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Sr. 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	National / International	Year of publication	ISBN /ISSN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher	Page No.
1	Kajal Pachdhare		Stabilisation of Black Cotton Soil Using Bio-Enzyme	International journal For Scientific Research & Development	International journal For Scientific Research & Development	International	2018	ISSN: 2321-0613	WCEM,Nagpur	International journal For Scientific Research & Development	110
2	Pratibha Motwani		Modified Least Significant Bit based on matrix pattern on RGB images for Image Steganokey	International journal of electrical and electronics engineering	International journal of electrical and electronics engineering	International	2018	2278-9944	WCEM,Nagpur	International journal of electrical and electronics engineering	111

Seal

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3	Sujata Dake		Email Framework For Blinds Using Speech Recognization	International Research Journal of Engineering & Technology	International Research Journal of Engineering & Technology	International	2020	2395-0072	WCEM,Nagpur	INTERNATIONAL RESEARCH JOURNAL OF ENGINEERING & TECHNOLOGY	112
4	Nagmanaj Pathan		Modeling of Hybrid Power Generation System	International journal For Scientific Research & Development	International journal For Scientific Research & Development	International	Mar-19	2321-0613	WCEM,Nagpur	International journal For Scientific Research & Development	113
6	Dhananjay R. Tutakne		Controllable Power Factor & Efficiency Improvement of Three Phase	International Conference on Smart Electric	International Conference on Smart Electric Drives	INTERNATIONAL	2018	978-1-5386-5793-5	WCEM,Nagpur	International Conference on Smart Electric Drives & Power System	114

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			Induction Motor Using Extinction Angle Control	Drives & Power System	& Power System						
7	Dhananjay R. Tutakne		Analysis of Z Source based multilevel inverter Using MATLAB	International Conference on Smart Electric Drives & Power System	International Conference on Smart Electric Drives & Power System	INTERNATIONAL	2018	978-1-5386-5793-5	WCEM,Nagpur	International Conference on Smart Electric Drives & Power System	115

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Stabilisation of Black Cotton Soil using Bio-Enzyme

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Abstract— A large part of central India and south India are covered with black cotton soil such soil need to improved. The conventional methods are time consuming are not economically feasible. Hence there is need to discover the other possible ways to satisfy the performance as well as economical criteria. The stabilization soil with bio-enzymes is a revolutionary technique which is environment friendly, cost effective and convenient to use. There are many bio enzymes available for soil stabilization such as DZ-1X, Renolith, perma-zyme, terra-zyme and fujibeton. Bio-enzyme improves CBR value of soil. Increases strength of soil and decreases free swell index and cracks formation. It is economical and also reduces the pavement thickness. Bio-enzymes are largely use for stabilization of soil of roads. The present study deals with the effect of DZ-1X, a bio-enzyme on shear strength and CBR value of expansive soil. Their efficiency depends upon the amount of dose type of soil available and field conditions. The use of bio-enzyme in soil stabilization is not very popular due to lack of awareness between engineers and non-availability of standardized data.

Key words: Black Cotton Soil, Soil Stabilization, Bio-Enzyme, Dz-1X, CBR, FSI & Revolutionary Technique

I. INTRODUCTION

The process of improving the strength and durability of soil is known as soil stabilization. An enzyme is by definition an organic catalyst that accelerate a chemical reaction, that otherwise would happen at much slower rate, without becoming a part of the end product.

DZ-1X is nontoxic, non-corrosive and inflammable liquid which can be easily mixed with water at the optimum moisture content. The enzyme allows soil material to become easily wet, more densely compacted and also improves chemical bonding between soil particles. A bio-enzyme improves strength of soil and replaces the need of granular base and sub base.DZ-1X dosage entirely depends on the type of soil, clay content and plasticity index of soil. Enzyme is convenient to use safe, effective and dramatically improve roads quality.

It increase CBR value, higher compressive strength and increase hardness of soil. bio-enzyme provide flexibility and durability to the pavement and also reduce the formation of cracks. The use of bio-enzyme in the pavement construction is proven to very economical as compare to other traditional soil stabilization method.

