronic devices.

***Keywords - *** *$CaTiO_3{:}Ho^{3+}$; $Li^+$ co-doping, $SiO_2$ core shell; CIE*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 141**

# Comparison of Multi & Taper Leaf Spring, Variable thickness optimization of Taper Leaf Spring

**Basava Kumar KG**
M.Tech (Machine Design)
Department of Mechanical
New Horizon College of Engineering
Bangalore, India

**Prof. Chetan Kumar DS**
Senior Assistant Professor
Department of Mechanical
New Horizon College of Engineering
Bangalore, India
chetankds@newhorizonindia.com

***Abstract - *** Design of lightweight trucks is of importance to enhance the load capacity and reduce the production cost. All trucks industries are knee interest in leaf spring to reduce mass and friction in leaf spring to achieve good handling stability without degrading its functionality. In this study, consider the light duty truck: class 2 segments vehicle suspension. Aim of this study is to comparison between the multi and taper Leaf spring for jounce loading condition and understand sensitivity of variable thickness in taper leaf spring using application of DOE (Design of experiment) method. Design parameter like variable thickness and number of leaf spring are considered in optimization of variable thickness for taper leaf spring for application jounce loading condition.

*Keywords - Leaf spring, taper leaf spring, DOE, thickness optimization.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Review of Clamped Type based Single-Phase Single-Stage Transformerless Current Source Inverters for Residential grid connected Solar PV systems

**Dr. Jagadeesh C. B**

Professor

Professor, Department of Civil Engineering,

New Horizon College of Engineering., Bangalore, Karnataka, India

*Abstract -* Natural disaster like flooding is the commonest hazard that impacts the Vrishabhavathi River catchment (spread over a surface of 38 km2) on the upstream side of Gali Anjaneya Temple. To help and rescue the flood affected people to mitigate the matter of flood and to require necessary preventive measures in study area, flood management planning is a really important. To reduce the flood risk in the catchment, present study aims to examine and propose the structural and non-structural mitigatory measures. For finding suitable sites for structural and non-structural measures, in the present study attempts has been to reduce the peaking of floods by identifying the areas to delay the flood concentration time and develop a conclusive pattern for finding suitable sites.

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 152**

# Microwave Assisted Synthesis of Activated Carbon from Parthenium Hysterophorous for Electrical Double Layer Supercapacitors

**Sandhya S**
Department of Chemistry
New Horizon College of Engineering, Department of Chemistry, Outer Ring Road, Bangalore, 560103.
sandhyasrinivas1989@gmail.com

**Anusuya Devi V**
Department of Chemistry, New Horizon College of Engineering, Department of Chemistry, Outer Ring Road, Bangalore, 560103anukmp@gmail.com

**Parashuram L**
Department of Chemistry
New Horizon College of Engineering, Department of Chemistry, Outer Ring Road, Bangalore, 560103
ramacademy1990@gmail.com

**K. Yogesh Kumar**
Department of Chemistry,
School of Engineering and Technology
Jain University, Jain global campus, Jakkasandra Post, Kanakpura Taluk, Ramanagra 562112, India
yogeshkk3@gmail.com

**M S Raghu**
Department of Chemistry
New Horizon College of Engineering, Department of Chemistry, Outer Ring Road, Bangalore, 560103.
raghuhassan2009@gmail.com

*Abstract* - Microwave assisted method has been developed for the synthesis of activated carbon (AC) from a waste plant: *Parthenium hysterophorous.* Synthesized carbon material has been characterized by X-ray diffraction studies, Fourier-Transform Infrared spectroscopy, Scanning electron microscopic techniques. This characterization confirms the formation of carbon materials from the plant. AC has been evaluated for its electrochemical performance in supercapacitor applications using cyclic voltammetry, impedence spectroscopic techniques using three electrode systems. The specific capacitance obtained was found to be 182 $Fg^{-1}$ at 2 $Ag^{-1}$ current density. These results confirm the suitability of the activated material for supercapacitor applications and could serve as a alternate for energy storage systems.

*Keywords* - *Activated carbon; Microwave synthesis; supercapacitors; Characterization.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 158**

# Efficient Energy Management using IoT for Industrial Applications

**Monika Gupta, Aditya Jakkaraddi, Manoj N, Rajeev Kumar, S Sharan**

Department of Electronics and Communications

New Horizon College of Engineering

Bengaluru, India

er.monikakatta@gmail.com, jakkaraddiadityap@gmail.com, manoj.n1729@gmail.com, rajeevyadav196@gmail.com, sharanrao85@gmail.com

*Abstract* **-** The rising cost and demand for energy forced us to find smart ways to save electricity and energy. To meet the demand for energy and at the same time reduce costs, energy consumption should be monitored and controlled. In 2020s Internet is there at every corner, and also the high computational power. These two factors can be used to build the Internet of Things (IoT), With the help of IoT, world can be made better place. The IoT device will be placed at any corner of world and can control any sort of appliances and data can be collected with IoT devices by using sensor and can be used for feature prediction.

*Keywords* – *Emergy management, IoT, Feature prediction.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Review of Clamped Type based Single-Phase Single-Stage Transformerless Current Source Inverters for Residential grid connected Solar PV systems

**Surya Prabha J**

Research Scholar

Dept. of Electronics and Communications

New Horizon College of Engineering

Bengaluru, India

jsprabha07@gmail.com

**Nisha KCR**

Professor

Dept. of Electronics and Communications

New Horizon College of Engineering

Bengaluru, India

nishashaji2007@gmail.com

*Abstract  -* Current source inverters are presently gaining more attention over their counterpart i.e., Voltage source inverters in several applications due to several advantages like inherent voltage boosting ability, better reliability, and single stage power conversion ability. Also, the development in the field of semiconductor devices like the wide band gap devices has also triggered to relook at CSIs in several applications including solar PV systems. These inverters can be built transformerless which will further enhance their popularity. There are several issues with transformerless CSIs and flow of leakage current is one of them. In this paper clamped based transformerless CSI is reviewed and an improved topology is suggested for its use in grid connected PV systems. The proposed topology is examined through simulations using MATLAB/SIMULINK tool.

