INDEX

3.3.2: Number of Books and Chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during 2021-22.

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	Year of publication	Page No.
1	D S Bormane, A D Sonawane	IEEE	Half wave dipole Antenna performance parameter measurement and Comparison at 900 and 1800 Mhz Frequency	NA	2022 International Conference on Industry 4.0	2021-22	1
2	P B Nangare	River Hydraulics	Enhancement of Energy Dissipation Using Combination of Solid Roller Bucket and Type II Stilling Basin for Ogee Stepped Spillway	NA	NA	2021-22	2

3	A M Deulkar	Water Resources management & Operations	Micro hydro power irrigation-A Review	NA	NA	2021-22	3
4	Dr Shashikant athawale	Ad-Hoc and Wireless Sensor network	NA	NA	NA	2021-22	4
5	Sandip Chaudhari	Electrical Power System –II	NA	NA	NA	2021-22	5
6	Sandip Chaudhari	Electrical Machines II	NA	NA	NA	2021-22	7
7	Dr. Deepali Ujalambkar	Congestion control schemes in Optical burst switched networks	NA	NA	NA	2021-22	9
8	Dr .D. S. Bormane	VLSI DESIGN AND TECHNOLOGY	NA	NA	NA	2021-22	10
9	Dr. S. B. Dhonde	Digital Circuits	NA	NA	NA	2021-22	11
10	S B Dhekale	Fundamentals of Java Programming	NA	NA	NA	2021-22	12
11	Dr. D. G. Bhalke	Radiation and Microwave Theory	NA	NA	NA	2021-22	13
12	R R Itkarkar, Dr V N Patil & Dr D S Bormane	NA	“Role of Women in science and technology research”	International conference on gender equality and women empowerment (ICGEWE-2022) on 8th March 2022	International conference on gender equality and women empowerment (ICGEWE-2022) on 8th March 2023	2021-22	14
13	Mr. S B Dhekale, Miheeka Khair, Mamta Patni and Sana Subhedar	NA	“Voice Tone Analyzer Using MI”	2nd National Conference on Engineering and Technology 2022	2nd National Conference on Engineering and Technology 2022	2021-22	15

14	MRs. P P Tayade, Deepali Dalvi, Prachi Kshirsagar, Shirish Nandkar	NA	“Theft Vehicle Live Location Retrieving and Accident Location Intimation Through SMS”	2nd National Conference on Engineering and Technology 2022	2nd National Conference on Engineering and Technology 2022	2021-22	16
15	Mrs. V S Navale, Tanmayee Gajare, Krutika Jagtap and Suvidhan Mane	NA	“Automated Data Entry Using Robotic Process Automation”	2nd National Conference on Engineering and Technology 2022	2nd National Conference on Engineering and Technology 2022	2021-22	17
16	Mr. Sudhir Bhosale, Suyash Rajpure, Megha Tadge and Monali Londhe	NA	“Timer controlled automatic switch for 3 phase induction motor”	2nd National Conference on Engineering and Technology 2022	2nd National Conference on Engineering and Technology 2027	2021-22	18
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18	Dr N G Shekapure	Data Science- Techniques and Intelligent Applications	Data Analysis for Technical Business Incubation Performance Improvement	NA	NA	2021-22	20

19	Ambreen Almas	NA	Review of Robust Control Techniques for DC DC Converter	IEEE	National Conference on Advances in Science, Engineering and Technology for Sustainable Development	2021-22	23
20	P R Satarkar	NA	Behaviour of Extended shear tab connection subjected to concentrated load	ICCEASI 21	International conference on civil engineering, architecture and sustainable infrastructure	2021-22	25
21	P R Satarkar	NA	Investigation On Seismic Performance Of Outrigger Structure For High Rise Building	NCIET 2022	National Conference on Innovation in Engineering and Technology - (NCIET 2022)	2021-22	26
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32	Nihal Prasad, Shilpi Bhuniyan	NA	Thermal analysis of mass concrete of gravity dam using finite elemt method	NCIET 2022	National Conference on Innovation in Engineering and Technology 2022	2021-22	39
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Half Wave Dipole Antenna Performance Parameter Measurement and Comparison at 900 and 1800 MHz Frequency

Publisher: IEEE

Amol D Sonawane ; Dattatraya S Bormane **All Authors**

Abstract: In the world of wireless communication, the dipole antenna is the most widely employed radio frequency (RF) transducer. Antenna performance metrics have become more preci... **View more**

Metadata

Abstract:
In the world of wireless communication, the dipole antenna is the most widely employed radio frequency (RF) transducer. Antenna performance metrics have become more precise as technology has advanced rapidly in recent years. The dipole antenna is used in a variety of RF antenna designs to attain the desired performance. The stepwise design approach, mathematical calculations for geometrical dimensions, and parametric analysis with graphical depiction of a half wave dipole antenna are all detailed in this work. The antenna performance factors such as radiation pattern, gain, VSWR, and return loss were analyzed in this research. Half wave dipole antennas were created and analyzed using HFSS simulation software at 900 MHz and 1800 MHz, proving that the suggested model is an effective dipole antenna type in the targeted frequency range. With the proposed antenna designs and measurable performance characteristics investigated, the new research scholars can readily execute their new antenna inventions.

Published in: 2022 International Conference on Industry 4.0 Technology (I4Tech)

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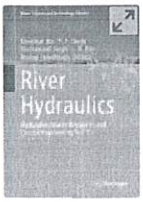

River Hydraulics pp 97–101

Enhancement of Energy Dissipation Using Combination of Solid Roller Bucket and Type II Stilling Basin for Ogee Stepped Spillway

P. B. Nangare & A. S. Kote

Chapter | First Online: 12 December 2021

Part of the Water Science and Technology Library book series (WSTL,volume 110)

Abstract

One of the most critical factors in the design of a hydraulic system is the energy dissipation arrangement for high-velocity flow in an ogee spillway. The release of excess water from crest to toe of the ogee spillway generates a large amount of kinetic energy. This would result in scour and erosion on the spillway's downstream face. Many different forms of energy dissipators have been used for ogee spillways in the past. However, they have energy dissipation, scouring, and erosion issues. The aim of this study is to create a physical working model of an ogee stepped spillway with a combination of solid roller bucket and type II stilling basin as an energy dissipator for the Khadakwasla dam in Pune (India). Two sets of phase models for a design discharge of 2700 m^3/s were used in laboratory experiments. The non-dimensional parameter (yc/h 0.8), nappe flow, and Froude number must be held within acceptable

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Chapter

Micro-hydro Power Generation in India—A Review

September 2021
DOI:10.1007/978-3-030-79400-2_18
In book: Water Resources Management and Reservoir Operation (pp.219-225)

Authors:

Aparna Deulkar
AISSMS-All India Shri Shivaji Memorial Society

Vivek S. Chavhan

Pankaj Modak
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Citations (1) References (15)

Abstract

Hydropower technology has been around for more than a century. Hydropower comes from converting the energy in flowing water—using a water wheel or a turbine—into useful mechanical power. This power is then converted into electricity by an electric generator. Micro-hydropower systems are small hydropower plants that have an installed power generation capacity of less than 100 kilowatts (KW). Many micro-hydropower systems operate "run of river," which means that no large dams or water storage reservoirs are built, and no land is flooded. Depletion of fossil fuel and the inability to meet the rising demand of electricity is some drawbacks for the economic development of India. This paper presents the study to investigate the possibility of the micro-hydro power generation and its advantages in India.

Citations (1) References (15)

Analysis of multimodal performance of a hybrid solar pumped storage system for enhanced energy security in rural areas