A. DZ-1X

DZ-1X is non toxic, non corrosive and inflammable liquid natural material which is formulated from vegetable extracts. It is brown in color with smell of molasses and can be easily used without the need of mask or gloves. It is easily mixed with water and optimal result should be diluted with optimum moisture content of that soil. DZ-1X acts on the soil to reduce the voids between soil particles therefore minimizing the absorbed water in the soil and maximizing compaction. DZ-1X as an unique multi enzyme product specifically developed as an effective aid to the workability, mixibility, binding and compaction of soil. it significantly improves stability in construction of roads, dams and many other related projects.DZ-1X is a completely natural biodegradable product .by its action, it alters and improve the local soils physical and chemical properties which result in significantly less mechanical effort to achieve greater densities for compaction.

It offers a convenient and low cost method for improving a soils strength and durability, enabling lower construction costs, less maintenance and greater road performance.

DZ-1X reacts with absorbed water layer of clay particle and causes reduction in the thickness around particle of soil, this result in the reduction of voids between the particles of soil, thereby giving soil particle a closer orientation with low compaction this ultimately results in the decrease in swelling capacity of soil and it also reduces permeability of soil.

B. Properties of DZ-1X

It is an organic liquid formulated from vegetable extract.

Boiling point	121
Specific gravity	1.00 to 1.09
Melting point	Liquid
Vapor density	1
PH value	4.30 to 4.60
appearance	Brown color liquid

Table 1: Property of liquid

II. LITERATURE REVIEW

Lacuoture and Gonzalez (1995) conducted study on the effects of TerraZyme on sub-base and subgrade. The reaction of the soil treated with Bio Enzyme was observed and compared with soil without Bio Enzyme. It was concluded that soil showed improvement in short duration of time but the cohesive soils showed improvement successively.

Bergmann (2000) concluded from his study on bio-enzyme that for imparting strength to the soil, bio enzyme requires some clay content. He stated that for successful stabilization of soil minimum 2% clay content is required and 10 to 15 % of clay content gives good results. Compared to 28 % of untreated soil CBR after 1, 2, 3, 14 week was found as 37, 62, 66 and 100 respectively.

Manoj Shukla et al. (2003) carried out test on five different type of soil. The clay content in soil varies from low to high. Tests were conducted on soil samples with and without Bio Enzymes to determine different engineering properties, Atterbergs limit, CBR and UCS at different curing period in laboratory. Little to high improvement is

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MODIFIED LEAST SIGNIFICANT BIT BASED ON MATRIX PATTERN ON RGB IMAGES FOR IMAGE STEGANO-KEY

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ABSTRACT

Steganography is the hiding of a secret message with just an ordinary message and extraction of it from source to destination. It takes the process of Cryptography further advanced by hiding an encrypted message so that no one suspects it exists. It is just hidden data within data. This technique can be applied to images, an audio or video file. Data hiding embeds data into digital media for the purpose of Identification, annotation and copyright. Several constraints affect this process: the quantity of data to be hidden, the need for invariance of these data under conditions where a "host" signal is subjected to distortions, eg. Lossy compression, and the degree to which the data must be immune to interception, modification, or removal by a third party. This technique is evaluated in three applications: Copyright protection, tamper proofing, and augmentation data embedding. The main goal of data hiding is to hide a message m in some audio or video (cover) data d, to obtain new data d', practically not distinguishable from d.

KEYWORDS: Steganography, Cryptography, Watermark, LSB, Secret message, Encryption, Decryption, Stego-key.

Article History

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INTRODUCTION

Steganography is the method of Embedding or fixing and hiding secret messages in a medium known as cover text. The concept of Steganography is completely related to Cryptography and the idea behind is that one can keep the message secret by Encoding. In contrast to Cryptography, it is not to keep others from knowing the hidden information but it is to keep others from thinking that the information even exists.[1] The goal of the Steganography is just a covert communication to hide the existence of any message. It differs from Cryptography the method of secret message which is intended to make the message undetectable by someone but it does not hide the existence of the secret message.