*Keywords -* *single-phase, single-stage, Current source inverter, grid connected, transformerless.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 160**

# IoT based component for smart museum (I-SMART)

**Santhosh Krishna B V**
Senior Assistant Professor
Dept. of Electronics and Communications
New Horizon College of Engineering
Bengaluru, India
santhoshkrishna1987@gmail.com

**Sanjeev Sharma**
Professor & Head
Dept. of Electronics and Communications
New Horizon College of Engineering
Bengaluru, India

*Abstract* **-** Today's world is becoming smarter due to the development of various technologies. To communicate in this smart world, our environment needs to become smarter because environment speaks to people and people speak to the world. One such smart technology is IOT (Internet of Things). Our paper's ultimate aim is to enhance the user experience in a museum which relies on a wearable device that acts as a guide in the museum. This wearable device captures the image of an artifact or artwork and compare the captured image with the images in the cloud using image processing algorithms. An audio and textual description of the artifact's multimedia contents stored in the cloud is delivered to the user such that everyone can easily access the cultural profiles through this smart device without manual intervention.

*Keywords* **-** *IOT, wearable device, artifact, museum.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Google Assistant Controlled Scrolling Display

**Santhosh Gowda M, P Naveen Krishna, Nehna Manoj, Nikitha M S**
Students
**Richard Lincoln Paulraj**
Assistant Prrofessor
Dept. of Electronics and Communications
New Horizon College of Engineering
Bengaluru, India
richy.rlp@gmail.com, santhoshgowda11120@gmail.com, naveenkrishna0920@gmail.com,
nehna13@gmail.com, nikithasridhar200@gmail.com

*Abstract - * In this rapidly growing and developing world, the foremost aim of technology is to increase the efficiency and to decrease the effort. In this trending world, Internet of Things is given so much of importance. Hence by using IoT, we are successful in controlling various devices or appliances in this present world. And one such device is a matrix display, which is controlled using a Node MCU. Various other modes such as raspberry pi or beagle board can used to do the same. The idea behind Google assistant-controlled scrolling display is to a matrix display with voice. In this project, the Google assistant requires voice commands. The voice commands for Google assistant have been added through IFTTT website. In this paper, as the user gives commands to the Google assistant, the display, can be controlled or updated accordingly. The commands given through the Google assistant are decoded and then sent to the Node MCU, the microcontroller in turn control the display unit connected to it. The display unit updates as per the users request to the Google Assistant. The microcontroller used is Node MCU (ESP8266) and the communication between the microcontroller and the application is established via Wi-Fi (Internet).

*Keywords - IFTTT, Adafruit IO, Google Assistant, Node MCU.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 163

# Effect of MIMO Scaling on Energy Efficiency of Beamforming Systems

**Ashok K**
Department of Electronics and Communication New Horizon College of Engineering Bangalore
kashok16@gmail.com

**Anush G R**
Department of Electronics and Communication
New Horizon College of Engineering, Bangalore
anush.gr86@gmail.com

**Tessy Tomy**
Department of Electronics and Communication New Horizon College of Engineering Bangalore
tessytomy3@gmail.com

*Abstract* - The inclusion of MIMO antennas in relay assisted wireless communication has intensified the diversity but leads to severe interference issues. To mitigate the effect of interference, beamforming systems enabled with Conditional Time-split Energy Extraction is extensively used in modern wireless generation networks. Relay selection, Energy Extraction and Beamforming phases are successively implemented to ensure maximum energy efficiency for a predefined transmit power constraint. This paper focuses on the effect of MIMO scaling. Generally, increasing the antennas decreases the energy efficiency of the system but the proposed architecture yield better results compared to conventional techniques with and without energy extraction and power constraints.

*Keywords* - *Beamforming, Conditional Time Split Energy Extraction, Energy Efficiency, Minimum Mean Square Error Algorithm, Modified Cuckoo Search optimization Algorithm, Power Constraints.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 164

# A Review of Multi-Legged Bio-Inspired Robot Designs

**Aditi Raj**
Senior Assistant Professor
Department of Mechanical Engineering
New Horizon College of Engineering
Bangalore, India
dr.aditiraj@newhorizonindia.edu

**M Ravikumar**
Associate Professor
Department of Mechanical Engineering
R L Jalappa Institute of Technology
Bangalore, India
ravikumar.muk@gmail.com

*Abstract* - Over the past decades, the research in the field of legged robots has increased. This is because they take inspiration from the bio-organisms. As compared to them wheeled robots are much less maneuverable and cannot be used in a complex environment. This paper presents the state of art in the field of legged robots and presents the design features and the task performed by such robots.

*Keywords* - *legged robot, bio-inspired robotics, actuators, sensors, locomotion, animal-inspired robots.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Bit Error Rate Analysis of Passband Digital Transmission Techniques Over Awgn Channel

**Parag Jain, Dr. Sanjeev Sharma**

Department of ECE

New Horizon College of Engineering, Bangalore – 560103

jainparag11@gmail.com, sanjeevietb@rediffmail.com

*Abstract -* Modulation plays a significant role in the field of electrical communication where different techniques are employed to achieve better performance and focusing in meeting the standards of various parameters such as BER, SNR, MSE etc. In this paper we have analyzed BER for pass band digital communication techniques on AWGN channel and results are verified using MATLAB.

