3.4.4 Number of books and chapters in edited volumes published per teacher during the last five years

Sl. No.	Name of the teacher	Title of the book published	Title of the chapters published	Year of publication	ISBN number	Whether at the time of publication Affiliating Institution was same Yes/No	Name of the publisher
22-23							
1	T. Madhubabu	–	Reduction of Harmonics to Improve Power Quality in Distribution Lines using a Series Active Power Filter& 123-128	Apr-23	ISBN: 979-8-3503-9728-4	Teegala Krishna Reddy Engineering College	IEEE
2	Dr N. Rajashekar Varma	–	Output Voltage and Power Factor Improvement for Non-Conventional Energy Generation &151-156	Apr-23	ISBN:979-8-3503-9729-1	Teegala Krishna Reddy Engineering College	IEEE
3	N. Rajashekar Varma	–	15 Level Inverter for Stand-Alone Applications &1439-1443	Feb-23	ISBN:978-1-6654-6409-3	Teegala Krishna Reddy Engineering	IEEE

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						College	
4	Ankanthi Manjula	–	Renewable Energy Source Fed Multilevel Inverter & 786-791	Jan-23	ISBN:978-1-6654-7452-8	Teegala Krishna Reddy Engineering College	IEEE
5	K. Santhosh	–	Time-Domain Control Algorithms of DSTATCOM in a 3-Phase, 3-Wire Distribution System &781-785	Jan-23	ISBN:978-1-6654-7452-8	Teegala Krishna Reddy Engineering College	IEEE
6	Nagasridhar Arise	–	Power Generation of Wind-PV-Battery based Hybrid Energy System for Standalone AC Microgrid Applications & 261-266	Jan-23	ISBN:978-1-6654-7468-9	Teegala Krishna Reddy Engineering College	IEEE
7	N Ramesh Babu	–	Case study on Ni-MH Battery & 1559-1564	May-23	ISBN:978-1-6654-5631-9	Teegala Krishna Reddy Engineering College	IEEE

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8	N Ramesh Babu	–	Closed Loop Control of InductionMotorUsingHall Effect SpeedSensors & Accepted	Jun-23		Teegala Krishna Reddy Engineering College	IEEE
9	Kalagotla Chenchireddy	–	Grid-Connected 3L-NPC Inverter with PI Controller Based on Space Vector Modulation & 94-98	Mar-23	ISBN:979-8-3503-9738-3	Teegala Krishna Reddy Engineering College	IEEE
10	Kalagotla Chenchireddy	–	3-Phase 7-Level Diode Clamped Inverter for Standalone Application &309-314	Feb-23	ISBN:978-1-6654-6217-4	Teegala Krishna Reddy Engineering College	IEEE
11	K.R.Sree Jyothi	–	Fuel Cell based Grid Connected Two-Level Inverter & 1628-1632	Mar-23	ISBN:978-1-6654-9200-3	Teegala Krishna Reddy Engineering College	IEEE
12	K.R.Sree Jyothi	–	Reduction of THD and Power Quality Improvement by using 48-pulse GTO-based UPFC in the	Feb-23	ISBN:978-1-6654-6409-3	Teegala Krishna Reddy Engineering College	IEEE

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			Transmission Systems &1466-1470				
13	Dhasharatha G	–	Design and Implementation of Three-phase Three Level NPC Inverter	May-23		Teegala Krishna Reddy Engineering College	IEEE
14	Dhasharatha G	–	Z-source inverter for standalone application &26-30	Jun-23	ISBN:978-8-3503-9662-1	Teegala Krishna Reddy Engineering College	IEEE
15	M Rosaiah	–	Induction Motor Speed Control Through Vector Control Approach & 1069-1074	Mar-23	ISBN:978-1-6654-9200-3	Teegala Krishna Reddy Engineering College	IEEE
16	V Kumar	–	Grid-Connected Inverter Fed from PV Array &1433-1438	Feb-23	ISBN:978-1-6654-6409-3	Teegala Krishna Reddy Engineering College	IEEE
17	M Rosaiah	–	Wind - Battery Controller Based Standalone Alternating	Mar-23	ISBN:978-1-6654-9200-3	Teegala Krishna Reddy Engineering	IEEE

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			Current Microgrid Applications & 1063-1068			College	
18	V KUMAR	–	Distribution System Power Quality Improvement using IRP Theory & 1450-1454	Feb-23	ISBN:978-1-6654-6409-3	Teegala Krishna Reddy Engineering College	IEEE
19	Ghanapuram Satheesh kumar	–	Reduced Device Count 9-Level Inverter for Standalone Applications & 1422-1428	Feb-23	ISBN:978-1-6654-6409-3	Teegala Krishna Reddy Engineering College	IEEE
20	Dr Pydimarri Padmaja	An Integrated Approach to digital computer Networks.		May 2023	978-81-953929-8-8	TEEGELA KRISHNA REDDY ENGINEERING COLLEGE	NTL Publications
21	Dr.M.Suresh Babu	International Journal of Disruptive Technologies in Computing and Communications		31/03/2023	978-81-950175-0-8	Yes	Routledge

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22	Dr.M. Ramu	Cyber Security: Principles and Practice	Cyber Security: Principles and Practice	02.03.2023	978-93-5625-597-5	Yes	SIPH
23	Dr. VADIVELAN NATRAJAN		AUTOMATED SKIN DIEAS DETECTION USING ML TECHNIQUES	2022,SEPTEMBER	978-981-19-1669-4-16	TKREC	SPRINGER
21-22							
1	K Chenchi Reddy,Kumar V	–	Power Quality Enhancement In 3-Phase 4-Wire Distribution System Using Custom Power Devices	Mar-22	ISBN:978-1-6654-0816-5	Teegala Krishna Reddy Engineering College	IEEE
2	K Chenchi Reddy	–	Performance Verification of Full-Bridge DC To DC Converter Used for Electric Vehicle Charging Stations	Mar-22	ISBN:978-1-6654-0816-5	Teegala Krishna Reddy Engineering College	IEEE
3	K Chenchi Reddy.,Kumar, Sree Jyothi	–	Energy Management System Control in Speed and Torque	Mar-22	ISBN:978-1-6654-0816-5	Teegala Krishna Reddy Engineering	IEEE

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			Coupling Parallel Hybrid Electric Vehicle			College	
4	K Chenchi Reddy,Sree Jyoth	–	Level-Shifted PWM Techniques Applied to Flying Capacitor Multilevel Inverter	Mar-22	ISBN:978-1-6654-8425-1	Teegala Krishna Reddy Engineering College	IEEE
5	K Chenchi Reddy	–	Multi-Carrier PWM Techniques Applied to Cascaded H-Bridge Inverter	Mar-22	ISBN:978-1-6654-8425-1	Teegala Krishna Reddy Engineering College	IEEE
6	K Chenchi Reddy.,Kumar, Sree Jyothi	–	A Review on D-STATCOM Control Techniques for Power Quality Improvement in Distribution	Dec-21	ISBN:978-1-6654-3524-6	Teegala Krishna Reddy Engineering College	IEEE
7	K Chenchi Reddy.,Kumar, Sree Jyothi	–	Comparative investigation of single-phase Distributed Grid-connected with and without D-STATCOM	Dec-21	eISSN: 2267-1242	Teegala Krishna Reddy Engineering College	IEEE

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8	K Venkata Murali Mohan		Grey Hole Attack in Mobile Ad-Hoc Network Mitigation and Protection	2022	2329-7190	YES	IEEE
9	K Venkata Murali Mohan		An Analytical Hierarchy Process Investigation on High Speed Data Implementations Using Big Data	2022	978-1-6654-8035-2 / 2329-7190	YES	IEEE
10	K Venkata Murali Mohan		Securing SDN Enabled IoT Scenario Infrastructure of Fog Networks From Attacks	2022	978-1-6654-0051-0	YES	IEEE
11	K Venkata Murali Mohan		A Novel Artificial Neural Network Algorithm for Prediction of Natural Gas Prices using Machine Learning	2022	978-1-6654-0117-3	YES	IEEE
12	K Venkata Murali Mohan		Leveraging Machine Learning to Predict Wild Fires	2021	978-1-6654-3367-9	YES	IEEE

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13	K Venkata Murali Mohan		Design and Implementation of Efficient Counter-Based IoT DDOS Attacks Detection System Using Machine Learning	2021	978-981-19-1669-4	YES	Springer
14	K Venkata Murali Mohan		Smart Underground Drainage Management System Using Internet of Things	2021	978-981-16-7088-6	YES	Springer
15	Dr.R Shankar	The Internet of Things - Case study & its Applications		2022	978-93-94002-71-5	YES	Scientific international publishing house
16	Dr.R Shankar	Microprocessors and Micro controllers		2022	979-8886062045	YES	Notion Press
17	K Srinivas Reddy	Hybrid Intelligence for Smart Grid Systems-1.Chapter3:Implementation of Solar, UC/Battery-Based Hybrid Electric Vehicle with an Efficient		2021	978-1003143802	YES	CRC Press

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		Controller. 2.Chapter4:Recreation and Control of Multi Rotor Wind Power Generating Scheme for Pumping Applications					
18	M Renu Babu, Dr G Chenna Keshav Reddy, Dr D Vemana Chary	Multi spectral Image Compression Using Adaptive Thresholding in Wavelet Domain with Binary Plane Techniques (Algorithms for intelligent systems)(Book Chapter)		2021	978-981-19-1669-4	YES	Springer
19	M Renu Babu, Dr G Chenna Keshav Reddy, Dr D Vemana Chary	Progressive Convolutional Recurrent Neural Networks for Speech Enhancement (Algorithms for intelligent		2021	978-981-19-1669-4	YES	Springer

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		systems)(Book Chapter)					
20	Dr. K.Bhargavi	Deep Learning		March' 2022	ISBN-13 :979-8886414455	Yes	Notion Press
21	Dr.KMV. Madan Kumar	Deep Learning		March' 2022	ISBN-13 :979-8886414455	Yes	Notion Press
22	Dr.N. Vadivelan	Deep Learning		March' 2022	ISBN-13 :979-8886414455	Yes	Notion Press
23	Dr. Sarangam Kodati	IT Applications for Management		2022	978-81-955154-4-8	Yes	TATA
24	Dr.Rajaram Jatothu	Fundamentals of block chain technology		2022	978-93-5625-269-1	Yes	SIPH
25	A.Sireesha	Fundamentals of block chain technology		2022	978-93-5625-269-1	Yes	SIPH
26	Dr.J. Praveen Kumar	Big Data Management in Sensing Applications in AI and IoT	Design a Novel IoT Based Agriculture Automation using Machine Learning	31.7.2021	978-87-7022-414-7	Yes	River publishers
27	Dr . V.Madhavi	Ethics and Human Values through Literature	Revising the ancient Indian Literature is the need of the hour	2022	978-93-95104-10-4	TKREC	Parikalpana publications, Delhi

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20-21							
1	K Chenchi Reddy	–	Lecture Notes in Networks and Systems	Sep-20	ISSN 2367-3389	Teegala Krishna Reddy Engineering College	Springer
2	K Chenchi Reddy	–	A review Paper on the elimination of low order harmonics in multilevel inverters using different modulation techniques	2021	978-981-15-7345-3	Teegala Krishna Reddy Engineering College	Springer
3	K Venkata Murali Mohan	Global Stability Analysis of a Two Mutualistic Species Ammensal on Third Species With Cover for Third Species		2020	9.78074E+12	YES	AIP PUBLISHING
4	K Venkata Murali Mohan	Mathematical Study of a Three Species Ammensalism Model with Cover for 3rd Species		2020	9.78074E+12	YES	AIP PUBLISHING
5	Dr.R Shankar	Data Communications	-	2021	978-1638323709	YES	Notion Press Media Pvt Ltd

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		And Computer Networking					
6	Dr C AnnaPalgan	Computer Networks-An Introduction	-	2021	978-93-89003-66-6	YES	AKINIK publications
7	Ch Shekar	Survey on Different Classification Models for Retrieving Secure Image	-	2O021	978-93-91595-18-0	YES	New Approaches in Engineering Research
8	Dr.K.Sarangam	Deep learning application and intelligent decision making in engineering(chapter : analysis of heart disorder by using machine learning methods and data mining techniques)	Deep learning application and intelligent decision making in engineering(chapter: analysis of heart disorder by using machine learning methods and data mining techniques)	October,2020	9781799821083	Yes	IGI Global
19-20							
1	1.Mr.K Chenchi Reddy 2.Mr.V Kumar	–	Cartier based cascaded h-bridge multilevel inverter	Jun-20	eISSN: 2312-7589	Teegala Krishna Reddy Engineering College	IFERP Explore

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2	K Chenchi ReddyV Jegathesan	–	Different Topologies of Inverter:A Literature Survey	2020	ISBN978-981-15-2255-0	Teegala Krishna Reddy Engineering College	Springer Singapore
3	Suresh Kumar T, Dhasharatha G	–	Artificial Neural Networks based SPWM technique for speed control of Permanent Magnet Synchronous Motor	2019	eISSN: 2267-1242	Teegala Krishna Reddy Engineering College	EDP Sciences. 2019
4	Dr.C.Anna palagan	Digital Communication Fundamentals	-	2019	978-93-89003-66-6	YES	Harshavardhan Publications Pvt. Ltd.
5	Dr.R Shankar	Deep Learning: A Tensor Flow Practical Approach	-	2020	978-1648927898	YES	Notion Press
18-19							
1	DR. S. KANDASAMY , P. SURENDAR, P. VENKAT RAM REDDY	-	"STRENGTH AND DURABILITY PROPERTIES OF POLYPROPYLE NE FIBER CONCRETE"	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.

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2	A. ASHOKKUMAR, S. SELVAKUMAR	-	STUDY ON MICROSTRUCTURE OF CONCRETE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
3	UMMENTHALA VEDA VYAS, V. SRUJITH KUMAR, N. RAVI	-	LEVEL OF SERVICE AND DELAY EVALUATION AT CLOSED SIGNALIZED INTERSECTION U-TURN AS ALTERNATIVE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
4	MOHD MUNEERUDDIN KHAN, NANNA CHANDRAGUPTA . DR. M. KAMESWARA RAO	-	COMPARATIVE STUDY OF DIFFERENT SHAPES OF STRUCTURE UNDER SEISMIC LOADING	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
5	S. SELVAKUMAR, A. ASHOKKUMAR	-	EXPERIMENTAL INVESTIGATIONS ON STRENGTH CHARACTERISTICS OF STEEL FIBRE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.

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			CONCRETE				
6	P. GNANAMOORTHY, B.SUBASHCHANDRAN	-	FLEXURAL BEHAVIOUR OF BAMBOO REINFORCED CONCRETE BEAMS	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
7	PATHLAVATH SURENDAR, DR. KANDASAMY, P. VENKAT RAM REDDY	-	THE STRENGTH PROPERTIES OF CONCRETE BY PARTIALLY REPLACING CEMENT WITH METAKAOLIN	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
8	G.VENKATRAMANA P.JAYARAJ	-	EFFECT OF SILICA FUME IN FLOW PROPERTIES AND COMPRESSIVE STRENGTH OF SELF COMPACTING CONCRETE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.

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9	G.TAMILANBAN, DR. P. RAM MOHAN RAO, B.SUBASHCHANDRAN	-	COMPARATIVE STUDY ON NORMAL STRENGTH CONCRETE CUBE AND CYLINDER USING CERAMIC WASTE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
10	CH.KRISHNA REDDY, A.SWETHA	-	COMPARATIVE STUDY ON MECHANICAL PROPERTIES OF RECYCLED AGGREGATE CONCRETE (RAC) AND NORMAL AGGREGATE CONCRETE (NAC)"	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
11	P.JAYARAJ G.VENKATARAMANA	-	MECHANICAL PROPERTIES OF HIGH STRENGTH CONCRETE USING MINERAL	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.

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			ADMIXTURES				
12	K. SRI SAI VALLINIKITH A, V. SRUJITH KUMAR, L. MANVITHA REDDY	-	USE OF PLASTIC WASTE IN BITUMINOUS PAVEMENT	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
13	K. SASTRY, B. SURESH, NANNA. CHANDRA GUPTA	-	EXPERIMENTAL INVESTIGATION OF WASTE GLASS POWDER AS PARTIALLY REPLACEMENT OF CEMENT	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
14	BHUKYA JAYAMMA, K. SASTRY, P. SATHISH	-	FLEXURAL BEHAVIOUR OF FLY ASH BASED SLURRY INFILTRATED FIBROUS CONCRETE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
15	A.MALLIKARJUN YADAV, V.SRAVYA, N. CHANDRASH	-	THE IMPACT OF AGRICULTURAL CHEMICALS AND PESTICIDES ON	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.

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	EKAR NAIK		WATER QUALITY				
16	DANDA HARSHITH, A. SWETHA, C.GOVARDHAN	-	STRENGTH PROPERTIES OF CONCRETE WITH BAGASSE ASH AND M-SAND	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
17	K.KRISHNAKUMAR, A. SURENDRA	-	HIGH STRENGTH OF CONCRETE BY ADDING ADMIXTURES	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
18	DODDA VAMSHI, MELAM BHARAT KALYAN	-	STUDY ON SAFETY OF LABOUR IN CONSTRUCTION SITE	Jan-19	978-93-5346-032-7	Teegala Krishna Reddy Engineering College	SP Hi tech Printers Private Limited.
19	B.RAMESH, S.LAVANYA, A.MANJULA	-	Low Voltage Surface Resistance Measurement for Prediction of Flashover Voltage of Insulators	May-19	ISSN NO:2236-6124	Teegala Krishna Reddy Engineering College	EduPedia Publications (P) Ltd

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20	K Chenchi ReddyV Jegathesan	-	Design of Multilevel Inverter for Renewable Energy Applicatons with different PWM Techniques	Jan-19	ISBN: 97830302 . 40516	Teegala Krishna Reddy Engineering College	Cham Springer 2020
21	K Chenchi ReddyV Jegathesan	-	Bio inspired Algorithms for Elimination of Lower order Harmonics in Multilevel Inverter	Jan-19	ISBN: 97830302 40516	Teegala Krishna Reddy Engineering College	Cham Springer 2020
22	Dr.C Thulasiyammal	-	Climatic conditions based comparative study on DC-DC Converters with MPPT Techniques of a Standalone PV System	Mar-19	ISSN 2162-1241	Teegala Krishna Reddy Engineering College	AIST Tokyo Tech Program, National Science and Technology Development Agency (NSTDA).

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College Code: R9

3.4.4.1: Total Number of books and chapters in edited volumes published during the last five years

*Copy of the Cover page, content page and first page of the publication indicating ISBN number and year of publication for books/chapters

A.Y 22-23

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Proceedings of the 7th International Conference on Trends in Electronics and Informatics (ICOEI 2023)
IEEE Xplore Part Number: CFP23J32-ART; ISBN: 979-8-3503-9728-4

Reduction of Harmonics to Improve Power Quality in Distribution Lines using a Series Active Power Filter

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Abstract: Electrical devices have advanced and are employed in many different applications nowadays. Personal computers, arc furnaces, and non-linear loads like fluorescent lights emit harmonics alongside utility variable frequency drives (VFD). These are the main gadgets for power quality issues. As is well known, power quality is a significant problem for consumer and distribution systems. This study explores the harmonics induced by non-linear loads. An active power filter, which can enhance power quality and compensate for reactive power has been utilized. In the electrical system at low and medium voltage, Series Active Power Filters (SAPF) are primarily employed to reduce the harmonics, over and in compensation for voltage distortions like sags, flickers, and notches. Total harmonic distortion (THD) can be minimized by SAPF, which injects voltage into the line to mitigate the distortions.

Keywords: Total Harmonic Distortions (THD), Series Active Power Filter (SAPF), and Variable Frequency Drives (VFD), Non-linear Loads (NLL).