The methods used in Steganography make it more difficult to detect the presence of a hidden secret message inside a normal file. By this way, one can not only hide the secret message itself but also the fact that one is sending the message from source to destination. This feature makes Steganography the ideal science for hiding or concealing any message on the web. The primary goal of Steganography is to hide any message inside any other message in such a way that it prevents any suspicion of the transmission of any hidden message from source to destination. Nowadays 2D and 3D images are the most paper cover objects [2] [3] used for Steganography where an altered image with slight or little

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Email Framework for Blinds using Speech Recognition

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stract - *This project aims at developing an email tem that will help visually impaired people. Due to gration of communication technology with internet communication has becomes very easy in today's rld, the very basic and important need for using the rnet is accessing email. But some peoples like visually llenged people find very difficulties to utilize*

uired visual perception. That's why we make this ject. This research has enable the blind people to send d receive voice based email messages with the help of mputer system, this system is completely based on teractive voice response is make it friendly to user and ficient to use. Our proposed system GUI is evaluated posed to the GUI of traditional e-mail server and we nd that our proposed architecture performs more ter than that of the existing GUIS. In this project, we use ech to text and text to speech technique access for blind ple.

words:- TTS, STT CONVERSION and IVR.

INTRODUCTION

ernet has made life of people so easy that people ay have access to any information they want easily mmunication is one of the main fields highly changed internet. Emails are the most dependable way of mmunication over internet for sending and receiving me important information. But there is a certain horm humans to access the internet and the horm is you st be able to see. There are some visually impaired ople or blinds people who can't see things and thus n't see the computer screen or keyboard. A survey has own that there are more than 240 million visually paired people around the globe. i,e. around 240 llion people are unaware of how to use internet or ail , Hence we make this project for that type of ple. IVR- Interactive Voice Response is a technology ich allows computer to interact with humans using of voice input or a keypad in telecommunication. IVR ws customers to interact with host system via a mputer keypad and by speech recognition. Nowadays re are various technologies available in this world like een readers, ASR (automatic speech recognition), TTS t to speech), STT (speech to text), etc. But these are much efficient for them. We have to make some ernet facilities to them so they can use internet email. this project we describe the VMAIL system chitecture for windows platform that can be use by a lind person to send e-mails easily.

The application uses 'text to speech' andvoice recognizer to facilitate sending emails using a desktop app

2. LITERATURE REVIEW

Electronic mail i. e. E-mail is the most important part in day to day life but some of the people in today's world

or some are illiterate.

1) In Existing system ,Blinds people does not send E-mail using the system , the multitude of email types along with the ability setting enables their use in nomadic daily contexts.
2) The research paper mention here have a separate website which consist of their own Interface and also its own face[1]. created their own mailing system in visually impaied people can send and rece ails via the the system only, no other systems like Gmail, Yahoo can be accessed.
3) In this, system maintains a database for user validation and storing mails of the user[1]. The database is used to store the i like Username, Password his ma When user request for any informati information is restore from the database.
4) As authentication, compose, inbox. Also the user has to go through the process of signing-up which somewhere giving rise to the complexity of using their websites,also this is a websites,so there is one more obstacle for the visually impaired people to on their URL.
5) Presents an approach to speech tion th ug the fuzzy modeling and decision making which is ignore noise rather than this detection and removal[2]. The speech spectrogram is converted into a fuzzy linguistic description and this description is used instead of resize acoustic features[2].
6) Main features are smooth nd natura speech can be synthesize , the voice cha teris can be changed , it is "trainable [2].Conditions of the basic system are synthesized speech is "buzz" considering it is based on a vocoding technique , it has been overcome using high quality vocoder and hidden semi-Markov model based accounstick modeling .