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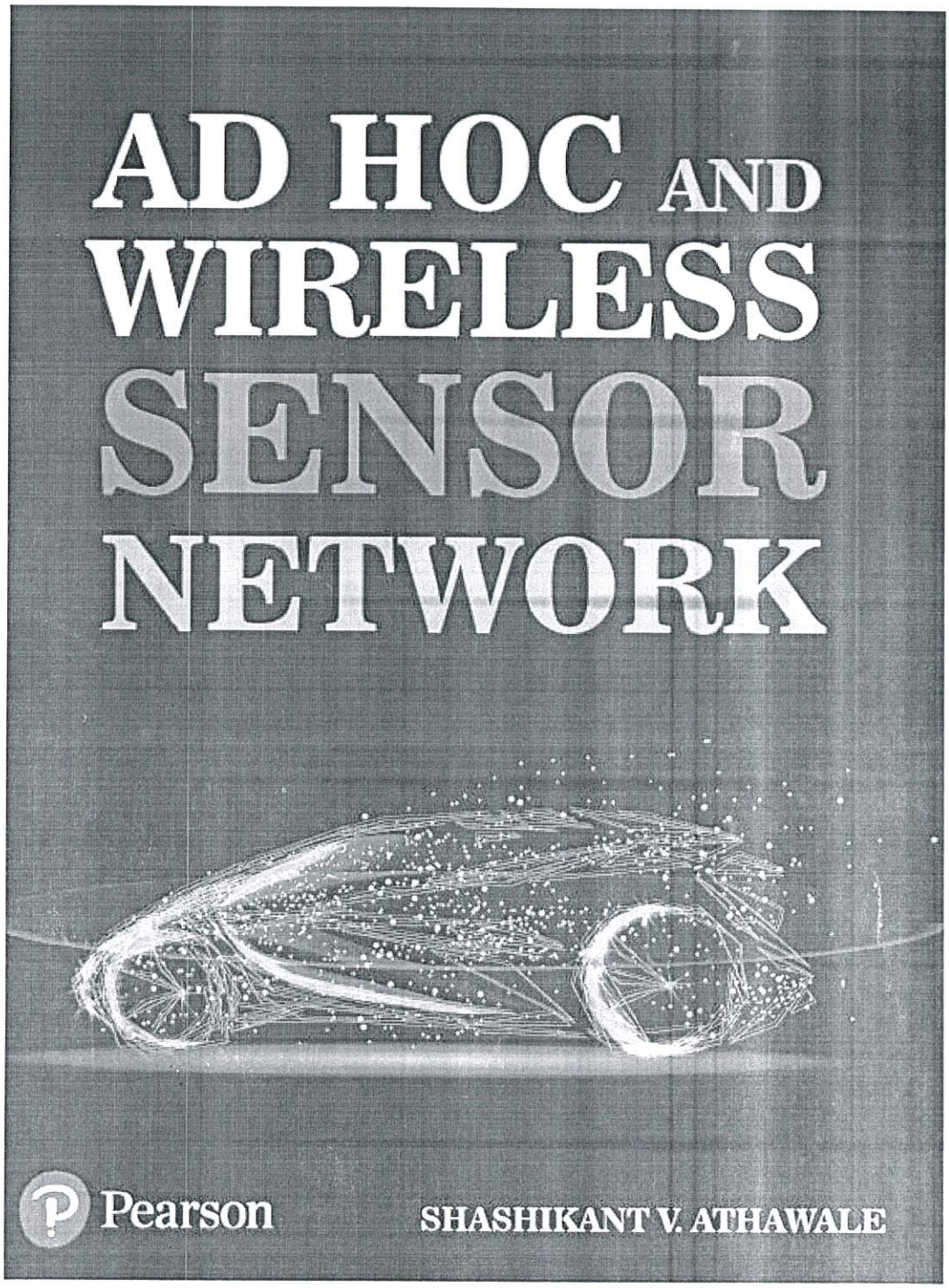

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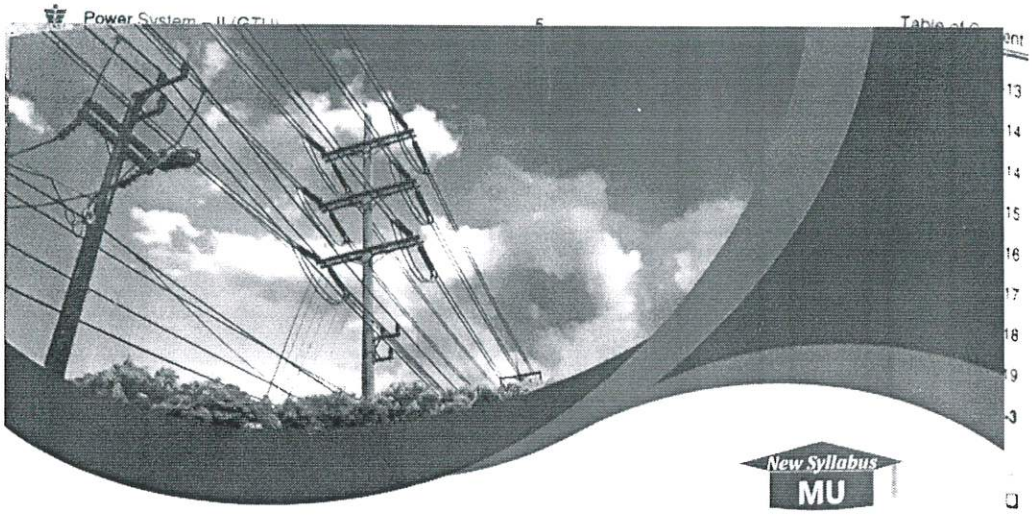

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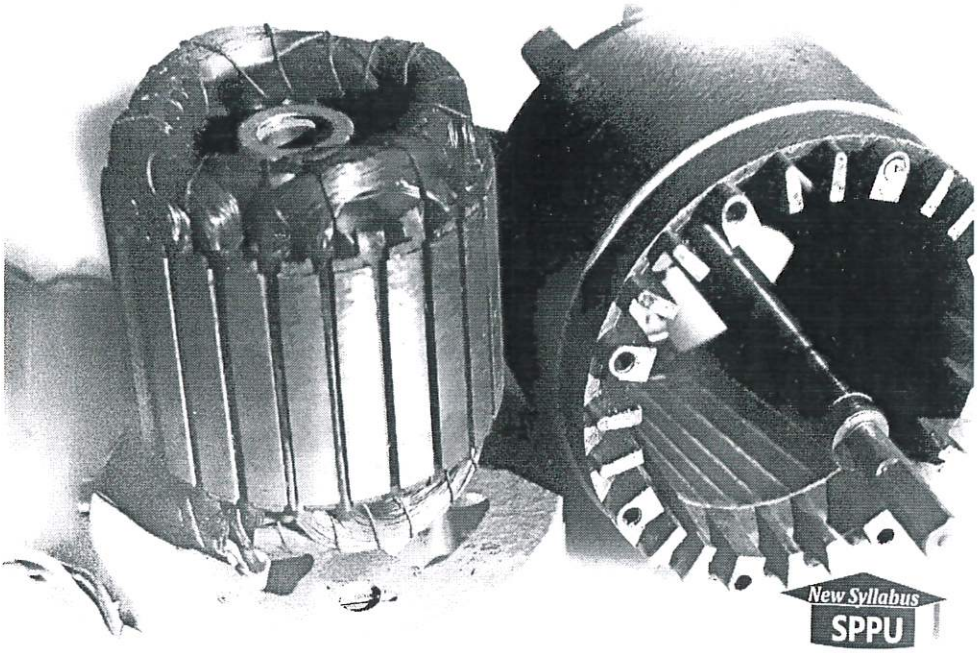

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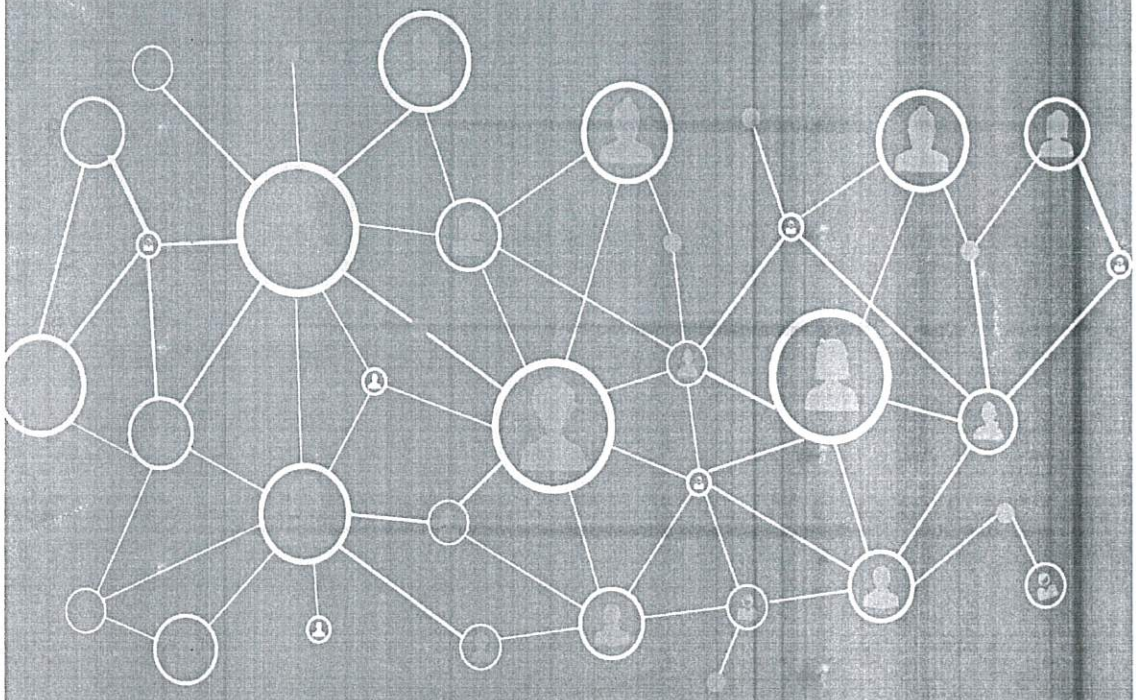