I. INTRODUCTION

A common location for the production, transmission and consumption of power at a particular amplitude and frequency is the distribution system, which reveals the quality of the electric power (EPQ). EPQ is mainly used to indicate voltage & current quality, availability of service, and supply of power, among other things [1]. Power lines have seen a variety of harmonic disturbances in recent years, mostly as a result of non-linear loads (NLL) like electric motors, power converters, arc furnaces, etc. Additionally, power electronics (PE) usage for our comfort has significantly increased in recent years. Even though these PE devices make human life more convenient, they also increase the harmonic current in the supply system and negatively impact the power factor [2]. Due to the differences in the component values and component tolerance of the filter, source impedance, and frequency of the AC source have a considerable negative impact on their performance. These might also cause the

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Output Voltage and Power Factor Improvement for Non-Conventional Energy Generation

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Abstract: In this modern world, electricity is one of the basic and also an widely used necessity, since the universe cannot function without electrical energy. There are a variety of sources that can generate electrical energy; these include conventional energy sources and nonconventional energy sources. Due to limitation and the high cost of fossil fuels and also environmental effects, consideration of conventional source energy generation can be a trouble; therefore, the world is looking toward energy generation that has less impact on the environment as a source. Even though generation is easy, some uncertainity like high harmonic distortion and less efficient power and low power factor at consumer or load can be attested in this process due to standard conventional switches. Hence, cascaded h-bridge with increased level for nonconventional energy generation and transmission for switching operations has been suggested in this research to overcome all the loopholes and to improve the efficiency.

Keywords: Power Factor, non-convetional energy sources, cascaded H-bridge

I. INTRODUCTION

The serially added H-bridge multi-layer alternator is the combination of serially linked H-bridge with a separate Direct current source which is elect acquired as of any non-conventional source [1]. Multilevel inverters have recently gained popularity as an architecture for high voltage industrial applications. To provide elevated power demand with rising electrical energy-level, multilevel inverters have made significant advancements. Multilevel inverters provide several benefits over traditional two-level inverters, including lower switching frequencies first-class load voltage(v) and current(i) with less harmonic disturbance, and reduced voltage stress on power switching components [2-4]. These factors are the causes of the ongoing nature of several multilevel inverter investigations. Multilevel inverters come in a variety of topologies, such as diode-clamped multistep alternators, flying-capacitor multistep alternators, and serially connected H-bridge multilayer alternators. The multilevel serially added H-bridge alternator is one of these multilevel topologies that has gained popularity since it does not require clamp diodes or capacitors [5-6].

Serially added multi-step alternator is a power electrical component designed to integrate an Alternating voltage that has been converted from several levels of direct current voltages. The most enticing advancement in The multilayer inverter operates in the moderate-to-peak level voltage array, which includes applications for motor drive, energy distribution, power energy class, and power conditioning [7]. The medium voltage energy management

15 Level Inverter for Stand-Alone Applications

Publisher: IEEE

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Abstract: To consume medium level voltage and high power nowadays, Multi-Level Inverters (MLI) are employed in many industries. The properties of multilevel inverter is same as inv... **View more**

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Abstract:
To consume medium level voltage and high power nowadays, Multi-Level Inverters (MLI) are employed in many industries. The properties of multilevel inverter is same as inverter, Compensation of reactive power is primarily done by MLI's. Generally, existing multilevel inverters are 5-level, 7-level, and 9-level. In this paper, introducing a 15-level multilevel inverter with reducing switches analyzed for current, voltage, and THD. Analyzed and contrasted are several multilayer inverters.

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Contents

I. Introduction

Inverters that convert direct current to alternating current are used in domestic appliances and many industrial applications that demand high power levels so the multilevel inverters are...

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Renewable Energy Source Fed Multilevel Inverter

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Abstract: This article implemented a hardware structure of a single-phase inverter with Arduino with hybrid energy sources, this inverter generates an Ac square wave using PWM generated by an Arduino microcontroller, and this Arduino helps in generating triggering pulses for MOSFETS switching, thereby AC voltage is developed, taking this as a reference. This paper simulated a renewable energy source fed multilevel inverter, which consists of the windmill, and PV cell as renewable sources, as there is a lot of change in power generation in the current world there is a need of using renewable energy sources for power generation, and a 9-level inverter for power conversation. the 9 level inverter is used for maximizing the output power to a higher extinct when compared to other inverters, the energy generated by the renewable energy source is stored in a battery, and this circuit is parallelly connected to the inverter for the AC power generation.

Keywords: Single-phase inverter, hybrid energy sources, Arduino, renewable energy sources, windmill, PV cell, multilevel inverter.

INTRODUCTION

Multilevel energy inverters were studied highly in the latest years. The advantages of using multilevel inverters are that it has low harmonic distortion acquired due to the multilevel voltage range at the output and reduced stresses on the switching devices used [1]. in comparison with traditional two-level voltage-deliver inverters, multilevel inverters can output higher voltage rankings without the usage of the collection connection of low sustain voltage devices and function a decreased dv/dt of the output voltage and spectrum better harmonic. The use of multilevel inverters become one of the inexperienced techniques for immodernite energy medium voltage applications [2]. The popular kinds of multi-stage inverters are categorized into three primary groups Neutral point Clamped multilevel inverters, flying capacitor multilevel inverters, and protruded H- ground multilevel inverters. The Neutral Point Clamped multilevel inverters have a few step backs that weaken the reliability of these structures because it desires one-of-a-kind clamping diodes which are rated. The incorrectly balanced capacitor hassle and an additional range of switches, capacitors etc, are required for growing the machine energy rating [3]. A nonpartisan point-braced inverter with a dynamic countdown of nine levels 9Level R D C, A N P C Inverter). The shortcomings of the 5L ANPC are eliminated by this inverter, which also reduces control unfortunate and improves yield waveform quality [13]. inverters with three stages are used in high-power applications. Two-changed SVPWM computations were reported by Yong-Chuo, and these techniques reduced regular mode voltages in a three-level inverter [4]. comparable negative aspects of the flying capacitor multilevel inverters additionally have been recorded including a massive quantity of cumbersome and more capacitors highly priced, the improperly balanced capacitor problem, and bad efficiency [14]. the concept of the output voltage which is stepped up became commenced with the handiest 3 ranges withinside the output voltage of the waveform withinside the Neutral factor clamped multilevel inverters inverter additionally referred to as a diode-clamped multi-level inverter in the year1981. The subsequent change of this inverter comes in the way of means of including outside ranges [5]. The fundamental output voltage is improved, and harmonics are reduced with the aid of multilevel inverters. They are more electromagnetically comparible, have higher voltage capabilities, and have fewer harmonics [15]. They also have fewer switching losses. Five-level and nine-level multilevel inverters are both available. They make accurate comparisons with the aid of inverters, IGBTs, and switching devices [6]. The characteristics checking based on space-vector modification was proposed by Quang Wei and others. The 3-stage current source inverter's 5, 7, 11, and 13 sound requests were silenced as a result of this technique.10 kilo-volts ampere consecutive current from source-converter modules were tested by equipment [7]. This technology can assist in achieving efficiency of the system and the usage of energy from renewable sources incorporated into hybrid systems [12]. Different energy from renewable sources, such as PV and wind, have been combined to satisfy the necessary load because of the fluctuating natural conditions [8]. Now, these systems aid in reaching the desired optimum output when used in conjunction with multilayer inverters. Pulse width modulation [illegible]

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Time-Domain Control Algorithms of DSTATCOM in a 3-Phase, 3-Wire Distribution System

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***Abstract*: In this paper, A crystal clear explanation is seen regarding improvement in a power quality distribution system. When the electrical power system appears to be out of phase that is either unbalanced of power on the source side or load side irrespective of any case FACTS (Flexible AC Transmission system) devices are used FACTS is nothing more than a program that uses electronic controllers to boost the effectiveness of current power systems. Over the past few years, research on new developing technologies has also been ongoing. STATCOM is one of the important FACTS controller devices. Overall from a cost point of view, VSI (Voltage source inverter) is preferred. DSTATCOM (Supply static compensator) is placed at PCC (point of the mutual link) to solve the above problem which is to get into the phase of currents and voltages. A DSTATCOM has different theories to explain but here SRFT (Synchronous reference frame theory) and IRPT(Instantaneous reactive power theory) are explored. After processing, the results are simulated by using MATLAB/SIMULINK**

Keywords: FACTS, DSTATCOM, SRFT, IRPT

I. INTRODUCTION

Quality of power is important for distribution and utilization. This quality of power depends on voltage, current, and frequency to some extent. If any disturbances/variations occur then this quantity tends to change from the actual value. Author [1] said that in this type of case power quality problem arises. According to [2]'s comprehensive explanation of the distribution system's power quality issues, the issues are due to transients, voltage variations (Vsag and Vswell), voltage imbalance, voltage fluctuations, frequency variations, and waveform distortions(noise, harmonies...). To get out of this problem they implemented DSTATCOM. In reference [3] author suggested that for power quality compensation and also for power quality enhancement a PI controller DSTATCOM is used. A FACTS can be placed in different ways in a system that is it may be in series, shunt, or shunt-series. A shunt-connected device is STATCOM it is connected at PCC if the link is disturbed due to more power DSTATCOM consumes power or else it also supplies power when the power is needed when there are non-linear load circumstances on the scheme. The active power filters used for harmonies and power compensation are described in [4]. In different phases, with and without neutral wires in the AC distribution system. And also they presented the different AF configurations for harmonics and reactive power compensation. It was all about the survey regarding the selection of AF which is very helpful for manufacturers. About [5] active filters are connected in parallel to nothing Nevertheless, shunt active cleans are used to reduce harmonics, recompense for reactive power, and maintain the quality of the power supply. At PCC they send equal and opposite harmonics to eliminate the harmonics preseat in the AC link. And also analyzed the performance of SAF by considering two different loads and observed various results of THD (Total harmonic distortion). In [6] complete observation on the capacitor planning and sizing to enhance the distribution system's quality of power, they divided their work in two ways the very first concerns with identification and combination of voltage factors, and the second is all about using PSO techniques the capacitor sizing is implemented because they help in reducing power loss and in voltage profile improvement. Author [7] considered only applications of FACTS in the distribution system that is shunt connected to one DSTATCOM application are regulation of voltage and compensation of reactive power. He said that at first power electronics used are Thyristor-based controllers but now technology is improving day by day in our lives as the PWM technique replaces the outdated methods. Clear details about the DSTATCOM SRFT (synchronous reference frame theory) control technique are provided in [8]. is observed and simulated the results in MATLAB and those outcomes are compared with the real-time outcomes. they

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Power Generation of Wind-PV-Battery based Hybrid Energy System for Standalone AC Microgrid Applications

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Abstract: **This article describes the power generation of wind, PV, and, battery-based hybrid energy systems for standalone AC microgrid applications. There are many results for resolving issues with the supply of electrical power, particularly in rural places where electrical networks are difficult to access. The usage of networks that are not linked to electrical systems allows for the provision of electricity to remote places, which is one way for determining this issue. They are denoted to as standalone microgrid systems. The standalone microgrid has its sources of electricity, extension (or)addition with an energy storage system. They are utilized where power transmission and distribution from a major centralized energy source is too far and costly to operate. In this article, a standalone AC microgrid scheme with a hybrid power system comprised of wind, photovoltaic, and batteries are designed and managed.**

Keywords: Hybrid energy system, PV (Solar Cell), Wind, Battery, Microgrid.

I. INTRODUCTION

Nowadays, electricity plays an energetic role for lightening, heating, refrigerating, operating computer appliances, etc., For less emission of gases, while producing energy when it allocating energy to different energy generation systems renewable such as Pv, wind, and storage device maintain a crucial role. Because of the inclusion of variable non-conventional energy resources when running in standalone mode, it requires various control techniques for continuous and systematic power transfer. In [1], they proposed an article about the system which has the ability to perform experimental research and studies in the field of non-conventional energy resources. They used control procedures which are cast off for real-time control environments. In this paper, an experimental scale microgrid of distributing non-conventional energy resources with battery storage, EMS, and a controller scheme is developed. In [2], they introduced the methodology in which dissimilar methods were used for the optimization of hybrid-based non-conventional energy resources. They used different algorithms which include optimization including hybrid algorithms. This generation used Artificial intelligence algorithms as they have better precision and good convergence. So, finally, they decided that unalike procedures have different accuracy and precision level and also there is a difference in convergence speed. So, the choice of an algorithm or methodology may vary with user requirements. In [3] they proposed an article about the ideal planning of Hybrid renewable power resources. They used the (HOMER)Hybrid optimization model for electrical renewables software system, which was developed by the National renewable energy laboratory (NREL), US. They determined that more than grid-connected mode HRES modeled in standalone mode. In [4] this article they used multiple algorithms for optimization of non-conventional energy resources based microgrid systems. The algorithms are multi-objective multi-verse optimization (MOMVO) algorithm, DE, and PSO are used. The outcome show a high accuracy rate compared to other techniques. In [5] they introduced the mathematical modeling of hybrid non-conventional power systems which recapitulate the HRES,

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Case study on Ni-MH Battery

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***Abstract*: In the current world, where we depend on a variety of systems and technologies, batteries play a critical role. They are necessary for supplying portable power for cellphones, laptops, and other mobiles as well as for regenerative energy sources including solar and wind, electric cars. And home energy storage systems. Rechargeable nickel-metal hydride (NiMH) batteries have grown in significance as a result of their many advantages due to great performance, Extended life, and eco-friendly alternative to throwing away batteries, these batteries have grown in popularity for years. As a result, we examine in this research how well a Ni-MH battery performance when coupled to a boost converter for boosting and battery state of charge**

Keywords: Boost converter, Nickel-metal hydride battery, state of charge

I.INTRODUCTION

System for managing energy A technology that makes it possible to store energy for later uses is an energy storage system (ESS).[2] It is a crucial element in the development of renewable energy sources, one way to address the intermittent production of sources such as solar and wind is to store excess energy during periods of low demand, and then utilize that stored energy to meet demand during times of high demand.[1] ESS can assist regulate the supply of electricity and balance the grid.[6]

Batteries, flywheels, compressed air systems and pumped hydro storage are s few of the many distinct types of ESS. Batteries, which store electric energy in a chemical form for later use, are the most widely used ESS technology.[3] Some types of ESS, including flywheels and compressed air systems, store energy and mechanical forms as compressed air systems and flywheels, o in forms of potential energy, such as pumped hydro storage.[7] As the world moves rapidly towards a future controlled completely by environmentally friendly power sources interest in energy capacity gadgets rising rapidly as well as supporting the Commeal joining of environmentally friendly power essays.[4] May likewise bring down top interest offer crisis reinforcement power and upgrade the effectiveness of ESS will increment as the expense of innovation keeps on dropping contributing to the improvement of a more reasonable energy framework.[8]

At the point when required a battery hence compounds over 2 electrical energy it is one of the most utilized kinds of energy stockpiling fueling anything from a little electronic device to enormous scope electric vehicles and power frameworks batteries or compromised of at least one cell that each has a positive and a negative cathode isolated by an electrode light.[5] As you charge a battery synthetic response happens that permits particles to move to start with one terminal and then onto the next putting away electrical energy in the process as a battery is discharged the particles return to their Cortana areas in the put-away energy is delivered as electric flow. [9]There are a few kinds of batteries each with its arrangement and applications lead corrosive, lithium-particle, cadmium, and nickel metal hydride batteries are the two most generally utilized sorts of batteries.[12]

Lead storage cells are among the oldest & most extensively usable types of batteries.[11]They are commonly utilizing automotive applications and backup power systems. They are generally expensive and deliver strong currents, making them ideal for starting engines.[10] Lithium-ion batteries are becoming increasingly popular because of their high-quality energy density, extended cycle life, and low self-discharge rates. They're common in portable electronics, electric cars, and energy storage systems. Nickel-cadmium and nickel-metal

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Closed-loop control of BLDC motor using Hall effect sensors

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ABSTRACT

Due to its key advantages of top performance, strong torque, and simple volume, brushless direct current (BLDC) motors are now extensively employed in a variety of industrial sectors, including the automotive industry, robotics, and electrical vehicles. Yet, in some circumstances, it can be challenging to use speed control techniques for specific devices. The major goal of this work is to use a proportional integral derivative (PID) converter to regulate the speed characteristics of BLDC. PID converter is preferred over all other converters because of its straightforward design and straightforward implementation. Using MATLAB simulation results are verified at different reference speed changing conditions, the motor input current and back electromotive force (EMF) values are verified. The speed and torque characteristics are verified during steady and transient state conduction.

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1. INTRODUCTION

The significance of brushless direct current (BLDC) motor drives has gained more in the last decades due to their power quality improvement and their extraordinary performance compared with other drives [1], [2]. Field windings and armature windings are located on the stator and rotor, respectively, in DC motors. Because there are brushes and dust has built up in them, upkeep is more expensive. Due to their tendency to arc, DC motors can only be used in certain hazardous industries [3], [4]. The BLDC motor could be changed to resolve this. Because it is more efficient, requires less money, has a large ratio of torque to weight and is simple to operate at all speeds [5], [6]. The importance of taking into account a large ratio of torque to weight is that it has a long operational life, is silent, and is more effective than others [7]. The BLDC motor can solve the issue of electrical erosion and mechanical friction. Hall sensors are used to determine the motor's position [8]. To achieve a smooth speed operation and torque with a low ripple content, the motor must be controlled. Electronic commutation of the BLDC motors results in trapezoidal back electromotive force (EMF) signals. The proportional integral derivative (PID) controller adjusts the motor's input voltage continually based on the discrepancy between the intended speed and the true speed. The PID controller's proportional, integral, and derivative gains are adjusted to produce the desired responsiveness and stability [9]. In an open loop, BLDC motor the control technique involves voltage control, pulse width modulation (PWM), and frequency control [10]. The open-loop speed control is more accurate than the closed-loop speed control as external factors like temperature and load variations are included [11]–[15]. The open loop BLDC motor model is used in MATLAB, and the responses are used to study under various circumstances.

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Grid-Connected 3L-NPC Inverter with PI Controller Based on Space Vector Modulation

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***Abstract*—For a three-level grid-connected neutral point clamped (3L-NPC) inverter, a closed-loop space vector modulation-based PI controller is presented in this paper. The clamp diodes and cascaded dc capacitors used in the diode-clamped multilevel inverter produce multiple-level ac voltage waveforms. Low THD and creating pure sine waves are the key benefits of MLIs. Generally speaking, the inverter can be set up with a three-level, five-level, seven-level, etc. architecture. However, a NPC inverter is only ever referred to as a 3-level inverter. The SVM is one of the well-liked period modulation techniques and is widely used for the digital management of VSIs. The SVM is principally used for generating change pulses. The project SVM results are compare with carrier-based curved PWM (SPWM). The enforced 3L-NPC simulation results are verified in MATLAB/SIMULINK software.**

***Keywords*—SVM, PI Controller, Grid-Connected 3-Level 3-Phase NPC Inverter.**

I. Introduction

The inverts are plays vital role in modern electrical engineering like Electrical Vehicles, robotics and Solar plants. Authors in [1] implemented A novel high-power ANPC Inverter. The implemented inverter is controlled by an improved fault-tolerant control strategy. The control strategy is well operated under short-circuit fault conditions. Reference [2] grid connected three-level inverter had implemented. The inverter is controlled by general mode resonance damp and DC voltage complementary techniques. The implemented controller reduced output current distortion reduced power loss and switching loss. The proposed controller had verified under different load change conditions. The 3-Ph 3-levell inverter is controlled by a model predictive controller. The control strategy had well operated in a closed loop. The planned controller is well-operated under steady-state and active conduction [3]. Authors in [4] introduced 3-phase and 4-wire T-Type inverters with the neutral inductor. The zero-sequence voltage controller is implemented for the inverter. The implemented controller eliminated lower-order harmonics. The reduced device count 4-level 3-phase inverter is presented in [5]. The DC-Link capacitor voltage complementary system had been implement and the low-frequency modulation scheme, as well as level, shifted PWM technique implemented this reference.

Grid-connected three-phase three-wire NPC inverter had implemented in [6]. The implemented controller had controlled by a de-coupled control scheme. The experimental results were verified at different PLL conditions. This paper had different mathematical equations analyzed.

Reference [7] presented an MPC controller for a 3-L NPC inverter. The inverter-controlled PMSM is in this paper. The MPC controller was robust, well operated steady state, and had dynamic conduction. Different topologies of inverters and different SVM techniques are reviewed in [8]-[9]. The infinite-level induction motor is discussed in [10]. The motor was controlled by three-phase VSI, the experimental results verified different load conditions. A modified Z-Source inverter had implemented in [11]. A novel technique is implemented in this reference for balancing DC-Link capacitors. Three-level inverter reduced torque ripples in the induction motor [12]. Level-shifted PWM techniques implemented in [13] for MLI. This SVM-based three-level grid-connected inverter was implemented. in section II inverter topology explained, the section III control technique implemented and the section IV results explained.