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Modeling of Hybrid Power Generation System

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Abstract – Renewable energy sources have become a popular alternative electrical energy source where power generation in conventional ways is not practical. In the last few years the photovoltaic and wind power generation have been increased significantly. In this paper work presents, proposed a hybrid energy system which combines both solar panel and wind turbine generator as an alternative for conventional source of electrical energy like thermal and hydro power generation. A simple control technique which is also cost effective has been proposed to track the operating point at which maximum power can be coerced from the PV system and wind turbine generator system under continuously changing environmental conditions. The entire hybrid system is described given along with comprehensive analysis of PV array and wind turbine that discover the feasibility of the system.

Keywords: Power Quality (PQ), Renewable Energy Sources (RES), Utility Grid

I. INTRODUCTION

Due to the critical condition of industrial fuels which include oil, gas and others, the development of renewable energy sources is continuously improving. This is the reason why renewable energy sources have become more important these days. Few other reasons include advantages like abundant availability in nature, eco-friendly. Many renewable energy sources like solar, wind, Hydro and tidal are there. Among these renewable sources solar and wind energy are the world's fastest growing energy resources. With no emission of pollutants, energy conversion is done through wind and PV cells.

Day by day, the demand for electricity is rapidly increasing. But the available base load plants are not able to supply electricity as per demand. So these energy sources can be used to bridge the gap between supply and demand during peak loads. This kind of small scale stand-alone power generating systems can also be used in remote areas where conventional power generation is impractical.

In this paper, a wind-photovoltaic hybrid power generation system model is studied. A hybrid system is more advantageous as individual power generation system is not completely reliable. When any one of the system is shutdown the other can supply power.

II. LITERATURE REVIEW

Due to high demand of energy and limited availability of conventional energy, non-conventional sources become more popular among researchers. A lot of research work is going on to enhance the power efficiency of non-conventional sources and make it more reliable and beneficial.

Hybrid generation system uses more than one source, so that we can extract energy from different sources at the same time which enhances the efficiency. The basic details of PV cell, PV module, PV array and their modeling are studied. Also, the behavior of PV modules at varying environmental conditions like solar irradiation and temperature are studied. Behavior of PV module during partial shading condition and also how its bad effects can be minimized is explained. Different MPPT techniques, their advantages and disadvantages and why MPPT control is required is explained. The wind energy system, its working and also techniques to extracts the maximum power from the wind energy system is understood. The study about different type of bi-directional converters, their working and how to use them in battery charging and discharging is carried out.

Hybrid models have been an effective means of producing generating electricity throughout the world. Lots of research work has been done and continuing the accommodate new advances in this system. The performance assessment of a wind, Solar Photo Voltaic (SPV) Hybrid Energy System. In addition to this solar/wind system with backup storage batteries were designed, integrated and optimized to predict the behavior of generating system. A hybrid energy system combining solar photovoltaic and wind turbine as a small scale alternative source of electrical energy where conventional generation is not practical. Simulation of the hybrid system under investigation was carried out by using MATLAB software. A simple and cost effective maximum power point tracking technique is proposed for the photovoltaic and wind turbines. This technique uses linear programming principles to reduce the cost of electricity while meeting the load requirement.

III. PHOTOVOLTAIC SYSTEM

A photovoltaic energy system is mainly powered by solar energy. The configuration of PV system is manifested in figure 1.

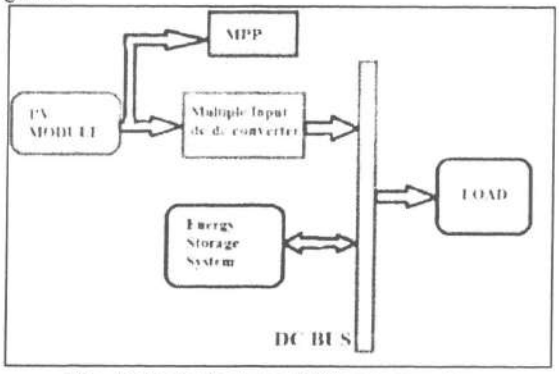

Fig. 1: Block diagram of PV energy system

It contains PV modules or arrays, which convert solar energy in the form of solar irradiation into electric energy. The dc-dc converter changes the level of the voltage to match it with the electrical appliances that are supplied by this system. This DC-DC converter may be either buck or boost or buck-boost contingent on the required and available voltage levels. The maximum power point tracing system coerces the maximum power from the PV modules. A