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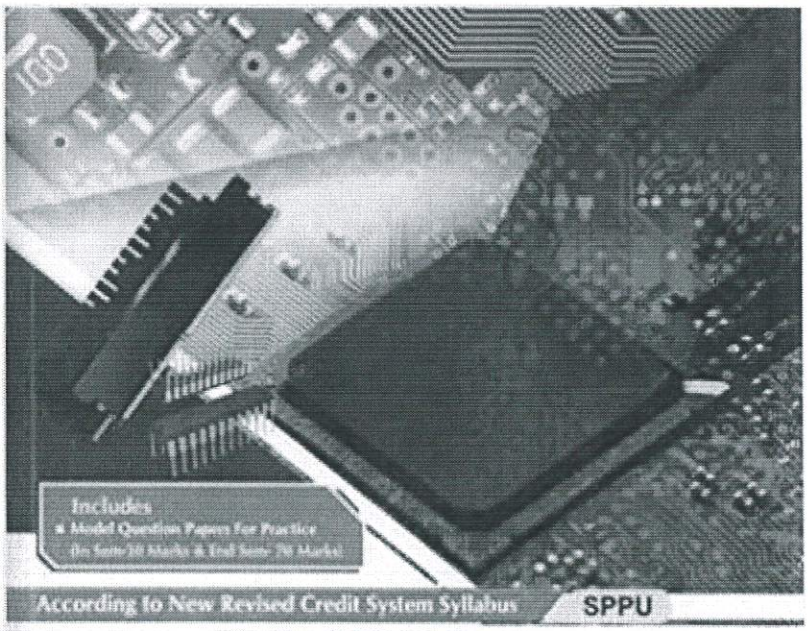

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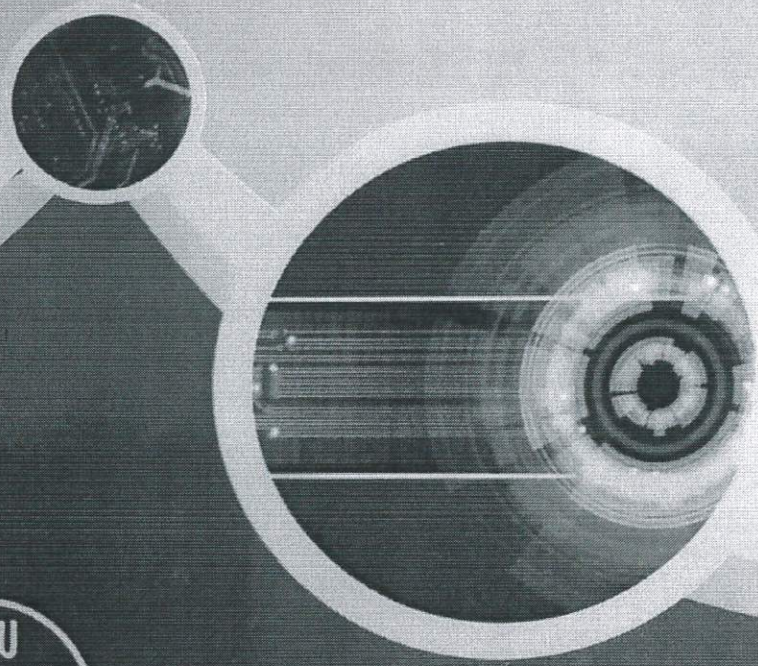

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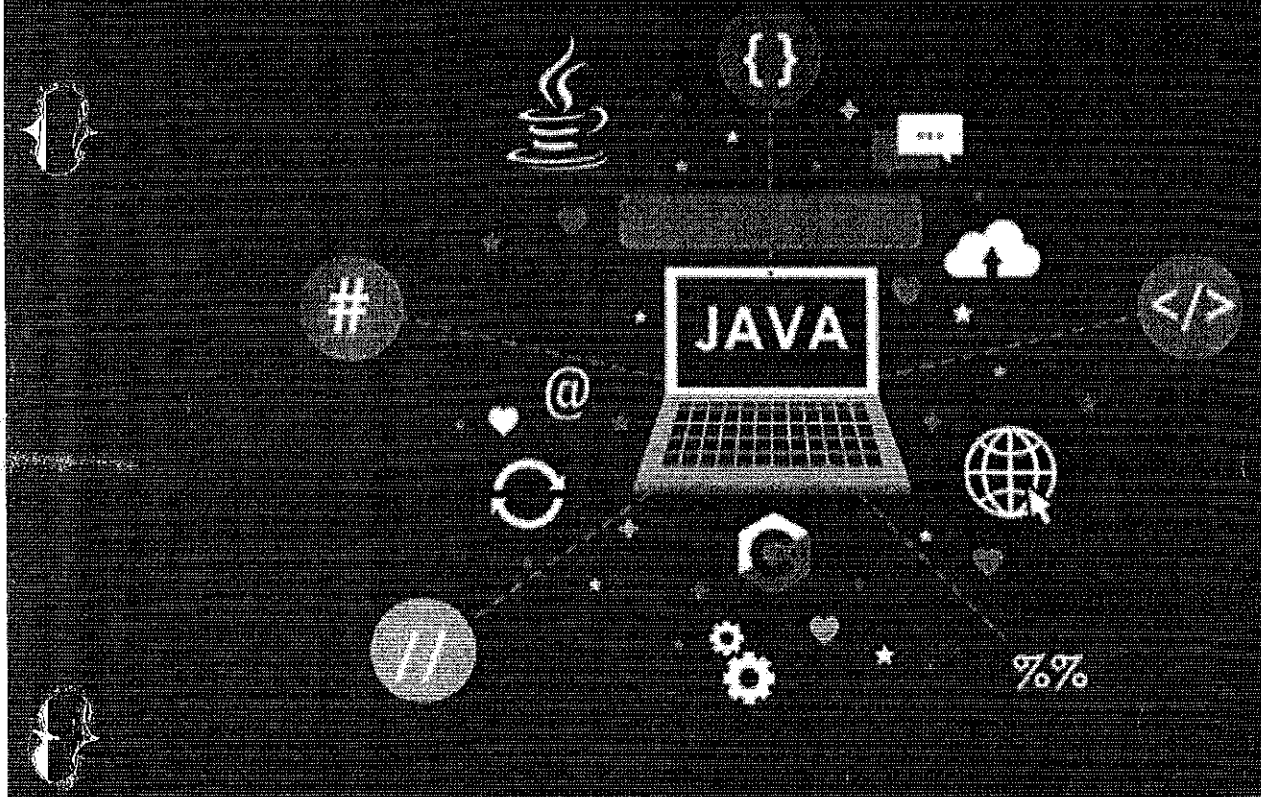

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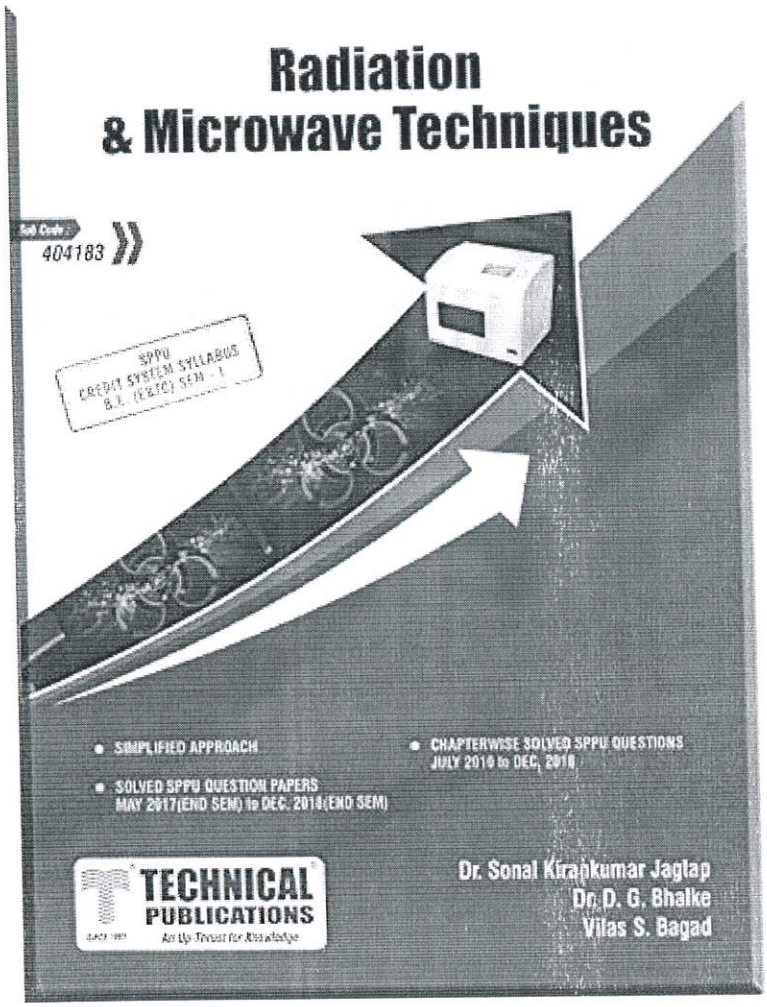

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ROLE OF WOMEN IN SCIENCE AND TECHNOLOGY RESEARCH

Rajeshri R Itkarkar
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Article history:
Published: 10th March 2022

Abstract:
Women in the era of 2022 is very well recognized internationally in every field. She has her own identity as an individual and in a team. Women should be more recognized as an entrepreneur, a leader, Officer, researcher etc. Women in research has made a great impact in the society. Her contribution in the field of science and technology has helped to change the world. This paper presents the contribution of women in research in science and technology field. Women are required in research, as the gender discrimination has been a challenge and a barrier for women working in science and technology. Though women has leaded and worked in many professions, she holds a lower position. Women needs to contribute more in science and technology and held higher positions than Men. Women and Girls should be empowered not to only participate but also lead in the profession of science and technology. This paper presents the contribution of women in the science and technology field and different schemes available which can empower her especially in science and technology.

