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POWER QUALITY IMPROVEMENT IN WECS USING FUZZY – STATCOM

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Sekhar Sunil Akkisetty
Yadiki Rajendra Babu

SVM BASED 31-LEVEL MULTILEVEL CONVERTER WITH REDUCED SWITCH COUNT

Multi level converter

Sekhar Sunil Akkisetty born in Vijayawada, Andhra Pradesh,India on January 15 1989. He was graduated in EEE from JNTU Kakinada in 2010 and completed Masters in Electrical Power Systems from JNTU Hyderabad in 2014.Currently he is pursuing his PhD from Acharya Nagarjuna University, Guntur and is working as Sr Assistant Professor in EEE Department.

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Jaya Lakshmi Reddy
Sai Pallavi Akkireddi

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Mrs.R.JAYA LAKSHMI,PH.D) working as assistant professor in Nalla Sri Ramulu college of engineering and technology EEE Department.

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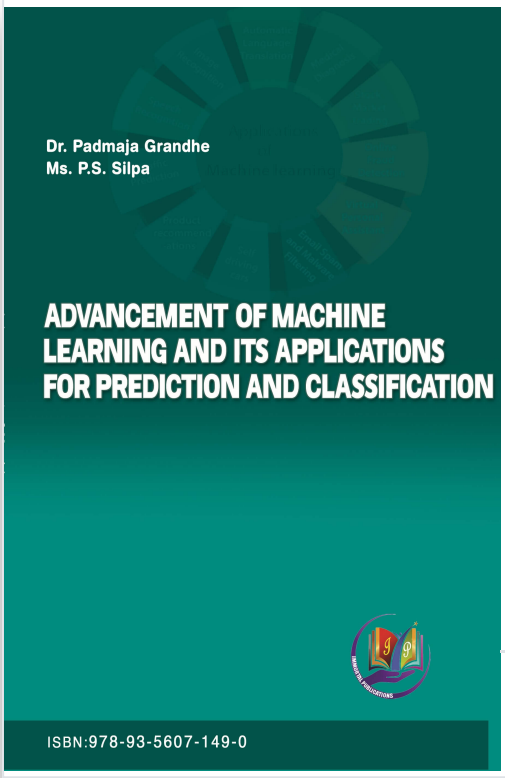

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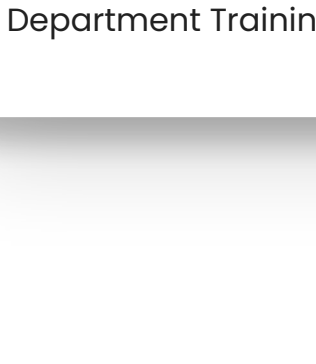

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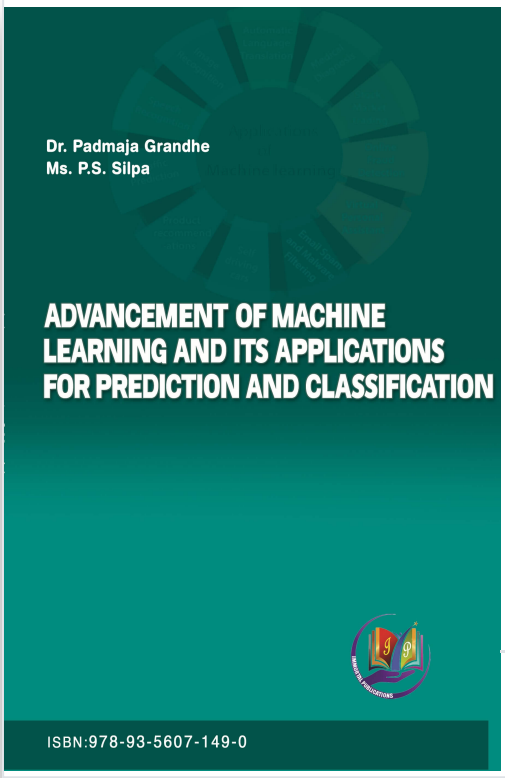

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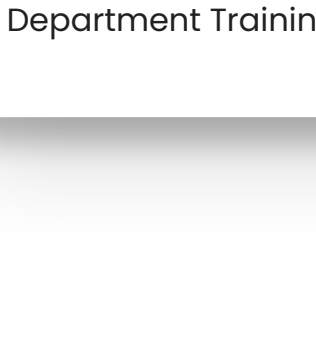

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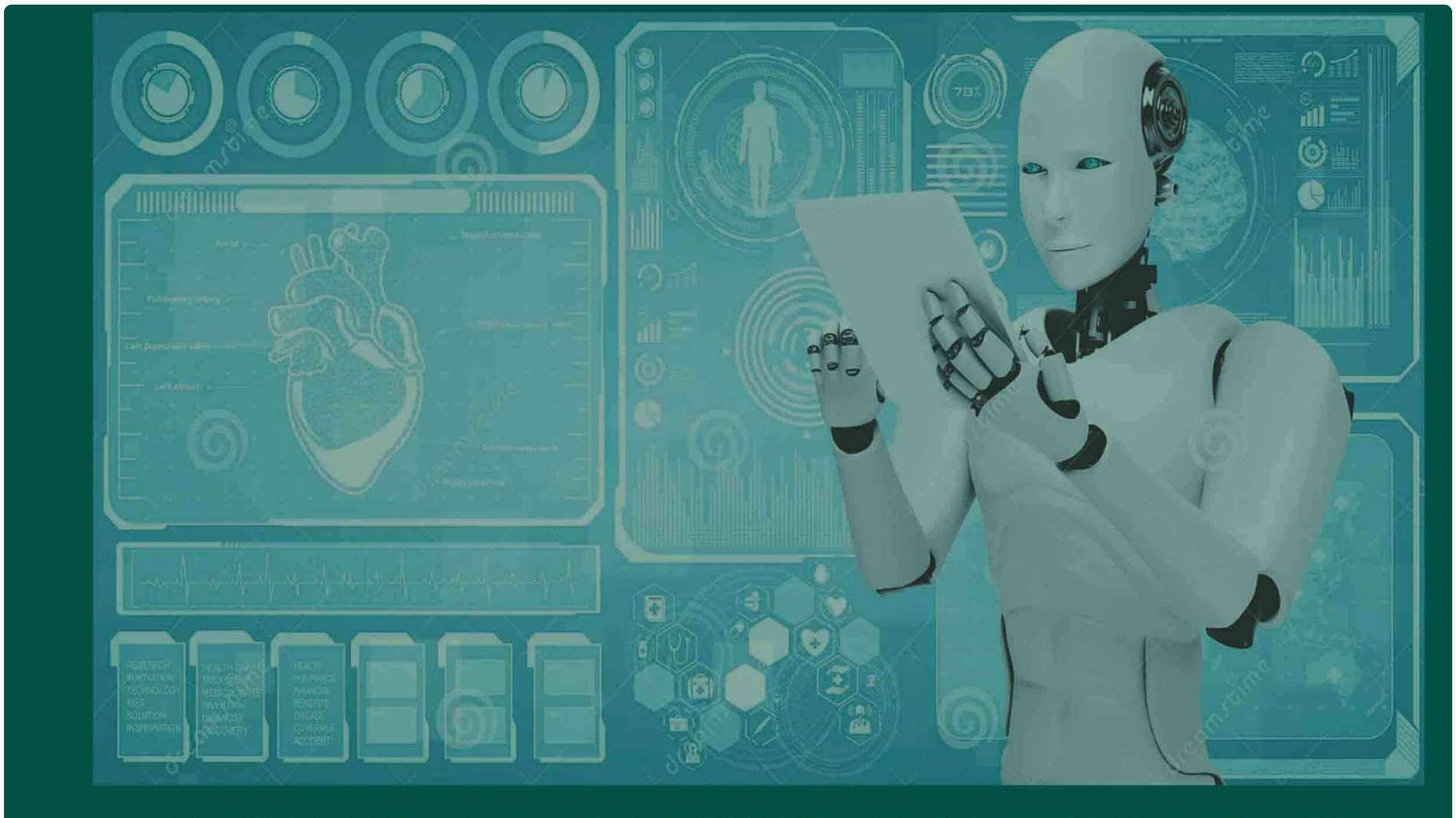

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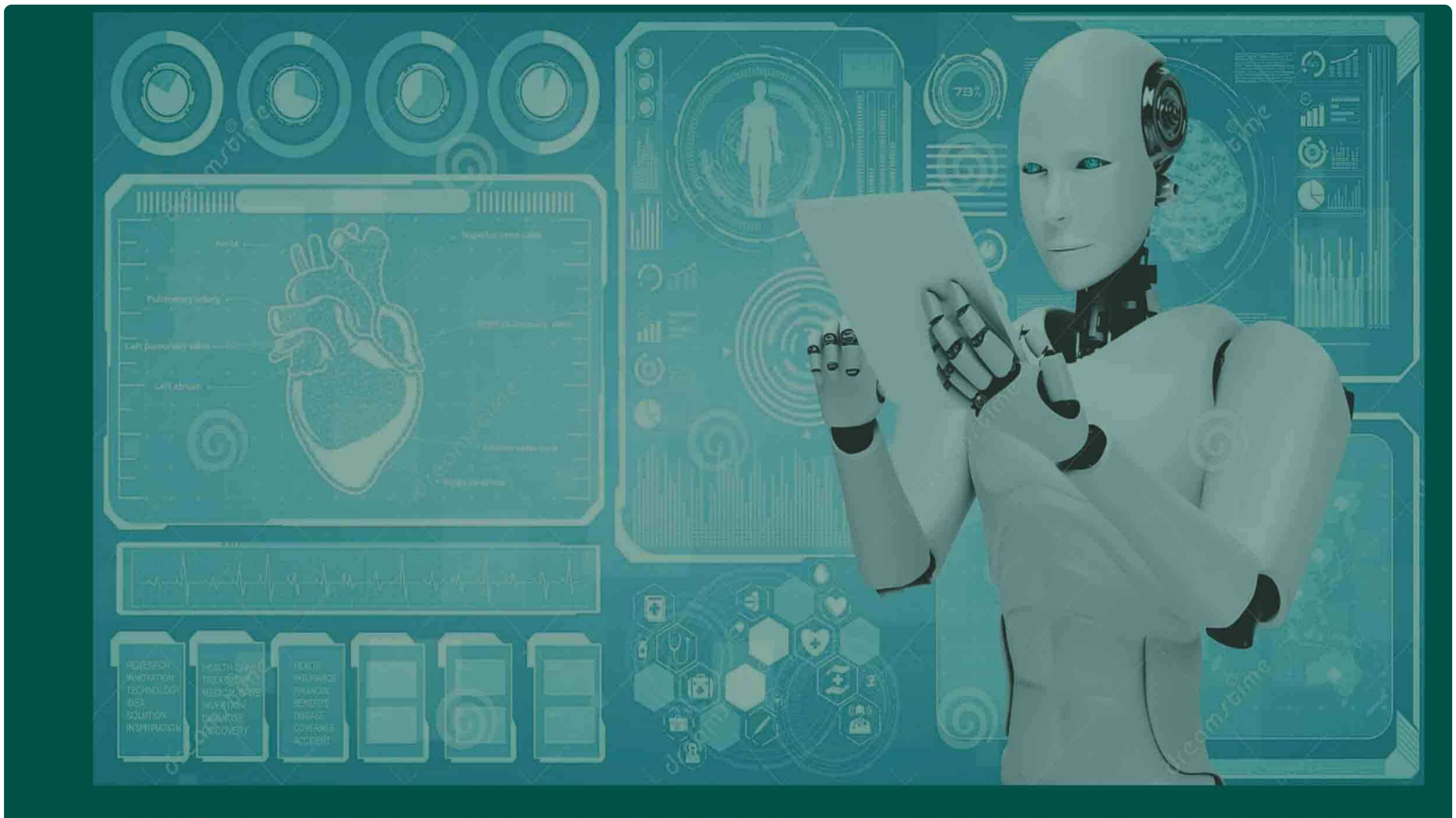

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She has a vast Experience in Teaching Field over 16 Years in the streams of Engineering. She has about 15 International publications and also presented her research papers in various international conferences.