*Keywords -* Binary Phase Shift Keying (BPSK); Quaternary Phase Shift Keying (QPSK); Quadrature Amplitude Modulation (QAM); Bit Error Rate (BER); Signal to Noise Ratio (SNR); Additive White Gaussian Noise (AWGN); Mean Square Error (MSE)

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 168**

# Development of a Home Security Robot with Facial Recognition using Deep Learning and IoT

**Vinayak P B, Shravan Aruljothi, Harshit Shivakumar, Sharad Dewanand Parate, Nehal Dinesh Andani**

Department of Mechanical Engineering

New Horizon College of Engineering, Bangalore – 560103

vinay43025@gmail.com , shrav.aruljothi@gmail.com , harshitshivakumar101999@gmail.com , sharad1042@gmail.com , nehal.andani@gmail.com

*Abstract -* The major problem in any society is the lack of security to residential areas. The number of thefts, electricity and food wastage at homes in urban areas increase every year due to human error. As per the National Crime Records Bureau (NCRB), 2,44,119 cases of robbery, theft, and burglary took place in residential premises in 2019. Also, electricity consumption in Indian homes has tripled since 2010. In 2019, an urban Indian household consumed about 90 units (kWh) of electricity as a monthly average which is one-third of the monthly world average. To solve these issues, we have proposed an idea of a "Home Security Robot" for a smart city using AI. The Home Security Robot will help in eliminating the reliance on security guards and will effectively monitor everything in the house (if there are any gas leakage, fridge malfunctions, unnecessary electricity wastage, indoor air quality and any unknown movements inside the house). If the owner is under attack, he/she can shout out "HELP" or "SAVE ME "so that the robot can take in the voice command to automatically call the police.

*Keywords – Home security, Deep Learning, IoT.*

# 3

# TRACK

## INTERNET OF THINGS
## ARTIFICIAL INTELLIGENCE
## MANAGEMENT & EMERGING
## TECHNOLOGIES

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Survey on Real-Time Face Mask Detector

[1] **Pranav KN** [2] **Pramod Mahajan H,** [3] **Praveen V,** [4] **Sai Kiran,** [5] **Dr. M Vinoth Kumar**

[1][2][3][4]BE Students, Department of Information Science and Engineering

[5] Associate Professor, Department of Information Science and Engineering

Dayananda Sagar Academy of Technology and Management, Bangalore, Karnataka, India

pranav.cherry2k@gmail.com , pramod24cr@gmail.com, praveenvraju19@gmail.com, saikirankatkam@gmail, vinojimail@gmail.com

*Abstract   -* The COVID-19 pandemic has quickly influenced our everyday lives, disrupting commerce, and movements around the world. The wearing of a mask to cover the face has become a modern normal. In the near future, several public utility providers will be asking consumers to wear masks appropriately to make use of their facilities. Face mask identification has therefore become a key factor in helping global society. Using basic Machine Learning packages such as Tensor Flow, Keras, and OpenCV, this paper offers a simpler approach to achieving this objective. The proposed method correctly recognizes the face from the image and then identifies whether or not it has a mask on it. As a surveillance task officer, a face may also be identified along with a mask in motion.

*Keywords -* *Face Mask Detection, Tensor Flow, Keras, and OpenCV.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 106**

# Design of an Optimized Neural Network Controller for Rotor Oscillations Problem

**Parthasarathy. V, Rakshitha G M, Niranjan J, Md. Farhan Khan**

Department of Electronics and Communication Engineering

Cambridge Institute of Technology (North Campus), Bangalore, Karnataka, India

parthasarathy.ece.nc@cambridge.edu.in

*Abstract* **-** In this paper, an Artificial Neural Network (ANN) based system is proposed as an alternate to the Fixed Gain Rotor Oscillations Controller (FROC) that is capable of mitigating the low frequency electro mechanical oscillations in a power system. Since our ultimate objective is to develop a Hardware Neural Network for ROC, the complete design flow is developed with due consideration of hardware optimization. The role of the developed ANN is to fix the FROC parameters for the given loading condition. An ANN block is generated in MATLAB and inserted in the SIMULINK model of FROC and tested for various operating conditions. The training pattern generation, validation, data analysis and filtering with respect to the proposed ANN model has discussed in brief. The final response and the limitations of the developed model is explained at the end. The historical database obtained from ABB-UNITROL 5000 Static Excitation system has used for training and validation of ANN performance.

*Keywords -* *Dynamic Stability, Rotor Oscillator, Artificial Neural Network.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Machine Learning Based Transmission Line Fault Analysis by Using Single Ended Parameters

**T.V. Pavan Kumar**

Electrical Engineering Department

Pandit Deendayal Energy University

Gandhinagar,India.

tvpavankumar5@gmail.com

**Vivek Pandya**

Electrical Engineering Department

Pandit Deendayal Energy University

Gandhinagar,India.

vivek.pandya@sot.pdpu.ac.in

***Abstract  -*** In this paper, practical behavior of a long HV transmission line (TL) is simulated in PSCAD/EMTDC software by using the detailed distributed model of the line. The Transmission line is a part of big power system network. All possible types of faults are created on the transmission line by changing fault location, fault resistance and fault inception angle along with type of. Each case is simulated for a period of 10 cycles during which fault is there in the system for 2 cycles. The measurements are sampled at a rate of 32 samples per cycle of 60Hz system. Time series parameters like minimum value, maximum value, peak to peak value, average value and rms value along with frequency series parameters up to 19th harmonic are calculated by using the measured parameters from the three phases of the sending end of the transmission line. After application of feature reduction techniques, the remaining parameters are applied as features to different machine learning (ML) algorithms such as K nearest neighbors (KNN), Adaptive Boosting Classifier (ABC) and Gaussian Naïve Bayes algorithm (GNB) in PYTHON. Comparative analysis of the algorithms is presented.