Keywords: Women in science and technology; women empowerment, women contribution

1. INTRODUCTION

For centuries, universities refused to grant science degrees to women. The most prestigious scientific society (America), the Royal Society (UK), didn't allow women to join until the 20th century. But women continued to practice in chemistry, physics, biology, and astronomy, making revolutionary contributions to science.

In today's era women play an important role in research and science. Women are contributing in areas of information and technology, space technology, biotechnology etc. The role of the women and her involvement in research and technology is very essential. As per the data provided by the department of science and technology India [1] , women as science leaders has increased by 4 percent over two years. Extramural Research (EMR) support received by women principal investigator was 28% in 2018-19 and 24% in 2016-17. From this support 64% of projects were sanctioned to 8 states such as Tamil Nadu, Delhi, Karnataka, Kerala, Maharashtra, Telangana, Uttar Pradesh, and West Bengal. The 22 Indian Institute of Technologies (IITs) combined received 822 projects – the maximum number, with highest financial support of Rs. 449.25 Crore, followed by 26 National Institute of Technology (NITs) combined, which received 191 projects with financial support of Rs. 55.83 Crore.

A good compilation about the Indian women in the field of Science & Technology was planned with this paper. With this a discussion of what is the contribution of women in science and technology research and what is possible is presented in this paper. I read one book named 'Vidushi': The Indian Women in Science & Technology which was published by National Council of Science Museum (NCSM). NCSM is providing every possible publication under support of Ministry of Culture, Government of India. Different media of publications, activities like training program, workshops, lectures, and different resources are available with website of NCSM. Around 1857 few records were maintained. Post-Independence day many records are managed with different publications which are great women's contributions in different fields of science and technology research. This is motivating the coming generation in developments. Every contribution discussion is not possible in this paper but few science and technology research examples included from ancient time till today.

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RESEARCH ARTICLE

SAMRIDDHI Volume 14, Special Issue 3, 2022 Print ISSN : 2229-7111 Online ISSN : 2454-5767

Voice Tone Analyzer Using Ml

Santosh Dhekale[1*], Mamta Patni[2], Miheeka Khair[3], Sana Subhedar[4]

[1*-4] Department of Electronics and Telecommunication, AISSMS College of Engineering, Pune, Maharashtra, India; e-mail*: sbdhekale@aissmscoe.com

Abstract

The most natural and fastest method of communication between humans is speech. Through speech one can express oneself as well as one's ideas. Speech tone reflects the emotion, mental state ,attitude and expression of the speaker. In recent years due to the evolution of technologies like machine-learning, computer vision, speech analysis has equipped the computers with an ability to react and respond in real time, and undergo successful interactions with the users just like human interactions. The key factor that supports such instances is the voice tone interpretation ability that has been facilitated by machines. Voice tone interpretation is a substantial field emerging from artificial intelligence and machine learning. Voice tone interpretation explains what actually the speaker feels. Voice tone plays a very important role while conveying some expression. The versatility of the human voice and its ability to behold a mass of emotions makes it a rich source of data. As voice tone bears the speech signal, which is affluent enough and contains various linguistic parameters that enable the machine to detect the mental and emotional state of the user. Many speech emotion recognition systems have been developed by various researchers. When we differentiate various emotions, particularly speech features are more beneficial which is done by deploying feature extraction techniques using MFCC. As every feature independently contributes in distinguishing the emotions of the user and classifying the gender individually. There are numerous dataset available for speech emotions, its modeling, and types that aid in knowing the type of speech. After feature extraction, the next crucial part is the classification of speech emotions such as sadness, neutral, happiness, surprise, anger, etc. The input voice tone is analyzed and prediction of emotion is specified accordingly. The classification task is executed by deploying a Convolutional Neural Network model. Identification of several emotions via voice signal and speech signal analysis finds its applications in supporting dynamic human-machine interactions, dialogue systems supporting spoken languages such as call center conversations, customer care, onboard vehicle driving systems, etc. Thus, abstraction of various emotions by means of speech synthesis has practical validity and would definitely be favorable for enhancing human communication and convincing skills.

Keywords: Emotion recognition from speech signal, Human-Computer Interaction, Feature Extraction, Classification of speech emotion, Machine Learning, Deep Learning, Convolutional Neural Network, MFCC, Data Augmentation.

SAMRIDDHI : A Journal of Physical Sciences, Engineering and Technology, (2022); DOI : 10.18090/samriddhi.v14spli03.11

Introduction

The human voice possesses versatility and carries myriad emotions. Emotion in speech reveals extra insight into human actions. This project mainly focuses on the implementation of speech emotion detection & tone accuracy indication system using Machine learning. Speech reflects the emotion, attitude and expression of the speaker through tone, pitch and many such characteristics of the human

Corresponding Author : Santosh Dhekale, Department of Electronics and Telecommunication, AISSMS College of Engineering, Pune, Maharashtra, India;
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Source of support : Nil

Conflict of interest : None

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THEFT VEHICLE LIVE LOCATION RETRIEVING AND ACCIDENT LOCATION INTIMATION THROUGH SMS

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College of Engineering, Pune

Shirish Nandkar
AISSMS's
College of Engineering,
Pune

Payal Tayade
AISSMS's
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Abstract: In today's era increased in population has given hike to use of two wheelers vehicles as an easy way for transportation. The paper proposes the design and development of two in one system for two wheelers for theft vehicle's location retrieving and accident alerting to registered user. Currently the separate systems for theft location retrieving and accident intimation are in existence which uses Arduino which is very basic and is not capable of handling the system forever. Many Projects conducted on Vehicle theft control and alerting to users about accident, there is No prominent solution which categorises both the uses in single system, an appropriate platform for government authorities to retrieve the location of the theft vehicle. The proposed design of the system included a fall detection circuit which is capable to calculate the speed and change in the orientation of the vehicle which makes system more efficient and avoids false values of accident.

Keywords: GPS, accident, vehicle, location, SMS, web services.

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AUTOMATED DATA ENTRY USING ROBOTIC PROCESS AUTOMATION

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Abstract: Data entry task requires a lot of human effort to do the task. As completed manually there is always a risk of human error which is not present if a way is depicted for the process and the robot could work 24x7 which is ideally not possible for any human being. This by automating the data entry task by a robot the process becomes more reliable, efficient, and feasible and allows human beings to do much creative work instead of a repetitive task. We are going to develop software robot to automate the data entry task using Robotic Process Automation (RPA) RPA works similar to software robot that can be programmed to do the functions of a human operator, it can be taught to make use of computer program just like a human being. However, the key point here is that it is not a substitute for human beings instead it complements and adds to

Keywords: RPA,Automation anywhere software,localhost,bot

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TIMER CONTROLLED AUTOMATIC SWITCH FOR 3 PHASE INDUCTION MOTOR

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Abstract: The transportation of water is usually made by means of induction motors for industry and agriculture purposes. The uninterrupted water supply is highly necessary for an effective and safe mode of operations and control. The motors are operated by means of manual control or automated, and in any case of malfunction in the motor the entire system becomes messy and it affects the whole process of the consumer. So, it is highly significant to present some innovative proposals to handle above-stated problem statements in a cost-effective manner. The transportation of water is usually made by means of induction motors for industry and agriculture purposes. The SUFFICIENT water supply is highly necessary for an effective and safe mode of operations and control. The motors are operated by means of manual control or automated, and in any case of malfunction in the motor the entire system becomes messy and it affects the whole process of the consumer. So, it is highly significant to present some innovative proposals to handle above-stated problem statements in a cost-effective manner.