She has presented her research papers in various International and National Conferences and also attended various FDP's and Workshops all around India, as a part of her research perspectives. She acted as a Resource Person in various academic activities.

She also completed many industry related certification courses like Data science ,Python Django, ReSQI in ExcelR, APSSDC, Udemy etc.,

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Machine Learning:It's a set algorithm which discovers and apply patterns to data. It's a trending technology which finds rules which are creating problems by using data and then it finds a solution for that problem.

Blockchain: It's completely new way of documenting data on the internet. It's also described as the distributed ledger technology (DLT). The information which is recorded on Blockchain is not copied but dealt out which can be in any kind and form like as ownership of something, somebody's identity, a transaction, etc.

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He was guided many number of students at UG, PG and PhD levels. He was received number of grants from AICTE to conduct various programmes.

He was received a Lifetime Achievement Award. Presently he is working as Professor and Head of the Department of CSE, Ramachandra College of Engineering, Eluru, Andhra Pradesh.

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Classification of Landslides Using Artificial Neural Networks

[1]Padmaja Grandhe, [2]T. N. V. Sai Vineela, [3]Ponnada Phanindra Kumar. [4]Bheemavarapu Anuhya Shivamani, [5]Shaik Salman

Associate Professor. PSCMRCET, Vijayawada. [2,3,4,5] IV year Graduate student, PSCMRCET, Vijayawada.

[1]padmajagrandhe@gmail.com

Abstract:-

A landslide is a sudden collapse of a part of an inclined land which causes lots of damage to human lives and property. It usually happens in hilly areas due to geographical anomalies and especially during the rainy seasons where there will be heavy rains. Many scientists conducted research on why landslides occur and how they can be prevented. Many works have been proposed in which machine learning is used to identify the landslide. But it is also important to identify the type of landslides. Our work focuses on classifying the type of landslide. We use an Artificial Neural network and categorize the type of landslides into Small, Medium and Large based on six attributes present in the dataset. SMOTE algorithm was used to balance the imbalanced input dataset. Our model achieved 75% accuracy in identifying the type of landslide.

Keywords:-

Artificial Neural Network, SMOTE, Landslide detection, Machine Learning

I. Introduction:-

Landslides or slope failure is a condition which majorly occurs in the regions which are at a certain elevation from the ground in which a piece of land disintegrates and moves downwards at great speeds which often causes damage to human lives and property. There are many reasons which cause a piece of land to slide. An earthquake or sudden movements in the tectonic plates can readily trigger a

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(7)

Placement Prediction System Using Meta Learning Algorithm

[1]Ms.P.S.Silpa , [2]M.Tejaswini, [3]P.V N Dharani, [4]K.Divya, [5]M.Hanisha

[1]Associate Professor, Department of Computer Science and Engineering, PSCMRCET, Kothapet, Vijayawada, Andhra Pradesh,

[2,3,4,5] B.Tech Student, Department of Computer Science and Engineering, PSCMRCET, Kothapet, Vijayawada, Andhra Pradesh,

Email:

[1]silpa.padmanabhuni@gmail.com,[2]tejutejaswini156@gmail.com, [3]paruchuri.dharani99@gmail.com, [4]divyasagar1299@gmail.com, [5]hanisha617@gmail.com

Abstract:-

The placement of students is one of the most important objectives of every educational institution. Students' placements are strongly related to an institution's reputation and annual admissions. Every university works hard to improve its placement department. Any support in this area will improve an institution's capacity to place students. The goal of this research is to examine students' problem-solving abilities (arithmetic, reasoning, and verbal). Technical Activities-Internships, Projects, Core Subject Certification, and Non-Technical Activities-Extra Circular, and use it to forecast current students' placement chances. To forecast student placement prospects, this model is presented using the XGBOOST and Extra Trees Classifier algorithms. The proposed system is divided into four modules to accomplish this task, the first of which performs typical data pre-processing procedures. The feature engineering is computed in the second module using the K Best selection process. The suggested project employs the Meta Learning method, in which the XGBOOST algorithm serves as the "Base Classifier" and the "Extra Trees Classifier" serves as the bagging classifier, to forecast the eligible organizations that are suitable for the student. This proposed model is compared to other traditional classification approaches like Decision tree

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An Empirical Study on Breast Cancer Using Ensemble ML Algorithms

[1]Sri Silpa Padmanabhuni, [2] V. Navya Sri , [3] U.Bhavani, [4] Ch. Hema Harsha Priya, [5] J.Mounika

[1] Associate Professor, CSE Department, PSCMR College of Engineering & Technology, Vijayawada, AP
[2,3,4,5] Student, CSE Department, PSCMR College of Engineering & Technology, Vijayawada, AP

Abstract

Breast cancer is a disease which results in fatal deaths if not detected and diagnosed in preliminary stages. The cause of this cancer is due to irregular growth of oncogenes cells. Normal cells have genes named proto-oncogenes that help control cell growth, division for creating new cells, or whether particular cells need to stay alive. These genes aid in the production of proteins that repair damaged DNA in normal cells. These genes can be mutated, resulting in aberrant cell proliferation, which can lead to cancer. The effective method to reduce breast cancer deaths can be achieved by detecting improper oncogenes and tumor suppressors in human breasts. Computational techniques are used to improve breast cancer prediction accuracy. The key to effective treatment of breast cancer is to detect cancer cells in the initial stage. We use various machine learning algorithms to predict if the cancer is malignant or benign based on features provided by data. The proposed method uses the Wisconsin breast cancer dataset which is provided in kaggle data repository, WBCD (Wisconsin Breast Cancer Dataset) has been frequently employed in research studies. Optimization for feature selection is performed on the Wisconsin dataset. We develop our model using a new meta-heuristic algorithm called FireFly algorithm which is inspired from the flashing behavior of fireflies. This optimization algorithm can work on large-scale datasets which results in accurate prediction of breast cancer. The Firefly algorithm is applied on the Wisconsin dataset for detection of

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Maha Lakshmi <mahalakshminit@gmail.com>

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Assistant Professor

Department of Computer Science and Engineering

National Institute of Technology, Srinagar

Hazratbal, Kashmir-190006(J&K)

Email- ranjeetkumarrout@nitsri.net

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Dr. Saiyed Umer
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Entropy Analysis on The Wisconsin Data Using Machine Learning Models

Mrs. N.V. Maha Lakshmi[1], Mr I.Murali Krishna[2]
Associate Professor, Department of CSE, PSCMRCET,
Kothapet, Vijayawada, Andhra Pradesh
Email: mahalakshmi.507@gmail.com

Abstract:-

Breast cancer is the cancer that affects the most of Indian women. One in every two Indian women diagnosed with breast cancer dies, therefore there is a fifty percent chance of death in a case. So many different kinds of research studies had been conducted on early identification of breast cancer in order to initiate treatment as well as improve the chances of preservation. The majority of research focused mainly on mammogram pictures. Even so, there is a threat of false alarms in mammography pictures, which can seriously harm the patient's condition. Various approaches that is simpler to integrate and collaborate with multiple datasets, better and simpler, which can generate a much more accurate forecast. This paper proposed a method with effective breast cancer identification that combines some many Machine Learning methodologies such XGBOOST as well as Nave Bays, KNN and Decision Tree. These 3 are most commonly used ML techniques for breast cancer detection, and are compared in this study. The Wisconsin Specific diagnostic Breast Cancer data has been utilized as a training sample to monitor the efficiency of various ML approaches in the terms of crucial elements such as precision as well as accuracy. The findings are promising that can be used for diagnosis and treatment.

Key Words:
Hard Ensemble, Soft Ensemble, Boosting, Majority Voting, Entropy, Decision Tree

I Introduction:-

1. Decision Tree: A decision tree indeed a diagram that can different output of a group of interrelated choices. It allows individuals or institution to make a comparison different options relying on one's costs, probabilities as well as benefits.

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(11)

Advancement of machine learning and its applications for prediction and classification

Entropy Analysis on The Wisconsin Data Using Machine Learning Models

Mrs. N.V. Maha Lakshmi[1], Mr I.Murali Krishna[2]
Associate Professor, Department of CSE, PSCMRCET,
Kothapet, Vijayawada, Andhra Pradesh
Email: mahalakshmi.507@gmail.com

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Extensive Study on Chronic Kidney Disease Using Ml Techniques

[1]V.Navya Sree, [2]K.Yagna Surarchitha, [3]K.Devi Sree, [4]K.Anuhya, [5]Sk.Neha Jabeen

[1]Associate Professor, PSCMRCET, Vijayawada

[2,3,4,5] Student, PSCMRCET, Vijayawada

Abstract

Chronic kidney disease is a major burden on the health industry because of its increased risk of illness and death. Because kidney infections are slow and chronic, they can be more difficult to diagnose. This is the same reason why many patients are unable to make a diagnosis until the final stage. It is important to have reliable techniques to assess CKD at an early stage. Machine learning techniques play an important role in disease diagnosis and early stage diagnosis. The main objective of this project is to identify CKD and assess the risk phase. We use meta classification algorithms such as random forest and boosting algorithms such as Extra tree classifiers to estimate CKD. The practice model was trained to provide diagnostic predictions. The collected dataset is presented to the learning model and the data is pre-processed and analyzed. Therefore, the level and importance of kidney infection is known.

Keywords

Chronic kidney, random forest, boosting algorithms, extra tree classifier, meta classification, machine learning.

Introduction

kidney diseases are causing a strong impact on society; nearly one in 10 people are diagnosed daily. Chronic kidney disease is defined as the reduced GFR rate.GFR stands for Glomerular Filtration Rate.GFR is used to determine the blood filtration of the kidney.

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(15)

Reinforced Lung Segmentation and Classification Model for COVID-19 Diagnosis

V. Sowjanya
Associate Professor, Department of CSE, PSCMRCET,
Vijayawada.
sowjanyav@pscmr.ac.in

Abstract

COVID-19 is a viral ailment and irresistible sickness brought about by a newfound coronavirus. This is disclosed by reverse transcription - polymerase chain reaction test or through Lung CT (Computed Tomography) imaging. The diagnosis made by a polymerase chain reaction test (PCR) has a lower sensitivity of 65% and above, where even when the patient is infected, test result is negative. To over through the discrepancies found in the values of PCR results, Lung CT imaging technique can be an important imaging modality in assisting the diagnosis of covid 19. This technique produces higher sensitivity, however lower specificity is assumed as a critical job in the determination and remedy of the illness. Predominant positions of the prime patterns found in posterior and peripheral lobe of the asymmetric lungs are difficult to segment and analyse. This difficulty could be addressed by introducing a Reinforced lung segmentation model that retrieves the affected portion which is present at the peripheral lobe of the asymmetric lungs. CT images with viral and Streptococcal pneumonia carries similar patterns such as ground-glass opacities pattern, crazy paving, pleural effusion etc. that are likely to be present in covid infected lungs. An efficient machine learning classification algorithm is chosen to carefully deal with this ambiguity so that successful segregation of covid cases from the other analogous lung diseases is possible. This model is proposed to increase the specificity and exactness of Covid-19 diagnosis from the lung CT image thereby, reducing the flawed prediction. This work facilitates in increasing the possibility of

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Identification of Landslides with Deep Learning Techniques

[1]Mr.A.Chandra Mouli, [2]Mrs.V.Sowjanya
[1,2] Associate Professor, Dept. of CSE, PSCMRCET, Vijayawada

Abstract
A Landslide is prevalence that the slope collapses all of sudden because of broken self retainability due to the heavy rainfall or earthquakes. Because of this surprising crumble many human beings are failing to get away earlier than they discover them. Though we aren't capable of prevent the slope failures, this mission ambitions to are expecting the character of the Landslide. It classifies the landslide into 3 classes large, medium, small. This is executed via way of means of the usage of a Artificial Neural Network which includes 6 layers. The dataset is imbalanced, over sampling is carried out at the schooling facts via way of means of the use of the SMOTE to keep away from the over-becoming of the community at the schooling facts. The accuracy of the community become determined to be 80%. The novelty thing of this mission is that it is able to are expecting the severity of the landslide primarily based totally at the situations while maximum different initiatives are expecting climate there may be a landslide or not.