II. Grid-Connected Inverter

A single pole triple throw switch is also called a three-level inverter. in its place of a two-level inverter. We are using a three-level inverter because we need a multi-level converter. In a three-level inverter, there is a pole R where a load terminal is connected to it. So that we can apply either +Vdc or -Vdc to it, which is measured concerning 0 at R. So the quality of waveform will be improved if we connect this R to the midpoint 0 either by positive bus or by negative

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3-Phase 7-Level Diode Clamped Inverter for Standalone Application

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Abstract: ***This article presents a three-phase, seven-level diode clamped multilevel inverter method. This circuit can be used for applications requiring medium to low industrial power. The three operational modes for this three-phase, seven-level, diode-clamped MLI structure are presented in this study. It consists of three phases each phase consists of the upper and lower leg each leg consists of 12 switches. This circuit operation is presented and simulated with PWM control techniques and output waveforms are obtained. By using this circuit design the THD is better.***

Keywords: Inverter, MLI, DC MLI, PWM technique, THD

I. INTRODUCTION

Multi-level inverters are now increasingly in demand for high-power applications. In the past ten years, multi-level inverters have caught the interest of both the industry and the academic community. The optimal topologies for this multilevel inverter are the diode-clamped inverter and capacitor clamping. explains the various diode-clamped inverters and MLIs [1]. According to the literature on the principles of diode clamped inverters, their functioning, and clamping issues [2]. The best SVPWM method for diode-clamped multilevel inverters for industrial induction motors is evaluated, along with the method's explanation [3].

The statcom/BESS applications for diode-clamped multilevel inverters are reviewed[4]. The comparative analysis of two, three, and five-level inverters based on THD was evaluated by this author [5]. presented the harmonic distortion removal in diode-clamped MLIs using an evolutionary method [6]. The optimal control strategies for THD and RMS voltage as well as a variety of PWM strategies for three-phased diode multilevel inverters are presented [7]. The SPWM approaches use different modulation indices to observe the presented fluctuations of total THD [8]. A three-level diode clamped multilevel inverter's simple neutral point voltage regulator was designed, analysed, and implemented [9].

MLIs with diode clamps were modulated at a fundamental frequency. This article examines the design of a three-phase standalone solar system with a six-level inverter [10]. The outflow current and dv/dt switch damage are reduced using multilevel inverters. The methods for lowering and removing the common mode voltage (CMV) utilising a five-level diode-clamped multilevel inverter are discussed in this study [11]-[12]. Chopper circuits with a new topology are used in diode clamped multilevel inverters to balance the voltage across DC capacitors. The suggested structure is very reliable and modular [13]-[15]. Reduced switching components, high level voltage, and low THD are just a few benefits of MLIs. Electric and hybrid automobiles, microgrids, and transmission systems are among the MLI's applications. The drawbacks include a high switching loss.

II DIODE CLAMPED MLI

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Fuel Cell based Grid Connected Two-Level Inverter

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***Abstract*: This study introduces a grid-connected inverter powered by fuel cells (FC). Though comparable to a battery, the fuel cell does not store energy. DC voltage is continuously supplied to the fuel cell. Oxygen(O2)and hydrogen (H2) are used as fuel inputs. In this research study, fuel cell is connected to a two-level inverter, and the inverter output is linked to a segregation transformer, whose output is connected to the grid. The primary goal of this study is to use renewable energy sources to lessen air pollution. There has been a lot of recent study on EVs powered by fuel cells. MATLAB/ Simulation software is used to validate the fuel cell results.**

Keywords: fuel cell, micro-grid, voltage, current

I INTRODUCTION

The smart micro grid design in reference [1], has different input sustainable efficiency sources like wind, solar and photovoltaic. The inverter is used for converting DC-AC. Fuel cells and hydrogen technology can provide clean, efficiency and sustainable electrical power wherever and whenever it is needed. The designed micro grid was used for Electric Vehicle battery charging and domestic loads. Modified teaching learning algorithm is implemented in this study. The algorithm controlled the micro-grid system. The hybrid electric vehicle is presented in [2]. The hybrid vehicles have two different input sources one is battery and other one is fuel cell. The fuel cell has clean and green energy generating power. The fuel cell used a secondary source in HEV. Fuel cell based distribution system is implemented in [3]. Frequency control technique was introduced in this study. In this study mathematical formulas are analyzed. The implementation of micro grid technology can emphasize the dependability of the power systems by beneficence of self-heal performance at low voltage levels and reducing air pollution. Generally speaking, fuel cells are employed mostly for transportation technology, household applications, portable use and stationary power generation [5]. The characteristics of fuel cells are partly distributed and nonlinear, which are mainly required for the analyzing of the system design [6].In general, the fuel cell's contribution to the frequency control approach can be divided into two categories: frequency regulation and island grids [8]. With a set-point reference frequency, it was possible to regulate the fuel cell inverters for output power requirements [9]. Through local control systems, frequency modulation of the fuel cells is discovered to be outsourced [10]. This research presents FC based grid connected system. Fuel cells are ecofriendly distributed generation systems. They are environmentally responsible because the demand for electric power and environmental restrictions may rise as a result of the greenhouse gas emissions [9]. The electrochemical cells convert the chemical energy into electrical energy [10]. One of the most attractive distributed generation techniques for power transmission is fuel cells [3]. The economic operation of microgrids can vary the topology of the feeder only through the reconfiguration process, which is another feature of them [4]. The two-level inverter provides a clean and stable power supply for grid-tied applications. It offers a sustainable energy solution that can help in mitigating the energy crisis and environmental problems [5]. With continuous technological advancements in fuel cell technology and inverter scheme, the fuel cell is based grid connected two-level inverter is predictable to play an important part in the upcoming energy generation and distribution [9]. Due to their energy conversion efficiency is more and emissions are low, FC have developed a popular clean and effective choice for converting energy. The two-level inverter is the key component of the system and is responsible for converting the DC signal into an AC signal suitable for grid connection [7]. The benefit of AC Micro grids is that they utilize some converters to supply AC power straight to AC then DC loads. The effective control plan is used to plan the hybrid energy sources in AC micro grid to generate an ideal energy management system [4].Fuel cells generate power by a unit cell that contains a strong current but a low voltage.Grid voltagewave can result in lowest frequency

Reduction of THD and Power Quality Improvement by using 48-pulse GTO-based UPFC in the Transmission Systems

Publisher: IEEE

Khammampati R Sreejyothi ; Sandarsan Umesh ; Varun Ranjith Kumar ; Kalagadla Chenchireddy ; Yerroju Abhinay Sai ; Bontha Nagarjun All Authors

Abstract: This paper presents a 48 Pulse GTO-based Unified Power Flow Controller (UPFC) for power quality development in the Transmission system. It consists of a shunt converter w... View more

▸ Metadata

Abstract:

This paper presents a 48 Pulse GTO-based Unified Power Flow Controller (UPFC) for power quality development in the Transmission system. It consists of a shunt converter which is operating as a Static Synchronous Compensator (STATCOM) to control the voltage at the source side and a Series converter which is operating as a Static Synchronous Series Capacitor (SSSC) to control the injected voltage and reactive power at the load side. This paper proposed Synchronous Reference Theory (SRF) based Phase locked loop for controlling the voltage at the source side. The Total Harmonic Distortion (THD) with UPFC resulted inside 43.93% and without UPFC resulted in 1.91% as per IEEE 519 standards. The results were simulated in MATLAB/SIMULINK.

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Design and Implementation of Three-phase Three Level NPC Inverter

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ABSTRACT: The three-level NPC PWM inverter is a type of multilevel inverter that provides a higher quality of output wave form compared to traditional two-level inverter. It is a type of power electronic converterthat is used in renewable energysuch as wind turbine and PV system. It convert DC power source into AC power source. It is also capable of handling high power levels and provides better efficiency compared to other inverter topologies. Since, inverter uses PWM technique to control the switching power of semiconductor devices.

Keywords: Multilevel inverter, Neutral point clamped inverter, Three level inverter, SPWM technique.

I.INTRODUCTION

In comparison to other inverters that have been researched and used in the past, NPC inverters are one of the most significant multilevel inverter structures. Low volts is needed to power the devices using this kind of inverter, and the output voltage needs to have minimal harmonic content. The topological structure cannot be expanded because of the inherent neutral voltage balance issue. [1] [12]

The primary approach for a three-level NPC inverter uses SVPWM and PWM to manage the average value of NP currents at zero in a switching instance (PWM) [2]. Nahae, Takahashi, and Akagi created the neutral point converter in 1981; it was essentially a 3-level diode-clamped inverter. The multi-level inverter is more capable and effective power applications nowadays [3]. This inverter is utilised in high voltage, high power efficiency applications with a wide variety of machine speeds [4]. Three-level NPC inverter benefits include: maximising efficiency at switching times.

At the appropriate voltage level, the capacitors can recharge once more. Due to the sharing of all phases to a single set of DC links, the inverter's capacitance can be kept to a minimum.[5]

Since new approaches for controlling the switches in inverters were introduced. For Example, Pulse Width Modulation (PWM), [6]

The most common used for the PWM technique is sinusoidal PWM technique (SPWM). The NPC multi level inverter can be operated as 3 modes operations i.e. Dipolar, Unipolar and Partial dipolar.[7]

As a result, the dc link voltage in an NPC 3-level inverter can be divided into two equal capacitors. The fluctuation in NP voltage is the 3-level inverter's serious issue[8].

In this study, an SPWM project was constructed that offers an NPC multi-level inverter with voltage balance control and waveform for switching between levels of three and five.[9][10] Only the measurement of load current and DC link voltage is required for this project. The load performance is not high flow because the balancing voltage strategy is based on adding the appropriate diagonals/angles to the provided order of the voltage.[11]

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Z-source Inverter for Standalone Application

Publisher: IEEE

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Abstract: A Z source inverter (ZSI) is a one type of converter in power electronic which is used to control the speed of AC motors, in renewable energy systems. Unlike normal volta... View more

▸ Metadata

Abstract:

A Z source inverter (ZSI) is a one type of converter in power electronic which is used to control the speed of AC motors, in renewable energy systems. Unlike normal voltage inverters, it has a fixed input voltage and frequency, where a ZSI can be adjust the input voltage to get a constant output voltage. It can happen by use of a impedance network, it allows a step up or stepdown operation on the input voltage. The ZSI has many advantages over normal voltage inverters like increased efficiency, improved reliability, and good flexibility in controlling the motor. A part from this, the ZSI can operate in both continuous and discontinuous modes, to make it suitable for a many applications. However, Due to complex impedance network it is challenging to design and control a motor and care should taken about its components and control strategy. A part from these challenges, the ZSI has the potential to change the field of power electronics and renewable energy systems.

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Induction Motor Speed Control Through Vector Control Approach

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***Abstract*: The technique of vector control, often stated to as field-oriented control (FOC), is frequently utilize in Factory made applications to regulate speed and torque of IM drives. Vector control enables precise control of motor speed and torque by segmenting the stator current into components that produce torque and flux. The 3-phase Alternating current(AC) voltage & current signals are altered into a rotating reference frame, where the stator currents are divided into their torque and flux components, to achieve this. A PI controller uses the converted signals to produce the reference values for the torque (T_e) & flux components of the stator's current. The inverse Park transform is then used to turn these values back into three-phase signals, which creates the control signals for the motor drive.**

Keywords: Field oriented control (FOC), PI Converter, Inverse park transform , Vector control, Alternating Current

I.INTRODUCTION

Induction motors continue to be the most widely used motors in the industry, as is well known, due to their excellent performance and affordable price.[2]

Advantageous operational characteristics of AC induction motors include power, durability, and ease of control. They are extensively used in a variety of applications, ranging from mechanical control mechanisms for residential appliances.[1] Despite this, using induction motors at their highest productivity levels is a challenging task because of their complicated numerical representation and non-straight trademark during immersion.[14]These elements lead to acceptance engine control issues and necessitate the use of advanced control computations such as vector control.[4]Due to their high performance and low price, induction motors continue to be the most popular motors in the industry. It comprises great dependability, low cost, and widespread use in industrial applications. induction motors are practically completely maintenance-free.[10]When compared to a DC motor, it is robust, lighter, cheaper, more reliable, and nearly maintenance-free. The induction motor(IM) can be controlled in a variety of ways. V/f control is the oldest technique used among these.[9]This approach has poor dynamic performance because induction motors require coordinated control of the stator current's amplitude, frequency, and phase, which is not attainable with V/f induction motor drives. [5]An optimal

vector control, commonly mentioned as field oriented control (FOC). Dissociated control of flux and torque is a component of vector control. For managing the speed and torque of induction motor drives in industrial applications, vector control is a potent technique.[8] Vector control enables fine control of the motor's speed and torque by individually managing these two stator current components.[3] On basis of the idea of converting the three-phase AC voltage and current(I) signals into a rotating reference frame, in which stator currents are categorized into their torque and flux components, vector control is used to drive motors.[13] A PI controller uses the converted signals to produce the reference values for torque(T_e) & flux components of the stator current.[11]

VC also acknowledged as field oriented control, is a control approach used for achieving high-performance control of induction motors.[15] This technique involves transforming the three-phase AC power supply into a two-phase system, with the first phase being the magnetizing component and the second phase being the torque component.[6]

The advantages of vector control include:

1. High performance: Vector control provides accurate and fast control of the motor's speed, torque, and position.[12]
2. Energy efficiency: Vector control minimizes losses in the motor, resulting in improved energy efficiency.
3. Reduced maintenance: Vector control reduces the stress on the motor, resulting in lower maintenance requirements.
4. Increased lifespan: Vector control extends the lifespan of the motor by reducing the stress and wears on its components.

In summary, vector control is a powerful control strategy used to achieve high-performance control of induction motors, resulting in improved energy efficiency, reduced maintenance requirements, and increased lifespan.[7]

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Grid-Connected Inverter Fed from PV Array

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***Abstract*: This manuscript presents a grid-connected two-level inverter. The presented inverter is controlled by SRFtheory with a PI controller. The two-level inverter switching pulses are generated from the space vector modulation technique. The main advantages of two-level inverters are less number of switches, low switching loss, low cost and, suitable for low power rating applications. Software called MATLAB/Simulink is worn to reproduce the depicted circuit. the inverter output voltage, grid voltage, grid current, and PV module voltage are all confirmed by the simulation findings.**

Keywords: Inverter, PV panel, Grid.

I INTRODUCTION

This paper presents a Two-level voltage source inverter. This type of inverter is worn for low-down voltage and low-power range applications. Regarding [1], Model predictive control is used to regulate a better T-Type grid-linked inverter. The implemented control scheme decoupled active and reactive powers by using the DQ reference frame. This paper improved T-Type results compared with conventional T-type results. Authors in [2] Trinary hybrid CHB MLI had implemented. The implemented inverter generated more number of output voltage levels. The controller eliminated DC-offset voltages. The second-order controller controlled active, and reactive powers and irradiation. This paper three-phase three-level inverter implemented for grid connection. The implemented inverter is controlled by a one-cycle controller. The presented controller has low switching loss and robust performance [3]. In [4] implemented a multi-string five-level inverter with a work of fiction PWM technique. The implemented topology has an input solar panel, auxiliary circuit, DC-DC converter circuit, and inverter. This paper is a DSP controller implemented.

The yield current THD is 1.76%. Reference [5] different sliding mode control strategies applied single stage PWM inverter. Different SMC procedures are regular SMC, fundamental PWM inverter controlled by SMC, terminal attractor, and crucial terminal attractor. For an LCL-GCI shut circle architecture. To stop the mutilation of the matrix current, reference [6] has presented a better current SMC technique with capacitor current feed-forward control. Reference [7] reported on a modified sliding mode control for a single-stage VSI.In this control system is decreased burden of current aggravations and gubbing issues. Jose Antonio et.al [8] presented another SMC for a single-stage inverter in a photovoltaic MPPT application. The SMC had contrasted tentatively and a traditional PI regulator; SMC got a superior dynamic and unsettling influence dismissal. En-jaw change [9] introduced clever SMC for VSI. 1KW VSI trial tests had. Thought about consistent state and dynamic reaction test results. the general framework had tried under fluctuating working conditions, to be specific

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Wind - Battery Controller Based Standalone Alternating Current Microgrid Applications

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Abstract: ***This research paper describes a wind-battery-based standalone AC micro grid system that can provide reliable and uninterrupted power to off-grid applications. The proposed system consists of a wind turbine, a battery bank, and an inverter that work together to generate and store electricity, which can be utilized to power critical loads in a standalone micro grid.***
The microcontroller controls the energy flow between the wind turbine, battery bank, and load to ensure a stable and continuous power supply. The system's performance is evaluated using simulation, which demonstrates that the proposed system is capable of effectively providing reliable and uninterrupted power to standalone micro grids, making it a promising solution for remote and off-grid areas.

Keywords: Battery, Wind turbine ,Micro Grid, Controller.

I INTRODUCTION

A wind-battery-based standalone AC micro grid is a new technology that has been proven to be a dependable and sustainable way to supply energy to off-the-grid and remote locations.[1] This kind of micro grid creates and distributes electricity using wind turbines, battery storage, and an AC power system.[2]Several studies have investigated the feasibility and performance of wind-battery-based standalone AC micro grids in various locations. For example, a study conducted by researchers at the University of Manchester and.[3] the University of Edinburgh evaluated the performance of a wind-battery-based standalone AC micro grid in a remote area of Scotland and found it to be a cost-effective and sustainable solution.[4].Another study conducted by researchers at the University of Waterloo and the University of Ontario Institute of [14].Technology evaluated the most efficient wind-battery standalone AC micro grid design and operation for distant communities in Canada and discovered it to be a dependable and affordable source of electricity.
[5] Also, a University of Michigan study investigated the potential of freestanding.[6] AC micro grids powered by wind and batteries lower carbon emissions and enhance access to energy in poor nations.[7] According to the study, these micro grids might supply dependable and sustainable electricity to rural areas, hence lowering the demand for conventional electricity generation from fossil fuels. [8] Standalone AC micro grids powered by wind batteries have demonstrated significant promise as a trustworthy and sustainable way to supply power to rural and off-grid locations. [9] This technology has the potential to be adopted widely as a means of producing and distributing sustainable energy with continued study and development.[10].Electricity generated by wind turbines can be stored in batteries to ensure a consistent supply of power during periods of low wind or high demand. This enables the stored energy to be utilized for electricity production at

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Distribution System Power Quality Improvement using IRP Theory

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Abstract: A shunt active power filter is suggested in this study. In power plants, there are different power electronic converters, which leads to power quality problems including ... **View more**

▸ **Metadata**

Abstract:
A shunt active power filter is suggested in this study. In power plants, there are different power electronic converters, which leads to power quality problems including harmonic noise and voltage swings that decrease the life of the equipment. Shunt active power filters decrease harmonics, voltage swings, and the insistence for reactive power from nonlinear loads in 1-ph (2 wire), 3-ph with neutral (4 wire), and 3-ph without neutral (3 wire). Using the pq theory, the reference compensating current is retrieved. The simulation results verified MATLAB 2015a software. Different MATLAB results are verified during the steady-state and dynamic state. The simulation results are verified output voltage, output current and THD.

Published in: 2023 7th International Conference on Computing Methodologies and Communication (ICCMC)

Date of Conference: 23-25 February 2023

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Contents

Reduced Device Count 9-Level Inverter for Standalone Applications

Publisher: IEEE

Satheesh Kumar Gharagahalli ; Dileep Sammeta ; Venkatesh Edla ; Sai Krishna Bykani ; Lokesh Uppalla All Authors

Abstract: Nowadays the use of inverters is increasing tremendously in many applications. Multilevel inverters give the accurate output waveform as a nearly sinusoidal waveform. Thi... View more

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Abstract:
Nowadays the use of inverters is increasing tremendously in many applications. Multilevel inverters give the accurate output waveform as a nearly sinusoidal waveform. This paper gives an overview of different types of multilevel inverters i.e., Diode-Clamped, Flywheel, and Cascaded H-Bridge inverters. The proposed topology deals with the REDUCED DEVICE COUNT 9-LEVEL INVERTER, its operation, switching sequence, and control technique used, and gives a review of output waveforms and THD. It has many advantages over the conventional 9-level inverter such as a lesser number of switches, low THD, high efficiency, and low price.