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Advances in Manufacturing Processes pp 381–395

Experimental Evaluation of Mechanical Properties of Epoxy Based Composite Material Using Taguchi Method

Vishal Naranje, Ajay Rajan Sankar, Sachin Salunkhe ✉ & Bhanudas D. Bachchhav

Conference paper | First Online: 01 December 2020

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Abstract

The purpose of this research work is to find the optimal combination of process variables for manufacturing of epoxy-based fibreglass composite material for sanitary water tank application. The variables into consideration are the temperature, time and the catalyst percentage. The core materials used for manufacturing composite

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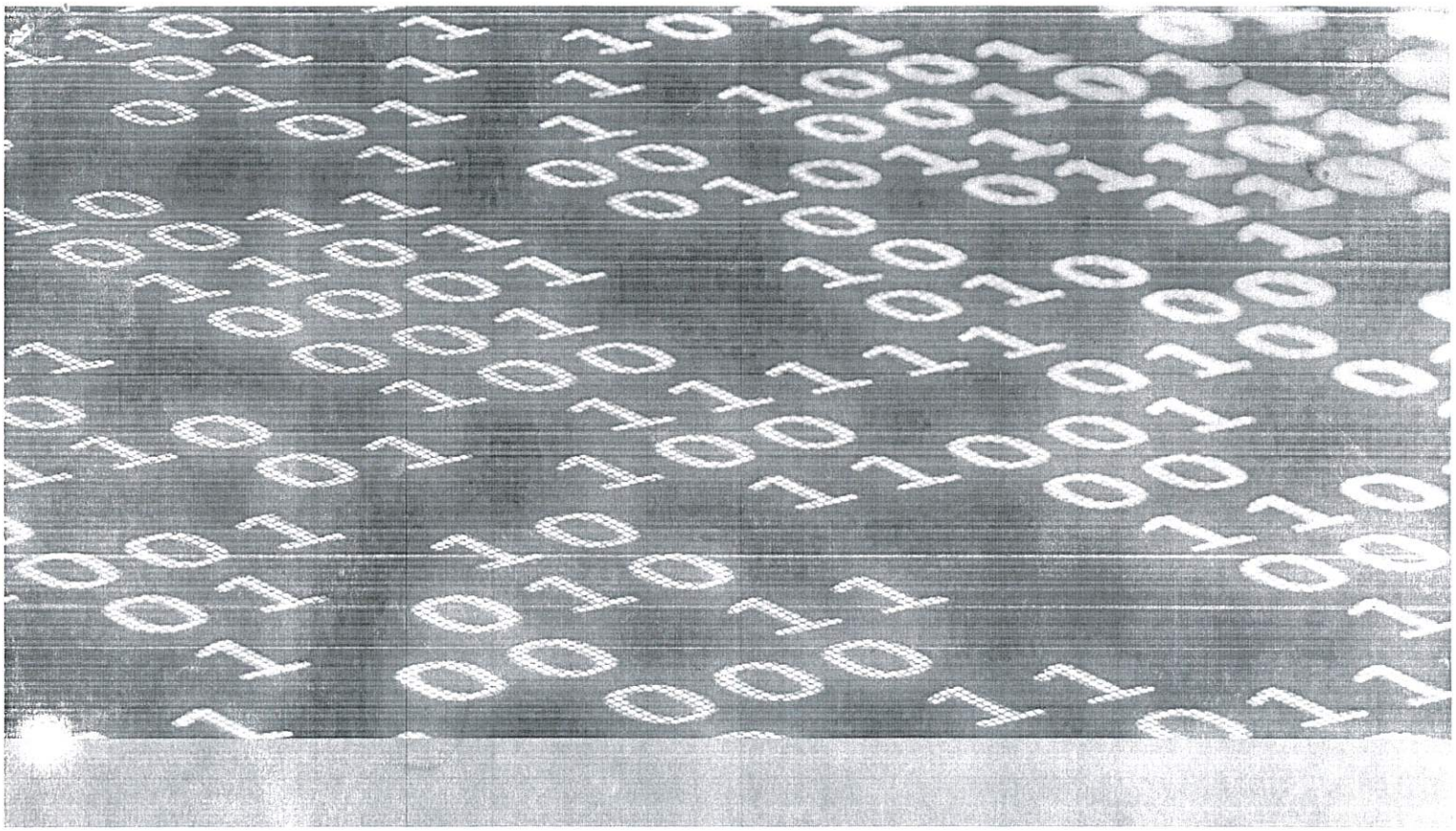

DATA SCIENCE

3.3.2

TECHNIQUES AND INTELLIGENT APPLICATIONS

Edited by
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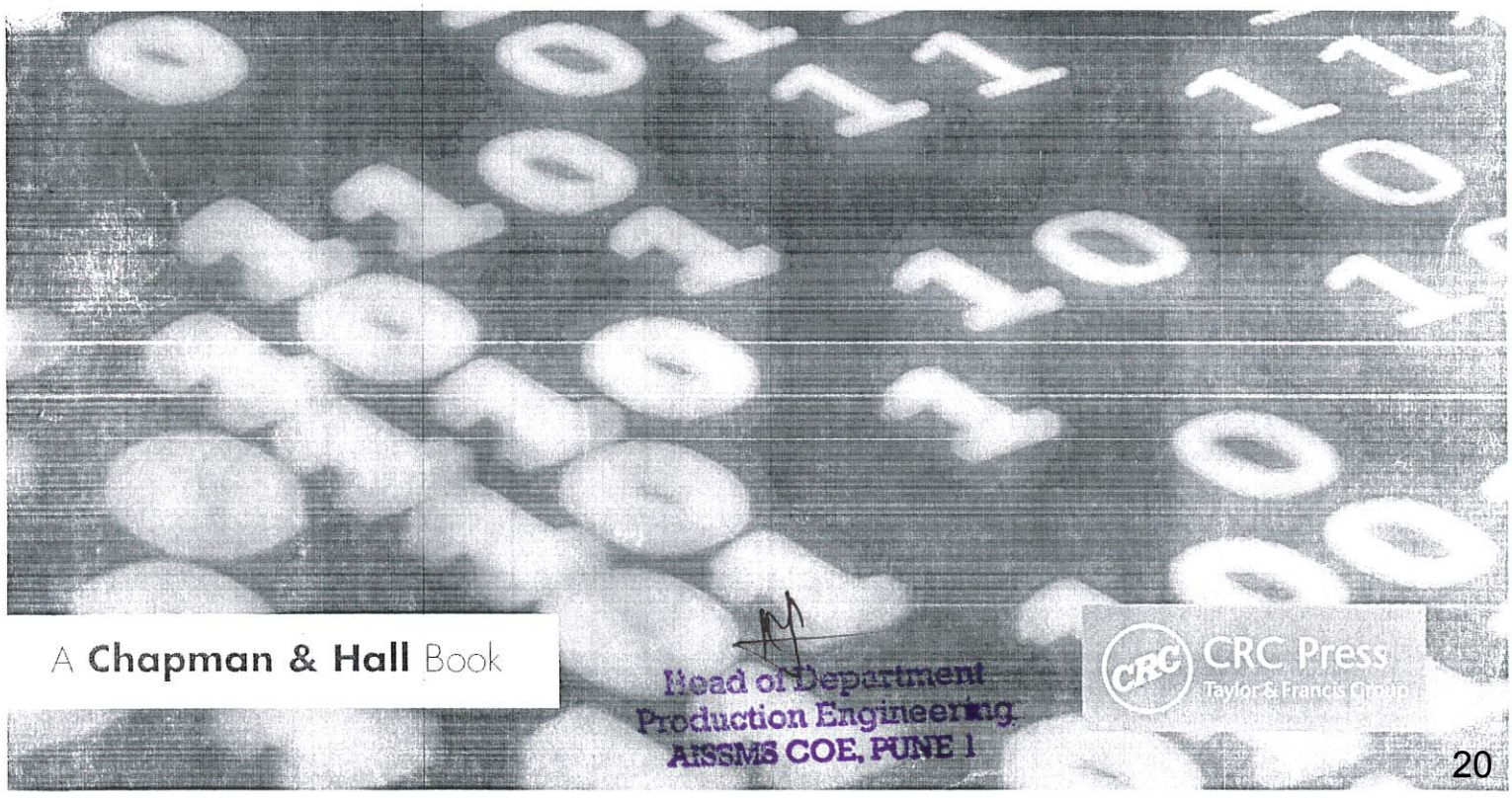

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Data Analysis for Technical Business Incubation Performance Improvement

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Marathwada Mitra Mandal's College of Engineering

Nitin Shekapure
All India Shri Shivaji Memorial Society College of Engineering

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Review of Robust Control Techniques for DC DC Converter

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Abstract— **This study provides an overview of dc/dc converter robust control approaches. The use of robust control strategies for handling these challenges motivates the use of buck converter voltage regulation in the presence of line and load uncertainties, as well as a control strategy to regulate non-minimum phase dc-dc converters affected by line and load uncertainties. The findings of simulations are used to verify the effectiveness of robust control techniques.**

Keywords—Robust Control, DC DC Converter, nonlinear control, disturbance observer, sliding mode control, integral sliding mode control

I. INTRODUCTION

The switched mode dc-dc converters are some of the simplest power electronic circuits which convert one level of electrical voltage into another level by switching action. These converters have received an increasing deal of interest in many areas. This is due to their wide applications like DC motor drives, wind power systems, communications systems, dc microgrids, power factor correction, photovoltaic's, and fuel-cell systems. It is desirable to maintain constant output voltage in the presence of line and load uncertainty when using dc-dc converters for voltage regulation applications..

The control objective in voltage regulation application is to regulate the output voltage in the presence of uncertainties and to follow the change in reference voltage command. A short rise time, minimum overshoot and zero steady state error is also desirable in control of dc-dc converters .The control of the boost, inverting buck-boost and non-inverting buck-boost converters are difficult because these are bilinear, non-minimum mismatched systems.

Switching converter analysis, control, and stabilization are the most important variables to consider. Switch mode dc-dc converters are controlled using a variety of approaches, but the simple and low-cost controller structure is always in demand for most industrial and high-performance applications. Every control technique has some benefits and limitations that make it a better control method under certain conditions than other control methods. The control system that provides the best results in any circumstance is always in demand.