Index Terms – Deep Learning, Segmentation, Convolution Neural Networks, K-means Clustering

Introduction

A landslide is described because the motion of a mass of rock, debris, or earth down a slope. Landslides are a sort of "mass wasting," which denotes any down-slope motion of soil and rock below the direct affect of gravity. The term "landslide" encompasses 5 modes of slope motion: falls, topples, slides, spreads, and flows. These are similarly subdivided through the sort of geologic material (bedrock, debris, or earth). Debris flows (usually called mudflows or mudslides) and rock falls are examples of not unusual place landslide types. Landslides are

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Diabetic Disease Prediction in Women using Deep Learning Techniques

Chinni Bala Vijaya Durga[1][0000-0003-4497-2402]
[1]Research Scholar, University College of Engineering & Technology,
Acharya Nagarjuna University, Nagarjuna Nagar, Guntur, India

Abstract:

In India irrespective of age most of the people are suffering from diabetics. A deep learning neural network is designed for early prediction of type-2 diabetics. Early prediction of disease helps the patient to take precautions from the life risk parameters. With the advancement of technology, medical fields takes the help of the artificial intelligent systems to have best predictions about various diseases and for recommending the medicines timely based on various parameters. The proposed system works better than the ensemble mechanism and gives more accurate results. The system also proved that K- Cross Fold validation with more splits.

Keywords:-

CNN, Heatmaps, Activation Functions, Cross Fold Validation

I. Introduction:-

Now days, Diabetes has become most common problem among any age group people. There are 3 types of diabetes namely Type-1 DM, Type-2 DM and Gestational diabetes and most of the surveys reported that Type-2 DM occurs more than other two types. The main reason for Type-2 DM is obesity and lack of physical exercises. If Type-2 DM is not identified or not treated for a long time, it may cause severe problems that may lead to life risk situation for a patient[4]. The persons suffering with Type-2 diabetes will have higher glucose levels. Applying machine learning approaches helps the doctors to diagnose the

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An Integrated Framework Using Transfer Learning and Re-Trained Models to Detect The Stage of Bone Cancer

[1]Chinni Balavijaya Durga, [2]Dr. G.Rama Mohan Babu
Pursuing Ph.D. in University College of Engineering & Technology,
Professor, Dept. Of CSE-AIML, RVR & JC College of Engineering,

ABSTRACT: Due to change in food habits and life style of the human beings over two decades one of the major diseases that adversely affect the human beings irrespective of the age and the working scenario is "Cancer". The proposed research aims to focus on bone cancer, which generally infects pelvis, which is known as long bones in arms and legs. In this proposed research, the model automates the detection of bone cancer by applying computer vision techniques of the CT SCAN images. In traditional approaches, researchers used to extract necessary features using surf tools and apply image processing approaches to identify cancer cells. The proposed research deals with identification of non-cancerous cells because with respect to bone tumours, non-cancerous cells are more frequent than cancerous cells. Non-cancerous cells may be affect less at the initial stage but with due course of time it may infect other bones and may lead to life risk stage. So, there is an urge for automation bone cancer detection system at early stages of attack.

Introduction

Bone cancer can start in any bone in the body, but the pelvis and long bones in the arms and legs are the most usually affected. Some forms of bone cancer are more common in youngsters, whereas others are more common in adults. The most usual treatment is surgical removal, but chemotherapy and radiation therapy may also be used. The type of bone cancer being treated determines whether surgery, chemotherapy, or radiation therapy is used. The frequent types of bone cancers are discussed in figure 1.

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Machine Learning Applications in Health Care

Cross Validated MLP for Heart Attack Prediction & Its Comparison Using Different ML Approaches

[1]Ch. B. V. Durga, [2]I. Siva Prasad, [3] B. Leela Lakshmi, [4] B V M K Ratnakar, [5] P Manogna

Assistant Professor, PSCMRCET, Vijayawada, AP.
Student, PSCMRCET, Vijayawada, AP.
Student, PSCMRCET, Vijayawada, AP.
Student, PSCMRCET, Vijayawada, AP.
Student, PSCMRCET, Vijayawada, AP.

Abstract: From past few years, heart failure is the common reason stated by many of the people for the sudden death of their near one's. Many factors like stress life, obesity, work pressure, hereditary, and other bad habits that may contribute to the sudden heart stroke, which is claimed as "Cardiac Arrest" by many of the doctors now a days. Many researchers contributed for early prediction of heart attack using different approaches, this paper focuses on the merits and demerits associated with each approach and delivered the gaps found. After a detailed investigation, this paper has identified most of the researchers predicted heart strokes using either machine learning or genetic approaches by assembling the instantaneous data from the IoT sensors fastened to the body. This paper also focused on multi layer artificial neural network with KFold- Cross validation technique to get more accurate result. The test results were introduced 3, 5 and 10 Fold cross validations.

Keywords: Hybrid KNN, Dense Layers, Activation Functions, Cross Validation, Correlation

Introduction

Most people worldwide, irrespective of their age, are suffering from massive cardiac arrest. Many researchers worked on clinical datasets collected from different open-source datasets like PubMed, UCI repository, and others for the detection of heart attacks at initial phase. However, most of these datasets have nearly 13 to 147 raw attributes in textual format and implemented traditional data mining approaches. Apart of these approaches, few researchers worked on the different approaches as stated in the figure x.

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MEDOHUNT: Let Hunt the Medicine at Nearby Stores with One Tap Using Artificial and Machine Learning Techniques

[1]**Vemula Jasmine Sowmya**, [2]Y.Rajesh
[1]Assistant Professor, Dept. of CSE, PSCMR College of Engineering and Technology, Vijayawada, Andhra Pradesh & Research scholar, GITA Autonomous College, Bhubaneswar.
Email Id:vemulajasmine@gmail.com
[2]Associate Professor, CSE Dept, Andhra Loyola institute of engineering and technology, Vijayawada, Andhra Pradesh & Research scholar, Visweswaraya University Bangalore
Email Id: yrajeshrajiv1324@gmail.com

Abstract

We are proposing a Smartphone application that aids people to CHOOSE NEARBY ACTIVE MEDICAL STORE JUST BY SEARCHING WITH THE MEDICINE NAME. Our main aim is to develop an application for Android based phones. Map data for the application were adopted from the open source map. For, retailers we are using a registration form to identify among different sources. The **MEDOHUNT** application includes a screening tool and real-time information on nearby active medical stores that provides brief information about the medicine given by user. It also provides information on DISEASE symptoms, treatment, and prescribed actions. In the **MEDOHUNT** screening tool user can browse through different stores and medication that are available and are provided in map view and list views, incorporating proximity to the user's location using Global Positioning System(a built-in function of smart phones). Users can search for a medicine by just giving the medicine name or symptoms and relevant information regarding the medication will be displayed. We are developing a mobile application for retailers, dealers, pharmaceuticals to register in the system using artificial and machine learning techniques. This application will be useful for the people to search medicine at nearby medical stores and availability of medicine at medical stores far away.

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on 20,21,22 June 2022

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Online Learning Challenges during COVID-19

T.Sowjanya, Associate Professor,
Department of CSE, PSCMRCET
Mail id: sowjanyat@pscmr.ac.in

Abstract:

The education system has recently been devastated by an enormous health crisis that has shattered its base. Given the current state of affairs, it's critical to acquire a more detailed knowledge of students' online learning experiences during the COVID-19 pandemic. Despite the fact that numerous research have looked into this topic, there is a scarcity of knowledge about the obstacles students face and the strategies they use to overcome them. As a result, this research aims to fill in the gaps. The findings, which were conducted on a mixed-methods approach, suggested that college students' online learning problems varied in terms of the nature and intensity. Their greatest issue was related to their learning environment at home, while technical knowledge and proficiency was their least significant challenge. As a result, this study attempts to fill in the gaps. The findings that were focused on a mixed-methods approach suggested that college students' online learning problems varied in terms of the nature and intensity. Their greatest issue was related to their learning environment at home, while technical knowledge and proficiency was their least significant challenge.

Introduction:

Due to the new corona virus outbreak, many universities and colleges around the world have shifted to online learning. The goal of this cross-sectional study was to see how COVID-19 lockdown influenced students' and researchers' academic performance. Due to the spreading contamination, schools in China and a few other impacted nations were shuttered in early February 2020. Nearly 75 countries, however, had executed or announced the shutdown of educational institutions by mid-March. As of the 10th of March, one out of every five pupils was out of school owing to COVID-19 school and university closures around the world. According to UNESCO, 186 countries would have imposed nationwide closures by the end of April 2020, affecting 73.8 percent of all enrolled students (UNESCO, 2020).

Essential Elements of Online Learning

Even before COVID-19, there was already high growth and adoption in education technology, with global edtech investments reaching US$18.66 billion in 2019 and therefore the overall marketplace for online education projected to succeed in $350 Billion by 2025. Whether it's language apps, virtual tutoring, video conferencing tools, or online learning software, there has been a big surge in usage since COVID-19. Many online learning platforms, like BYJU'S, a Bangalore-based educational technology and online tutoring corporation that was formed in 2011 and is currently the world's most valuable edtech company, are offering free access to their services in response to

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Renewable and Sustainable Energy Reviews

Kondapalli Balaji
Asst Proffesor
PSCMR College of Engineering and Technology
Vijayawada

Introduction

The World Energy Forum has predicted that fossil-based oil, coal and gas reserves will be exhausted in less than another 10 decades. Fossil fuels account for over 79% of the primary energy consumed in the world, and 57.7% of that amount is used in the transport sector and are diminishing rapidly [1]. The exhaustion of natural resources and the accelerated demand of conventional energy have forced planners and policy makers to look for alternate sources. Renewable energy is energy derived from resources that are regenerative, and do not deplete over time. Renewable energy offers our planet a chance to reduce carbon emissions, clean the air, and put our civilization on a more sustainable footing. It also offers countries around the world the chance to improve their energy security and spur economic development. Modern biomass encompasses a range of products derived from photosynthesis and is essentially chemical solar energy storage. Renewable energy supplies 18% of the world's final energy consumption (Fig. 1), counting traditional biomass, large hydropower, and "new" renewables (small hydro, modern biomass, wind, solar, geother- mal, and biofuels). Traditional biomass, primarily for cooking and heating, represents about 13% and is growing slowly in some regions as biomass is used more efficiently or replaced by more modern energy forms. Large hydropower represents 3% and is growing modestly, primarily in developing countries [2]. New renewables represents 2.4% and are growing very rapidly in developed countries and in some developing countries. Global renewable energy capacity grew at rates of 15–30% annually for many technologies during the five-year period 2002–2006, including wind power, solar hot water, geothermal heating, 2008. Among new renewables (excluding large hydropower), wind power was the largest addition to renewable energy capacity. An estimated $120 billion was invested in renewable energy worldwide in 2008, including new capacity (asset finance and projects) and biofuels refineries Fig. 3 [4].