Published in: 2023 7th International Conference on Computing Methodologies and Communication (ICCMC)

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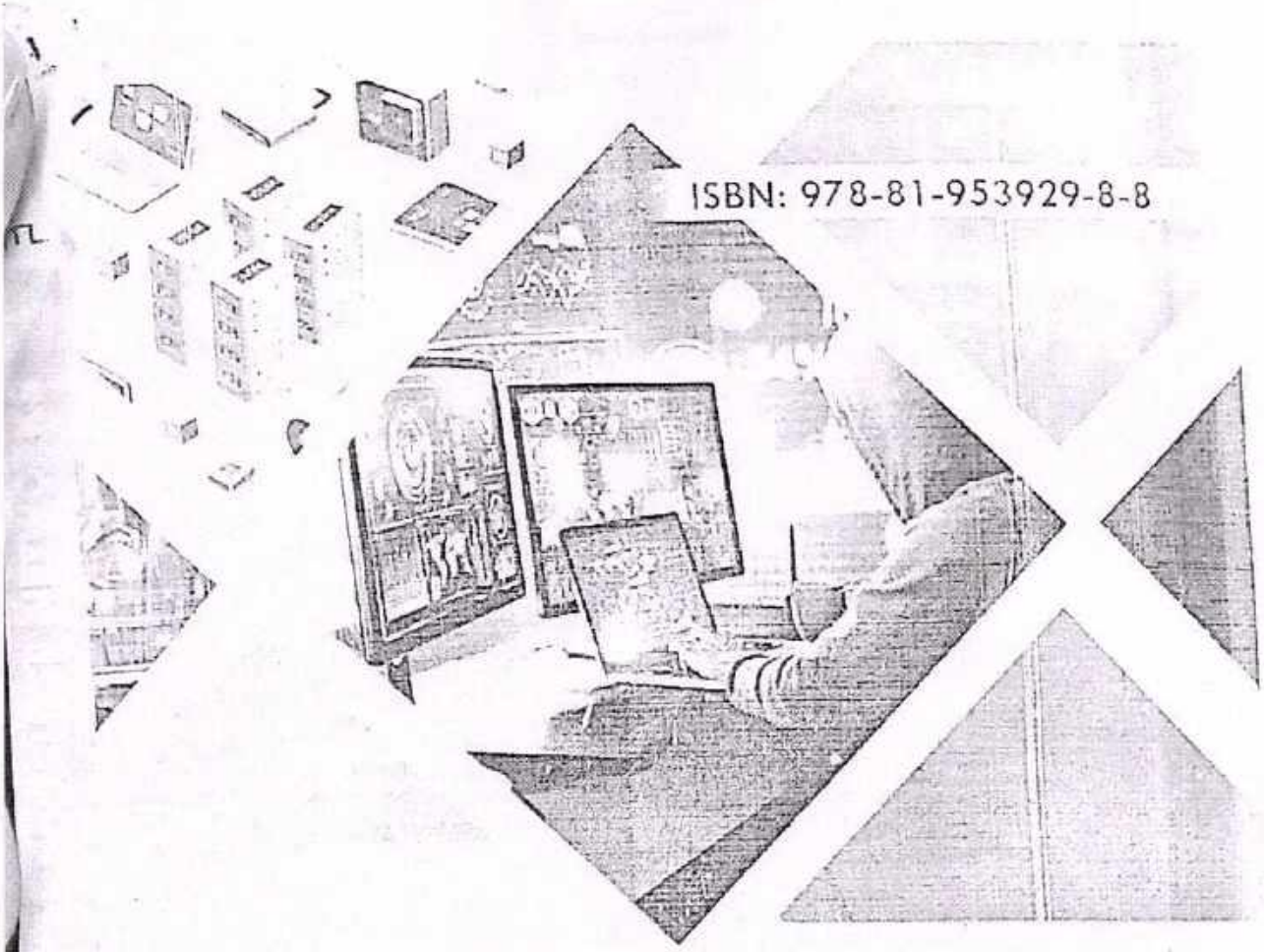

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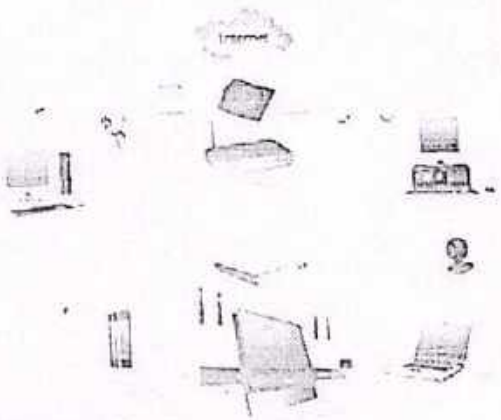

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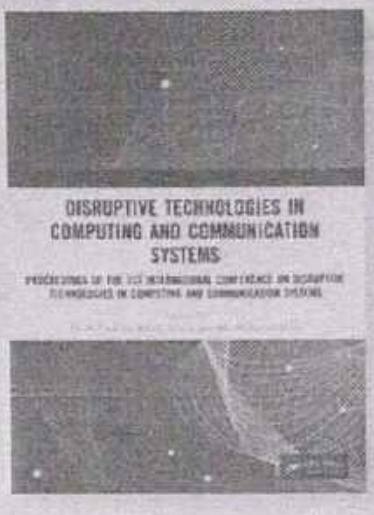

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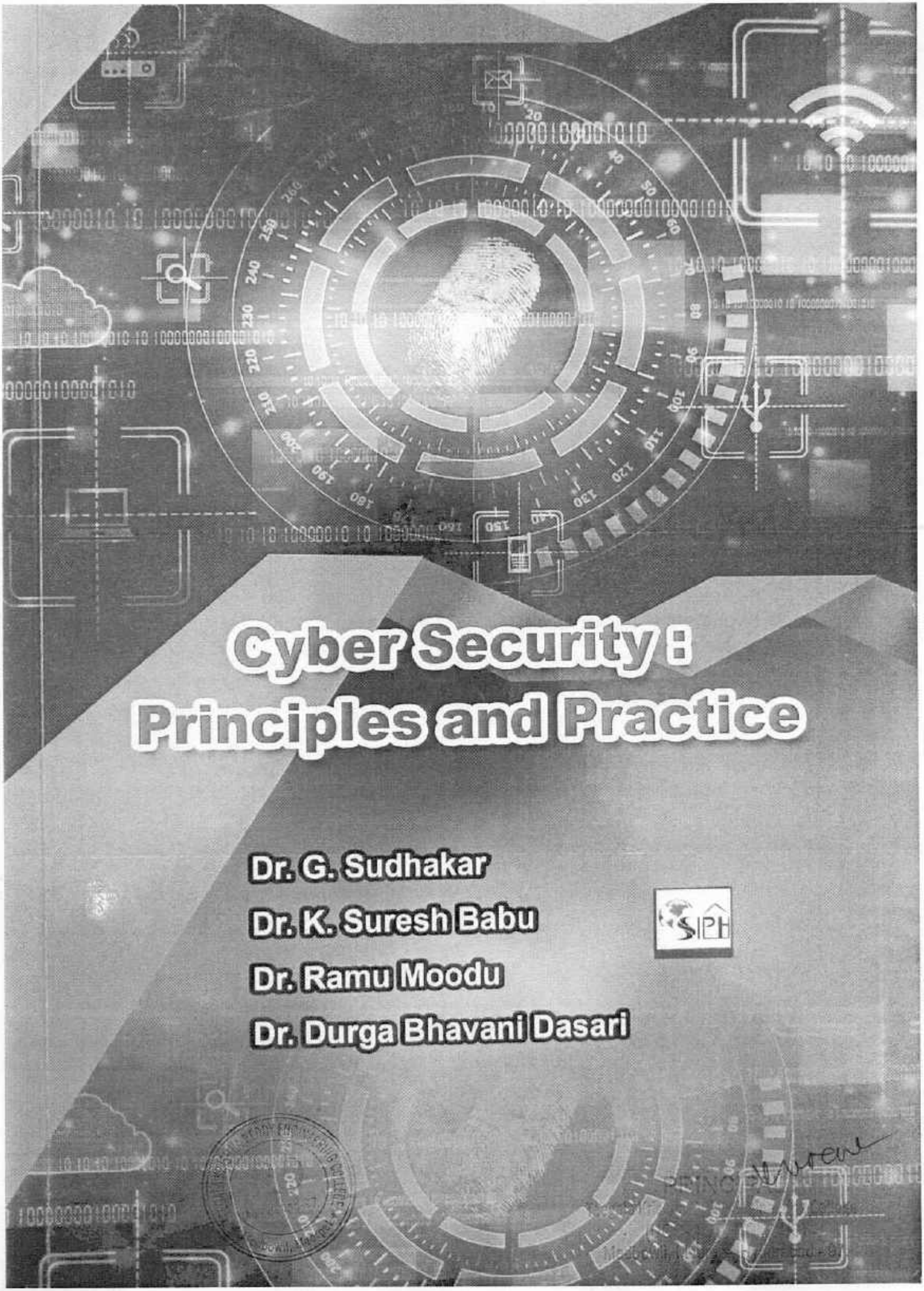

Cyber Security : Principles and Practice

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Cyber Security: Principles and Practice

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Innovations in Signal Processing and Embedded Systems pp 169–182

Automated Skin Disease Detection Using Machine Learning Techniques

Kandadai Bhargavi, N. Vadivelan, Sarangam Kodati ✉, Ch. V. Phani Krishna & Kumbala Pradeep Reddy

Conference paper | First Online: 14 September 2022

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

Dermatological problems are among the world's most prevalent illnesses. Although its frequent diagnosing, its intricacies of physical appearance, existence of hair are very challenging. Identification and observation of skin diseases is a significant issue for the medical sector. Because medical services are not accessible in rural locations, people often overlook initial signs which might deteriorate over time. This is thus an increasing demand for a high-precision automated skin disorder

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2022 8th International Conference on Advanced Computing and Communication Systems (ICACCS)

Power Quality Enhancement In 3-Phase 4-Wire Distribution System Using Custom Power Devices

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Abstract: **the main cause of power quality troubles are failure supply & load unbalances. The power quality problems related to voltage point of common coupling and voltage deformation, voltage flicker, voltage unbalance, voltage sag and voltage expansion. Power quality problems in 3-phase 4-wire power distribution systems are failure of capacitor banks, noise, vibrations, and induction motors. This article describes how to use DSTATCOM to improve power quality in 3-phase 4-wire power distribution systems. An instantaneous reactive power theory-based PI controller is implemented in this manuscript for power quality enhancement. The main objectives of this paper are to maintain IEEE 519 standard, eliminate voltage-related power quality problems and reduce harmonics in the three-phase distribution supply.**

Keywords: power quality, distribution system, voltage sag, voltage swell, flicker

I INTRODUCTION

Power quality general problems are equipment failure, lighting and voltage distortion. The power quality problems are classified into two types one voltage and second current-related problem. The power quality problems related to voltage point of common coupling and voltage distortion, voltage flicker, voltage unbalance, voltage sag and voltage swell. The power quality troubles cause, failure of capacitor banks, noise, vibrations, and induction motors on the distribution side. Authors in reference [1]-[2] extensively explained some power quality advanced control methods. These methods are Adaline-based control, ANFIS controller, model predictive control as well as sliding mode control. These methods are mainly used for reducing harmonics on the distribution supply side. Inverters are playing important role in the power quality improvement DSTATCOM circuit. in [3]-[4] some advanced reduced device count multilevel inverter circuits along with some inverter control algorithms explained. In [5] a novel fuzzy logic-based power quality improvement technique was implemented to improve the power quality of the micro grid. Authors in reference [6] reduce device count-based DSTATCOM implemented and improved power quality in the distribution grid.

The presented algorithm had eliminated current harmonics 21% to 0. In [7] Power quality improved grid-connected PV system on the distribution side. Adaline-based least mean square-based algorithm implemented and improved power quality. the presented well operated in non-linear load duration time. About [8] three-phase four-wire based interlinking converter implemented and improved power quality in the distribution system. Decoupled control scheme reduced harmonics and was well operated under transient state conduction.

Double reduced-order based generalized integrator implemented in [9] for power quality improvement distribution. In [10] compared different 3-phase 3-wire and 4-wire topologies. Voltage quality improved in distribution system [11] using advanced control scheme. In [12]-[15] some advanced Z-source inverters were implemented, these inverters are very used full for power quality enhancement in distribution. This article describes improving the power quality of a three-phase four-wire system. Section II presents the distribution topology circuit, section III presents IPR theory with PI controller for power quality improvement. Section V presents simulation results.

II THREE-PHASE FOUR-WIRE DISTRIBUTION SYSTEM

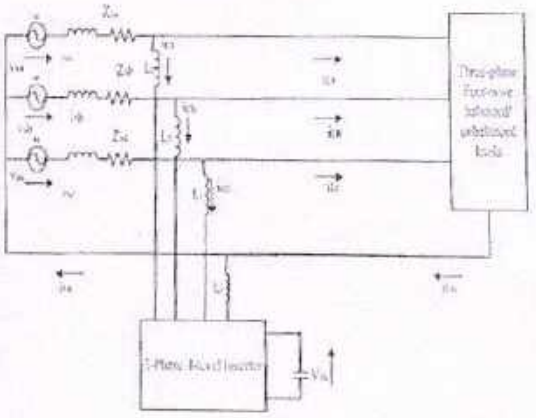

Fig.1 three-phase four-wire distribution system

Fig1. Shows the basic three-phase four-wire distribution system circuit with D-STATACOM.

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Performance Verification of Full-Bridge DC To DC Converter Used for Electric Vehicle Charging Stations

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Abstract: **Electric vehicle (EV) usage increased in the world. The main cause of increasing EV importance decreasing fuel sources. The main advantages of EV are no pollution, less maintenance cost, high effieiency. However, some drawbacks are high charging time, fewer charging stations, and less distance transportation. This paper presents a full-bridge (FB) DC-DC Converter for charging the electric vehicle. The main configuration of this FB converter stored energy in the battery at the EV charging station. Compare with the other DC-DC converter full-bridge converter is additionally appropriate for a power system where maximum voltage and maximum power are convoluted. The corresponding representations for charging mode and strategy with phase shift control techaique are presented. The PI controller was implemented for controlling the FB DC-DC converter. The recommended topology will be implemented in MATLAB/ Simulink software. A detailed model by testing the present topology in terms of charging time, effective functioning of unidirectional power flow, hence, the life of battery and vehicle will be improved.**

Keywords: DC-DC Converter, PI controller, Battery, Electrical vehicle, EV Charging Station.

I INTRODUCTION

Switching energy materials are extensively utilized in electric and electronic systems. Different topologies are to be had for such as DC-DC converters: forward, fly-back, half-and full-bridge is a few not unusual place examples. Choosing the form of topology relies upon elements like software output energy, complexity, and cost. DC voltage reasserts have emerged as a chief requirement for digital equipment. Electronic gadgets along with televisions, cell telephones, and lighting, along with LED lighting use DC voltage at the same time as their energy supply. The trouble is to the supply furnished through the energy company is with inside the shape of AC voltage.

In its usage, this shape of AC wishes to be transformed into DC which reasons losses within side the process. Due to the energy converter, the fundamental topology can't deliver energy necessities to'a huge capacity, so it's far vital to broadening DCDC converters. Therefore, they may be carried out to the mode used the usage of the precept of DCDC converters and changed the usage of transformers as detachment in circuits with exchanging mode. One of the patterns of voltage-bringing down geography DCDC converters is the absolute extension DC-DC converter. The various digital circuits that make use of more than one output kind of topologies is likewise referred to as multiport converters [1].

In general, electronic equipment systems are systems that need to control output voltage or current [2]. Shang and Wang [3] offered a brand-new incorporated DC-DC circuit with a raised output and a dollar output along with a variety of novel managed circuits designed to manipulate each output simultaneously. EMP is subdivided into conductive

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Performance Verification of Full-Bridge DC To DC Converter Used for Electric Vehicle Charging Stations

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Energy Management System Control in Speed and Torque Coupling Parallel Hybrid Electric Vehicle

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Abstract: Now a day's everyone using vehicles for transportation. However, fuel prices also rise day to day in the modern world as well as increasing air pollution, environmental pollution and health issues due to internal combustion engines. To overcome the above problems, this paper presents a Parallel Hybrid Electrical Vehicle (HVE) for the transportation system. The proposed vehicle has two input power sources one is a battery and the second one is an IC engine. The main objective of this paper is to control the speed, torque and energy management system in parallel hybrid electric vehicles. The EV major advantages, no pollution, low initial and running cost, high efficiency. This paper simulation results verified EV speed, power and velocity and other parameters. Hardware results verified forward and backward direction of four wheels EV.

Keywords: Electric vehicle, Battery, energy management system, speed and torque.

I. INTRODUCTION

Different hybrid electrical vehicle topologies available in modern world. those are classified into: series hybrid electric vehicle and parallel hybrid electric vehicle, again parallel hybrid electric vehicle classified into speed coupling parallel hybrid EV, torque coupling parallel hybrid EV and speed-torque coupling parallel hybrid EV.

Authors in [1] presented model predictive controller (MPC) for control of energy management system in a parallel hybrid vehicle. The MPC controllers Battery SOC and vehicle speed, brake and acceleration. A novel consumption minimization control strategy was implanted for the energy management system (EMS) in parallel hybrid EV [2]. The proposed controller reduced fuel consumption. Power split hybrid vehicle implemented in [3]. Fuzzy logic-based controller implemented for hybrid EV. This controller controllers EMS [4]. Photovoltaic cell-based hybrid vehicle presented in [5]. PV cell installed top on the electric vehicle. MPPT controller tracks maximum power and stores power in the battery. Reinforcement learning based supervisory control algorithm implemented for fuel economy improvement in hybrid electrical vehicle [6]. In [7] ANFIS based consumption minimization control strategy implemented for hybrid electric bus. The proposed controller save fuel and balanced hybrid power. Adaptive dual-loop controller implemented for hybrid vehicle control. The inner control loop controlled clutch and the outer control loop controller's vehicle velocity [8]. Different energy management control strategies implemented for hybrid electrical vehicle [9]-[12]. Different inverter topologies reviewed for EV [13]. Single phase induction motor implanted for Hybrid EV [14]. Different inverter control techniques implemented for EV application [15]. This paper presents a Parallel Hybrid Electrical Vehicle (HVE) for the transportation system.

II. HYBRID VEHICLE POWER FLOW TOPOLOGIES

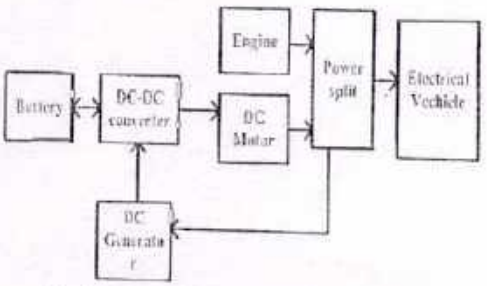

Fig. 1. Hybrid vehicle power flow topology

A hybrid vehicle means two or more different energy sources. Fig.1 shows hybrid vehicle power flow topology. This circuit has two input power sources one is the internal combustion (IC) engine and the other is the battery. In this circuit, major parameters are IC engine, battery, DC-DC converter, DC motor, DC generator and power split. The IC engine generates mechanical power for transmitting hybrid vehicles.

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Level-Shifted PWM Techniques Applied to Flying Capacitor Multilevel Inverter

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Abstract: **This paper presents the level-shift PWM technique applied to the flying capacitor three-phase five-level inverter. The advantages of the proposed inverter compared to other MLIs, single DC source required, not required more number clamping diodes like diode clamped MLI, less THD value, low power loss, suitable high power applications. The main disadvantage of proposed topology more number of capacitors. The proposed topology 22 capacitors are used, each phase 6 capacitors connected across the switches. This paper simulation results verified phase voltage, line voltage, output voltage THD.**

Keywords: Multilevel Inverter, PD PWM, POD PWM, APOD PWM, Voltage, Current

I INTRODUCTION

Inverters are classified into single-phase and three-phase inverters. Again single-phase inverters are classified into the two-level inverter and multilevel inverters, however, three-phase inverters are classified into the three-phase two-level inverter and three-phase multilevel inverter. The merits of the two-level inverter, in the two-level inverter, used only a few switches, a single DC source, and low switching loss. Demerits are poor power factor, low efficiency, not quality output voltage, and current waveforms. The merits of a multilevel inverter it generates a nearly pure sine wave.