***Keywords  -*** *Machine Learning, Transmission line faults, PSCAD, EMTDC, PYTHON.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 115**

# A comprehensive study on applications of AI based tools and techniques for COVID-19

**Dr. A. P. Nirmala**
Associate Professor
Department of MCA
New Horizon College of Engineering
Bangalore, India
nirmalasuresh.ap@gmail.com

**Paramita Chandra**
Department of MCA
New Horizon College of Engineering
Bangalore, India
paramita.chandra98@gmail.com

*Abstract* **-** In recent times, the application of Artificial Intelligence (AI) is highly appreciated and in practice and demand.AI manages machine intelligence and builds the chance of achievement and exactness rate. It has an incredible effect in different fields like medical image processing or in analysis of data. The new technologies like Internet of Things, Text mining, Natural language processing, and their contribution towards computational biology and medicine is highly effective in this field. AI is utilized for diagnosis tasks in medical care as it is a troublesome assignment for people without the assistance of clever machines. Subsequently, AI is applied in battling against COVID 19 pandemic. This paper presents an extensive study of tools involving AI, machine learning and deep learning methods used to fight against the pandemic COVID 19 and likewise layout the data sets that are available identified with COVID 19. It likewise features the best in class of AI applications in handling the episode and spurs specialists soon.

*Keywords -* *Artificial Intelligence, COVID-19, Machine Learning, Deep Learning.*

**Paper ID: 116**

# Thyroid Disease Classification in Big Data on Machine Learning

**S. Sivasaravanan**
Research Scholar
Department of Computer Science
VISTAS-Chennai
Tamilnadu, India
sivasaravananktr@gmail.com

**Dr. V. Jayalakshmi**
Professor
Department of Computer Applications
VISTAS-Chennai
Tamilnadu, India
jayasekar.scs@velsuniv.ac.in

*Abstract  -* Thyroid diseases are widespread worldwide. In India too, there is a significant problems caused due to thyroid diseases. Various research studies estimates that about many million people in India suffer from thyroid diseases. Female is more affected than male due to thyroid disease. Two types of thyroid diseases are i) Hyperthyroidism-produces a lot of thyroid hormone in the blood and ii) Hypothyroidism-produce less thyroid hormone in the blood. Hypothyroidism is a condition which underlies not only chronic degenerative diseases but also hormone irregularities and results in a weakened immune system. A variety of algorithms used are Random Forest, Support Vector Machine, Decision Tree, Linear Regression. This paper presents a review of recent ML algorithms applied in the prediction and diagnosis of thyroid detection. The proposed system is used for thyroid disease prediction of patients used many attributes and values, based on various symptoms and reports of thyroid. With comparative study, different ML techniques are used by the proposed system to achieve better accuracy in disease prediction. Among these, Decision tree algorithm is found to be better with the accuracy of 99.5%.As a result, the decision tree classifies the thyroid data-set into three classes of thyroid disorders.

*Keywords -* *Linear Regression, Decision Tree, Random Forest, Support Vector Machine, Thyroid Prediction.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 119

# Thyroid Disease Classification in Big Data on Machine Learning

S. Perumal
Assistant Professor
Department of Mathematics
RMK College of Engineering & Technology
Puduvoyal, India
perumalmaths@gmail.com

Dr. Kavitha. J
Associate Professor
Department of Mathematics
New Horizon College Of Engineering
Bangalore, India
kavijossea@gmail.com

Dr. J. Vijayarangam
Guest Faculty
BITS Pilani WILP
Chennai, India
jvijayarangam@yahoo.com

*Abstract* - Energy of a graph is an important aspect of a graph and its applications are growing in a fast pace over the years. Results regarding energy of a graph and its components are one of the happening areas in research. This paper is about one such result using the established and stabilized line of statistical regression. It considers a dataset of five compact graphs K2, K3, K4, K5, and their line graphs, collecting a few components of them and regressing their energy using the components.

*Keywords - Energy of graph, Line graph, Multiple regression.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 121**

# Review of Trust Management and Machine Learning based Intrusion Detection in Wireless Sensor Networks

**K. Sai Madhuri**
Research Scholar
VisewswarayaTechnological University, Belagavi.
New Horizon College Research Center, Bangalore
smadhurisrcm24@gmail.com

**Dr. Jithendranath Mungara**
CSE Department
Nagarjuna College of Engineering and Technology
Jmungara66@gmail.com

*Abstract* **-** Mobile Ad hoc Network (MANET) is intrinsically wireless networks coordinated lacking pre-existing topography. MANETs are efficiently distributed in different surroundings, for example, Disaster Management, Armed Forces, Medical as well as other related incorporated Applications. Though, it is discovered which newer disputes also applications come up in MANETs. In large MANET preparations can possess an enormous amount of mobile nodes making new issues. To overcome this issue, clustering techniques are consistently applied to permit the organizing into the group of clusters. In every Cluster, there is an exacting node playing as Cluster Head (CH). Clustering is s process, identifying the number of nodes to be grouped and an associated cluster head. This procedure acts as a vital role in improving resource management and network function. This review paper discusses several conventional clustering strategies established on Mobility, Identity, Topology, Weight and Energy clustering. In addition, describe the Artificial Intelligence Ma- chine Learning (AIML) features of the concept of AIML, the importance of AIML, Classification of AIML, and many AIML clustering approaches are done.