Renewable energy sources (RES) that use indigenous resources have the potential to provide energy with negligible emissions of air pollutants and green house gases [5]. Renewable energy technologies produce marketable energy by converting natural phenomena/resources into useful energies. The usage of renewable energy resources is a promising prospect for the future as an alternative to conventional energy. Therefore, an attempt has been made through this paper to review the availability of renewable energy options in India, and provides information about the current status of renewable, future potentials of their uses, major achievements, and current government policies, delivery and outreach in Indian context. It paints a remarkable overall picture of renewable energy resources and position of India on global map in utilizing these resources.

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Renewable energy in India

India's population of more than 1028 million is growing at an annual rate of 1.58%. As fossil fuel energy becomes scarcer, India will face energy shortages significantly due to increase in energy prices and energy insecurity with in the next few decades. Increased use of fossil fuels also causes environmental energy, which is currently satisfied mainly by coal, foreign oil and petroleum, which apart from being a non-renewable, and therefore non-permanent solution to the energy crisis, it is also detrimental to the environment. Thus, it is imperative that India obtains energy security without affecting the booming economy, which would mean that the country must switch from the nonrenewable energy (crude oil and coal) to renewable energy.For these reasons the development and use of RES & Technologies are becoming vital for sustainable economic devel- opment of India. Expert consultation at the Asia Energy Vision 2020, organized under the World Energy Council agreed on energy demand projection in India up to 2020 as given in Table 1 [6]. The Expert Committee on Integrated Energy Policy in its Report (IEPR 2006) has estimated that by 2032, i.e., 25 years from now primary commercial energy requirement in the country would need to go up 4–5 times the current level, electricity generation installed capacity 5.6–7 times the current level and oil requirement by 3–6 times the current level.

Energy is a basic requirement for economic development and in every sector of Indian economy. It is thus necessary that India quickly look towards new and emerging renewable energy and energy efficient technologies as well as implement problems both locally and globally. The economy of India, measured in USD exchange-rate terms, is the twelfth largest in the world, with a GDP of around $1 trillion (2008). GDP growth rate of 9.0% for the fiscal year 2007–2008 which makes it the second fastest big emerging economy, after China, in the world. There is a very high demand for

energy conservation laws. Against this background, the country urgently needs to develop a sustainable path of energy development. Promotion of energy conservation and increased use of renewable energy sources are the twin planks of a sustainable energy supply. Fortunately, India is blessed with a variety of renewable energy sources, like biomass, the solar, wind, geothermal and small hydropower and implementing one of the world's largest programs in renewable energy.

India is determined to becoming one of the world's leading clean energy producers. The Government of India has already made several provisions, and established many agencies that will help it to achieve its goal. Renewable energy, excluding large hydro projects already account for 9% of the total installed energy capacity, equivalent to 12,610 MW of energy. In combination with large hydro, the capacity is more than 34%, i.e., 48,643 MW, in a total installed capacity of 144,980 MW. Fig. 4 is showing installed power capacity (MW) in India.

The country has an estimated renewable energy potential of around 85,000 MW from commercially exploitable sources, i.e.,wind, 45,000 MW; small hydro, 15,000 MW and biomass/bioe- nergy, 25,000 MW. In addition, India has the potential to generate 35 MW per square kilometer using solar photovoltaic and solar thermal energy. By March 2007,

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Innovative approaches to teachingmathematicsinhighereducation:areviewandcritique

B.Murali Mohan Rao
Assistant Professor in Mathamatics
PSCMR College of Engineering & Technology
Vijayawada

Abstract

This paper provides a snapshot of emerging trends in mathematics teaching in highereducation for STEM subjects (Science, Technology, Engineering and Mathematics). Overwhelmingly, papers identify a focus on conceptual understandings of math- ematics in comparison to understanding that is instrumental or procedural. Calls for reform of mathematics teaching have been the basis for a range of studies: responses to these calls have embraced innovative methods for implementing changes in learning and teaching of mathematics, sometimes rooted in constructivist ideology. Observed trends have been categorised in six groups. In many studies, technology is being used as an enabler of reforms. Constraints to implementing new approaches in mathematics teaching are indicated. Discussion of contemporary research questions that could be asked as a result of the shift towards teaching mathematics in innovative ways is provided and is followed by a critique of the underlying theoretical positions, essentially that of constructivism.

Mathematics teaching (or instruction) in higher education has long embraced traditional methods: non-interactive ways of teaching math- ematics (ways in which the student is the receiver of delivery from the teacher, but only minimally a participant) (Alsina, 2001; Anku, 1996; Brito et al., 2009; Hillel, 2001; Smith & Wood, 2000). Traditional approaches can be seen to be dominated by theory and not to address the needs of most students; it is even argued that these methods have not evolved much since the times of ancient Egypt and Assyria 5000 years ago (Abate & Cantone, 2005). Recently there have been calls for reforming mathemat- ics instruction by considering more innovative pedagogical approaches, often rooted in constructivist theory, to promote students' conceptual understanding. (Abate & Cantone, 2005; Chang, 2011; Jaworski, 1994; Mokhtar, Tarmizi, Fauzi & Ayub, 2010, Orton & Roper, 2000).

Theoretically and historically, trends in teaching and learning, have seen a shift from Behaviourism (Pavlov, 1927; Skinner, 1953; Thorndike, 1913), passing through Cognitivism (Atkinson & Shiffrin, 1968; Craik & Tulving, 1975; Kulhavy & Wager, 1993; Martin, 1993; Squire, Knowl- ton & Musen, 1993), towards Constructivism (Kolb, 1984; Mayer, 1999; Richardson, 2003; Steffe & Gale, 1995; Tynjälä, 1999). Constructivism is a paradigm that has been significantly influenced by cognitivism (Her- genhahn & Olson, 2004); however, it presents a more socially embrac- ing position on pedagogy and learning as opposed to the microscopic focus of cognitivism on the internal mechanisms that underline learn- ing processes. Constructivism perceives learning as a process of con- structing knowledge by individuals themselves as opposed to the passive teacher-student model (Brown, Collins & Duguid, 1989; Kolb, 1984; von Glasersfeld, 1987b). In the process of knowledge creation, learners link new knowledge with their previous knowledge. *Social* constructivism is distinguished from *radical* constructivism by placing emphasis on social processes influencing the learners' constructions, particularly the importance of language and discourse (Ernest, 1991; Jaworski, 1994; Palincsar, 1998; Taylor & Campbell-Williams, 1993; von Glasersfeld, 1987b). Pedagogues adopting constructivism as a basis for pedagogy suggest that approaches should focus on concepts and contextualisation instead of instructing isolated facts (Brooks & Brooks, 1993). Social constructivist pedagogy

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15	**A HYBRID BAT-PO MPPT FOR GRID-CONNECTED PHOTOVOLTAIC SYSTEM** *[1]Thamatapu Eswara Rao, [2]Sundaram Elango*	

Implementation of ANFIS controller to improve thePerformance of a Grid Connected PV System

Mr.M.Srikanth[1], M.Jahnavi[2], M.Lekhya Sri[3], N.N V Samba Siva Sai[4], V.Praveen Kumar[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2,3,4,5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

This paper proposes a new control scheme of ANFIS technique to control the performance of photovoltaic system connected to grid. The main components of the studied system are solar arrays connected through a DC bus to a grid side inverter. Due to the instantaneous changes of solar irradiance and temperature, maximum power point tracking (MPPT) is integrated in the inverter control. The energy generated by the grid photovoltaic system is sent to the grid. This is accomplished through an efficient DC/AC conversion where the MPPT is integrated in the inverter to control active and reactive power level injected to the grid. A hysteresis control technique is proposed to generate the required gate signals for grid side inverter, also helps to maintain proper synchronization with grid. This proposed system with both Fuzzy and ANFIS controller are implemented and tested in MATLAB, and compared the performance with these two techniques.

INTRODUCTION:

In the current year, PV systems are considered an important energy source. In general, renewable energy sources are pollution-free energies. The effectiveness of a PV system is affected by the PV panel's efficiency and inverter efficiency [1]. The efficiency improvement in the photovoltaic power conversion is required by using MPPT algorithms. The MPPT is predictable by the PV cell output voltage regulation. Many researchers are emphasized that the control algorithm and hardware set up of the grid-connected PV cell systems [2][3]. The operating point of a PV array is altered by changing atmospheric circumstances and the load of the system. Due to the economic situation and efficiency problems, the operating point of the PV system must be situated within its maximum power point [4]. To get the maximum output power of the PV array, the internal, and load resistance must be equal. This inequality condition can be recognized by changing the duty cycle of the DC-DC boost converter in the proposed system [5]. In [6] is discussed the new techniques and it provides a broad knowledge of recent development in the MPPT algorithm. In [7] presented a forward control algorithm based on the conductance increment method. In [8] the values of incremental conductance and P&O algorithms are used to implement the MPPT in the PV systems. The above methods have some disadvantages such as cost, the complication in an exact performance, and instability of the systems. To conquer these drawbacks, new methods such as ANN has been developed [9][10]. In [11] & [12] the PV models have been presented. It is proposed a genetic algorithm (GA) based MPPT. In [13] is proposed an MPPT method which handles both online learning of PV system and feed-forward control of DC-DC converter with a neural network. In [09] discussed a novel GA based method to carry out the MPPT based on the cell model. In [10] & [11] has been discussed the enhanced modeling of the solar PV module using GA based MPPT. The combined MPPT systems are different solutions for increasing the speed of the transient performance; it is discussed in this paper [13]. In [1] & [2] presented a huge number of PV plants are

Designing of 21-Level Cascaded H-Bridge converter using SVM technique

P.Subhani Khan[1], R.Praveen Kumar [2], A.Manoj Kumar [3], M.Anjali[4], T.Navya Madhuri[5]

[1] Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT:

The proposed topology significantly reduces the number of dc voltage sources, switches, IGBTs, and power diodes as the number of output voltage levels increases. To synthesize maximum levels at the output voltage, the proposed topology is optimized for various objectives, such as the minimization of the number of switches, gate driver circuits and capacitors, and blocking voltage on switches. This new type of converter is suitable for high voltage and high power applications. This multilevel inverter has ability to synthesize waveforms with better harmonics spectrum. In this project a study of 21-level inverter using less number of switches as compare to the technologies previously developed. MATLAB software is used for simulate the 7-level inverter. Also a comparison analysis is carried out for symmetrical and asymmetrical multi-level inverter with open loop as well as closed loop using PI controller. The simulation was carried out using MATLAB/Simulink. The simulation study demonstrates the merits of asymmetrical multi-level inverter over symmetrical multi-level inverter and also proves the effectiveness of closed loop PI controller in providing an output voltage with reduced distortions.

Introduction:

Multi-level inverters are broadly utilized as a part of high power applications because of its momentous merits over customary two level inverters, for example low switching losses, better electromagnetic capability, and lower harmonics. Comparing two-level inverter topologies at the same power ratings, MLIs additionally have the favorable circumstances that the harmonic components of line-to-line voltages connected to load are decreased owing to its switching frequencies. Plenty of multi-level inverters are proposed however, still most popular MLI configurations are Neutral point clamped MLI, flying capacitor MLI, Cascaded H-Bridge MLI (CHBMLI). Among all the above mentioned inverters Cascaded H-Bridge multi-level inverters are mainly preferred in most of the researches especially dealing non-conventional energy sources like Photovoltaic and Fuel cell. Because, the cascaded inverter has the least components for a given number of levels. Cascade multilevel inverters consists of a series of H-bridge cells to synthesize a desired voltage from several separate DC sources which might be acquired from PV cells, batteries or fuel cells. All these features of cascade inverters allow using various pulse width modulation (PWM) strategies to control the inverter accurately. Cascaded H-Bridge MLI's are of two types symmetrical and asymmetrical topologies. Unlike symmetrical MLI, the asymmetrical MLI structure involves unequal DC sources. The symmetrical CMLI and asymmetrical CMLI topologies for a 7 level output voltage are shown in fig.1.