Pulse width modulated (PWM) voltage mode control, PWM current mode control with proportional (P), proportional integral (PI), and proportional integral derivative (PID) controllers are the most prevalent control methods for dc-dc converters. P, PI, and PID are examples of traditional control methods that are unable to work well under substantial parameter or load variations. As a result, nonlinear controllers play a role in the control of dc-dc converters. Therefore, to improve transient response and robustness against the uncertainties, various nonlinear controllers are proposed, namely sliding mode controller (SMC) [2]-[4],Time delay control [1], backstepping controller[18], cascade control [2]-[5] and nonlinear control [6] etc. Because of its well known properties of insensitivity to uncertainty and high signal stability, the SMC strategy is suitable for controlling dc-dc converters.

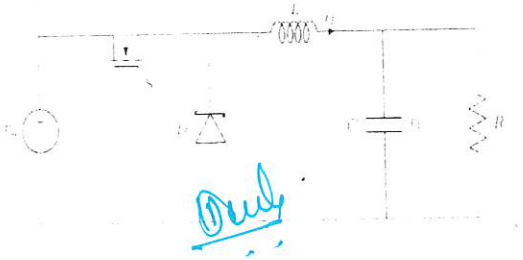
Conventional SMC, on the other hand, should preferably run at an infinite switching frequency, which increases power loss and complicates the design of input and output filters. These shortcomings of traditional SMC are addressed by proposing SMC based on hysteresis modulation, which restricts switching frequency while requiring additional hardware. The SMC rule, which is based on equal regulation, behaves like a conventional duty cycle controller and does not change switching frequency, but it is less resistant to uncertainty. Further the conventional SMC is robust only against matched uncertainties and disturbances while the uncertainties in buck converters are mismatched. The fact that SMC needs all states for its implementation, can be an obstacle when it is intended to minimize the number of measurements

This article aims to provide an overview of robust control technologies for dc/dc converters, mainly for the regulation of output voltage in the presence of line and load uncertainties. Motivations of using the robust control techniques for dc dc converters are provided in Section II. Section III presents an overview of robust control technologies, including backstepping, SMC, TDC, disturbance estimation techniques, observer and integral sliding mode control are proposed. The proposed law is verified by simulation in MATLAB/Simulink under uncertainties and for reference tracking in Section IV. Conclusion and future trends are illustrated in Section V.

II. PLANT DYNAMICS OF DC/DC CONVERTER

A. Buck Converter

Buck dc-dc converters are a second-order system that is influenced by mismatched load uncertainty and matched input voltage.



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Behaviour of Extended shear tab connection subjected to concentrated loads

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Abstract

one of the most important features in steel building structures is the connection joint between various components. The most common type of connection is Extended shear tab (EST) in which a shear tab is welded to the supporting member and is bolted to the web of the supported beam. The reason which makes this type of connection attractive to engineers and fabricators because using EST connections eliminates excessive beam end cutting and modifications. It has become a popular alternative for light to moderate end shear connection as it is a cost effective connection in steel frame building. Present work exhibits a numerical study on the failure mechanism of extended shear tab connections using Finite element method (FEM). The solutions of FEM were compared with experimental results reported in the literature. Experimental Validated model was utilized for finite element analysis of 22 extended shear tab connections with different seven parameters. FEM results were analysed to determine the effects of these parameters on the failure of extended shear tab connections. Furthermore the comparison of results has been made with design given by 14th edition of the American Institute of Steel Construction Manual (AISC). It has been seen that the extended shear tab connections mostly fail in shear tab twisting, bolt shear, bolt bearing and net shear bending interaction. Additionally the analysis of the stresses around the bolt holes based on the mode of failures is presented.

Keywords

Extended shear tab, AISC Design Procedure, Finite Element study

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INVESTIGATION ON SEISMIC PERFORMANCE OF OUTRIGGER STRUCTURE FOR HIGH RISE BUILDING

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Abstract: As of today's growing population, tall buildings are now being built, with various sorts of high-rise buildings in terms of lateral resisting systems. Outriggers are one of the most effective lateral load resisting techniques for increasing the stiffness and seismic capabilities of a building. Shake table tests are effective ways of determining a building's seismic capacity in seismic engineering. Due to the limited size and capacity of existing shake tables, scale structural models will be required. However, to know the real effect of a building and because of the limited capacity of shake table, we can use software to analyze building's seismic performance. In this paper, an investigation of the seismic performance of past experimental work has been performed in the software Etab, and to validate the result same method has been applied. A software tool was used to do modal analysis on the prototype structure, and the experimental data was compared with the software results to acquire a better understanding of the building's seismic performance. In past experimental study, free vibration test was carried out to know the time period of the structure. In order to observe the same result, modal analysis is performed in software to find out modal period and the damping ratio was calculated manually. After comparing the software result and experimental values of time period and damping, it was clear that the software application and the experimental findings were in good concordance. **Keywords:** shake table test, high-rise building, outrigger, ETABS

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DIAGNOSIS OF COVID-19 THROUGH PNEUMONIA DETECTION USING DEEP LEARNING APPROACH

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Abstract – In the health care industry diagnosis of various diseases with improvement in accuracy and speed is require. Artificial Intelligence and neural Network advancement in technology is used to improve the efficiency of the results. All over the world greatest cause of child fatalities is considered Pneumonia. Lung disease like Pneumonia is caused due to infection of bacteria and various viruses. The aim of this work is to develop a Pneumonia detection system using transfer. In this paper, transfer learning has used to improve the accuracy of Pneumonia detection system. Convolutional Neural Network based transfer learning system have implemented and trained using chest x-ray images to classification of normal and Pneumonia patients. The proposed detection system offers 93 % accuracy.

Keywords: Transfer Learning, Conventional Neural Network, Exploratory data analysis, efficiency, accuracy.

CONTEXT BASED LEXICAL SIMPLIFICATION

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Abstract - It's tough to decipher text that contains sophisticated and infrequently used vocabulary. Thus, it calls for a mechanism or tool for simplification of the text without changing its meaning. Thus, the motive of this paper is to facilitate non-native (English) language speakers [2], people with dyslexia and children [1] to better understand textual information. To achieve this simplification, we use natural language processing models.
This task is broadly divided into 3 significant inter-dependent steps which perform identification of complex words [3], generation of appropriate synonyms for the complex words, filtering through all synonyms to find the best substitute and finally the substitution of the generated simpler alternative into the sentence.

***Key Words*:** Lexical simplification, BERT, Unsupervised, Pretrained language model.

STRUCTURAL HEALTH MONITORING SYSTEM FOR CIVIL STRUCTURES

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Abstract: Structural condition monitoring is one of the popular research topics in structural engineering, but practical applications in the civil field are still lacking. The purpose of the study is to examine the major research accomplishments in the field. SHM is a needed system to improve the safety and sustainability of critical civil structures such as bridges and buildings. SHM provides up-to-the-minute and accurate information on structural health conditions. It is a process of non-destructive evaluations to detect the location and extent of damage and cracks, calculate the remaining life, and predict an upcoming accident. It is a connection of smart sensors that connects the sensing of structural safety factors to distant computing units that evaluate and monitor these values in real-time. It can also act as an early warning system for the current state of the structure by utilizing IoT. It will be discussed how these sensors can be used to monitor temperature, strain, acceleration, load measurements, vehicle speeds, corrosion, and cracking in reinforced and prestressed concrete structures. The IoT paradigm's implementation of the SHM system allows for the adoption of new technologies to improve the efficiency and reliability of the developed monitoring system. The information is sent to the cloud by internet connection to permit elaboration by distributed systems and big data paradigms for their management. The proposed system consists of sensors, Arduino, and IoT (Internet of Things) cloud modules. The current level of research on technology and implementation strategies is examined in this paper.

Keywords Internet of Things (IoT), Structural Health Monitoring (SHM), Wireless sensor networks (WSNs), Arduino, Sensor Communications, Bridge inspection

CRACK DETECTION FOR CIVIL ENGINEERING STRUCTURES

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Abstract: Structural Health Monitoring (SHM) is one of the emerging fields in which smart technology is used to inspect the civil engineering structure components to prevent from failure. SHM will detect the fundamental properties such as cracks in the structure and expedite needed repairs, and thus increase the useful life of those components. The safety measures related to civil engineering structures with respect to age of the structure, structural damage, climatic conditions like flood, heavy rains, earthquake, etc. is the prime role of the concerned authorized engineers. In the development of economy and society, many structures have been built which should meet the requirement of the serviceability, safety and sustainability during the operation stage throughout its life cycle. But due some reasons the structure gets weak and cracks starts developing within the components. Gradually the crack expands which leads the structure to collapse. To avoid the failure of structure the cracks must be detected at early stage and this could be done by using piezoelectric film. This was major concern in our findings due to which we have made an ideology in our research to overcome this problem and to bring up safety majors in our real-life problems.