Authors in [1] reviewed unique symmetrical, asymmetrical, single-segment, and three-segment inverter topologies. However, as compared to unique topologies. In [2] extensive overview of various modulation strategies for a multilevel inverter. A changed PSPWM Technique is applied to this paper for a 5stage hybrid clamped inverter [3]. By imposing the PSPWM approach the excessive voltage capacitor charging time and discharging time may be reduced. Authors proposed [4] on this paper modulation and manipulation of 5stage voltage supply inverter for excessive strength applications. The voltage supply inverter became linked in again to again with the not unusual place DC link. To manipulate the output voltage of the inverter a brand new PD-PWM approach is applied. The proposed approachapplied5stages inverter comprises flying capacitor H- Bridge [5].

The PWM method, with the fantastic and terrible carriers. To lessen the overlapping of 5-degree layers, the road to line voltage waveforms is proposed. In [6] Flying capacitor clamped 5-degree inverter was applied with a switched capacitor. The switched capacitor circuit with DC-DC Switching conversion is proposed. The first-class of output waveforms may be improved, in presents [7] a brand new six-transfer 5 phase improve inverter factor clamped inverter. The dc hyperlink voltage is decreased by 50%. Authors proposed [8] an extended operation of a fixing capacitor multilevel inverter. To enhance the capacitor voltage applied a step with the segment redundancy method. This paper focussed [9] multilevel hysteresis present-day law and capacitor voltage flying capacitor. The modulation strategies were implemented to the 5-phase capacitor for the higher development of line-to-line voltages.

In this paper [10], a 5-level inverter with one DC power is implemented. The proposed topology reduces the number of switching states to generate different voltages. This improves the reliability of the circuit and also provides various modulations. In [11], a 5-level voltage source inverter with pulse width modulation was implemented. The inverter operates in a wide voltage range without a series connection of power semiconductors. This article [12] proposes a five-stage hybrid inverter control scheme for medium voltage applications. Diode rectifiers are used to supply voltage to the DC bus and are inefficient for higher applications. Multi-level inverters with flying capacitors [13] are implemented for series and parallel compensation in ISMS systems. A proposed method for controlling the charging and discharging of capacitors. In [14]-[16] multilevel inverter is used for power quality improvement in the distribution

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Multi-Carrier PWM Techniques Applied to Cascaded H-Bridge Inverter

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Abstract: **This manuscript presents a three-phase five-level cascaded H-bridge inverter. The Multi-carrier PWM technique is classified into phase as well as level-shifted PWM techniques. Again level-shifted PWM technique is classified into PD, POD, and APOD. In literature, many researchers used PD, POD, and APOD techniques for controlling three-phase five-level inverter. This paper applied the phase-shift PWM technique to a three-phase five-level inverter. The presented technique has many advantages compared to conventional SPWM, single pulse PWM, multiple pulse PWM, third harmonic injecting method. The advantages are low THD value, low switching losses, and better yield voltage along with current waveforms. The anticipated topology result is established in MATLAB Simulink.**

Keywords: Multilevel inverter, PWM techniques, Voltage, Switches, THD, Current

I INTRODUCTION

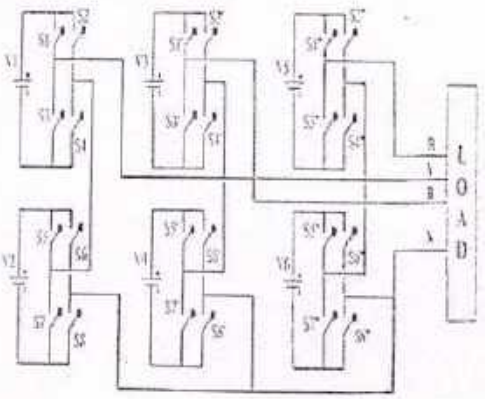
Authors in [1] reviewed different single-phase symmetrical and unsymmetrical inverter topologies and discussed their merits and demerits. Different inverter control pulse width modulation techniques and different advanced PWM techniques, however, different algorithms were reviewed in [2]. Three-phase three-level inverter used in [3] for power quality improvement in distribution as well as reviewed different robust control techniques for controlling inverter. The redundancy SVM method is implemented inside [4]. The presented technique determines switching sequence, minimizes switching losses, and improved THD in output voltage. A reduced device count five-level inverter is presented in [5]

The presented inverter has a single DC source and four semiconductor devices. The presented topology output current results maintained IEEE 519 standards. Model predictive controller proposed for five-level ANPC inverter [6]. The proposed controller reduced computation time, reduce the number of switching states and it reaches the reference value with less time. Reference [7] presented a five-level grid-connected inverter. The presented topology is linked to a grid without a power converter. The usage of the proposed inverter is low cost, fewer switching devices, and low switching losses. Z-source inverter [8] implemented for photovoltaic applications. The presented technique has High gain, low voltage, and sources it supplies continuous current. The advantages of the converter are more efficiency and good steady-state output.

Z-Source three phase two-level inverter implemented [9]. The proposed topology results are compared to the conventional three-level inverter. Transformerless five-level inverter is implemented for renewable energy source applications [10] [11]. The proposed technique is connected to a grid without a neutral point. Series resonant five-level inverter is analyzed in [12]. The proposed inverter is suitable for hybrid energy DC sources. This paper [13] compared two inverter topologies, the proposed technique increases the efficiency of FPTL VSI. To decrease common-mode voltage and AC ripples implemented a parallel three-level inverter [14]. In the conventional method, the DC side voltage is improved proposed method reduces the voltage to Vdc/12. In [15]-[16] three-phase three-level inverter is used for power quality improvement.

II CASCADED H-BRIDGE INVERTER

Fig.1 shows 3 Phase 5 Stage Cascade H-bridge Inverter. The presented inverter has 3-legs, each leg has two H-bridges.



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A Review on D-STATCOM Control Techniques for Power Quality Improvement in Distribution

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Abstract— In this paper, a traditional PI controller Distribution Static Compensator (DSTATCOM) is suggested for reactive power compensation and power quality enhancement in distribution systems, and five various ways to obtain reference currents for a DSTATCOM are analyzed. The control algorithm for extracting reference current components has an impact on DSTATCOM's performance. Asynchronous reference frame theory and a new Adaline-based algorithm, as well as model predictive control (MPC), Sliding mode controller (SMC) -based STATCOM, and ANFIS-LMS-based control, are among the techniques used. When non-linear loads are added to a three-phase distribution system, the supply side voltage and currents become unbalanced, making the system appear out of phase. A DSTATCOM is used to get in phase voltage and current and rectified a balanced three-phase supply to solve the problem. DSTATCOM, the suggested traditional PI controller, will be implemented in MATLAB utilizing the SIMULINK model. The performance of this approach for controlling DSTATCOM is demonstrated by simulation and experimental findings.

Keywords: DSTATCOM, d-q theory, SRF theory, ANFIS control, ADALINE algorithm.

I. INTRODUCTION

The main source of worry for both utilities and customers is power quality. Unbalanced voltage and current, flicker, harmonics, and power interruption are the most common electrical power quality issues. Devices may experience aberrant operations as a result of these power quality issues. DSTATCOM's performance is determined by the control technique used to extract reference current components. DSTATCOM has several advantages over SVC, including a faster reaction time, a smaller footprint, and the elimination of harmonics. Because the reactive current may be kept constant, a DSTATCOM performs best during periods of low voltage [1]-[2] The DSTATCOM is a shunt-connected device for reducing current-related power quality problems. For 3 phase four wire systems, there are various control strategies for shunt compensator control. Sliding mode controller-based STATCOM, ANFIS-LMS-based control, synchronous reference frame theory, and New Adaline-based algorithms are all examples of model predictive control are the five control techniques presented in this paper [3]-[4].

For DSTATCOM, an instantaneous power theory with adaptive HCC control has been developed. The suggested controller functions as an active power filter, reducing source current harmonics and enhancing power quality. The suggested controller keeps the power factor close to unity. The THD in the source current was minimized, and the IEEE-519 standard was maintained. [5]-[7] Nonlinear loads create harmonics and reactive power, which are significant issues in power systems. To improve power quality, the power grid was fitted with an active power filter based on adaptive hysteresis current control. The proposed controller eliminated harmonics and rectified reactive power in the distribution system. The voltage of the main supply causes the source current to become sinusoidal and in phase. The THD in the source current was minimized, and the IEEE-519 standard was maintained [8]-[10]. Voltage sags and swells are the most common power quality issues in the medium and low voltage distribution network. The use of dynamic voltage restores helped to alleviate these issues (DVR). The DVR injected and managed

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Comparative investigation of single-phase Distributed Grid-connected with and without D-STATCOM

Kalagotla Chenchireddy[1*], *Khammampati R* Sreejyothi[2], *P* Kumar[3]

[1,2,3]Department of EEE, Teegala Krishna Reddy Engineering College, Hyderabad, India

Abstract. Power quality becomes one of the significant contemplations in the power system. It has become significant particularly with the presentation of advanced devices. These high-level advanced devices are sensitive to the nature of the power supply. The power quality refers to the voltage, current, and frequency at the evaluated value. If any variation occurred in these quantities the standard rating is considered as the power quality problem. The power quality issues like loss of sine, voltage sag, voltage swell, short interruption, long interruption, flicker, and harmonics. To overcome these power quality issues, we like to utilize custom power devices on the distribution side. Among various custom power devices, Distribution Static Synchronous Compensator is liked to use for expanding the power quality, on account of their basic power supply at the circulation power system which can't be interfered with development and less complexity. This paper presents the near research of single-phase with and without D-STATCOM by utilizing MATLAB Simulink programming.

1 Introduction

In these modern trends, the quality of power and its requirement has been increased rapidly. There are many ways to generate the power but there are few issues are occurred like poor voltage regulation, harmonics, purity of sine wave is lost and disturbances occurring on the distribution side. The injection of extreme reactive power increases the ohmic losses and reduces the active power in the distribution system. There should be a continuous distribution system. This can be accomplished through convention power devices. One of the convention power devices is a static Synchronous compensator at the distribution side known as DSTATCOM.

A definitive objective of applying a shunt compensator is to build the transmission power in a transmission system. By utilizing power electronic gadgets likewise, we can accomplish voltage guidelines by considering some custom power devices like D-STATCOM. These custom power devices giving power quality on the distribution side. D-STATCOM is shunt associated device and in addition one of the strategies for the static coordinated compensator. These voltage guidelines are for the most part for delicate burdens that might be strongly influenced by fluctuations in the power system voltage. This can be settled by utilizing a custom force power device like D-STATCOM.

Power quality is the main concern for utilities and clients. Power quality issues mostly incorporate voltage and current awkwardness, flashing, sounds, and force interference. These power quality issues can make the hardware work unusually. The exhibition of DSTATCOM relies upon the control calculation used to remove the reference current part. Contrasted with SVC, DSTATCOM enjoys many benefits. They have a quick reaction time, occupy less room, and wipe out music. DSTATCOM has the best presentation under low-voltage conditions because the responsive current can be kept consistent. [1]-[2] DSTATCOM is a device connected in parallel to alleviate power quality problems in the flow. There are many control technologies for the parallel compensator control of the three-phase four-wire system. This article introduces five control technologies, which are model predictive control, STATCOM based on slider mode controller, ANFISLMS-based control, synchronous reference system theory, and new algorithms based on Adaline. [3]-[4] The Instantaneous power theory proposed for DSTATCOM is combined with HCC adaptive control. The proposed controller acts as an active power filter and reduces source current harmonics, thereby improving power quality. The proposed controller maintains an almost uniform power factor. The THD of the current source is reduced and maintains the IEEE519 standard. [5]-[6] In the power grid, common problems are harmonics and reactive power caused by nonlinear loads. Active power filter based on adaptive hysteresis current

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An Analytical Hierarchy Process Investigation on High Speed Data Implementations Using Big Data

Publisher: IEEE

Yugandhar Garapati ; G.Charles Babu ; K. Venkata Murali Mohan ; Mekala Srinivasa Rao ; J Kavitha All Authors

Abstract: Present Research tells about the intensity of information and communication technology by analytical hierarchy process utilized in a major big data study to convey data a... View more

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Present Research tells about the intensity of information and communication technology by analytical hierarchy process utilized in a major big data study to convey data abouthow to make framework which will allow expanding and testing a lot of registering gadgets and a centerSoftware. The explanation of this task is to build the investigation framework for the rapid huge information preparing methodology and to get the center Software and standard ability. The explanation of this investigation is to execute the probability examination on this task. This examinationis utilizing the Analytic Hierarchy Process technique. It is built up the exact investigation process andcan quick demonstrate the intensity of the undertaking by manipulative the loads of the appraisalmethod. The result of this investigation, the total score by Analytic Hierarchy Process examination is 0.669. It demonstrates the execution if task is Possible.

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Securing SDN Enabled IoT Scenario Infrastructure of Fog Networks From Attacks

Publisher: IEEE

K Vankata Murali Mohan ; Saraagam Kodati ; V. Krishna All Authors ...

Abstract: Nowadays, lives are very much easier with the help of IoT. Due to lack of protection and a greater number of connections, the management of IoT becomes more difficult To ... View more

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Abstract:

Nowadays, lives are very much easier with the help of IoT. Due to lack of protection and a greater number of connections, the management of IoT becomes more difficult To manage the network flow, a Software Defined Networking (SDN) has been introduced. The SDN has a great capability in automatic and dynamic distribution. For harmful attacks on the controller a centralized SDN architecture unlocks the scope. Therefore, to reduce these attacks in real-time, a securing SDN enabled IoT scenario infrastructure of Fog networks is preferred. The virtual switches have network enforcement authorized decisions and these are executed through the SDN network. Apart from this, SDN switches are generally powerful machines and simultaneously these are used as fog nodes. Therefore, SDN looks like a good selection for Fog networks of IoT. Moreover, dynamically distributing the necessary crypto keys are allowed by the centralized and software channel protection management solution, in order to establish the Datagram Transport Layer Security (DTIS) tunnels between the IoT devices, when demanded by the cyber security framework. Through the extensive deployment of this combination, the usage of CPU is observed to be 30% between devices and the latencies are in milliseconds range; and thus it presents the system feasibility with less delay. Therefore, by comparing with the traditional SDN, it is observed that the energy consumption is reduced by more than 90%.

Published In: 2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)

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A Novel Artificial Neural Network Algorithm for Prediction of Natural Gas Prices using Machine Learning

Publisher: IEEE

G.Charles Babu ; Kotari Sridevi ; K. Venkata Murali Mohan ; Srisailapu D Vara Prasad ; J Kavitha All Authors

Abstract: Natural gas is extensively utilized by the people as the cleanest energy source. With the increase in global population, natural gas has become one of the mainlysignifica... View more

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Abstract:

Natural gas is extensively utilized by the people as the cleanest energy source. With the increase in global population, natural gas has become one of the mainlysignificant energy resources. It has been proposed as one of the solutions to amplify the protection of energy production and reduction environmental pollution about the world. It isn't as it were the most fuel for civilian utilize but too a fundamental input for numerous mechanical applications and power generation. Hence investigate and forecasting natural gas prices have become necessary as it is playing an extended part within the future of worldwide vitality due to its critical natural benefits. Being able to estimate characteristic gas costs benefits different partners and hence it has ended up a really profitable instrument for all showcase members in competitive normal gas markets. Machine learning calculations have ended up well known apparatuses for common gas cost determining. The point of this venture is to examine data-driven prescient models for common gas cost determining based on common machine learning tools such as Artificial neural networks (ANN)

Published in: 2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT)

Date of Conference: 20-22 January 2022

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Date Added to IEEE *Xplore*: 25 February 2022

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Conference Location: Tirunelveli, India

Leveraging Machine Learning to Predict Wild Fires

K Venkata Murali Mohan ; Aravapalli Rama Satish ; K Mallikharjuna Rao ; Rokesh Kumar Yarava ; G Charles Babu All Authors

Abstract: A raging wildfire is a catastrophic event which damages forests, which has a serious effect on people, fauna and flora that are dependent on the forest ecosystem. A study... View more

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Abstract:

A raging wildfire is a catastrophic event which damages forests, which has a serious effect on people, fauna and flora that are dependent on the forest ecosystem. A study of the size of wildfires in a Canadian Province in USA i.e. Alberta is seen in this article. A variation of the duration of the fire and the area it burns defines the scale of a fire. Our predictive algorithm helps wildfire rescue workers to use their foreseen level in the initial phases in order to mitigate destruction inflicted by a forest fire. Modeling information has been gathered from Natural Resources Canada's real-time dataset, including forest fire and weather information for Alberta, Canada. To evaluate the severity of flames, the dimensions of the region affected with fire and the timeframe of the flames have been used. The information was split into training and evaluation environments after multi-linearity validation and function normalization. In addition, the climatic variables were used to create predictive model by using inputs. a Neural Network for Back Propagation (BPNN), a type of artificial neural network i.e. Recurrent Neural Network (RNN) and a type of RNN i.e. Long Short-Term memory (LSTM). LSTM showed the greatest precision, 95.9 percent, of these classification models. The findings suggest that the scope of a wildfire can be forecast using climatic knowledge at the outset of the event.

Published in: 2021 2nd International Conference on Smart Electronics and Communication (ICOSEC)

Date of Conference: 07-09 October 2021

DOI: 10.1109/ICOSEC51865.2021.9591952

Date Added to IEEE *Xplore*: 12 November 2021

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▸ **ISBN Information:**

Conference Location: Trichy, India

Design and Implementation of Efficient Counter-Based IoT DDoS Attacks Detection System Using Machine Learning

| Conference paper | First Online: 14 September 2022

| pp 199–208 | Cite this conference paper

Innovations in Signal Processing and Embedded Systems

K. Venkata Murali Mohan, Sarangam Kodati & V. Krishna

Part of the book series: Algorithms for Intelligent Systems ((AIS))

Abstract

The traditional infrastructures are assisted by introducing the promising applications of Internet of things (IoT) (smart cities, smart homes, smart girds and smart health) with smart objects. In cloud servers, DDoS attacks happened and cause a problem of overwhelming. But Internet of things (IoT) devices increase in number which leads to cause the large-scale DDoS attacks influence from the IoT devices. Therefore, design and implementation of efficient counter-based IoT DDoS attack detection system using machine learning is proposed in this paper. Different network parameters values are used

Smart Underground Drainage Management System Using Internet of Things

| Conference paper | First Online: 15 February 2022

| pp 273–281 | Cite this conference paper

Soft Computing and Signal Processing

(ICSCSP 2021)