There are various modulation strategies for providing pulses to the switches of multi-level inverters. An efficient approach to control the asymmetrical MLI is multi carrier PWM technique in which the high frequency

Controlling of Electrical Vehicle Charging Conditions usingPV based Multi-Mode Converter

A.Sai Pallavi[1], M.Yuva Sandhya[2], N.Jhansi Lakshmi[3] , S.Srinivasa Rao[4] , Ch.Madhav Reddy[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

As an environmental friendly vehicle, the increasing number of electrical vehicles (EVs) leads to a pressing need of widely distributed charging stations, especially due to the limited on-board battery capacity. However, fast charging stations, especially super-fast charging stations may stress power grid with potential overload at peaking time, sudden power gap and voltage sag. This project discusses the detailed modelling of a multiport converter based EV charging station integrated with DC power generation, and battery energy storage system. This project analyses the capability for Plug-in electric vehicles (PEVs) in Vehicle to Home (V2H) scenarios, for which the vehicle acts as a residential battery storage system and/or a backup generator during a grid outage or more frequent short duration distribution system fault. The simulation and experimental results show that PCMM can meet the design target and verify the feasibility of the model. This charger has been implemented using a simulation analysis with a space vector modulation technique to validate its operation. The simulation results obtained foresee an adequate interaction between the proposed charger and a compatible autonomous EMS in a typical residential setting.

Introduction:

With the rapid growth and challenges of power generation, distribution, and usages, renewable energy technologies can play an important role in future power supply due to increased awareness of environmental pollution. In the case of power supply system to remote and isolated communities, a renewable energy based stand- alone power system can be a particularly attractive cost-effective solution, as grid extension is often impractical due to economic and technical constraints.

Generation with EV charging infrastructure; however, the PV integration is still considered as a minor portion of power source for EV charging stations in researches. As for the higher demand of fast-speed charging during daytime, the rapid development of PV generation optimizes power consumption at peak hours with its adequate daytime generations. With respect to the intermittency of solar energy, a battery energy storage (BES) can be employed to regulate the DC bus or load voltage, balance power gap, and smooth PV power. Considering the high power density and high efficiency merits of the multi port power converters, a multi-port DC/DC converter is employed in this paper for the EV charging station instead of using three separate DC/DC converters

Among the aforementioned research, the charging station architectures can be classified into two topologies: using AC bus or DC bus. As PV output and BES can both be regarded as DC current source, DC bus charging station is chosen here to improve the utilization efficiency of solar energy and decrease the cost and losses of converters. Compared with isolated multi port converters, non-isolated multi port converters that are

IMPLEMENTATION OF PV BASED ELECTRICVEHICLE BATTERY CHARGER WITH V2G CAPABILITY

R.Jaya Lakshmi[1], K.Jagruthi[2], K.Lakshmi Jahnavi [3], A.Nirupama [4], V.Murali Naik[5]

[1] Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2,3,4,5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT:

As an environmental friendly vehicle, the increasing number of electrical vehicles (EVs) leads to a pressing need of widely distributed charging stations, especially due to the limited on-board battery capacity. However, fast charging stations, especially super-fast charging stations may stress power grid with potential overload at peaking time, sudden power gap and voltage sag. This project discusses the detailed modeling of a multiport converter based EV charging station integrated with PV power generation, and battery energy storage system. In this project, the control scheme and combination of PV power generation, EV charging station, and battery energy storage (BES) provides improved stabilization including power gap balancing, peak shaving and valley filling, and voltage sag compensation. An ANN based controller is designed for regulating performance of multi-mode power converter.

INTRODUCTION

The continuous rise in gasoline prices along with the increased concerns about the pollutions produced by fossil fuel engines are forcing the current vehicle market to find new alternatives to reduce the fossil fuel usage. Along with the research on bio-fuel driven engines; different electric vehicles and hybrid electric vehicles are evolving as viable alternatives to replace, or at least reduce, the current fleet of fossil fuel driven vehicles. Although current manufactured electric/hybrid vehicles are being marketed as a way to reduce fossil fuel usage, several promising technologies are being demonstrated that can utilize power electronics to charge the battery from the utility using plug-in vehicles or act as a distributed resource to send power back to the utility with vehicle-to-grid capabilities. In this paper, different plug-in vehicle topologies are described to review the power electronics required for them. The newly evolving V2G technology is also discussed along with economics and compliance requirements to allow the vehicle to be connected to the grid. Before going into the details of power electronics required for the electric/hybrid vehicles, the common forms of these vehicles are described next to get accustomed with the terminologies.

Electric Vehicles

Performance Analysis of Stand-alone PV system using PSO andCuckoo MPPT Techniques

M.Srikanth[1], K.Leela Venkata Sai Kumar[2], G.V.S.K.Tarun [3], M.Rama Narsimha Swamy[4], Sk.Sahera Bhanu[5]

[1] Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5] Department of EEE, PSCMRCET, Vijayawada,Andhra Pradesh, India

ABSTRACT

The (PV) photovoltaic panel's characteristic is non-linear and highly depended on solar irradiation and temperature cell variations. For that reason, a Maximum Power Point Tracking (MPPT) algorithm is essential so that it is possible to draw peak power from the photovoltaic panel to obtain the maximized produced energy. The main purpose of MPPT technique is to make sure that the solar panel is producing the maximum power. This extracts the maximum amount of power at any given time. This paper proposes a concept of a different MPPT techniques for BOOST converter for improving the performance of PV system in terms of efficiency and power from the PV system. Basically, BOOST converter is proposed as interface between load and PV module array as DC-DC converter for voltage improvements. Also, a Partical Swarm Optimization and Cuckoo concept is proposed in this paper for further improvement of PV power. The MATLAB/SIMULINK power system tool box will be used to stimulate the proposed system.

Introduction:

Solar energy is the one of the best renewable energy for future applications .So the use of photo voltaic (PV) systems increased with reduced costs and increased efficiency. But the generation of electricity from photo voltaic (PV) system is more expensive than the other non- renewable energy sources. We know that non-conventional sources which are also known as renewable energy resources are becoming more popular now a days as they are available nature free. Renewable energy sources are defined as the sources which can be reproduced from nature again and again once even they used.

There are many advantages with renewable energy resources comparing to non-renewable energy source. Some of the advantages are renewable energy sources are cost free and also pollution free compared to non-renewable resources. Some of the main examples for this renewable resources are solar, wind, tidal etc. Here in this project work we are considering solar as the source and obtaining maximum power from the sun by using maximum power point tracking algorithms (MPPT's). There are many algorithms are used for extracting maximum power such as perturb and observe, incremental conductance, fuzzy control etc. In our daily life, power electronic converters have been widely used, not only for industry applications but also in many electronic products, such as portable devices and consumer electronics. Actually, most electronic devices are not using energy directly from the power system or a battery set. To provide the required voltage or current level to a load, in general, a power electronic converter is interposed between the power source and the load to perform the conversion of the voltage or current level and in addition to regulate the power requirement.

A conventional power electronic converter is supplied from a single input source, but may provide multiple outputs. In the case that two or more voltage or current levels are required by the loads, a transformer with multiple output windings

Controlling of PV fed BLDC Motor using Lion Optimization Algorithm

B.Jyostna[1], G.Mohit[2], Ch.Raghavendra[3], D.Durga Naga Sai[4], G.Vijay Babu[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

This study deals with a buck-boost converter controlled solar photovoltaic array fed water pumping in order to achieve the maximum efficiency of an SPV array and the soft starting of a permanent magnet brushless DC (BLDC) motor. The current sensors normally used for speed control of BLDC motor are completely eliminated. The speed of BLDC motor is controlled through the variable DC-link voltage of a voltage-source inverter (VSI). This project deals with the operation of the interleaved DC-DC converter in solar PV array fed water pumping system as an intermediate DC-DC converter between the solar PV array and soft starting of BLDC motor. The intermediate converter with semiconductor switches has the features of reducing ripple current in its output and provide endless region for maximum power tracking (MPPT). In this project, Brushless DC motor speed has been controlled using the Lion Optimization technique to tune the parameters of PI controller. The system is supplied from a Solar PV Array along with the MPPT technique to fetch its maximum efficiency from the solar array.

1. INTRODUCTION

A BLDC Motor or Electronically Commutated Motor (ECM) are synchronous motor which are supplied by Direct Current (DC) through Inverter or Switching Power Supply producing AC through which each phase of the motor can be driven. Brushless motor are similar to permanent magnet synchronous motor in terms of construction but it can also be transformed into a switched reluctance motor. BLDC motors find numerous applications in the field of industrial engineering, consumer appliances, electric vehicles, motion control system, positioning and actuation system's aero modeling and many more [1]. BLDC motor has number of advantages over other motors which include high power-to-weight ratio, better speed, electronically controllable, reliable operation and require less maintenance [2].

Brushless motors typically have rotating permanent magnets and a fixed armature, which eliminates the challenges associated with supplying current to the moving armature. The brush/commutators unit of the brushed DC motor is replaced by an electronic controller, which continuously shifts the phase to the windings to keep the motor moving. Instead of the brush/commutators scheme, the controller uses a solid-state circuit to conduct similar timed power distribution [2]. In the no-load and low-load regions of the motor's performance curve, the increased efficiency is greatest. Brushless motors and high-quality brushed motors are comparable in efficiency under high mechanical loads. Environments and requirements in which brushless-type DC motors are used include maintenance-free operation, high speeds, and operation where sparking is hazardous (i.e. explosive environments) or could affect electronically sensitive equipment.

Application of ANN Based UPQC for Power Quality Enhancement in Smart Grid

B.SwarupaRani[1], S.Hemambica[2], P.Keerthana[3], D.Aparna[4], D.Chandra Shekhar[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

[2, 3, 4, 5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

Abstract:

Electrical distribution system is designed to operate in sinusoidal mode, but the voltage and current waveforms shows distortion compared to the sinusoidal mode. Current technology development, which results in an increasing adoption of the local generation and storage capacities, is pushing towards the adoption of smart grid paradigm. An effective technical solution for enforce limitation of various types of power quality (PQ) disturbance is based on power electronics in order to increase energy transmission capacity, improve voltage stability and dynamic behaviour, control power flow and ensure a better power quality at distribution inside accepted boundaries. The well-known Flexible AC Transmission System (FACTS) devices like Unified Power Quality Conditioners (UPQC) are usually employed to resolve the issues related to voltage sag, swell, flicker, PQ, and neutral current reduction of distribution systems. An UPQC itself inserts harmonics into the system that affects the system stability for sensitive loads. This project describes artificial neural network with harmonics elimination techniques for modified UPQC connected with SG.

Key Words: *Micro Grid System, FACTS device, ANN Controller.*

INTRODUCTION

Basically, the microgrid system is a combination of loads and different micro sources operating as a single system providing power. The structure of a microgrid system consists of different parts such as interface control, control and protection devices for each micro sources as well as microgrid voltage control, power flow controlling devices, load sharing during islanding conditions, protection and stability [1]. The ability of the Microgrid to operate when connected to the grid, smooth transition to and from the island mode is another important function.

The main consideration for interconnection of microgrid to the distribution system is the impact of power quality problems on the overall power systems. Generally, these power quality problems are classified as voltage and frequency deviations in grid voltage and harmonic contents in load current. In order to overcome these type of power quality problems this paper proposes a concept of flexible ac distribution system for microgrid. This flexible ac distribution system is a combination of series and shunt converters shared by a common dc link capacitor [2]. The proposed dc link source of the FACTS device is obtained by a distributed energy source. This paper also proposes the concept of ANN controller for obtaining better harmonic distortions.