Keywords- Structure Health Monitoring, Crack Detection, Piezoelectric film, Stress, Safety, Real Time Monitoring

A DESIGN OF ECO-FRIENDLY BITUMEN BY ADDING PLASTIC WASTE

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Abstract: For achieving sustainable eco-friendly society, it is important recycling of plastic waste by products for use as a construction material .Every year Large amount of plastic waste produced , recycling and reuse of this plastic requires vast manpower and processing cost. According to data from several performance tests, the useful life of bituminous overlay with typical non-modified binders has decreased in recent years from an average of 6-8 years to around 3-5 years. Overlays composed of old bituminous binders are widely known for failing to meet the durability criteria under current heavy traffic and adverse weather conditions. Polymer modified bitumen (PMB), often known as a better performance binder, allows engineers to design and construct long-lasting bituminous surfaces. Any enhancement in the binding properties is required. For road construction, bitumen is an excellent binder. On the basis of their penetration values, many grades of bitumen are available, such as 30/40, 60/70, and 80/100. The present study is initiated to study properties of normal and PET modified bitumen with 2%,6%,10% plastic bottles waste are used in replace of bitumen to increase strength. No percentile variation of plastic waste permitted beyond it, as it affects on bitumen properties

Keywords:

STABILITY ANALYSIS OF GRAVITY DAM WITH IS - CODE METHOD AND ANSYS

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Abstract: For achieving sustainable eco-friendly society, it is important recycling of plastic waste by products for use as a construction material .Every year Large amount of plastic waste produced , recycling and reuse of this plastic requires vast manpower and processing cost. According to data from several performance tests, the useful life of bituminous overlay with typical non-modified binders has decreased in recent years from an average of 6-8 years to around 3-5 years. Overlays composed of old bituminous binders are widely known for failing to meet the durability criteria under current heavy traffic and adverse weather conditions. Polymer modified bitumen (PMB), often known as a better performance binder, allows engineers to design and construct long-lasting bituminous surfaces. Any enhancement in the binding properties is required. For road construction, bitumen is an excellent binder. On the basis of their penetration values, many grades of bitumen are available, such as 30/40, 60/70, and 80/100. The present study is initiated to study properties of normal and PET modified bitumen with 2%,6%,10% plastic bottles waste are used in replace of bitumen to increase strength. No percentile variation of plastic waste permitted beyond it, as it affects on bitumen properties

Keywords: Gravity dam, conventional method, stability analysis, ANSYS2020 R2.

EFFECT OF POST TENSIONING ON LONG SPAN PRECAST BEAM

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Abstract: One of the strengthening strategies utilised after the loading stage and before failure is the use of unbounded internal reinforcing bars. Post tensioning is a technique for strengthening reinforced concrete structures in a variety of ways. The purpose of this paper is to look into the impact of using post-tensioned reinforcing bars. On site, this approach of reinforcing a reinforced concrete beam with a span of 29 metres was tested. Internal parabolic cable was attached to the beam at the level of internal flexural tension reinforcement to strengthen it. The post tensioning of a 29-meter span beam is designed with nine span strands of 15.2 mm diameter. Strand Fpuhas been stressed up to 80% of its stressing capacity and has reached its maximal stress of 1860 N/sq.m. This post tensioning beam is made out of M60 concrete. Hydraulic jack was used to post-tension internal high tensile cable. The approach is also particularly effective for beams with smaller percentages of internal flexural tension reinforcement, according to the findings.

Keywords: Strengthening, Reinforced concrete beam, Post-tensioning.

COMPARATIVE STUDY FOR SHEAR STRENGTHENING OF BEAMS BY USING BASALT FIBERREINFORCED POLYMER, CARBON FIBER REINFORCED POLYMER AND BANANAFIBER REINFORCED POLYMER

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Abstract: Reinforced concrete constructions are sensitive to extreme loadings such as earthquake disasters and unintentional accidents in structural and civil engineering. There is a growing demand to enhance the fatigue effectiveness of reinforced concrete structural components, particularly beams, as well as extend their fatigue life. The process of enhancing existing structures to make them more earthquake resistant is known as retrofitting. This study discusses the use of modern materials in retrofitting reinforced concrete structures, which is a recent advancement in the field of reinforced concrete structure strengthening. Fiber reinforced plastics are more efficient than traditional retrofitting procedures, as demonstrated in this study. The primary aim of this study is to recommend the best fiber reinforced polymer for shear strengthening. Shear beam strengthening employing basalt fiber reinforced polymer, carbon fiber reinforced polymer and banana fiber reinforced polymer is part of this work. Codal provisions are used to calculate the properties of each fiber reinforced polymer. By comparing the results, the optimum fiber reinforced polymer for shear beam strengthening is recommended.

Keywords: Retrofitting, fiber reinforced polymer, shear strengthening, basalt fiber, carbon fiber, bananafiber.

LINEAR ANALYSIS OF PRECAST RETAINING WALL

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Abstract: Precast construction are those structures in which the structural components are standardized and produced in facilities at a location outside the building and subsequently transported to the required site. Such components are made using modern mass production methods so that a large number of buildings can be constructed at little expense in a short period of time. In past studies it found that the most of work is done on RCC retaining wall subjected to soil pressure only. Hence proposed here alternative to RCC wall to precast wall subjected to nonlinearity using time history analysis. The enhanced type of traditional casting methods is interlocking blocks. In this type of system, a block is designed to be locked to the other block without the use of mortar. The analysis done in the ANSYS, and it is clearly seen that the deformation of the retaining wall made up of precast interlocking block is less than that of RCC wall which is quite safe enough. RCC wall is compared to precast wall for total deformation, normal stress, maximum principal stress and it concluded that all results for the precast wall is less than RCC wall by average 10-15%, so precast wall is recommended. The concept, design and application of interlocking precast block design will prove effective example for sustainable approach towards construction

Keywords: Precast Retaining wall, ANSYS, Time History Analysis

ANALYSIS OF RECTANGLE BRIDGE PIER FOR DIFFERENT VELOCITIES

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Abstract: Bridges are one of the most important structures of transporting goods and physical communication of people. Bridges are the most critical structures that require a substantial investment and study of bridges to construct it and play a vital role in economic development. Bridge construction is a most serious issue which not only requires the heavy investment and equipment's but also needs proper attention, proper investigation, and skilled labours. The serious issue of bridge failure, that is mainly due to the scouring of vortex around bridge pier. Local scour around bridge piers can cause a very serious issue to a bridge by eroding the soil bed and destroys the foundation. The collapse of bridges can lead to significant damages and also result in dangerous injuries or death. In this dissertation developing a 3D finite element model of ANSYS CFD was used to calculate scour length, scour breadth, and scour depth for pressures of 1.5 m/s and 4 m/s on a rectangular bridge pier. In ANSYS CFD, the results include determining the effect of scour depth and static pressure on velocities in the X and Y directions for two pressures of 1.5 m/s and 4 m/s of rectangular pier

Keywords: Rectangular bridge pier, ANSYS CFD.

THERMAL ANALYSIS OF MASS CONCRETE OF GRAVITY DAM USING FINITE ELEMENT METHOD

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Abstract: Mass concrete is used extensively in modern construction, particularly in hydraulic and hydroelectric projects. Every year, more than 10 million cubic meter of mass concrete is poured in hydraulic and hydroelectric engineering in India. Furthermore, mass concrete is frequently used in harbour engineering and large machine foundations In this study, the various lift heights and lift intervals were determined in order to attain the minimal temperature inside the mass within the allowable limit. Lift heights of 1m are used for various lift intervals of 120hr, 144hr, and 168hr. The maximum temperature in the concrete mass are computed using conventional methods. Heat generation and temperature field in mass concrete are studied using Ansys software, which employs the finite element approach to solve the problem. The application allows you to check the temperature of different concrete ages. It is feasible to check the temperature for various concrete qualities using software by analyzing them on different concrete days. As a result, it was feasible to conclude that the concrete's qualities have a direct impact on the temperature evolution phenomenon.

Keywords: Mass concrete, Lift height, Lift interval, Finite element analysis.

PLANING AND DESIGNING OF HIGH-RISE SUSTAINABLE BUILDING

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Abstract: The aim of the research paper is to highlight the building's ability through using site potential, lowering nonrenewable energy consumption, employing environmentally friendly materials, optimising water use, improving indoor environmental quality (IEQ). For this study, the location at Survey number 26, WadgaonBudruk, Sinhgad Road, Pune (39R) was chosen. We conducted physical site analysis and macroclimate, microclimate analyses using climate consultant 6.0 software for descriptive research methodology. The proposed site's planning and design using Sustainable building principles has lowered resource consumption, and occupants will be more comfortable since the Indoor Environment Quality will be increased .As a result, we shall arrive at a stage of "Achievable Sustainability."

Keywords: Passive Design Strategies ,Achievable Sustainability, Climate Consultant, Site Analysis, Microclimate Analysis.

STUDY OF FERROCEMENT IN CONSTRUCTION: REVIEW PAPER

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Abstract: As a result of the rapid revolution in construction techniques, the necessity for alternative building methods and materials arose. One of these alternate materials is ferrocement. The goal of this review article is to look at the experimental and analytical findings of ferrocement columns, reinforced pre-damaged RC columns, panels, and beams for properties including first crack load, ultimate load and load-bearing capacity. Roofing/flooring elements, precast modules, manhole covers, domes, vaults, grid surfaces, and folding plates are just a few of the applications for ferrocement. As a result, research into ferrocement's flexural behaviour is required. The research papers studied are included from the year 2012 to 2022.