K. Venkata Murali Mohan, K. M. V. Madan Kumar, Sarangam Kodati & G. Ravi

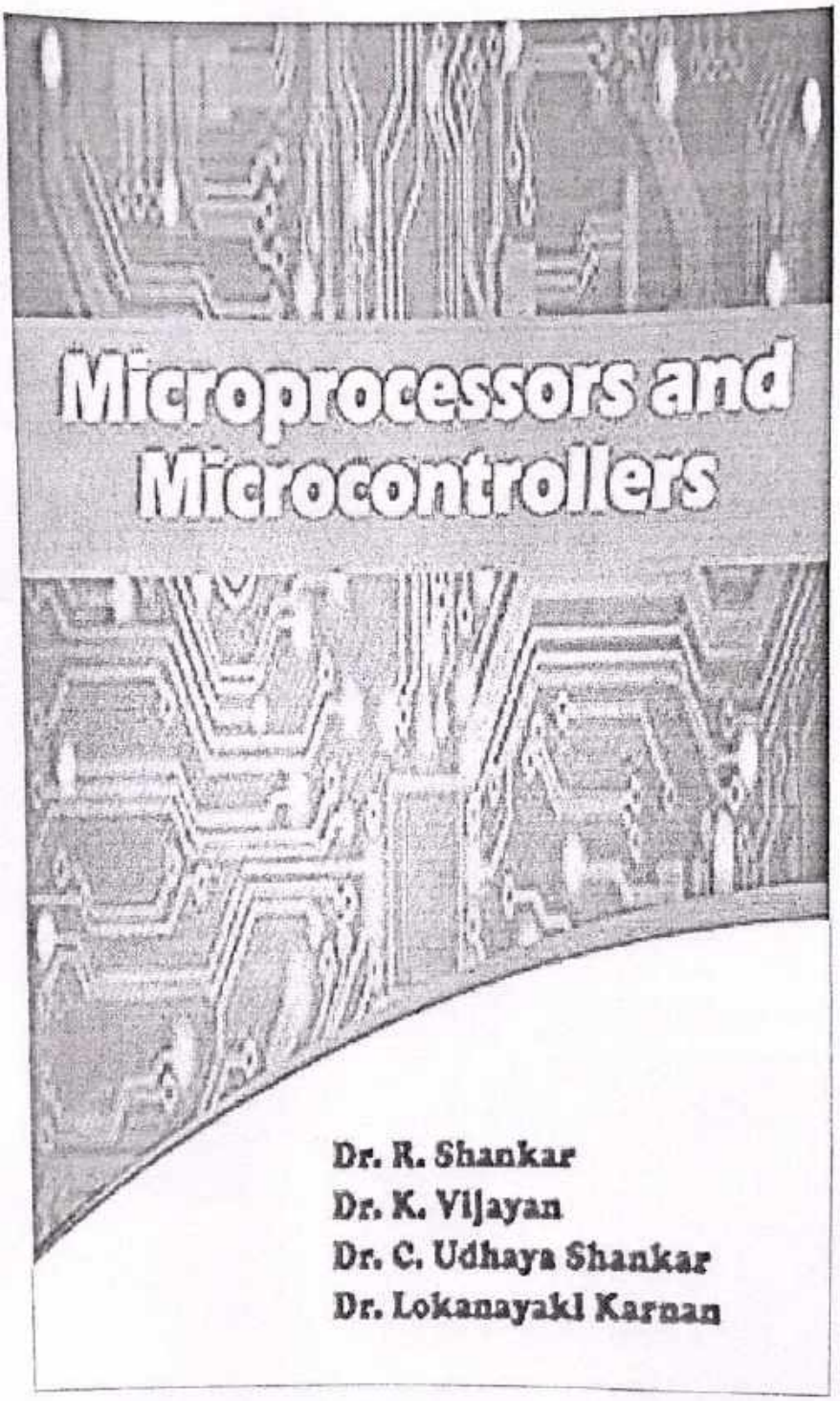
Part of the book series: Advances in Intelligent Systems and Computing ((AISC,volume 1413))

Included in the following conference series: International Conference on Soft Computing and Signal Processing

Abstract

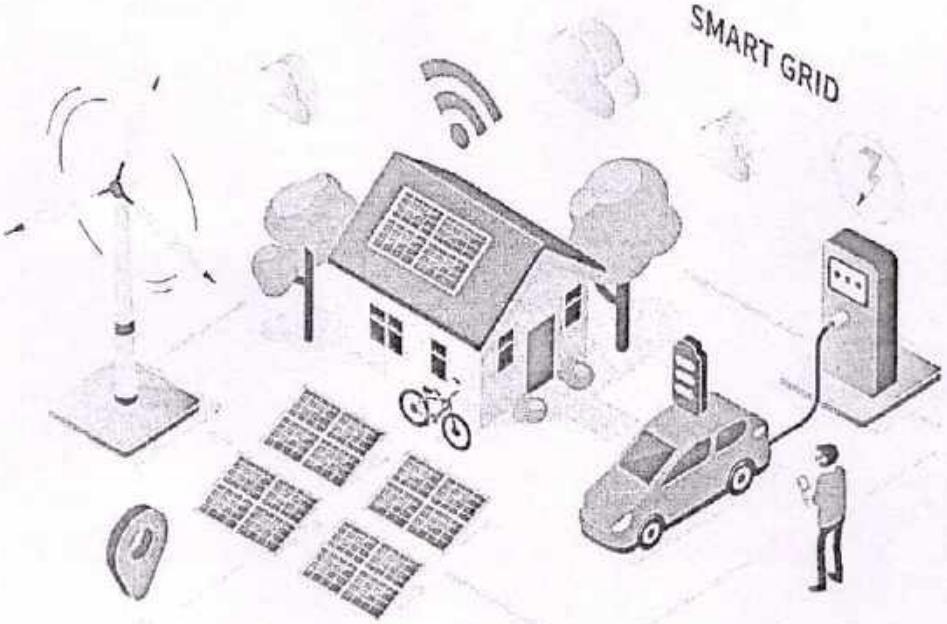
Over the municipal corporation infrastructures, drainage system plays a significant role. This drainage system is undoubtedly a crucial part in every one of our day to day lives. At present day, many people and also all the drainage workers have been facing various

THE INTERNET OF THINGS - CASE STUDY & ITS APPLICATIONS.



ADVANCES IN INTELLIGENT DECISION-MAKING, SYSTEMS ENGINEERING, AND PROJECT MANAGEMENT

Hybrid Intelligence for Smart Grid Systems



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Innovations in Signal Processing and Embedded Systems

Proceedings of ICISPES 2021

Springer

Innovations in Signal Processing and Embedded Systems pp 293–303

Multispectral Image Compression Using Adaptive Thresholding in Wavelet Domain with Binary Plane Techniques

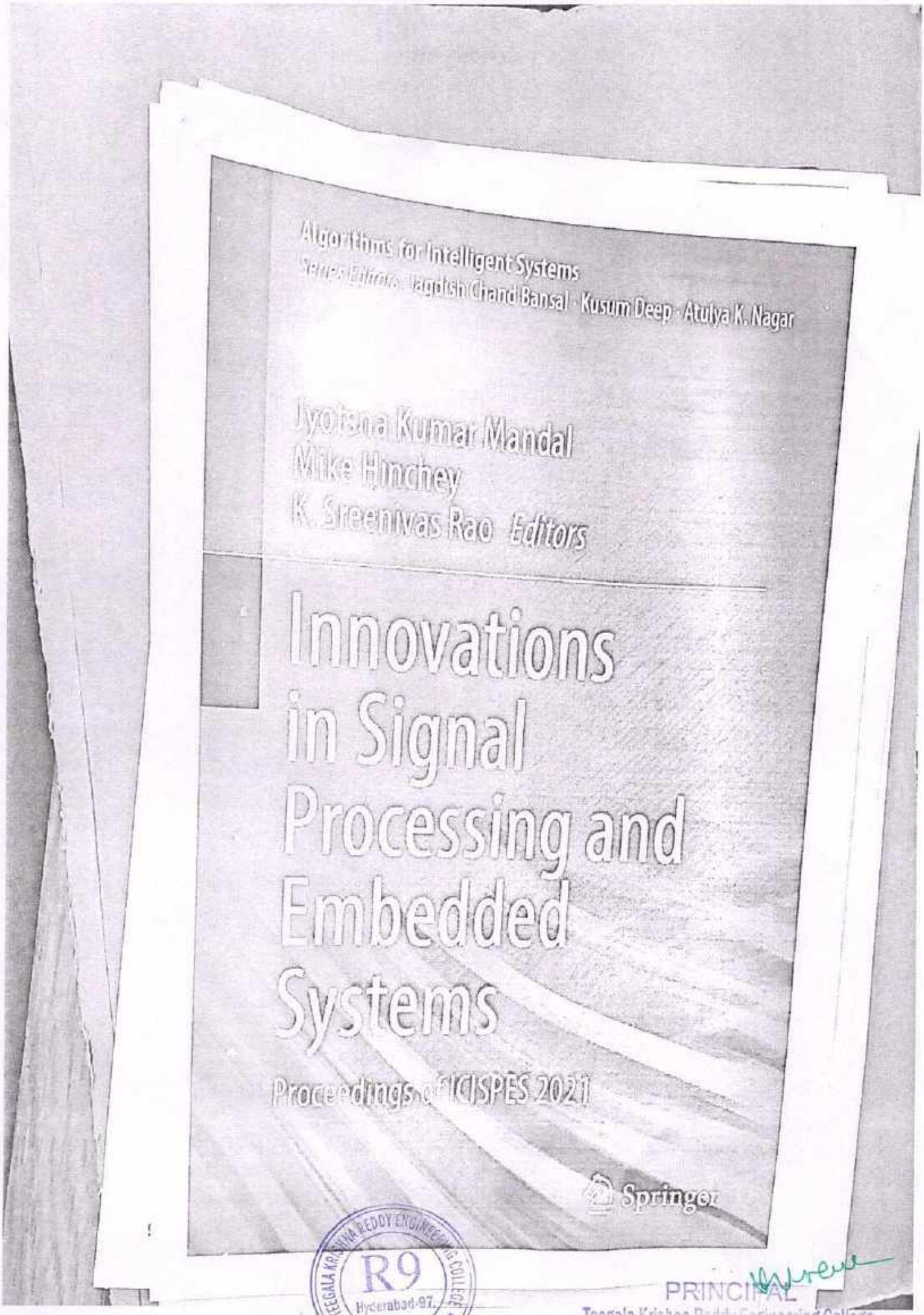
M. Renu Babu ✉, S. Chinna Venkateswarlu, G. Chenna Kesava Reddy & D. Vemana Chary

Conference paper | First Online: 14 September 2022

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

Multispectral image acquirement systems create multilayer images in which each layer having the different pixel values which are not negative in general. The compression of these images aims to transform the image into more solid form that is convenient for pressuring, transmission, processing, and recovery. In this paper, band decomposition



Innovations in Signal Processing and Embedded Systems pp 417–427

Progressive Convolutional Recurrent Neural Networks for Speech Enhancement

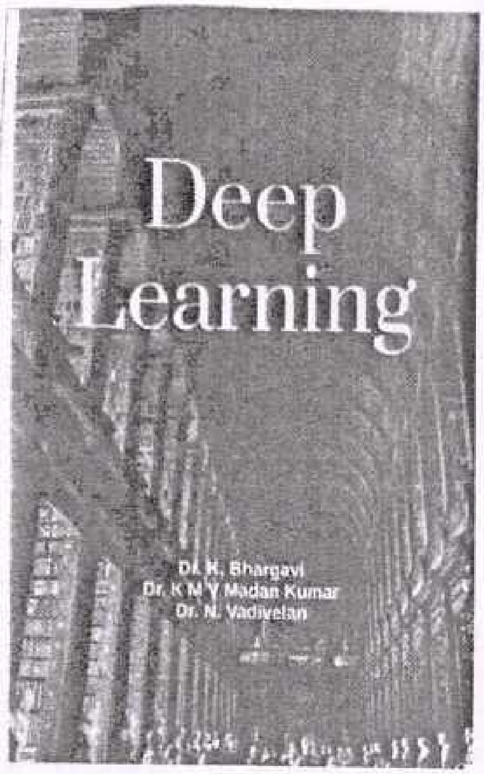
S. China Venkateswarlu ✉, M. Renu Babu, G. Chenna Kesava Reddy & D. Vemana Chary

Conference paper | First Online: 14 September 2022

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

The progressive technique is a promising methodology to revise network implementations for speech enhancement purposes. Newer architectures such as progressive convolutional neural networks (P-CNN) or progressive residual neural network (P-ResNet) have already proved the true potential of the progressive technique by greatly improving the speech quality and speech



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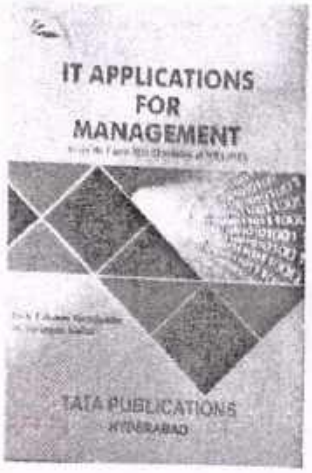

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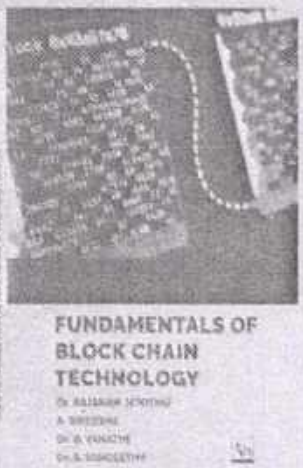

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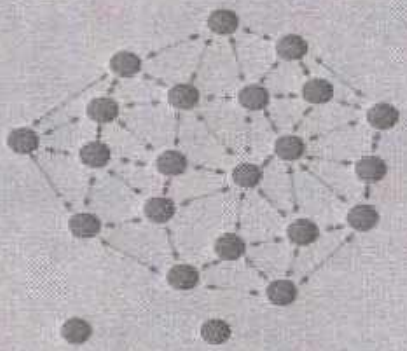

BIG DATA MANAGEMENT IN SENSING
Applications in AI and IoT

EDITORS
RENNY FERNANDEZ
TERRANCE FREDERICK FERNANDEZ

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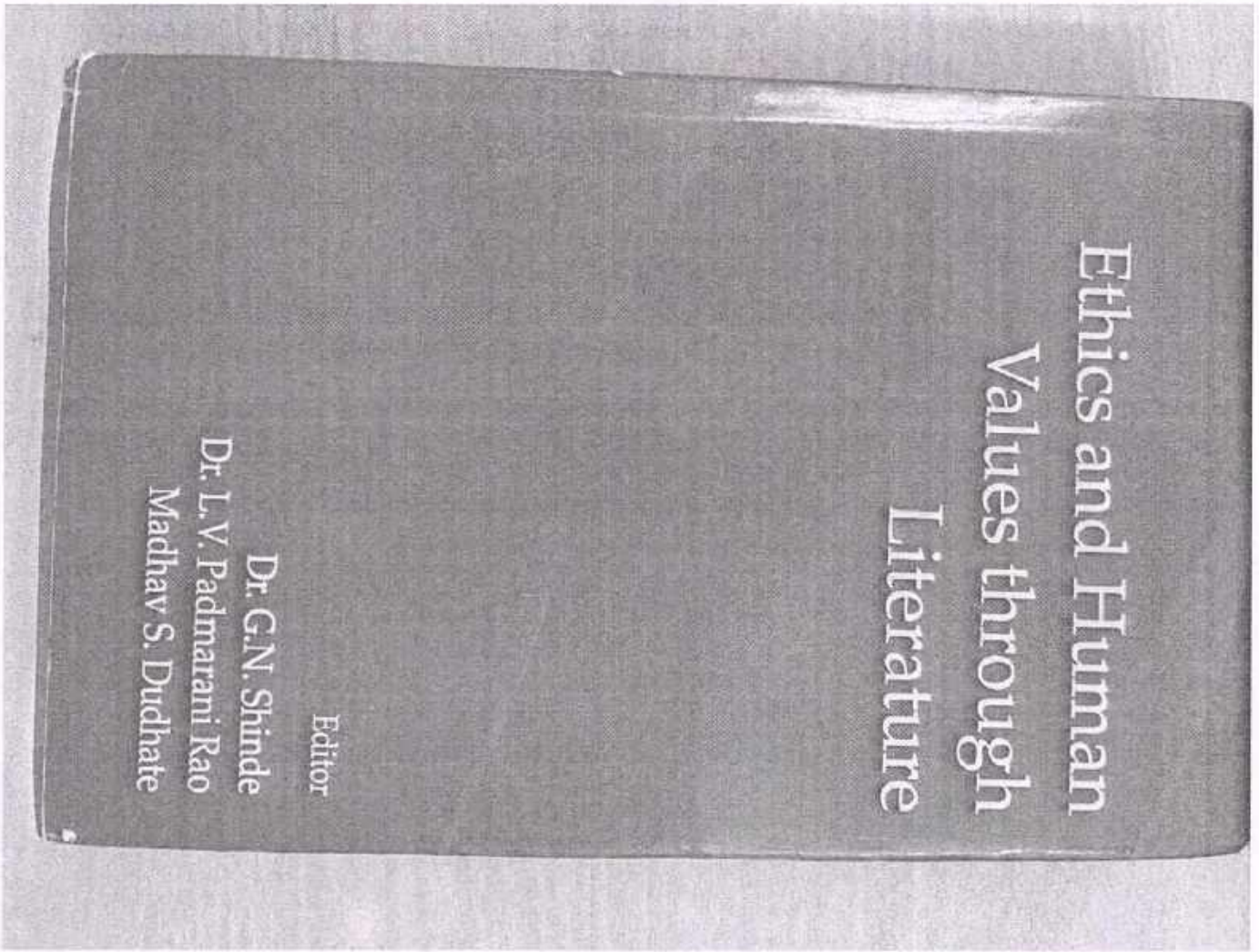

Revising the Ancient Indian Literature is the Need of the Hour

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Hyderabad (T.S.)

Ancient Indian Literature is the reflection of Indian culture and society in earlier days. There are many noble creations in ancient Indian literature including Vedas, Upanishads, Epics, Puranas, Shashtras, Treatises, Narratives, stories and so on. Most of these spiritual texts not only lead us to the path of spirituality but also teach us how to live a life with integrity. The significance of values and ethics in ancient Indian literature is much evident. The study of these literatures helps in nurturing values and the ethical bend of mind in the present times. The paper attempts to look at the ancient Indian literature to understand the importance of values and ethics that they offer and recommends revisiting them to live a fulfilled life.

Introduction : There is a definite and absolute relation between literature and society. The works of Vedic and classical literatures such as Vedas, Aaranyakas, Upanishads, Ramayana, Mahabharatha and Bhagavatam and various other forms of literature like Arthashastram, Manushastram enriched and nurtured our value system. Ethics and values are portrayed vividly through narratives, prose and poems etc. Through the actions of varied characters including deities, *demigods*, demigoddesses, demons, humans, animals and other creatures, the ancient Indian literatures generated values and ethics. All spiritual personalities such as Sri Rama, Sri Krishna and other humble characters played roles in the narratives of ancient literature and set model for mankind to lead a life of harmony and peace. These literary pieces promoted

many values such as honesty, righteousness, sincerity, kindness, integrity, self-control, sacrifice, reverence, universal brotherhood, work for mankind, and love for all creatures. All these virtues are promoted for the goodness of people, the nature and the universe and at last for salvation.

Based on this affluent literature, various traditions and cultures are established and they became a way of life for earlier generations. These traditions and value systems have got diluted with the advancement of science, invasions by the foreigners, destruction of Indian heritage and culture, introduction of non-native cultures and languages, modified education system and so on. It is time to revisit our literature to enrich our understanding of value system.

- Ancient Indian literature is rich and diverse with unlimited knowledge and wisdom about various subjects.
- There is a reflection of Hindu culture in all the forms of literature in ancient India and they give the essence of indianness.
- They offer different dimensions of life and impart holistic education in multiple ways.
- Many narratives and moral stories offer thought provoking principles.

Vedas : The Vedas are the ancient Indian literatures which are offered in a series of sacred texts. The four Vedas are the storehouse of religious rituals and sacrifices that promise the followers to lead a peaceful integrated life. The Vedas are the source of many virtues i.e. morality, good conduct, truth and righteousness. These values are relevant and unchangeable in human life for better existence in the world.

Ramayan : The Ramayana, written by Valmiki, is not just a story of life of Sri Rama and Sita. It teaches the values such as bonding with siblings, respecting elders and gurus, keeping promises, loving and taking care of family, protecting the weak by eliminating evil people. Rama's association with all kinds of people as well as other characters like Jatayu, Hanuman, Sugreeva and Jambavantha proves his inclusiveness and teaches us to lead a life in harmony with everyone. It also depicts how all the leading

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A Review Paper on the Elimination of Low-Order Harmonics in Multilevel Inverters Using Different Modulation Techniques

Kalagotla Chenchireddy and V. Jegathesan

Abstract This paper gives a review on the various modulation techniques that have been used to eliminate lower-order harmonics in multilevel inverters. The output voltage with high quality can be achieved using multilevel inverters. The selection is based on switching losses, power losses, noise, etc. Many authors proposed different modulation techniques such as sine triangulas, selective harmonic selection (SHE), model predictive control techniques, space-vector-based modulation techniques. This paper presents a detailed review of existing harmonic elimination methods as well as concludes with the best method.

Keywords Low-order harmonics · Inverter · Space vector modulation

1 Introduction

As of late, the beat width tweak innovations assume the essential job in multilevel inverters. Triangle examination-based PWM and space vector-based PWM are utilized in most of the reasonable applications. Three-stage inverters are utilized for high-power applications. Yong-Chao presented two-changed SVPWM calculations, and these strategies diminished regular mode voltages in three-stage inverter [1]. Irfan Ahmed presented an improved SVPWM strategy. These procedures limit the exchanging frequency in multilevel inverter [2]. Amit Kumar Gupta designed a diminished regular-mode voltage in MLI-utilized SVPWM [3]. Narayanan [4] proposes a novel exchanging successions for a three-level inverter. Yi Deng and so forth proposed [5] a quick summary on SVPWM plot. This plan when compared to other SVPWM techniques comprises quick response, simple count time and

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G. Ranganathan et al. (eds.), *Inventive Communication and Computational Technologies*, Lecture Notes in Networks and Systems 145,
https://doi.org/10.1007/978-981-15-7345-3_82

RESEARCH ARTICLE | JULY 28 2020

Mathematical study of a three species ammensalism model with cover for 3rd species

Kondala Rao. K; Lakshmi Narayan. K; Murali Mohan. K. V; Papa Rao. A. V.