DISCRIPTION OF PROPOSED SYSTEM:

In an electrical power system the microgrid is commonly a group of electrical loads and power generations from different generating sources like solar, wind etc. these microgrid plays an important role to

Implementation of SVM based Interleaved DC-DCConverter for Multi-directional EV Charging

Saida Naik[1], D. Charitha Sri[2], S.Sowjanya Rani[3], Yuvaraj Singh[4], J.Naveen Kumar[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2,3,4,5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

This paper proposes a new interleaved non-isolated high step-up dc-dc converter for interfacing electric vehicle applications. The proposed converter achieves a very high step-up voltage gain by using two coupled inductors and a voltage multiplier cell. This topology utilizes the interleaved boost converter in the input side, and the input current is shared with low ripple. The voltage stress on the semiconductor switches and the passive components is significantly reduced and lower than the output voltage. The aforementioned converter can be operated without an extreme duty cycle or a high turns ratio. The reverse recovery problem of the diodes is mitigated, and the leakage energy is recycled. Furthermore, by implementing low-voltage-rated MOSFETs with a small ON-resistance, the conduction losses can be reduced, and the efficiency can be improved. The SVM based control algorithm for the DC-DC converter is designed to stabilize output voltage and enhance the performance of the system during transient operations. To verify the design, two-phase interleaved synchronous DC-DC buck converter is simulated in MATLAB-Simulink based environment and simulation results on resistive load are presented.

INTRODUCTION:

In the last decade, the utilization of fossil fuels and pollution problems more in vehicle applications. To overcome these problems the car manufacturer companies introduced electric vehicles. But the cost and weight of battery were not solved, since the batteries must provide power in peak stage and in transient state. These are some severe problems for batteries. Super capacitors and fuel cells have been used to overcome the problems in battery. Either battery or fuel cell or hybrid electric vehicles are environment friendly and more efficient as compared to combustion engine based vehicles. In the present scenario, hybrid electric vehicle and plug-in electric vehicle have been introduced to overcome the insufficient storage of battery operated EV.

In this paper, mainly focused on designing of battery charger for plug-in charge electric vehicle. The PEV charging or discharging conditions for available power and also gives the information provided by the energy management system instead of reducing the charging time by using only maximum power levels. To maintain this EMS, a simple power electronic based topology has been introduced. The design of the charger was based on bi-directional dc-dc converter which improves the efficiency of the system. The proposed DC-DC converter approach fulfills the desired operation of the bi-directional charger in the energy management system as compared with the topologies available in the literature. The power electronic converters have been used to size the passive elements by controlling voltage and current levels within the bounds.

The proposed single stage converter in the literature is simple topology with less components, but to operate the drive motor effectively, the single stage converter faces difficult. To overcome this problems, a boost type single stage converter has been proposed to obtain three-phase voltage even from a low-level DC input

SVM based 31-Level Multilevel converter With Reduce Switch Count

A.Sekhar Sunil [1], K.Peeyush[2], A.Jyothsna Priya [3], B.Doondi Mohana Krishna[4], P.Suresh[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

[2, 3, 4, 5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

ABSTRACT

Multilevel inverters are a new family of converters for dc–ac conversion for the medium and high voltage and power applications. In this project, two new topologies for the staircase output voltage generations have been proposed with a lesser number of switch requirement. The first topology requires three dc voltage sources and ten switches to synthesize 15 levels across the load. The extension of the first topology has been proposed as the second topology, which consists of four dc voltage sources and 10 switches to achieve 31 levels at the output. Both topologies, apart from having lesser switch count, exhibit the merits in terms of reduced voltage stresses across the switches. Therefore the new topology offers good flexibility in designing. To achieve better harmonic reduction and number of switch count a space vector modulation technique is chosen for controlling multilevel inverter. This proposed system is to be implement in MATLAB /SIMULINK and compare the results of proposed system with conventional and 31-Level Multilevel Converter.

Keywords: Total harmonic distortion, Multi-Level Inverter, Flying capacitor, Induction Motor and PWM Technique.

INTRODUCTION

Multilevel inverters have found their place in medium-voltage high-power applications such as electric motor drives, flexible ac transmission systems and static VAR compensators. The desired multi-staircase output voltage is obtained by combining several dc voltage sources. Solar cells, fuel cells, batteries and ultra-capacitors are the most common independent sources used. Multilevel inverters generate stepped output voltage by a proper arrangement of power electronic switches and several dc voltage sources. As the number of output voltage levels increases, the output voltage becomes more identical to a sinusoidal waveform resulting in lower distortions. Multilevel inverters have some advantages in comparison with the conventional two-level inverters including the use of low-voltage power electronic switches and improved output voltage quality. This results in the lower stress on the power electronic devices and lower losses.

Various circuit topologies are available for multilevel inverters. The conventional topologies are divided into three main types: the neutral point clamped (NPC), flying capacitor (FC) and cascaded H-bridge (CHB) multilevel inverters. The NPC multilevel inverters have the problem of balancing the voltage of capacitors for higher number of voltage levels. Also, they need considerable number of clamping diodes. Therefore this type of multilevel inverters is limited to three-level case. The FC multilevel inverter and it derivative topology stacked multi cell multilevel inverter use FCs to produce the voltage levels. These inverters have the ability of self-balancing of the capacitors so that they can be extended to higher number of output voltage levels easier

FUZZY BASED STATCOM CONTROLLER TO GRID CONNECTED WIND ENERGY SYSTEM FOR POWER QUALITY IMPROVEMENT

A.Sekhar Sunil[1], A.H.V.S.D.N. Lakshmi[2], Rabia Khan[3], Md.Muskaan Naaz[4], K.Chiranjeevi[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, AndhraPradesh, India

[2,3,4,5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT:

Generally, the non-conventional energy sources are being extensively used in case of power electronic converter based distribution systems. This project mainly focuses on the wind energy system integrating with grid connected system and also improvement of power quality features. The wind energy power plant is modelled based on associated equations. For improving this power quality problems, this project proposes the concepts of shunt converter controllers. This paper also proposes the concepts of fuzzy based Static Var Compensator and STATCOM. And also the results are compared for this cases. Thus with such a control, a balanced load currents are obtained even in the presence of non-linear load. The experimental setup is done in Matlab and verified the simulation results.

Index Terms—*WECS, Fuzzy Technique, Power Quality, THD, STATCOM and VSC*

1 .INTRODUCTION

Generally, with increase in the power demand due to increase in population, utilization, the Generation of power was really a challenge now a day. Due to high utilization of non-conventional energy sources [1] as a one of the distribution energy source, may causes the stability problems such as voltage regulation and other power quality problems. Therefore, the power electronic based forced commutated converters are preferred in distribution system for maintaining the system stability, reliable performance and efficient work and also improving the quality of power at coupling junction point.

The current distortions in non-linear load may result same distortions in the system voltages and in some cases also shows the serious effect on power system. Generally, the problems in power system are more complicated and also have difficult to identify the problem when we integrate the wind energy system with grid connection [2]. If this problems continuous, it's mainly causes the damage

of system and also reduces the system efficiency. By controlling the system parameters such as magnitude of voltage, transmission impedance and load angle then we maintain the power flow. The power flow controlling device is a device which is used for varying and controlling the system parameters [3].

A shunt device is a compensating device i.e. which is connected between the grid connected point called as PCC and the ground [4]. Shunt device either can absorb or generate the reactive power for controlling the magnitude of voltage at point of common coupling.

A Cuckoo MPPT based Sliding Mode Control for Grid tied PV System

A.Sai Pallavi[1], M.Aparna [2], M.Naga Sai[3], M.Ganesh[4], K.Sai Krishna[5]

[1]Assistant Professor,Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

Maximum power point techniques (MPPT) are used in photovoltaic system to make full utilization of PV array output power. The output power of PV array is always changing with weather conditions i.e., solar irradiation and atmospheric temperature. PV cell generates power by converting sunlight into electricity. The electric power generated is proportional to solar radiation. PV cell can generate around 0.5 to 0.8 volts. During cloudy weather due to varying insolation levels the output of PV array varies. The MPPT is a process which tracks the maximum power from array and by increasing the duty cycle of the DC-DC boost converter, the output voltage of the system is increased. This paper presents the cuckoo mppt technique for PV system along with SMC controller methods in grid connected photovoltaic (PV) systems for optimizing the solar energy efficiency.

INTRODUCTION

At present, most of energy demand in the world relies on fossil fuels such as petroleum, coal, and natural gas that are being exhausted very fast. One of the major severe problems of global warming is one of these fuels combustion products, carbon dioxide; these are resulting in great danger for life on our planet [1].

Among all the available Renewable energy sources, PV array systems are trusted to play a significant role in prospective energy production. PV systems transform photon energy into electrical energy. These energy systems generate low voltage output, thus, high step-up dc/dc converters are employed in many applications, including fuel cells, wind power, and photovoltaic systems, which converts low voltage into high voltage. Due to the increasing demand on electricity, and limited availability and high prices of non-renewable sources, the photovoltaic (PV) energy conversion system has becomes an alternative as it is freely available, pollution free, and has less operation al and low maintenance cost. Therefore, the utilization of PV energy systems has to be increased for standalone and as well as grid-connected modes of PV systems. Photovoltaic (PV) as a renewable energy resource naturally is not stable by location, time, season and weather and its installation cost is comparatively high. An important consideration in increasing the efficiency of PV systems is to operate the system near maximum power point (MPP) so to obtain the approximately maximum power of PV array. For getting maximum possible energy produced by a solar system.

Also maximum power point tracking (MPPT) techniques are used for improving the performance of PV systems, a high efficiency power converter which is designed to extract maximum power from a PV panel is usually considered. Generally, there will be a unique point on the V -I curve, called the Maximum Power Point (MPP), at

Performance Analysis of PSO based SEPIC Converter for SRM Drive

Dr. Y. Rajendra Babu[1], K. Kaivakya[2], S. Sandhya[3], N.Yaaajnavalkya[4], K. Swami Naidu[5]

[1]Head of Department of, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

[2, 3, 4, 5] Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

ABSTRACT

The paper has the objective to design a solar powered water pumping system employing a switched reluctance motor (SRM) and to analyse it's performance using simulation. On comparison to other ac and dc motor drives, SRM possess several features like wide speed range, high power density, low inertia and quick response. This system comprises a modified SEPIC converter as an intermediate DC-DC converter, which provide high voltage gain with reduced stress. Incremental conductance algorithm helps to track maximum power from PV panel. PSO based tracking is used for the maximum power point (MPP). Duty ratio of the high gain SEPIC converter is regulated by MPPT technique. SRM is controlled by closed loop control with current and speed as feedback signals. The modified converter eliminates the complexity of high voltage solar panel arraying and also removes the panel hotspot issues.

Introduction:

Electric machines can be broadly classified into two categories on the basis of how they produce torque -electromagnetically or by variable reluctance.

In the first category, motion is produced by the interaction of two magnetic fields, one generated by the stator and the other by the rotor. Two magnetic fields, mutually coupled, produce an electromagnetic torque tending to bring the fields into alignment. The same phenomenon causes opposite poles of bar magnets to attract and like poles to repel. The vast majority of motors in commercial use today operate on this principle. These motors, which include DC and induction motors, are differentiated based on their geometries and how the magnetic fields are generated. Some of the familiar ways of generating these fields are through energized windings, with permanent magnets, and through induced electrical currents.

In the second category, motion is produced as a result of the variable reluctance in the air gap between the rotor and the stator. When a stator winding is energized, producing a single magnetic field, reluctance torque is produced by the tendency of the rotor to move to its minimum reluctance position. This phenomenon is analogous to the force that attracts iron or steel to permanent magnets.