*Keywords* **-** *Mobile Ad hoc Network, Clustering, CH Selec- tion, Artificial Intelligence Machine Learning.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Review of Clustering Strategies with Artificial Intelligence Machine Learning Algorithm in MANET

**V. Surya Narayana Reddy**
Research scholar
ISE Department
New Horizon College of Engineering
veeramreddysurya@gmail.com

**Dr. Jithendranath Mungara**
Professor
CSE Department
Nagarjuna College of Engineering and Technology
jmungara66@gmail.com

***Abstract  -*** In this research work experimental investigations on the wear resistance of Powder Metallurgy tools in turning operation are carried out. The tool steel is exposed to various cryogenic actions beside with the conservative heat treatment. For this a Taguchi's orthogonal array method is applied to finalize experimental investigations. The effect of cryogenic treatment on hardness and micro hardness of tool steel is found.  Scanning electronic microscopy is used for analysis of effect of cryogenic treatment on the microstructure of tools. Electronic Dispersive Spectroscopy (EDS) method is used to obtain composition of specimen as a whole and the composition of individual components.

***Keywords -*** *Powder Metallurgy-steel tools, cryogenic treatment, Taguchi O. A., hardness, wear resistance.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Prediction of opening and closing of Company Stocks Using Machine Learning

**Ashlesha Bhagat**

Department of Information Science and Engineering

P.R. Patil College of Engineering & Technology

Amravati, INDIA

ashbhagat1990@gmail.com

**Prof. Parnal.P.Pawade**

Department of Information Science and Engineering

P.R. Patil College of Engineering & Technology

Amravati, INDIA

parnal.potecse@gmail.com

*Abstract  -* In the finance world stock trading is one of the most important activities. Stock market prediction is an act of trying to determine the future value of a stock other financial instrument traded on a financial exchange. The technical and fundamental or the time series analysis is used by the most of the stockbrokers while making the stock predictions.  In Prediction of stocks, the aim is to predict the future opening and closing of company stocks value of the financial stocks of a company. The recent trend in stock market prediction technologies is the use of machine learning which makes predictions based on the values of current stock market indices by training on their previous values. a Machine Learning ML approach that will be trained from the available stocks data and gain intelligence and then uses the acquired knowledge for an accurate prediction. In this context this study uses a machine learning technique called Support Vector Machine SVM to predict stock prices for the large and small capitalizations and in the three different markets, employing prices with both daily and up to the minute frequencies. Machine learning itself employs different models to make prediction easier and authentic. The paper focuses on the use of Regression and LSTM based Machine learning to predict stock values. Factors considered are open, close, low, high and volume.

*Keywords -* Close, high, low, SVM, LSTM model, open, regression, and volume.

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 129**

# An Enhanced ANTSEC Framework with Clustering based Cooperative Caching in the Mobile AdHoc Networks

**P.A.Gaikwad**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
rahulmohod@rediffmail.com

**Dr. S. S. Sherekar**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
swatisherekar@sgbau.ac.in

**Dr. V. M. Thakre**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
vilthakare@yahoo.com

***Abstract -*** The gadgets in versatile mobile Ad Hoc Network (MANETs) are for the most part fueled by battery. Battery limit is fixed and a few procedures needed to save energy at the gadget level or at the convention stack ought to be applied to improve the MANETs life time. In climate, a portability hub is capricious; this is considered as a trait of remote organizations. Due to the broken or malignant hubs, the organization is helpless against steering misbehavior. The asset compelled attributes of MANETs prompts expanded inquiry delay at season of information access. In this paper, AntHocNet+Security (ANTSEC) structure is recommended that incorporates an upgraded collaborating storing plan implanted with counterfeit resistant framework. In this system improves security by infusing insusceptibility into data packets, to improves the parcel conveyance proportion and lessens start to finish defer utilizing cross layer plan.

***Keywords -*** *mobile Ad Hoc Network, Ant Hoc Net + Security.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 130

# Intrusion Detection System using Data Mining Techniques

**R. K. Borikar**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
rakshandaborikar@gmail.com

**Dr. S. S. Sherekar**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
swatisherekar@sgbau.ac.in

**Dr. V. M. Thakre**
Sant Gadge Baba Amravati University,
Amravati, Maharashtra
vilthakare@yahoo.com

***Abstract*** **-** Intrusion detection system (IDS) is a process or system that monitors events occurring on a network and analyzing it to detect any kind of activity that threat computer security policies. This paper focused on analysis of five different IDS techniques like PCA and Fuzzy PCA Techniques, Improving K-Means Clustering Using Discretization Technique, Intrusion Detection System Using an Optimized Framework, Anomaly Detection Approach using Hybrid Algorithm, Combination of the DM techniques, etc. But some pros and cons are observed in these various techniques. These approaches have been analyzed to address the limitations of intrusion detection system such as low accuracy, high false alarm rate, and time consuming, etc. So, to overcome these problems the proposed method ‗the hybrid algorithm' is used to reduce the rate of false positive alarm, false negative alarm rate, detect zero-day attackers, to improve the detection rate, etc.