+ Author & Article Information
AIP Conf. Proc. 2246, 020040 (2020)
https://doi.org/10.1063/5.0014463

In the present investigation we describe the interaction between species of 1st kind ('N1'), species of 2nd kind ('N2') and the species of 3rd kind ('N3'). The species of 1st kind and the species of 2nd kind both ammensal on the 3rd kind. Here species of 1st kind and species of 2nd kind are neutral to each other. A cover is incorporated in the interaction between 3rd & 1st kind of species and 3rd & 2nd kind of species. This model is characterized by system of integro differential equations. The co-existing state is identified and also characterizes the local, global stability analysis at this state. We provide a numerical simulation in support of stability analysis using MATLAB.

Topics
MATLAB, Computer simulation, Integro-differential equation

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RESEARCH ARTICLE | JULY 28 2020

Global stability analysis of a two mutualistic species ammnesal on third species with cover for third species

Lakshmi Narayan, K; Kondala Rao, K; K. V. Murali Mohan; Papa Rao, A. V.

+ Author & Article Information
AIP Conf. Proc. 2246, 020039 (2020)
https://doi.org/10.1063/5.0014659

The present work is devoted to an analytical study of a three species syn-ecological model which the first species (X) and second species (Y) are ammensal on the third species (Z). Here first and second species are mutually helping to each other. A Cover is incorporated in the interaction of third species and second species (α31) and the interaction of third species and second species (α32). Equilibrium point (Normal steady state) is identified and local and global stability for Normal steady state is discussed discussed by constructing suitable Lyapunov function. Further, exact solutions of perturbed equations have been derived. The stability analysis is supported by numerical simulation using Mat Lab.

Topics

Computer simulation

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DATA COMMUNICATIONS AND COMPUTER NETWORKING

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COMPUTER NETWORKS

An Introduction

K.V. Raghavender, T. Prabakaran, C. Anna Palagan
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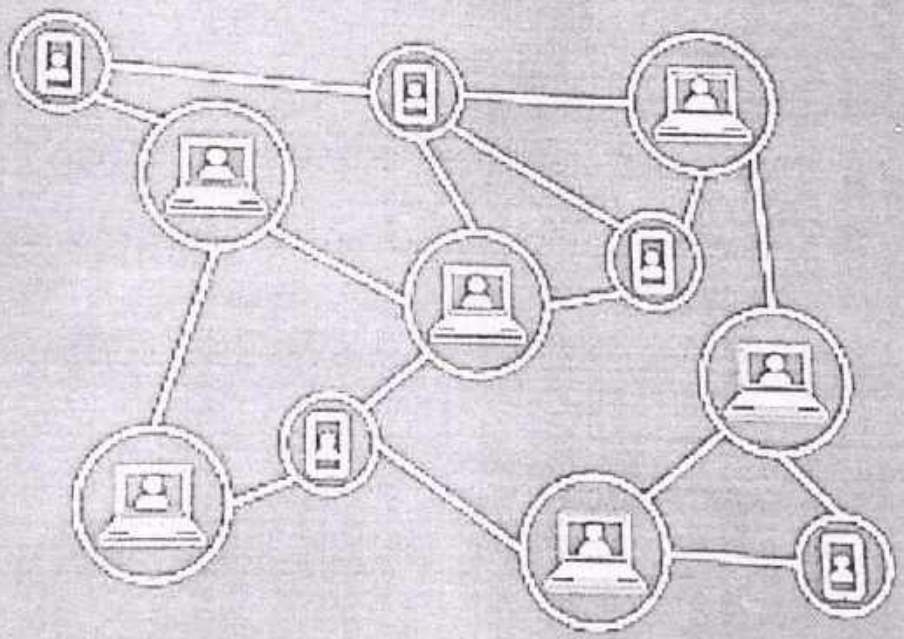

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Survey on Different Classification Models for Retrieving Secure Image

T. Srinivas Reddy[1*], C. H. Shekar[2] and J. Prabhakar[3]

DOI: 10.9734/bpi/naeri/v9/1779C

ABSTRACT

This study focuses on the issue of photograph recovery from a mixed database, with reality protection ensured both during the capacity and rebuilding processes. The focus of the article is on photograph headway security systems that involve relationships among defended features. Three plans are demonstrated and thought about by utilising each sign preparing and cryptographic strategies, in total with bitplane randomization, unpredictable projection, and randomised unary encoding. The results show that shielded image recovery can achieve a similar rebuilding look to conventional picture recovery schemes without disclosing the texture of the photograph's content material. This tutoring improves the domain of quiet contemplative reclamation and can discover fine art in secure online settings for pictures and chronicles.

Keywords: Secure photograph recovery; spotlight inclusion; CBIR; Biometrics; work extraction.

1. INTRODUCTION

Recovering facts from mixed databases is a fundamental mechanical inclination to ensure the security of multi-birthday festivity certainties chiefs. Illustrative programming occasions combine on-line advanced email points of interest, for example, Gmail, picture encouraging, for example, Flickr, budgetary administration, for example, Mint.Com, any zone clients secure their own records on a distant server, and where the server executes note above Categorization, research, and measurements examination. At blessing, servers create works of art in obvious substance material texture while keeping an eye on tricky supporter metrics that can't be struck by careless directors or malevolent gatecrashers. To offer comfortable on line help, redesigns that shield customers' assurance without reducing value are quality. The surrender final product of on-line picture help, wellbeing show screen's interests make search in mixed organizations entrancing and basic. A huge component for online photo organizations, for instance, Google Picasa or Flickr, may be the ability to scramble and store singular pics and subsequently get higher significant pics without revealing actualities roughly encoded previews to the server. Past work of art on comfortable data rebuilding focused on substance material records. What is more prominent, frameworks for recognizing the occasion or inadequacy of a watchword in an encoded endeavor report proposed in [1]. Progressing fine art in [2] assessed found solicitation agreeable request, in which coded discovered reports were returned organized by utilizing the utilization of hugeness for the inquiry watchword.

In a couple of false vision bundles, the path towards recovering the fine pictures from an entire collection utilizing limits that may normally examine with the photos is impressively actualized. The ones strategies, alluded to as substance material-based absolutely totally picture recovery (CBIR), were the issue of upheld consideration in the exchange of the mending of picture data, mulling over that this zone began years lower back, and at some point or another a decent measured extent of

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Analysis of Heart Disorder by Using Machine Learning Methods and Data Mining Techniques

Sarangam Kodati, Jeeva Selvaraj

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Abstract

Data mining is the most famous knowledge extraction approach for knowledge discovery from data (KDD). Machine learning is used to enable a program to analyze data, recognize correlations, and make usage on insights to solve issues and/or enrich data and because of prediction. The chapter highlights the need for more research within the usage of robust data mining methods in imitation of help healthcare specialists between the diagnosis regarding heart diseases and other debilitating disease conditions. Heart disease is the primary reason of death of people in the world. Nearly 47% of death is caused by heart disease. The authors use algorithms including random forest, naive Bayes, support vector machine to analyze heart disease. Accuracy on the prediction stage is high when using a greater number of attributes. The goal is to function predictive evaluation using data mining, using data mining to analyze heart disease, and show which methods are effective and efficient.

Chapter Preview

Top

Introduction

The World Health Organization (WHO) estimates that by 2030, nearly 23.6 million people will die due to heart disease. The focus of this study is motivated by the WHO statistics and is focused on predicting heart disease using data mining techniques. To minimize the risk, estimates of heart disease should continue to be done. One of the most difficult and complex tasks in healthcare is analysing patient symptoms and characteristics to correctly diagnose disease. Heart disease prediction uses the different parameters of a patient's diagnostic tests. This is a multi-layered issue as indicated by false presumptions and unpredictable impacts. Present day medical regions produce a vast amount of raw data about patients, clinic resources, disease analysis, systems that store patients' data, medicinal devices, etc. This vast amount of raw data is the essential asset that can be productively pre-prepared and analysed for data extraction that can directly or indirectly motivate a clinical organization's cost-effectiveness and support decision-making. Valid analysis about heart disease cannot remain conceivable by utilizing only human intelligence (Chaitra et al. 2018). Data mining is a method concerned with separating large amounts of data from a vast amount of data. The data mining process is called Knowledge Discovery in Databases (KDD).

Figure 1. Knowledge discovery in databases
(https://igiprodst.blob.core.windows.net:443/source-content/9781799821083_235590/978-1-7998-2108-3.ch009.f01.png?sv=2015-12-11&sr=c&sig=...)

Most clinics keep their patient data in the form of electronic medical record (EMC) databases. These frameworks contain huge amounts of data. Emergency clinic data can be classified by the type of content data between the types of images. This necessity is driven by the utilization of KDD, which is in charge of changing information concerning low-level data into an abnormal state of learning for basic management. Data mining is one of the KDD process aims for discovering helpful examples from large datasets. These patterns can be further analysed and the outcomes can be utilized for effective decision-making and analysis. The number of tasks of data mining is classified as clustering and association analysis. In this study, different data mining classification methods are applied to clinical healthcare information related to heart diseases.

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2nd INTERNATIONAL CONFERENCE ON RECENT TRENDS IN ENGINEERING TECHNOLOGY AND MANAGEMENT
2020

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..... *Carrier Based Cascaded H-Bridge Multilevel Inverter* .....

..... *in the "2nd International Conference*

on Recent Trends in Engineering Technology and Management" held on 20th June 2020.

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Different Topologies of Inverter: A Literature Survey

Kalagotla Chenchireddy, V. Jegathesan and L. Ashok Kumar

Abstract DC to AC control change is a key job in the cutting edge set up of age, transmission, appropriation, and use. DC to AC control converters assume key job in variable recurrence drives, uninterruptible power supplies, cooling, and high-voltage DC control transmission, electric vehicle drives, and static VAR compensators. This paper exhibits a survey on most significant topologies and strategies of control of inverters.

Keywords Inverter topologies · Modulation techniques · Reduce device count

1 Introduction

DC to AC control change is a key activity in the bleeding edge set up of age, transmission, transport, and use. DC to AC control converters accept key employment in Variable Recurrence Drives (VRD), uninterruptible power supplies (UPS), cooling (AC) and high-voltage DC control transmission (HVDC), electric vehicle drives, static VAR compensators. In light of the possibility of the yield voltage waveforms, inverter can be named: single-stage, three-phase, two-measurement inverters and stunned inverters.

In [1], surveyed nine reduce contraption count stunned inverters. Stunned inverters continue grabbing hugeness for high power and medium voltage applications. The upside of reduce device stunned measurement inverters, direct structure, low conduction and trading setbacks, diminished parts, less cost. In [2], studied single-stage transformer less inverters. These inverters planned for photovoltaic applications. Transformerless inverters are growing unmistakable quality in

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H. S Saini et al. (eds.), *Innovations in Electrical and Electronics Engineering*,
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Artificial Neural Networks based SPWM technique for speed control of Permanent Magnet Synchronous Motor

Suresh Kumar Pammala [1,*] and Dhanamurthy G [2]

[1] Professor, EEE Department, GRIET, Hyderabad, India
[2] Research Scholar, EEE Department, TKR Engineering College, Hyderabad

Abstract. The advancement of industry apparatuses for some methods with specific tasks to control the working of a few actuators on the field. Among these actuators, Permanent magnet synchronous motor drives are a mainly all-inclusive machine. Proficient utilization of hesitance torque, generally effectiveness, minor misfortunes and smaller size of the motor are the principle attractions of PMSM when contrasted and different drivers. Precise and rapid torque reaction is one of the parameters to determine differentiating arrangements in the ongoing past. The field-situated power perceived the likely and vigorous answer to accomplish these prerequisites to empower the figuring of streams and voltages in different parts of the inverter and motor under transient and consistent conditions. The primary objective of this paper is to investigate Artificial Neural Network based control of speed for PMSM in both open and closed loop under no-load and loaded condition. A shut circle control framework with ANN procedure in the speed circle intended to work in steady torque and transition debilitating districts. MATLAB reproduction performed in the wake of preparing the neural system (directed learning), results for reference control applications are adequate and appropriate in the process business. Speed control in shut circle at different stacking conditions talked about in detail.

1 Introduction

Permanent Magnet Synchronous Motors (PMSM) extensively utilized in low to medium power applications, for example, mechanical autonomy, outer PC flexible speed drives [1], and electric vehicles. The extension in the market of Permanent Magnet (PM) engine drives has requested the requirement for replication instruments fit for taking care of re-enactments for engine drive. Proliferations [2] including engine drives have helped the way toward growing new frameworks by decreasing expense and time. To encourage the improvement of new techniques, recreations of engine drives in a visual situation have the capacities of performing dynamic [3] Simulation.

In this article, a recreation of a field situated controlled [4,5] PM engine drive framework created including every single reasonable segment of the drive framework are introduced. A shut circle control framework with the ANN controller in the speed circle intended to work in consistent torque and motion debilitating locales [6]. Recreation results displayed for two velocities [7] of task, one underneath evaluated and another above-appraised speed.

Artificial Neural Networks are motivated by our present learning of natural sensory systems, in spite of the fact that they don't attempt [8] to be reasonable in everything about (territory of ANN isn't worried about natural demonstrating, an alternate field) [9, 10]. Some ANN models may, along these lines, be unreasonable from an environmental displaying perspective. As opposed to the ordinary advanced PC, ANN plays out their calculation utilizing numerous basic and very interconnected processors working in parallel [11].

2 Mathematical Modelling of PMSM Drive

Vector control likewise read as decoupling or field-orientated control. Vector control decouples three-stage stator current into two-stage d-q hub present, one delivering motion and other creating torque and permits coordinate control of motion and torque. In this way, by utilizing vector control, the PMSM is comparable to an independently energized dc machine. The model of PMSM is nonlinear. Along these lines, by utilizing vector control, the model of PMSM is direct.

For building a pivoting attractive field and drive the rotor, tweaked current provided to the ABC stator windings. The vector control system figured in the synchronously pivoting reference outline, ABC stator arranges, stationary α-β hub organizes and turning d-q hub facilitates equal relations of streams worked by Clarke – Park [4] and backwards changes Fig.1 demonstrates a vector chart of the PMSM. i_q slacks i_d by

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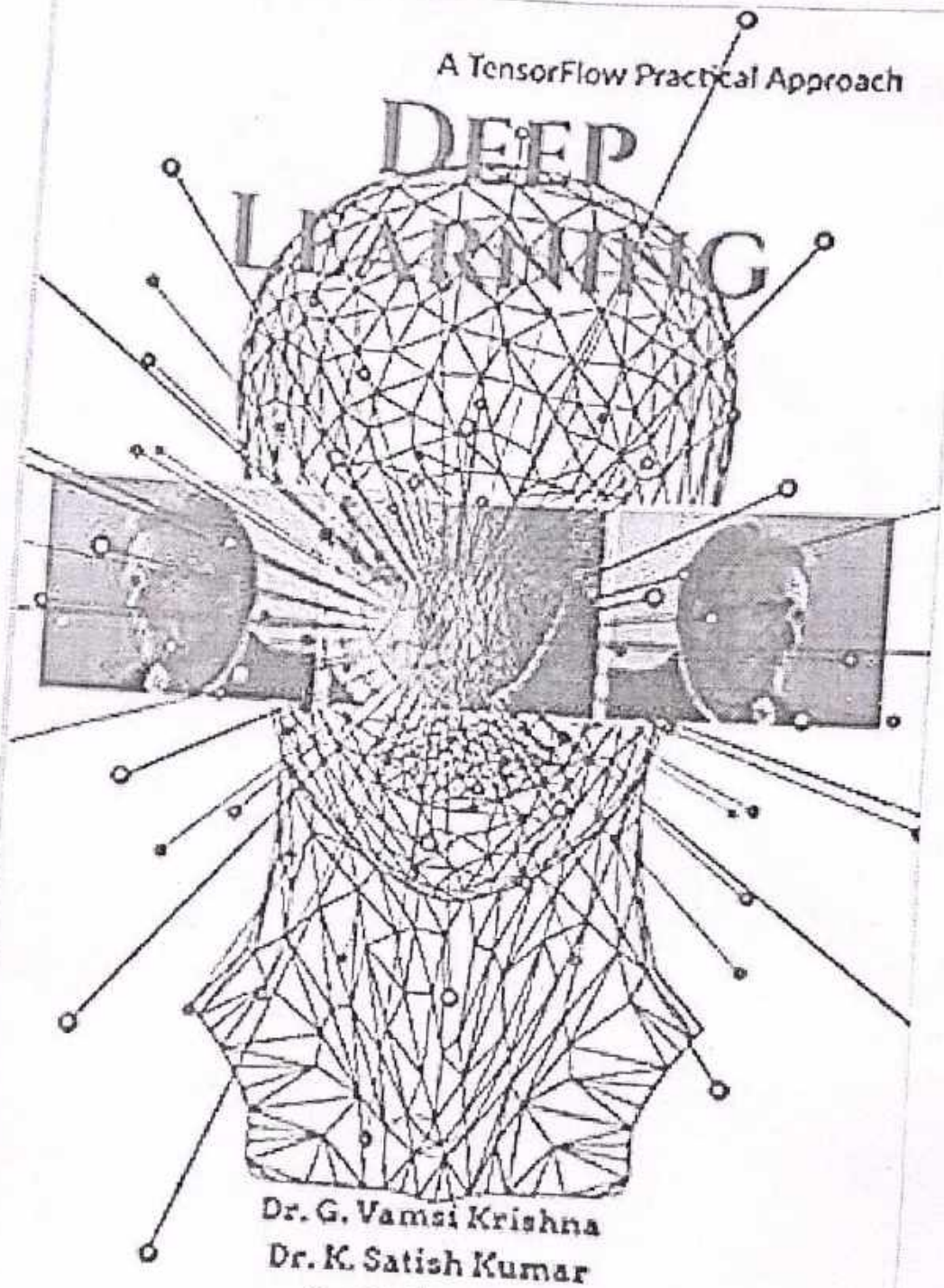

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ON

"RECENT ADVANCEMENTS IN CIVIL ENGINEERING" (NCRACE-2K19)

21st & 22nd January 2019

Special Chair

Dr. J.B.V. SUBRAHMANYAM
Principal - TKREC

Chairman of Conference

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DEPARTMENT OF CIVIL ENGINEERING

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Recent Advancements in Civil Engineering – 2K19

Teegala Krishna Reddy Engineering College, Medbowli, Meerpet, Saroor Nagar, Hyderabad

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REGISTRAR

MESSAGE

I am happy to know that the Department of Civil Engineering Teegala Krishna Reddy Engineering College, is organizing a National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

The Conference will provide an ideal platform to explore the innovations in Civil Engineering. The conference gives an opportunity to meet and interact among the delegates and researchers, for a better research perspective.

I wish the organizing committee of **NCRACE-2K19** a grand success and a very good luck to the participants.

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B.E.(CSE), M.Tech., Ph.D.
Professor of Computer Science & Engineering and
RECTOR

MESSAGE

I am happy to know that the Department of Civil Engineering, Teegala Krishna Reddy Engineering College is organizing a National Conference on "**Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)**" on 21st and 22nd January 2019.

I am sure that the Conference would provide an ideal opportunity for the delegates, faculty, researchers and students to exchange new ideas and current trends in the field of Civil Engineering and allied areas.

I congratulate and wish the organizing committee of **NCRACE-2K19** a grand success and all the best to the delegates.

RECTOR

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DIRECTOR

MESSAGE

I am very happy to announce that a two day National Conference on "**Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)**" is being organized by Teegala Krishna Reddy Engineering College on 21st and 22nd January 2019.

The Conference will provide a wonderful forum to refresh knowledge base and explore the innovations in Civil Engineering and other related branches of Engineering

I wish the Conference **NCRACE-2K19** a grand success.