Keywords: Ferrocement, Cement, Fine Aggregate, Coarse Aggregate.

Analysis of Concrete Gravity Dam: A review

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Abstract: A dam is a structure that is constructed over a stream or river to keep water from flowing downstream. The dam can be employed for irrigation, controlling flood, generating electricity. The dam failure can cause the huge damage to human life, infrastructure, ecosystem and habitat are destroyed, etc. Gravity dams are thick concrete constructions with a geometric design, mass, and strength that ensure their stability. Stability requirement of concrete gravity dam are, a) the dam shall be safe for sliding, b) the dam shall be safe for overturning, c) the dam shall be safe in crushing. The primary goal of this research is to undertake a thorough examination on the analysis of the concrete gravity dam and its material used for construction. The review is conducted after studying previous published papers. The review includes the analysis of concrete gravity dam by FEM by using FEA software, analysis of the dam by conventional method, fracturing process in the dam material, effect of soil structure interaction, anti-seepage grout materials etc

Keywords: Concrete gravity dam, stability checks, fractures in concrete, FEA of dam

GRAPHENE ENHANCE CONCRETE QUALITY DESIGNATION BASED ON ULTRASONIC PULSE VELOCITY

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Abstract: To convince the construction industry that graphene is a viable option for enhancement properties of concrete, An experimental investigation will be performed by adding liquid graphene to study the effect of concrete mixture of grade m40 with graphene concentrations ranging from 0.03 % to 0.12% at an increment interval of 0.03% by weight of cement. In these cubes specimens 150*150*150cm are casted and curried for 28 days for performing the Ultrasonic pulse velocity test (UPV). With a pulse velocity of 5.1903 seconds and a dynamic modulus of elasticity of 54.85 GPa, conventional concrete has the highest pulse velocity and dynamic modulus of elasticity. C-0.03 has a pulse velocity of 4.934 s and a dynamic modulus of elasticity of 49.57 GPa when compared to it.

Keywords: Ultra-high-performance concrete; Graphene; Dynamic modulus of elasticity; Ultrasonic pulse velocity test (UPV)

ANALYSIS OF SOIL BEARING CAPACITY BY PLAXIS SOFTWARE

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Abstract: The bearing capacity of the foundation is a primary objective in the field of foundation engineering. The load at which soil fails in shear is called the ultimate bearing capacity of the foundation. In this paper a numerical model is developed using plaxis. Finite element analysis is carried out using plasix for two dimensional soil model. Ultimate bearing capacity is the minimum pressure on footing at which the foundation soil experiences shear failure. The stress distribution in soil and displacement experienced at different locations are obtained. In plaxis effective stress is considered as a ultimate bearing capacity. There are some factors which affects bearing capacity of soil such as depth and size of foundation,water table and soil properties. In this paper evaluating bearing capacity of soil by considering such factors which affect bearing capacity.

Keywords:

ANALYSIS AND DESIGN OF FOOTOVER BRIDGE USING STEEL SECTIONS

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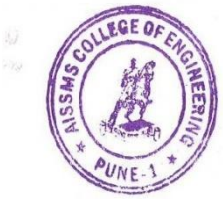
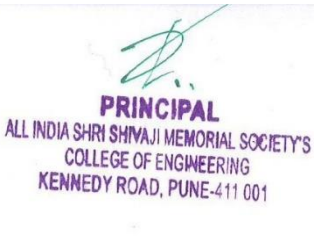
Abstract: A pedestrian bridge is one that is intended specifically for pedestrians. They are placed across roads to allow pedestrians to cross safely without causing car congestion. Today's traffic, as well as vehicle speed, is increasing on a daily basis. As a result of the difficulty that pedestrians have crossing the road due to excessive traffic, safety crossings are required, and a foot over bridge will be built. Hot rolled steel is often used nowadays, although cold rolled steels are harder and stronger than hot rolled steel. This paper gives us the analytical results of steel sections from staad pro software. And to get the steel section used for the analysis is safe for loading parameter. This project consist of detailed design of foot over bridge by taking the approach of software. And it is concluded that the steel sections used in foot over bridge is safe for loading parameter.

Keywords: Pedestrian bridge, Steel section, warren truss, channel section, angle section.





ANALYSIS OF TELECOMMUNICATION TOWER WITH DIFFERENT HEIGHTS AND DIFFERENT BRACING SYSTEMS

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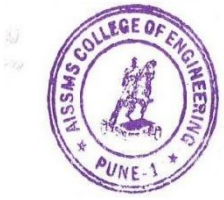
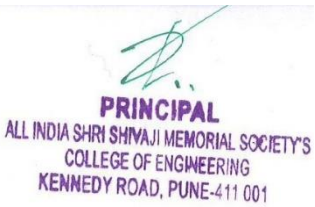
Abstract: Telecommunication towers are structures that house electric communications equipment and antennae, allowing residents in the local region to use wireless communication devices such as phones and radios. The towers should be stable as they rise in height to withstand wind and other loads. As a result, for the communications tower's stability, a bracing system is required. For Wind Zone I and Earthquake Zone III in India, a comparative analysis is being conducted out for different heights of towers utilising different bracing systems. Maximum story displacement for a 30 m and 40 m tall tower with k and XB bracing is compared. The goal of the research was to find the most cost-effective bracing technique for a set of tower heights

Keywords: Transmission tower, bracing, storey displacement.





DETERMINATION OF ADULTERATION IN MILK

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Abstract: Milk is well known as a food with a large content of essentials components of a healthy diet. This is the reason why it is an excellent source of nourishment for everyone from babies to adults. Sadly, adulteration of milk is a major problem found all over the globe. A nitrogen-rich compound called 'melamine' is mixed in the milk and other dairy products to dishonestly increase their protein concentration. It is mixed in milk that has been diluted in order to enhance the protein count. But melamine is harmful when injected into the human body by consumption or absorption. This is because melamine has a large content of nitrogen. Therefore when melamine comes into contact with "cyanuric acid" in the human bladder, the chances of stones being formed in the kidney is higher and it may also lead to acute kidney failure. The present paper gives the review of some common adulterants used in milk adulteration along with the various methods used to quantitatively and qualitatively detect the adulterants. It also presents an embedded system which is able to monitor melamine (mainly used in food adulteration) and other reactant.

Keywords: Adulteration of milk, synthetic milk, pH sensor, Melamine, healthy diet.

EXPERIMENTAL ANALYSIS OF E-GLASS AND CARBON FIBRE COMPOSITE MATERIAL FOR RAILWAY SLEEPERS

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Abstract: The composite material is the best option for the various application, which has good strength to weight ratio, the application of the composite has increased, of the composite can be recycled and some of them cannot be recycled. Railway sleepers are the most important elements of railway track. Composite sleeper has become a great replacement of traditional sleepers (Timber, concrete, steel, cast iron). Composite sleepers are superior to timber & concrete sleeper in almost every aspect. Use of composite sleepers not only increases the life span of sleepers but also ensure less destruction to the forests. This work is a new initiative on focusing of alternative sleepers. The current study deals development and testing of composite material suitable for railway sleeper. Material selection, manufacturing and testing of synthetic and hybrid composites for railway sleepers is presented.

Keywords: Composite material, fibre glass, hybrid composite, E-glass.

A REVIEW ON RECENT DEVELOPMENT IN SOLAR DRYER

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Abstract Solar energy is the fastest growing renewable energy source that attracted many researchers to work on cooking and drying applications. Solar drying is the most efficient application of solar energy in developing countries. Solar dryers are used for drying agricultural products, seafood and industrial products. Solar dryers not only save energy but also save drying time and improve the quality of the dried product. In the early stage of the development of solar dryers researchers worked on direct solar dryers. Later, to occupy the less area various indirect solar dryers were developed. Recent trend in the development of solar dryers is towards the indirect solar dryer integrated with thermal storage devices. In this paper development of different types of solar dryer and their applications are presented. In addition, aspects of the solar dryer are discussed.

Keywords: Solar energy, Direct solar dryer, Indirect solar dryer, Agricultural product drying.

ASSEMBLY LINE BALANCING CASE STUDY TO REDUCE NUMBER OF WORKSTATIONS

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Abstract: The assembly line includes production process those are performed at various work station carried out by workers at each station. This manufacturing technique incorporates small task to be completed in sequence at each work station. Since most of the tasks performed at each stage are uncomplicated to execute, the company can employ minimum wage workers to do them. This reduces the overall labor costs and it also requires minimum training. In addition, balancing may be achieved by rearrangement of the work stations and by equalizing the workload among assemblers so that, all operations take about the same amount of time. Furthermore, line balancing benefits an assembly area in many ways, as it minimizes the number of workers and work station which can reduce cost and space for the assembly area. In this work, the case study is presented for the balance of assembly line of head lamp. A work-study technique which includes the Maynard's operation sequence techniques (MOST), work measurement and method study are used to identify non value added time of activities. Methodology is suggested to reduce cycle time and Continuous improvement activities are identified to reduce the bottleneck of the line.

Keywords: Assembly Line Balancing (ALB), MOST, Cycle time