***Keywords -*** *Intrusion detection, hybrid algorithm, PCA, feature selection SMO, K-means, Clustering.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 131**

# Development of Efficient Clustering Approach for Analysis of Real Data

**R. J. Wadnare**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
rupaliwadnare@gmail.com

**Dr. S. S. Sherekar**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
swatisherekar@sgbau.ac.in

**Dr. V. M. Thakre**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
vilthakare@yahoo.com

***Abstract*** **-** Clustering is very important techniques in various fields like machine learning, data mining, image processing, knowledge discovery etc. But techniques developed for clustering i.e. k-means, partition based clustering, DBSCAN suffer from different problem such as noise data, parameter selection, cluster shape, overlapping of clusters. The partition based clustering is simple and effective but more fragile to noise. This paper analyzes different existing clustering techniques namely KMDD, symmetric neighborhood graph with density based clustering, initial cluster center selection, density clustering framework, and spectral clustering via massage passing and density similarity. But these techniques have some limitations like density partition method is time consuming for large data sets, KMDD fail to identify core and non-core points, parameter selection etc. To improve these approaches this paper proposed the development of efficient clustering approach for analysis of real data.

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 132**

# Study of Various Models for Popularity Prediction in Online Social Networks and Designing Appropriate Model

**S. N. Ugale**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
shubhamugale0218@gmail.com

**Dr. S. S. Sherekar**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
swatisherekar@sgbau.ac.in

**Dr. V. M. Thakre**
Sant Gadge Baba Amravati University
Amravati, Maharashtra
vilthakare@yahoo.com

***Abstract*** **-** Popularity prediction models of online social networking (OSN) have been still research area in OSN with lots of models which helps to designing the efficient popularity prediction. This paper is focused on analysis of five different existing popularity prediction techniques such as Social-Transfer, Two-stage prediction method, social-driven propagation dynamics-based popularity prediction model (SPDPM), popularity stage problem (PSP) algorithm, and Factor prior weighting (FPW) algorithm etc. But some pros and cons are observed in these techniques These approaches have been presented to address the limitations of popularity prediction system such as low accuracy, less efficiency, high false rate, time consuming etc. So, to overcome the problems the proposed method called ―the online streaming with popularity prediction" is used to reduce the false rate, time, overhead, delay and to increase the accuracy and performance. Use of error rate as a metric, throughput, capacity to improve the popularity prediction rate. Leads to presenting a new method called ―the online streaming with popularity prediction". This method is a combination of the Topic space, Social Transfer and the clustering techniques which is useful for predicting the bursty or sudden rise in the popularity of the posts or videos.

***Keywords*** **-** *Mobile ad hoc network, Capacity, delay, throughput, Opportunistic Routing, interference prediction and location prediction.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Digital Twin in The Automotive Industry: Driving Physical-Digital Convergence

**Mohammed Farooq, Dr. M. S. Ganesha Prasad, Prof.Chetan Kumar**
Department of Mechanical Engineering
New Horizon College of Engineering
Bengaluru, India
farooq.yallur12@gmail.com

*Abstract* **-** There can be no turning back. Manufacturing processes are becoming increasingly digital. As this trend unfolds, many companies often struggle to determine what they should be doing to drive and deliver real value both operationally and strategically INDEED, digital solutions may promise significant value for an organization—value that could never have been realized prior to the advent of connected, smart technologies. Of particular fascination of late seems to be the notion of a digital twin: a near-real-time digital image of a physical object or process that helps optimize business performance. Until recently, the digital twin— and the massive amounts of data it processes—often remained elusive to enterprises due to limitations in digital technology capabilities as well as prohibitive computing, storage, and bandwidth costs. Such obstacles, however, have diminished dramatically in recent years. Significantly lower costs and improved power and capabilities have led to exponential changes that can enable leaders to combine information technology (IT) and operations technology (OT) to enable the creation and use of a digital twin.

*Keywords – Digital twin, Manufacturing.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Four-legged Spider Robot to Walk Over and Clean Vertical Glass Surfaces

**Venkata Naga Tanuja G**
Department of Mechanical Engineering
New Horizon College of Engineering
Bengaluru, India
tanuraj1989@gmail.com

*Abstract -* In the current era of robotic world, various types of spider robots for various purposes are being developed. The objective of this project is to develop a reliable robot to walk over vertical glass surface. This type of robots can be used very efficiently to clean glasses of big buildings which were build using glass surfaces. In this paper, an algorithm is proposed to make four-legged robot to walk in various directions and also to scan full surface based on the coordinates passed to the robot, in order to clean the full glass surface. This also consists of IoT device to send the single to operator to monitor the movements and radar to detect any object. Since this robot is to walk over the vertical glass surface, integration of vacuum suction holds to the algorithm is a new and challenging part of this paper.

*Keywords – IoT, vacuum suction hold.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 136**

# Design and Optimization of Intake Manifold in Automotive

**Divyesh K Patil**

Department of Mechanical Engineering

New Horizon College of Engineering
Bengaluru, India
divyesh.patil1510@gmail.com

*Abstract -* Intake manifold is a crucial part in an engine that acts as a medium for airflow to mix with the fuel before entering the combustion chamber. The primary function of the intake manifold was to deliver the air/air-fuel mixture to the engine cylinder through the intake port with least losses. In addition, based on the engine cylinder firing order, the flow must be evenly split among the cylinder. Intake manifolds affect the volumetric efficiency which ultimately makes impact up on the engine power and torque. Conventional intake manifolds have fixed geometry and thus does not cater for the demand of wide range of engine speed. Gas dynamics of intake system plays a key role deciding the performance of an engine. This dynamics are different for fuel injected and carbureted engine and vary according to type of engine, number of cylinders, temperature of inlet, valve timing, valve angle and other factors. This paper investigates the effect of intake runner length on the performance characteristics of a four cylinder compression ignition engine with electronically controlled fuel injector.