At an age of more than 150 years, and counting, the switched reluctance motor (SRM) represents one of the oldest electric motor designs around. Partly as a result of recent demand for variable-speed drives and primarily as a result of the development of power semiconductors, a variation on the conventional reluctance machine has been developed and is know as the switched reluctance" (SR) machine. The name \switched reluctance", used by, describes the two features of the machine configuration: (a). switched | the machine must be operated in a continuous switching mode, which is the main reason the machine developed only after good power

Design and Analysis of SVM based DC-DC Converter for Electric Vehicle

K.Srinivas[1], V.Hema Lavanya[2], M.Venu Gopal[3], P.Sai Teja[4], D.Sravan Kumar[5]

[1]Assistant Professor, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

[2, 3, 4, 5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh, India

ABSTRACT

This paper proposes a scheme for changing the operation modes of bidirectional DC/DC converter used in battery powered electric vehicles (EVs). The proposed pattern changes the converter operation from boost to buck according to the DC-link voltage value. This strategy is suggested to save power and increase efficiency of the EV energy storage system (ESS). A buck-boost DC/DC converter is adopted to boost the DC-link voltage in driving mode, and to charge the battery in braking mode. In boost mode, PI control of DC-link voltage is implemented to maintain constant DC-link voltage in driving operation. In buck mode, PI control of battery voltage is applied to reduce ripples of battery voltage. In both modes of operation, current control schemes are applied to keep equally sharing of battery current between converter modules. To validate the performance of the proposed scheme, a simulation is performed and verified with EV propulsion system.

Introduction:

Nowadays, electric vehicle (EV) industry is growing rapidly due to serious crises such as air pollution, global warming, and rising demand for fossil fuels. Power electronic converters and drive systems are the main parts of EVs, and several research projects are conducted to achieve higher density and efficiency in these converters. EVs come in a variety of types, such as pure electric vehicle (PEV), hybrid-electric vehicle (HEV), fuel cell-electric vehicle (FCEV) and so on. All of these vehicles have electric motors powered by batteries that are connected to the motor by voltage source inverters (VSI's).

With the growing interest in decreasing the fossil fuel utilization and pollution, electric vehicles (EVs) have emerged as an applicable alternative to conventional gas engine vehicles. The development and increasing utilization of EVs requires widely distributed charging stations due to the limited EV battery capacity. However, large scale of directly grid-connected charging stations, especially fast and superfast charging stations, stress power grid stability and reliability with peak demand overload, voltage sag, and power gap issues. Some researchers have been integrating photovoltaic (PV) generation with EV charging infrastructure; however, the PV integration is still considered as a minor portion of power source for EV charging stations in researches. As for the higher demand of fast-speed charging during daytime, the rapid development of PV generation optimizes power consumption at peak hours with its adequate daytime generations. With respect to the intermittency of solar energy, a battery energy storage (BES) can be employed to regulate the DC bus or load voltage, balance power gap, and smooth PV power.

Implementation of ANFIS Controller to Improve Hybrid System Reliability

Dr. Y. Rajendra Babu[1], T. Vimala[2], K. Jahnavi[3], D. Sowmya[4], M. Gopal Rao[5]

[1]HOD, Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

[2, 3, 4, 5]Department of EEE, PSCMRCET, Vijayawada, Andhra Pradesh India

ABSTRACT

The main difficult in present power system is that, it fails to meet increasing load demand and growing of population. The Distributed Energy System like renewable systems plays a key role in the present electrical generation system due to eco-friendly and freely available in nature. Here, this paper consider PV and Wind energy based hybrid system. To extract maximum power from the DG systems, an MPPT based DC-DC converter is implemented for both PV and wind energy systems. Different MPPT techniques like P&O technique implemented for hybrid systems and comparative analysis done for efficiency. The dc link voltage of inverter controller is implemented with ANFIS technique to improve power quality. This hybrid system is tested in Matlab/Simulink and compared the results for various load conditions and fault analysis with different MPPT Techniques.

I. INTRODUCTION

Distributed Generation (DG) has gained lot of importance because of the limitation of conventional power generation. The DG system can give more productive, better quality, and dependable power to commercial loads that require continuous administration. The grid-associated converter in a distributed system normally gives dynamic and responsive power to the primary grid by controlling a grid current. At present proportional resonant controller is used with least square error. A proportional integral (PI) control scheme is employed for active damping of the LCL filter or high dynamic performance under rapidly changing atmospheric conditions [1]. The predictive current control provides robustness against the computation delay time inherent in the digital implementation, and also offers a fast-current response at a grid-connected inverter with an LCL filter.

If any fault occurs in the main grid system, the compensation formulae for voltage sag/swell or in any severe current references are considered for delivering active and reactive powers to the grid as per the grid connection requirements. Another alternative technique under grid fault conditions is for the DG system to be disconnected from the main grid and to operate in the islanding operation mode [2]. In this islanding operation, for providing desired voltage to the local sensitive loads the DG system has capable of changing its control strategy from voltage control mode to current control mode. When the main grid voltage recovers to the normal voltage, the DG system switches back to grid-connected operation.

Generally, with increase in the power demand due to increase in population, utilization, the Generation of power was really a challenge now a day. Due to high utilization of non-conventional energy sources as a one of the distribution energy sources, may causes the stability problems such as voltage regulation and other power quality problems. Therefore, the power electronic based forced commutated converters are preferred in distribution system for maintaining the system stability, reliable performance and efficient work and also improving the quality of power at coupling junction point [3].

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Speed Detection on Highway Roads

Neelam Mounika[1], Durga Bhavani[1], K. Tejeswani[1], K. Divya Sneha[1], K. Sai Kiran[1]
[1]Department of Electronics and Communications, PSCMR College of Engineering and Technology, Vijayawada, Andhra Pradesh, India

ABSTRACT

The objective of task is to identifies the speed of the vehicles on the highway roads. although there is maximum speed limit on highway many accidents keep on because of over-speeding of the vehicles. This undertaking depicts the speed discovery for vehicles. This framework mainly comprises of Arduino, two IR sensors,1602A LCD display. The distinguished speed is displayed on the LCD screen and can find over-speeding vehicles easily.

I. INTRODUCTION

BACKGROUND:

There are a set of traffic rules set by the government which are to be followed while driving. The most common and important rule is speed limit in certain roads. If we cross or exceeds the speed limit then we are violating the rule. Most of the accidents are mainly taking place due to over –speeding of the vehicles.

According to Public Crime Records Agency (NCRB) information, over-speeding is the most compelling motivation behind greatest street accident passings in India. According to records in 2019, a total of 4,37,396 street accidents were occurred across passings in India. In which, 1,54,732 individuals passed on and another 4,39,262 harmed. Through and through, in 2019, India announced 4,21,959 accidental passings under different classes, for example, street crashes, powers of nature, careless human lead, up from 4,11,104 out of 2018 and 3,96,584 of every 2017, the information showed.

Although as far as possible is fundamental rule it is the most important rule which place a significant

Motivation:

To identify the speed of a moving vehicle, the patrolling officers usually depend on a handheld gun that deals with Radar Technology or Lidar Technology. This is a dreary interaction as the official needs to physically check for over speeding for every vehicle.

This venture recognizes the speed of the vehicles so it is not difficult to distinguish the vehicles which cross as far as possible. This venture recognizes the speed of the vehicle automatically

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Home Automation Electrical Appliances by the Sonorous Property

Neelam Mounika[1], Anees Ahamed Baig[1], Siri Chandana[1], Devi krishna[1], Yamini[1]
[1]Department of Electronics and Communications, PSCMR College of Engineering and Technology, Vijayawada, Andhra Pradesh

ABSTRACT

CLAP SWITCH is a switch can switch ON/OFF any electric powered circuit through the sound of the clap. The primary need of the clap to keep energy and moreover useful to physically impaired person. The idea of a clap switch is that Electret microphone picks up the sound of our claps. The primary components like Resistors, Capacitors, LED, Bread board, Arduino UNO, Jumpers, Electret microphone are used. This circuit turns 'ON' light for the primary clap and for subsequent clap it turns 'OFF'. Clap Switch converts sound energy into electric pulses and makes use of those electric pulses as input to the circuit and presents an output on the way to manipulate mild appliances. Switch on and rancid any peripherals in the vehicles set off the safety cameras for the overall reason and the army reason. Totally the gain of clap switch circuit is Energy efficient system, normal cost and reliable circuit, High Accuracy and entire removal of manpower.

The idea of Smart Homes has made our dwelling areas extra interactive and conscious of the wishes of users. Home Automation now no longer simplest facilitates to lessen the complexity of handling all of your electric home equipment inside your private home, however additionally deliver a personalized sense of dwelling as according to the each day recurring of the user. The Home automation idea covers a extensive variety of capability proper from operating your lightings, your private home security, smooth commencing of your storage doors, on the spontaneous availability of coffee as and while you want it and nearly everything that comes throughout your daily activities. The beauty about Home Automation is that brings the complete control of the residence over the tips of the finger and the sensors are clever sufficient to take self choices primarily based totally on any forms of natural occasions and surrounding environment. For e.g. if there may be sufficient rain during the day on your city, the water sprinklers found in your lawn will experience the soil moisture and now no longer sprinkle useless extra quantity of water that day. Also, the clever lighting fixtures inside your property can modify the temperature primarily based totally at the availability of the encircling natural brightness. Clap Switch circuit is a legitimate touchy circuit. It is primarily based totally at the amplifying nature of the transistor, switching nature of transistor, relay as a digital switch. It may be utilized in houses and agencies to turn on things which include lighting fixtures, TVs, or something it's far installation to the clap switch. By clapping, you cause the microphone to activate the sound filter, which in turn sends a signal to the electric switches. Clap twice and signals are generated, placing off the first outlet.

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Water Level Indicator

Neelam Mounika[1], K Durga Bhavani[1], Nagendra babu[1], Durga Bhavani[1], Dheeraj[1]
[1]Department of Electronics and Communications, PSCMR College of Engineering and Technologies, Vijayawada, Andhra Pradesh, India

ABSTRACT

Water tank overflow is a typical issue which prompts the wastage of water. However there are numerous arrangements we are utilizing straightforward transistor based water level indicator circuit.
This straightforward transistor based water level indicator circuit is extremely helpful to demonstrate the water levels in a tank. At whatever point tank gets filled, we get alarms on specific levels. Here we have made four levels we can make cautions for additional levels. We have added three LEDs to show introductory three levels (A, B, C) and one buzzer to demonstrate full level (D). At the point when tanks get filled totally, we get signal sound from buzzer.

I. INTRODUCTION

A water level indicator is a framework that transfers data back to a control board to demonstrate whether a waterway has a high or low water level. Some water level indicators utilize a blend of test sensors or float switches to detect water levels. "The Water Level Indicator utilizes a basic mechanism to recognize and demonstrate the water level in an overhead tank or some other water holder".
Water Level Alarm is a straightforward venture to recognize and alarm once the water level in tank or Aquarium comes to at specific level. Circuit depends on famous3 NPN transistor BC547 which go about as switch, Sensor additionally made on PCB, when the water arrives at the sensor PCB, base of transistor associated with positive supply, in outcome transistor go about as switch and actuate the buzzer.
The circuit works same as the water level indicator circuit which is my past instructable . I had essentially supplant the led with buzzer. along these lines, when water contacts the sensor test then it switches the transistor and the transistor accomplish a similar work as it is done in water level indicator circuit .it just associate the negative of buzzer and led to adverse terminal of battery and the led and buzzer continues and we get a noisy buzz when tank gets full and furthermore a led sign.
The reason for a water level indicator is to measure and oversee water levels in a water tank. The control board can likewise be customized to naturally turn on a water siphon once levels get excessively low and top off the water back to the sufficient level.