Controllable Power Factor And Efficiency Improvement of Three Phase Induction Motor Using Extinction Angle Control

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***Abstract*— In proposed drive three phase synchronized extinction angle control technique has been proposed for three phase induction motor with pump and blower loads. Three semiconductor controlled switches such as IGBT or MOSFET are used for this control technique. Using this method the RMS value of the current drawn by the motor decreased by around 10to20 percent for the same power output. The reduction in stator current causes reduction in copper loss, improves the power factor and also the efficiency of motor is improved. The power factor with this scheme can be brought from lagging to leading range.**

Keywords—Efficiency, Power Factor, Extinction angle, Three Phase, Induction Motor.

I. INTRODUCTION

Induction motor is the widely used motor for 24 hours running motors such as the pump and blower. As they are continuous running motor hence they require continuous power for their operation. Thus the power consumption is more as the current drawn by this motor is higher. Due to the higher stator current the copper Losses are more, and hence power factor and efficiency are reduced. By controlling the undesired oscillation in the operation of motor the efficiency can be improved [2]. But for this an automatic compensation is required. Four switch three phase inverter operation can also be used instead of six-switch three phase inverter [3]. Unbalance in phase currents because of the DC link voltage occurs this is the drawback with four switch three phase inverter. For efficiency improvement optimal efficiency technique is used but with this the efficiency is improved up to a certain optimal point after that point the efficiency decreases whereas the power factor increases continuously [4]. Three switches for improvement in power factor of three phase induction motor using the stator current which induces rotating air gap flux for running of motor can be used, however due to the fast switching of switches it causes higher voltages across motor which will stress the motor winding causing higher noise and temperature[5]. The change in material dimension is also responsible for the changes in operating parameters such as current, power factor and efficiency of motor. Line-Start Permanent Magnet Synchronous Motor is the result of above concept in which the size of the copper wire used for stator winding is changed which leads to change in efficiency of the motor [6]. As the current drawn by any motor depend on the amount of stator current required so by changing the connection of the winding as star or delta suitable according to the load higher efficiency is achieved [7]. Pulse width modulator as well as the sinusoidal pulse width modulator are also the most important factor developed for the efficiency improvement but in this case the problem of harmonics arises which again restrict the performance of the drive[8-10]. All above techniques can improve either efficiency or power factor of motor but they are unable to improve the power factor and efficiency simultaneously.

In Single phase induction motor power factor is improved with the extinction angle. Output voltage is controlled by varying the extinction angle but in this they require two switch so it is more costly and complex operation also [1]. The above concept of extinction angle control is used for the proposed drive except that there is only one switch per phase in this drive. There are three semiconductor controlled AC switches are used for controlling the three phase induction motor source voltage. The current drawn by the motor decreased in this drive and hence the stator losses are decreased. Due to minimum losses power factor and efficiency of the drive is increased.

II. CONTROL TECHNIQUE

A novel technique of controlling the power factor using extinction angle control having only one switch per phase had been used in proposed drive. The technique controls the phase angle of the input supply which is responsible for the power factor of the drive. The conduction of supply voltage is started at zero crossing of supply voltage and it is forced commutated at the angle of $(180-\beta)^o$. After forced commutation the stored energy in the inductor of the stator coil are discharged through the freewheeling path. As the freewheeling path is provided for current so the current is going to touch the zero crossing point at the same time when the supply voltage touches its zero crossing. This is same for all the three phases of induction motor. Because of this the displacement power factor of drive becomes $\cos(180-\beta/2)^o$, where β is the extinction angle. With this proposed work the power factor of drive is improved from lagging to leading range.

· Extinction angle: - The angle at which semiconductor controlled switches are turned off before reaching their natural commutation which is also known as the forced commutation of the switches is nothing but the extinction angle for that switch.