*Keywords – Intake Manifold, fuel injector, four cylinder compression ignition, short runner, plenum, runner.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 138

# A study on Implementation of Design Thinking and Innovation – Contribution Towards Atmanirbhar Bharat

**Saumi Roy**
Assistant Professor

**Dr. Sheelan Misra**
Professor & Head
Department of MBA
New Horizon College of Engineering
Bengaluru, India
saumiroy6@gmail.com

*Abstract -* This paper is an attempt to identify and discuss about implementation of design thinking in order to create and innovate product to solve various livelihood problems catering to the pyramid of the society in a developing countries like India . Design thinking a five stage problem solving methodology to cater and assist innovation and the process of adaption of innovation in the life of people to influence the livelihood. Design Thinking process is iterative, flexible and focused on collaboration between innovator and users, with an emphasis on bringing ideas to life based on how real users think, feel behave and adopt.

*Keywords – Design Thinking, Innovation, Problem solving, creativity, Atmanirbhar Bharat.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 142

# IoT Data Link Layer Communication Protocols Frame Format in Controller Area Networks

**Dr. Sreekanth R**
Department of MCA
New Horizon College of Engineering
Bengaluru, India
sreekanthr@newhorizonindia.edu

***Abstract*** *-* The crucial part of in Internet of Things (IoT) is its protocols. Protocols specify the communication for each layer of the network where the data is exchanged as per the specified frame formats. The Open System Interconnection model has specified and well-defined frame format of data link layer on how the data bits are taken from physical layer and formed as frames. This frame has a header field, payload field and trailer fields. Data link layer (DLL) provides an error free data to the above layer i.e Network layer. Data link protocols provide framing, error detection, correction and flow control. IoT has various standards mentioned for data link protocol. These standards for protocols are provided by few international organizations which are known as Internet Engineering Task Force (IETF), Institute of Electrical and Electronics Engineers (IEEE) and International Telecommunication Union (ITU). In this paper we first study about the DLL protocols, frame format and then propose an additional payload field required for extended protocols frame format in controller area networks (CAN).

***Keywords -*** *Error detection, Error Control, Flow control, Framing, Protocols.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 144

# Predicting Accuracy of Loan Using Machine Learning Techniques

**Latha R**

Associate Professor, Department of MCA

Sir M Visvesvaraya Institute of Technology, Bangalore, India

latha_mca@sirmvit.edu

**Naganandan P, Pavan D, Subham Sharma, Tiyasha Dasgupta**

PG Student, Department of MCA, Sir M Visvesvaraya Institute of Technology, Bangalore, India

subham158.ss@gmail.com , tiyashadasgupta675@gmail.com, nandanscorpio4@gmail.com, apavan358@gmail.com

*Abstract  -* The number of customers is increasing daily for the loan, their must be a specific mechanism to identify the right person to sanction the loan. In the banking system, various approaches are used to identify the correct person to sanction the loan. In this paper, we are discussing various machine learning methodology that exhibits the best performance for the given set of data .Loan Prediction is very helpful to employees of banks as well as to the applicant too. The Loan Prediction System can automatically calculate the minimum balance in the customer's account for taking loan processing.

*Keywords -* *Loan Prediction, Machine Learning, KNN (K- Nearest Neighbors), Logistic Regression, Random Forest Decision Tree.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 145

# Prediction of Crop Yield and Cost by Finding Best Accuracy using Machine Learning Approach

**Swathi, Soja Rani**
Department of CSE
New Horizon College of Engineering
Bengaluru, India
swathics46@gmail.com , sojars@newhorizonindia.edu

*Abstract  -* Among around the world, agribusiness has the significant duty regarding improving the financial commitment of the country. Still the most agrarian fields are immature because of the absence of arrangement of biological system control advances. Because of these issues, the yield creation isn't improved which influences the farming economy. Subsequently an improvement of rural profitability is upgraded dependent on the plant yield expectation. To forestall this issue, Agricultural areas need to anticipate the yield from given data set utilizing AI procedures. The outcomes show that the viability of the proposed AI calculation strategy can be contrasted and best exactness with accuracy.

*Keywords -* *Dataset, Crop Yield, Machine learning-Classification method.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 147

# An Overview of Machine Learning on Heart Disease

**Dr. Clara Kanmani, Harshitha M**
Department of CSE
New Horizon College of Engineering
Bengaluru, India
drclarakanmani@gmail.com, chinnumaha20@gmail.com

*Abstract  -* As the use and the advancement in technology is increasing in today's world, this leads to the exposure of new technologies to detect heart disease, which in turn leads to the increase in detection of disease as early as possible. Hence, there are many technologies to detect the heart disease but some may be time consuming and few may be costly. Hence the Machine Learning (ML) algorithm will help to detect the disease at early and with low cost. In this paper we are going to learn about the machine learning algorithm that is used in detection of heart disease.

*Keywords -* *Heart disease, Machine Learning, diagnosis.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# Blockchain Technology: A Systematic Literature review

**Manish Kumar**
Student

**Dr. Jaya**
Senior Assistant Professor
Department of CSE
New Horizon College of Engineering
Bengaluru, India
manishbrsb@gmail.com

*Abstract* **-** This work provides a systematic literature review of block chain-based applications across multiple domains. The aim is to investigate the current state of block chain technology and its applications and to highlight how specific characteristics of this disruptive technology can revolutionize —business-as-usual" practices. Block chain is a decentralized transaction and data management technology developed first for Bitcoin crypto currency. The interest in Block chain technology has been increasing since the idea was coined in 2008. The reason for the interest in Blockchain is its central attributes that provide security, anonymity and data integrity without any third party organization in control of the transactions, and therefore it creates interesting research areas. In this research, we have conducted a systematic mapping of relevant research on Blockchain technology. Our objective is to understand the current research topics, challenges and future directions for the Blockchain technology from the technical perspective. We have extracted some primary papers from scientific databases to understand the technology.