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Autonomous Machine Using IoT to Prevent the Accidents

Neelam Mounika[1], Anees Ahamed Baig[1], Harika[1], Vaishnavi[1], Sita Rama Lakshmi[1], Bhuvana[1]
[1]Department of Electronics and Communications, PSCMR College of Engineering and Technology, Vijayawada, Andhra Pradesh, India

ABSTRACT

An accident system in automobile safety system intended to lessen the seriousness of an accident. Otherwise called pre-crash (or) collision relieving system, it utilizes the ultrasonic sensors to distinguish an imminent crash. When the recognition is done, these systems either give an admonition to the driver when there is an imminent collision. This task utilizes the ultrasonic sensors and Arduino it gives the signal to the driver. Along these lines, the driver will be ready at that position.

I. INTRODUCTION

Automobile accidents have still been the main source of wounds and passing in many nations. Vehicle safety likewise relates to vital vehicle safety highlights. This is the joined in our vehicle to shield us and different travelers from injury and demise during a collision or crash. One of the initial conventional scholarly examinations into further developing vehicle safety was by Cornell Aeronautical Research center of Bison, New York. This is an Arduino based collision recognition cautioning system. This sort of system is the quickest developing safety highlight in automobile businesses. Such a system empowers vehicles to recognize the odds of collision and give visual and sound admonition to driver, with the goal that the driver can make an important move to stay away from collision. This venture thought depends on an Arduino regulator and Ultrasonic sensor, Bell.

As of late, many examinations have manage auto portable safety system utilized Arduino UNO with one Ultrasonic sensor and bell to recognize. Ultrasonic sensor is utilized to identify the vehicles. The object was to caution the driver. The ultrasonic sensors ceaselessly conveys messages and screens any vehicle or different snags are before vehicle. At the point when any deterrent or vehicle identified by ultrasonic sensor system it will convey message to the bell, it will caution the driver.

Numerous accidents at high ways are occurring because of close running of vehicles, all of unexpected. To stay away from this sort of accidents, the notice system contains caution.

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PROTECTION FROM LEAKAGE POWER DISSIPATION USING SLEEPY STACKED WITH LECTOR TECHNIQUE

Shaik Chinna Baji[1], Dr. M. Koti Reddy[2]

[1] Assistant Professor, Department of Electronics and Communication Engineering, PSCMR College of Engineering and Technology,Vijayawada, Andhra Pradesh, India.*

[2] Associate Professor, Department of Electronics and Communication Engineering, Universal College of Engineering and Technology, Guntur, Andhra Pradesh, India.*

ABSTRACT

Now a day's electronics has a growing demand because of its area acquisition, consumption of power, and its speed. It is possible by semiconductor technology due to enabling of complex functions on a single chip. Area and speed are changing with its requirement but power consumption is the same and main problem in every electronic devices. So, our paper mainly concentrates on power consumption. Mainly, in the IC's total power consumption is due to the leakage current dissipation. Till today we focused on number of approaches for power consumption reduction and we mainly used clock gating or power gating techniques which states that the transistors which are not in use can be kept in sleep mode which we call sleep transistor point of view. This resulted in floating output voltage in sleep mode. So, we propose a sleepy stacked with LECTOR technique which consists of 2 leakage control transistors between the pull down and pull up circuit. This point of view results in a leakage current dissipation reduction. In this paper simulation is done with different technologies on different parameters.

Keywords: LECTOR, sleepy stack, pull up, pull down, clock gating, power gating.

INTRODUCTION

In this contemporary world, because of the advancement of battery-based devices with restricted power capabilities desires major demand for power potency and power-delay product. These 2 factors are of a nice challenge to the electronic designers [1]. Similarly, in VLSI circuit style power consumption of the circuit is of major concern. The demand for low power device isn't thanks to the development of mobile application alone [3]. The matter of power consumption is a major issue before the evolution of the mobile era. To resolve the power dissipation issue various techniques and ways has been planned by researchers in terms of architectural, device level and even some higher levels. Until these days there's not the commonplace approach is evolved for factors to beat drawback of space consumption, delay and power utilization of the designed circuit. Supported

An Empirical Study of Detection of Distributed Denial of Service Attacks in Multiple Mobile Networks in 5G Networks

Kattupalli Sudhakar, IEEE Senior Member and Associate Professor, Department of CSE, PSCMR College of Engineering and Technology, Vijayawada, India

R Durga Bhavani, Assistant Professor , Department of ECE, PSCMR College of Engineering and Technology, Vijayawada, India

Abstract

The fifth-genesis (5G) network target the new cases that include an enormous measure of heterogeneous gadgets associated with a similar framework. This brings new security dangers, and one of the most basic for the accessibility of network is a Distributed Denial of Service (DDos) violation. A billion of gadgets can be utilized as a botnet to trigger an extensive DDos flooding that can overthrow the essential services. Customary security frameworks against DDos are commonly intended to work in foundations with a specific topology. The versatility of numerous gadgets bought in to the organization when designing for defense systems. This is particularly applicable when security should be essential for the network prototypes related to the 5G establishment. This paper presents a novel way to deal with conquer the restriction of conventional detection frameworks. An epic sensor gives the necessary data to follow back an attacker regardless of whether it is moving among various areas. The proposed approach is reasonable to be sent in practically all 5G network segments. Building configuration is depicted and exact examinations have approved the proposed approach.

Keywords

DDos, botnet, 5G, framework, NIDs

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INVISIBLE SHACKLES OF WOMEN IN INDIA

Dr. N. Siva Surendra

Professor, Department of Management Studies, PSCMR College of Engineering & Technology, Vijayawada, Andhra Pradesh, India

1. INTRODUCTION

Women in India are considered as Shakti (Power), the source of power itself but in reality, found to be a helpless, unlucky woman, or a mother with very little voice in decision making and very little in the way of her basic choices. Women have long been regarded as irrational people who are expected to work in the kitchens, follow the instructions of their male and female in-laws become caring mothers for children, and ensure, at risk of unpopularity, that employees do their jobs 'well'. Although discrimination and exploitation of women are a global phenomenon, the consequences are devastating in some parts of the world, especially in developed countries, where ignorance, deprivation of health care, and the ever-increasing pressure to change from modern to modern -all combine to increase inequality for poor women to the point of existence.

Women are under a lot of social control and scrutiny that limits what they can say and where and with whom. Cultural measures in almost all public institutions determine the well–being of women indirectly. This has a significant impact on their ability to communicate and express their thoughts. Women's issues have a long history as they currently exist as a serious concern around the world. They have various faces such as rape, kidnapping, murder, forced marriages, early marriages, etc. Overtime, various channels around the world have been used used to fight the mall through accounts. For them, the all-inclusive media is considered one of the world's most powerful tools for combating women-related issues. Inclusive media such as electronics, printing, and social media are different from each other as their roles are played in different places with different perspectives.

Discussing the empowerment of women is necessary to address the current situation of women in India. I am very much appreciating the organizers for selecting this theme. I hope this conclave shows light on the current issues.

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Dr.R.KARUPPASAMY
EDITOR

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Modern organization's Employee Wellness Practices

Dr. N. Siva Surendra
Professor,
Department of Management Studies,
PSCMR College of Engineering and Technology, Vijayawada, Andhra Pradesh. drsivasurendra@pscmr.ac.in

Mrs. A. Siva Naga Lakshmi
Assistant Professor,
Department of Commerce & Business Administration, PB Siddhartha College of Arts & Science,
Vijayawada, Andhra Pradesh.
asivanagalakshmi@pbsiddhartha.ac.in

Abstract:

In modern organization's employees are gained importance as a capital asset. Any asset needs some sort of maintenance for its functionality and wellness. In this context every organization is designing well-versed programs and schemes to enhance the health and safety so that productivity of the company is also boosts up. Now a days employee wellness is a chanting mantra for organization success. This paper focusses on different employee wellness practices of modern organizations.

Key Words: Employee, Environment, Ergonomic, Nutritious, Mandate

Introduction:

Innovation is changing the substance of work culture and it decreases the hole among home and workplaces, representatives are seeking bosses for fostering the balance between fun and serious activities. It's the piece of managers to establish a positive and productive workplace for representatives. Associations face difficulties from inside the business; for example, an association's interior climate might be impacted by shortcomings, changes in the labor force, or undeniable degrees of staff truancy. Outer climate factors, for example, enactment that set new principles, progresses in innovation or changes on the lookout or economy may likewise challenge an association. These all-elements lead organizations to creates their own design and upgrades themselves. Current associations are concentrating to construct their work environment prosperity. While making they are focusing on mental and physical elements which are affecting the worker government assistance.

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SECRETS FROM KAUTILYA ARTHASHASTRA TO BECOME ASUCCESSFUL ENTREPRENEUR

1. G S SRINIVAS MURTHY, ASSISTANT PROFESSOR, Department of Management Studies, PSCMR College of Engineering and Technology.,
MAIL ID: saisrinivasmurthy@pscmr.ac.in; Mobile: 9177650018

2. Varalakshmi Saikam, Assistant Professor,PSCMR College of Engineering and Technology, Ph. No.9618862161, pvaralakshmi888@gmail.com

Abstract: This paper attempts to understand what are the success secrets from Kautilya Arthashastra to become a Super Star Entrepreneur. Chanakya was the management guru and mentor of the great Emperor Chandragupta Mourya during 4th century BC. He thought and taught that entrepreneurship is about gaining the non-possessed, then protecting that which is gained and ultimately making the protected grow, by deployment of employees. As per Chanakya, one should learn from the mistakes of others against the trying to learn all by one-self. This certainly makes sense as it saves time for sure. So, observing others actions, their reactions and the ultimate consequences makes one wiser and wiser. It is like being witness to all that is happening around you. If you wake up and see things that are happening around you, and you are just a witness to it, you are not actually participating in any of them. Of course, as long as you are in the world, you have to do karma and you will be part of the karma, there is not getting away from that. But, more you build in a habit of being witness to different situations and lesser you feel that you are doing various action, the better it is. You are getting closer to the truth.

An entrepreneur is always high on his energy-positive energy. There lays no sense to be in the company of a person who scatters negative vibration every time. It is very well said, "A bad apple in the basket has enough potential to rot all the other good ones". Also, it is needless to say that an entrepreneur can't afford to waste his time. There's no use to read a book before a buffalo. The truth is a buffalo will remain a buffalo no matter what. So, the relevance to this statement is cherry-pick your employees, work with people who want to learn and are thoughtful enough.

Chanakya furthermore elaborate about getting into entrepreneurial ventures. He says, before you start some work, always ask yourself three questions: Why am I doing it? What the results might be? and Will I be successful? Only when you think deeply and find satisfactory answers to these questions, go ahead. Once you start a working on something, don't be afraid of failure and don't abandon it. As soon as the fear approaches near, attack and destroy it. People who work sincerely are the happiest. The fragrance of flowers spreads only in the direction of the wind. But the goodness of a person spreads in all direction.

Keywords: Arthashastra, Success & Failures of Entrepreneurs, Self- Management Strategy, Self-Motivation, Develop Character, Rulership.

Introduction:

The term Entrepreneurs is synonymous to learners.

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ABOUT THE BOOKS

The book presents a comprehensive and cohesive discussion of the theoretical and practical elements of both digital and analogue communication systems, with a primary focus on digital communication systems. The book does not assume any prior knowledge of probability theory, and it does not go into studies of communication systems that need knowledge of probability theory and random processes until after it has laid a firm basis in how communication systems function. The book gives a comprehensive study of the concepts and applications of current communication systems. It does this by combining mathematics and heuristics in a way that is seamless, and it also has examples that have been deliberately created to elucidate mathematical abstractions. A chapter on noise in communication systems, including topics such as thermal and shot noise in receiving systems, as well as the influence of channel noise on analogue modulated systems.

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An Empirical Study of Detection of Distributed Denial of Service Attacks in Multiple Mobile Networks in 5G Networks

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R Durga Bhavani, Assistant Professor , Department of ECE, PSCMR College of Engineering and Technology, Vijayawada, India

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