The extinction angle control technique allows the switch to be forced commutated. Fig.1 shows the changes in the output voltage and input current with the implementation of extinction angle control technique. The switch is turned on at T0 remained on from time T0-T1.

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Analysis of Z source based multilevel inverter using MATLAB.

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Abstract— **This paper describes the effect of inductors and capacitors which are cross linked in X shape followed by two controllable switches connected in voltage buck mode and boost mode at the input stage of Multi-level inverters, on their performance parameters. Various levels of inverter topologies have been taken into consideration for performance comparison of the modified inverter with the conventional inverter using MATLAB –Simulink software.**

Index Terms— **Mmultilevel inverter, Phase shift, Shoot through, Voltage Boost, Z-Source**

I. Introduction

Inverters specially multilevel inverters are now a day's more popular for high power application such as harmonic compensation, electrical motor drives, Integration of renewable Energy source with grid. Apart from the several advantage Multilevel Inverters suffers from various drawback size, switches number, THD and cost. More than few reduced switch multilevel Inverter topology are investigated by various researcher to reduce cost, size and improve reliability of multilevel inverter.

The Z-Source inverters (ZSI) also know as impedance source inverters as Impedance is indicated using alphabet Z. Impedance (Z) source based power conversion, control and conditioning concept is very innovative in the field of power electronics. Z source network first proposed by Fang Zheng Peg in 2002 now a day's it is almost popular in Motor drives, Compensation of various parameters of Power Transmission lines, Renewable energy source integration, Distributed generation, Electric Vehicles etc. Various application of ZSI is discussed in [5]. Z source based inverters can be implemented by various control strategies discussed in [7-10], This works investigate the coupling of Z-source network with reduced switch multilevel inverter topology for utilization of Z Source Circuit advantage in high power application as multilevel inverters have ability to hold high power [9]. Apart from these multilevel inverters have several advantages over two level VSI and CSI. Z-source multilevel inverter consist of basic unit and one H-bridge configuration [12]

This work analyzed Z source multilevel inverter based on number of switch, THD Contents in output voltage and reliability of topology. Phase shifted SPWM technique is incorporated to trigger inverter circuit. Introduction related to multilevel inverter and Z source inverter is discussed in first two section followed by Z source multilevel inverter Switch reduction topology and PWM technique. The simulation results along with the waveform analysis are presented in last section of paper.

II. Z Source Inverter

In addition to passive L-C components connected in Z shape , the Z source unit consists of pair of two power semi - conductor switches out of which one is connected in series the source and inverter module and the other across the input of the multilevel inverter. The switches are connected as shown in Fig.....The z source module so described is capable of operating input stage as Buck and boost modes DC-DC converter. This stage is capable of generating out voltage levels of 0-V and greater than V depending upon toggling of the switches.The output of DC-DC converterbecomes the input to the multilevel inverter. The output of the Z source DC-DC converter operating in buck mode is

$$V_0 = k\, V_{dc} \qquad \text{(i)}$$

And the output during operation in boost mod is

$$V_0 = V_0 / (1-k) \qquad \text{(ii)}$$

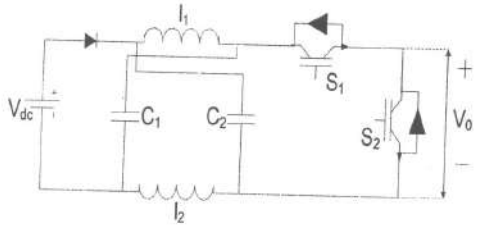

Figure 1 (a) Impedance source with two Power Switches

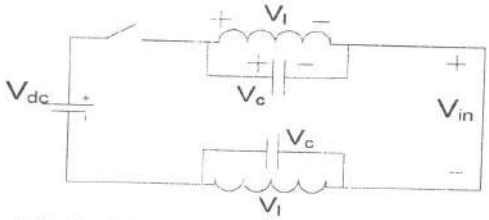

Figure 1 (b) Circuit in ST (shoot-through) condition.

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