*Keywords – Block Chain technology, Bitcoin.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

**Paper ID: 162**

# Random Number Generator Using Sound

**Abhishek Francis S**
PG Student

**Dr. Pamela Vanitha Eric**
Professor
Department of CSE
New Horizon College of Engineering
Bengaluru, India
abhi09shek@gmail.com, pamela.vinitha@gmail.com

*Abstract -* True random number generators can significantly contribute to the development of high security cryptographic schemes, such as those required for use in military applications. This article presents some the results of an innovative method for the generation of truly random number sequences, based on environmental noise measurements. The statistical properties of different noise types have been studied. Based on this study, an efficient random number generator has been developed that uses signals from the built-in microphone that is ubiquitous most current personal computers and other personal information processing systems. Statistical measures have been determined that measure the randomness qualities of the output sequence. These measures have been studied for different input noise properties.

*Keywords -* *True Random Number Generation, Cryptography, Sound.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 166

# A study on Employee Turnover and its impact on organization performance

**Jayashree. N**
Assistant Professor & Research Scholar
Department of Management Studies
New Horizon College of Engineering, Bangalore – 560103
jayash21088@gmail.com

*Abstract -* Success of any business depends on its organizational performance. Performance of organization depends on its employees who are the assets of the business and help in achieving organizational goals. Within the business community, employee turnover is widely assumed to affect organizational performance and the importance of maintaining qualified employees for the success of organizations is not a new idea. It is not very often that the management would be aware of the true reason as to why an employee would be leaving their organization. This would help the organization to an extent to get a clear picture of what is going wrong. The impact of the millennial workforce's working environment on organizational performance is the focus of this conceptual paper. This research highlights on the factors that influence organizational performance by systematically collecting and contextualizing all empirical evidence from literature that fits the study's context.

*Keywords -* *Employee Turnover, Organizational Performance, Millennials*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

Paper ID: 167

# Stress -The Major Obstacle In Experiencing Euphoria

**Poojasri. P, Bavatharini. S, Gnanadesika. R, Briny Lumina, Gunapriya.B[1]**

Sri Krishna Arts and Science College, Coimbatore

[1] New Horizon College of Engineering, Bengaluru

sri2012pooja@gmail.com, gunapriya1978@gmail.com

*Abstract -* The term ─stress", as it is currently used was coined by Hans Selye in 1936, who defined it as ─the non-specific response of the body to any demand for change". Speaking of origin, we must noticeably talk about its evolution through the centuries. If we have lived in early 14th century, we would most probably use the term stress but it had very little to do with our psychological state. As most people know, the 18th and 19th centuries are associated with a period of intense scientific and industrial progress. The physical sciences, most notably engineering, began to use terms like stress, strain, resilience, pressure, and elasticity to describe the effects of materials anyways the stress related with ourselves, the one which consumes us and eats up our mental stability is been experienced by half of our people which is really disturbing. So in this paper we will be knowing more about this phenomenon and learn about things which help us to cope up with this condition.

*Keywords -* *Stress, Emotion regulation, Cognitive behavioral therap.*

**AICTE Sponsored International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources (ICRPHGIRES-2021)**

**2021**

# A Comprehensive Study on Consumer's Behaviour with respect to Electric -Bikes in Bangalore Region

**Dr. Priyameet Kaur Keer**
Associate Professor

**Dr. Sheelan Misra**
Professor & Heaad
Department of MBA
New Horizon College of Engineering
Bengaluru, India
priyameetkeer@gmail.com , sheelan@gmail.com

***Abstract -*** At present, the Bangalore citizens are living each day on an accumulation of excessive traffic and noise. Other aspects that are being seriously harmed by the city traffic are the air quality and the health. The traffic is the main source of many air pollutants such as carbon monoxide and suspended particulates. In addition, addition, the air pollution is the main cause of environmental disease. Because of this air pollution, the citizens have many possibilities to suffer some cardiovascular and respiratory problems. This problem is more and more increasing because of the traffic. Finally, and no less important, the climate change is quickly growing because of the air pollution in the cities. To improve this situation, it is necessary to change the culture and the costumes for urban mobility. Institutions and citizens must make an effort and try to solve this problem as soon as possible. With Increasing in air pollution in urban areas and scarcity of fuels Electric bikes (E-bikes) are in great demand but they are not used by most people because of lack of awareness. India electric scooters and motorcycles market is projected to reach $617.7 million by 2025. Moreover, these electric two-wheelers are virtually silent and do not cause noise pollution. This paper focusses on building the consumers behaviour towards e- bikes. Data was collected through Secondary source of Data.

***Keywords –*** *Air pollution, Consumers' behaviour, E- bikes, Lifestyle, Scarcity of fuels.*

NEW HORIZON
COLLEGE OF ENGINEERING

## CONTACT US

**ICRPHGIRES-2021**
**Department of Electrical and Electronics Engineering**
New Horizon College of Engineering
Bellandur Main Road, New Horizon Knowledge Park, Near Marathalli
Bengaluru, Karnataka, India - 560103
**Email ID:** icrphgires2021nhce@gmail.com
: +91 9942372240, +91 9944808092, +91 9994171297

www.newhorizonindia.edu/nhengineering/icrphgires2021/