DIRECTOR

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MESSAGE

I congratulate to the staff of Civil Engineering Department of Teegala Krishna Reddy Engineering College under Teegala Krishna Reddy Educational Society for organizing National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

I appreciate all the efforts put in by the staff of Civil Engineering Department for conducting this event and bringing together leading academicians, scholars, and industry people on a common platform for sharing ideas and new inventions.

I extend my best wishes for a grand success of the National Conference.

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MESSAGE

It is my great pleasure to announce that the Civil Engineering Department in Teegala Krishna Reddy Engineering College is conducting National Conference on "**Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)**" on 21st and 22nd January 2019.

The National Conference gives opportunity for research scholars, faculty members, students and industrial fraternity to share innovative ideas on a common platform.

I wish my best wishes to Principal, staff members, participants and delegates for a grand success of the National Conference.

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MESSAGE

I feel very happy to announce that the Civil Engineering Department in Teegala Krishna Reddy Engineering College is conducting National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

The National Conference provides an ideal opportunity for the delegates, faculty and students to keep abreast of the latest trends, exchange of ideas and new developments.

I wish the organizing committee of NCRACE-2K19 a grand success and a very good luck to the participants.

Sri Teegala Amarnath Reddy
(Treasurer, TKRES)

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MESSAGE

I am happy to announce that the Department of Civil Engineering, Teegala Krishna Reddy Engineering College, is organizing a National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

The Conference will provide an ideal platform to explore the innovations in Civil Engineering and help faculty, students and delegates towards research orientation.

I wish the organizing committee of **NCRACE-2K19** a grand success and a very good luck to the participants.

G. Laxmi Narsimha Reddy
(Administrative Officer, TKRES)

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I feel proud and happy to announce that we at Teegala Krishna Reddy Engineering College are conducting a National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

I appreciate all the efforts put in by the Organizing committee and all faculty members for conducting this event and bringing together latest innovations and ideas in the field of Civil Engineering. I hope this conference help students in improving their innovation ideas.

I extend my best wishes for a grand success of the National Conference.

Dr. J.B.V. Subrahmanyam
(Principal, TKREC)

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I feel very proud and happy to announce that the department of Civil Engineering, Teegala Krishna Reddy Engineering College is conducting National Conference on **"Recent Advancements in Civil Engineering-2K19 (NCRACE-2K19)"** on 21st and 22nd January 2019.

The National Conference provides an ideal opportunity for the faculty, students, delegates and distinguished personalities from industry for sharing information on latest advancements in Civil Engineering. This opportunity helps the students in their knowledge base and makes way for higher level studies in the field of Civil Engineering.

I wish the organizing committee, staff members of NCRACE-2K19 a grand success and a very good luck to the participants.

Sri P. Venkat Ram Reddy
(HOD-CED, TKREC)

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PREFACE

The National Conference on Recent Advancements in Civil Engineering (NCRACE-2K19) on 21st and 22nd January 2019 at TKREC, Hyderabad aims to provide a good platform for sharing the views of authors on various advancements in Civil Engineering.

The main aim of conducting National Conference is to bring together and share the experiences and research endeavour on all aspects of Civil Engineering.

We would like to present here with great pleasure the conference proceedings and is a part of Teegala Krishna Reddy Engineering College, Hyderabad.

The conference proceeding provides an opportunity for teaching faculty, research scholars and students to interact with experts in the different domains of Civil Engineering.

The NCRACE-2K19 team sincerely hopes that this collection will contribute to research and career development.

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FLEXURAL AND SHEAR BEHAVIOR OF HIGH STRENGTH POND ASH CONCRETE

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Abstract: Concrete is most widely used construction material. Traditionally concrete is made up of cement, river sand as fine aggregate, crushed stone aggregate as coarse aggregate and potable water. Nowadays, river sand is not readily available for use in many places. Instead of natural river sand, crusher sand or manufactured sand obtained from stone aggregate quarries is widely used as fine aggregate in concrete. The main objective of this study was to identify alternative source of good quality fine aggregates which is depleting very fast due to the fast pace of construction activities in India. In the present study the experimental investigations carried out to evaluate the effects of replacing the pond ash with river sand use of super plasticizer, on various concrete properties. Use of pond ash is a waste industrial by-product of power plants provides great opportunity to utilize it as an alternative to normally available aggregates It is found that as the percentage of Pond ash increases from 10% to 15% the strength of the pond ash concrete increases but the results are lower than the target mean strength of the respective M50 and M60 grades of concrete. Hence in the present work 20% replacement of sand by pond ash is considered and the target mean strength values are obtained. The target mean strength of (M50, 66 N/mm² and M60, 69 N/mm²) pond ash replacement was considered to cast the cubes, cylinders and prisms reinforced concrete beams. The Flexural Behaviour of RC beams shows that the ultimate load carrying capacity and shear capacity of concrete. The 28days characteristic compressive strength of M50 and M60 grade Pond ash concrete is 6% and 7.7% higher than the target mean strength of M50 and M60 conventional concrete respectively. The flexural behavior of RC beams with pond ash shows that the failure is brittle when compared to the conventional concrete. The energy absorbed by the conventional beams is more than the pond ash beams. Therefore pond ash is suggestible for construction practices by improving the properties by conducting future studies.

Keywords: High strength concrete, Pond Ash, Fine aggregate, Waste material, Environmental issues, Mechanical properties, Flexural behavior.

1. INTRODUCTION

1.1 GENERAL

Concrete is a commonly used building material in the world. Conventional concrete is a mixture of cement, fine aggregate, coarse aggregate and water. Compare to all other ingredients, aggregates occupy 75 to 80 % of the total volume of concrete and affect the fresh and hardened properties of concrete. In the total composition of concrete, 25 to 30 % was engaged by the fine aggregate in volume. The quality of concrete is persistent by its mechanical properties. The mechanical properties mainly divided into short-term and long-term properties. Compressive strength, Split tensile strength, Modulus of Elasticity and Flexural strength are short term properties. Porosity and impermeability are the long term properties.

1.2 HIGH STRENGTH CONCRETE

American concrete Institute defines a high-strength concrete and high performance concrete as concrete that has a specified compressive strength to design of 6,000 psi (41 MPa) or greater. Under the ACI definition durability is optional and this has led to

"STRENGTH AND DURABILITY PROPERTIES OF POLYPROPYLENE FIBER CONCRETE"

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Abstract- ***Concrete made with Portland cement has certain characteristics and it is relatively strong in compression but weak in tension and tends to be brittle. These two weaknesses have limited its use. Another fundamental weakness of concrete is that cracks start to form as soon as concrete is placed and before it has properly hardened. These cracks are major cause of weakness in concrete particularly in large onsite applications leading to subsequent fracture and failure and general lack of durability. Polypropylene is a synthetic hydrocarbon polymer, the fiber of which is made using extrusion processes by hot drawing the material through a die. Its use enables reliable and effective utilization of intrinsic tensile and flexural strength of the material along with significant reduction of plastic shrinkage cracking and minimizing of thermal cracking. This paper deals with the effects of addition of various proportions of polypropylene fiber on the properties of concrete. An experimental program was carried out to explore its effects on compressive strength, tensile strength, water absorption and sorptivity. The results showed that by use of polypropylene fiber the compressive and tensile strength was marginally increased. The water absorption and sorptivity values of polypropylene fiber concrete were lower when compared to conventional concrete.***

Keywords: Polypropylene fiber · Tensile strength · Durability · Strength properties.

I. INTRODUCTION

Concrete is the most widely used construction material which has several desirable properties like high compressive strength, stiffness and durability under normal usual environmental factors. While at the same time concrete found to be brittle and weak in tension. It is well known that concrete mixed with other material was applied for resistance purpose. Fiber reinforce concrete is a family of composite materials that combine the high compressive strength properties of cement mortars with significantly increased impact, flexural and tensile strengths imparted by the fiber reinforcement.

Concrete is by nature a brittle material that performs well in compression, but is considerably less effective when in tension. Reinforcement is used to absorb these tensile forces so that the cracking which is inevitable in all high-strength concretes does not weaken the structure. For many years, steel in the form or bars or mesh (also known as "re-bar") has been used as reinforcement for concrete slabs that are designed to experience some form of loading, whether that loading would be carrying traffic, spanning a void or bearing another structure such as a wall. In many slabs, steel mesh has been used a crude (and often ineffective) method of crack control.

Latest developments in concrete technology now include reinforcement in the form of fibers, notably polymeric fibers, as well as steel or glass fibers [1-8]. Fiber-reinforcement is predominantly used for crack control and not structural strengthening. Although the

"Study on Microstructure of Concrete"

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Abstract- **The understanding of the relationships between structure and properties of concrete forms the basis of materials science. At the macro level it is seen that aggregate particles are distributed in a matrix of cement paste. At the microstructure terms, concrete is an extremely complex system of solid phases, pores and water, with a high degree of heterogeneity. Therefore, it is very complicated to constitute the exact microstructure models from which the behavior of the material can be reliably predicted. However, understanding about the microstructure – properties of individual compounds is very useful for control the properties of the concrete. Therefore, Final products is depends upon micro level. This paper describes the structure of cement compound, three components of the concrete microstructure, hydration process, heat of hydration, main chemical reactions, bonding action, paste structure models and porosity. Finally microstructure property is discussed with respect to influence on durability.**

Keywords: **microstructure, durability, degree of hydration, cement, heat of hydration, chemical reactions.**

I. INTRODUCTION

At some level the behavior of every material is related to its microstructure. The understanding of these relationships between structure and properties forms the basis of materials science. Microstructure encompasses a wide range of structural levels, from the atomic scale to that of the engineering component, and includes all discontinuities inside and between phages, such as dislocations, grain boundaries, phase interfaces, pores, and cracks. A complete characterization of the microstructure of a multiphase material must also entail quantitative information about the relative proportions of the phases and their distribution in space. The relative lack of success in developing microstructure/property relationships for concrete is due, in no small part, to the lack of good micro structural characterization.

In micro structural terms, concrete is an extremely complex system of solid phases, pores, and water, with a high degree of heterogeneity. This heterogeneity can be considered on several levels. It the simplest level, concrete consists of aggregate particles, distributed in a matrix of cement paste. On a more detailed level, the paste itself is a mixture of unreacted cement, hydration products, pores, and water and at a still finer level these phases themselves have complex microstructures.

In this paper, various aspects of the microstructure of concrete will be considered in an attempt to provide a coherent picture. As an introduction, a brief description of the chemistry and structure of cement components given, followed by a short survey of the physical methods used to study microstructure. Initially, the components of the concrete microstructure are considered separately; the microstructure of anhydrous cement; the development of microstructure during the hydration of cement paste; the microstructure of aggregates; and the interface between cement paste and aggregates. To arrive at a complete characterization of concrete microstructure, these components must be integrated, but this is an area in which much work needs to be done and only a few comments can be made. For conciseness, it has been possible to cover only the micro structural development of concretes at near ambient temperatures.

II. STRUCTURE OF CEMENT COMPOUNDS

Silica has tetrahedral structure (Sio_4^{-4}) with Si covalently bonded with 4 oxygen is basic repeating unit in structure of silica and silicates. Si (Silica) belongs to same periodic table carbon.

"Level of service and delay evaluation at closed signalized intersection U-turn as alternative"

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Abstract— **Intersections are one of the most critical elements that influence the performance of urban road network system. For safe and efficient movement of large volumes of traffic on city road network, majority of the intersections are usually signalized. Operation and performance of signalized intersections is influenced by the roadway parameters, traffic condition, operating parameters and environmental conditions along with user's behavioral characteristics, which significantly differ among locations. Delay is one of the principal measures of performance used to determine the Level of Service (LOS) at signalized intersections and several methods have been widely used to estimate vehicular delay. Very few studies only have been carried out to estimate delay at closed signalized intersections in developing countries like India. The use of U-turns is very effective in reducing delays as well as accident rate. The most efficient configuration is stop controlled median U-turns This paper presents the results of the study on analyses of Level of Service and delay conducted at closed signalized intersections U-turn as alternative at Tarnaka junction and Uppal ring road in Hyderabad, India.**

Keywords— Level of Service, Intersection, Delay, U-turns, Traffic flow.

I. INTRODUCTION

The increase in population is accompanied by a larger number of vehicles and drivers on Indian roadways. The increased number of vehicles leads to congestion that in turn impacts the safety and operational characteristics of roadways. Issues such as these have led to the development of the access management concept. As defined as, "access management involves providing (or managing) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed". The major advantages of using access management techniques are improvement of the safety level and operational efficiency of the roadway.

A significant part of the access management techniques focuses on the treatment of right turns along a roadway. Approaches used to achieve control of right turns include separation of the right turns in exclusive right-turning lanes, use of U-turns either at or after the intersection, and consolidation of median openings. The concept of U-turns as an alternative to direct right turn movements is a relatively new approach and has recently been implemented in several locations. Depending on the design, this eliminates either all the right turn movements at an intersection or only right turns onto arterials from cross-streets. The safety gain from such a design is due to the decrease in the number of conflicting points at the intersections. The advantages of U-turn movements over right turn movements are as follows:

- Shorter travel times, reduced delay times and an enhancement in the roadway capacity are some of the important benefits of U-turn movements over right turn movements. For distances of less than 1km the provision of a U-turn will be more effective, as the travel times of the vehicles in this case will be comparable with the travel times obtained by providing direct right turns. This is especially true for heavy arterial volumes.
- High right turn volumes at a signalized intersection require right turn phases with long green times which may affect the intersection capacity and increase the delays of the through movements. The provision of U-turns in these cases will improve the traffic flow condition by enhancing the vehicle travel time.
- Studies indicate that there has been a tremendous decrease in the crash rates when

"Comparative Study of different shapes of structure under seismic loading"

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Abstract— **High rise buildings are subjected to lateral forces in addition to gravity Forces. In this paper numerical analysis is conducted for different shapes of buildings under seismic forces. The analysis is carried out using STAAD Pro. From the analysis it is observed that triangular shape is having more advantages when compared with circular and square shape.**

Keywords—**Analysis, displacement, shear force, base shear, moments.**

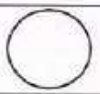
IV. INTRODUCTION

In the current scenario the occurrence of earthquakes are frequent. The demand for earthquake resistant RCC frame structures has increased or we can say has become mandatory. The aim of present study is to examine the effects of seismic zone with different shapes of plans. All the tall buildings with different shapes have been modelled in STAAD Pro. And then the comparative study has been executed.

The desire to create aesthetic and efficient structures architect make wonderful and imaginative structures. Some time shape of the building catches the attention and some time structure of the building. The shape and structure of the building has significant effect on the performance of the building during earthquakes.

Wide range of structural damages is observed during past earthquakes. This help in identifying the basic cause of damage of the structures.

V. SHAPES OF MODELS

SHAPE	FIGURE	AREA
Square		Side = a=10m A=100m2
Circle		Dia = a = 11.3m 100m2
Triangle		Side = a = 15.2m 100m2

VI. MODELLING

A. Geometry:

The modelling in three shapes (Square, Circle, and Equilateral triangle) is done in such a way that spacing of the columns is nearly similar, Floor height is considered as 3m. Number of storey's considered for study is G+5 storey.

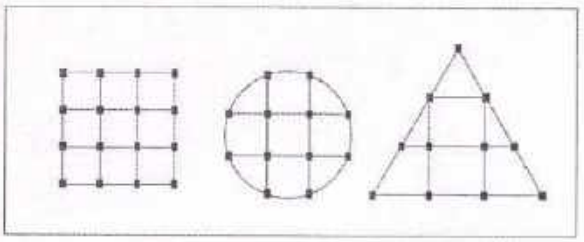
B. Material property:

The different shapes of all models are RCC FRAMED structure with the sizes of all Beams, Columns, and Walls are similar.

- Column dimensions are 500x700 mm.
- Beam dimensions are 300x600 mm
- Walls are assumed as 150mm for external wall and 115mm for internal walls.

C. Support :

In all models the supports are fixed



VII. LOADS CONSIDERATION

The analysis part with references from, IS 875 (1) dead loads, IS 875 (2) live load, and IS 1893 (part1) : 2002 for seismic studies is done

The major gravity loads on building structures are dead and live loads and the major lateral loads on building structures are seismic loads.

"Experimental investigations on strength characteristics of steel fibre concrete"

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Abstract - **It is now well established that one of the important properties of Steel Fibre Reinforced Concrete (SFRC) is its superior resistance to cracking and crack propagation. As a result of this ability to arrest cracks. The necessity of steel fibre reinforced concrete to enhance the strength properties of concrete. In the present day construction industry needs of finding effective materials for increasing the strength of concrete structures. Hence an attempt has been made in the present experimental investigations to study the effect of addition of steel fibre. Experimental investigation was done using M40 mix and tests were carried out as per recommended Procedures by relevant codes. Cubes of size 150 mm X 150 mm X 150 mm, cylinders with 150 mm diameter X 300 mm height were prepared using the standard moulds. Specimens are cast for testing the properties such as compressive strength, split tensile strength. The results were compared with control concrete. This report presents a laboratory investigation on the strength characteristics of steel fibre reinforced concrete.**

Keywords: **Steel fibre, coarse aggregate, Fine aggregate, super plasticizer (conplast SP 430).**

I. INTRODUCTION

GENERAL:

Concrete is weak in tension and strong in compression. The concept of using steel fiber in the concrete improves the mechanical characteristics. Earlier applications include addition of straw to the mud bricks, horse hair to reinforce plaster. Use of continuous steel fiber reinforcement in concrete increases strength and ductility, but it requires careful placement. Alternatively, introduction of fibers in discrete form in plain concrete or reinforced concrete gives better results. The modern development of steel fiber reinforced concrete (FRC) started in the early sixties. The steel fibers are mostly used fiber, in fiber reinforced concrete. According to many researchers, the addition of steel fiber into concrete creates low workable or inadequate workability to the concrete. Therefore to solve this problem super-plasticizer is added, without affecting other properties of concrete. The usefulness of steel fiber reinforced concrete (SFRC) in various civil engineering applications is indisputable. Fiber reinforced concrete has so far been successfully used in slabs on grade, concrete, architectural panels, precast products, offshore structures, structures in seismic regions, thin and thick repairs, crash barriers, footings, hydraulic structures and many other applications. Compared to other building materials such as metals and polymers, concrete is significantly more brittle and exhibits a poor tensile strength. Based on fracture toughness values, steel is at least 100 times more resistant to crack growth than concrete. Concrete in service thus cracks easily, and this cracking creates easy access routes for deleterious agents resulting in early saturation, freeze thaw damage, scaling, discoloration and steel corrosion. The concerns with the inferior fracture toughness of concrete are alleviated to a large extent by reinforcing it with fibers of various materials. Concrete is most widely used construction material in the world due to its ability to get cast in any form and shape. It also replaces old construction materials such as brick and stone masonry. The strength and durability of concrete can be changed by making appropriate changes in its ingredients like repetitious material, aggregate and water and by adding some special ingredients. Hence concrete is very well suitable for a wide range of applications. However concrete has some deficiencies as listed below:

"EXPERIMENTAL STUDIES ON LIGHT TRANSMITTING CONCRETE"

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Abstract— **Light transmitting concrete is one of the fibre reinforced concrete which is used for aesthetic application by incorporating the optical fibres in concrete. Optical fibres are one which helps for transmission of light through fibre. The end-light type of fibre is used to increase the aesthetic appearance of the concrete. The concept of light transmitting concrete is like a transparent concrete. When it is used in ceiling or side wall, it is exposed to direct sun light which transmit the image but not completely transparent. The investigation is not constrained only with the decorative purpose but the effect of fibre application in the strength aspect is also discussed. . This type of concrete can be installed at a very low cost and increasing the visual appeal. Different tests were carried out on the concrete specimens like compressive strength test, light transmission test and flexural strength test etc. The cost wise comparisons between conventional concrete and light transmitting concrete are also studied. The result analysis even if initial cost of the light transmitting concrete is more than conventional concrete by 12 time, but due to continuous increase in tariff and pay back calculation done it can be concluded that the payback period for excess amount invested for light transmitting block will be recovered in 5.2 years for domestic consumption and 3.7 years for commercial and industrial consumption.**

Index Terms—: *optical fiber, compressive strength, energy saving., light transmitting properties.*

I. INTRODUCTION

Due to economic development and space utilization requirements, high-rise buildings and skyscrapers are mostly built downtown in metropolitan areas around the world, especially countries with great populations. Those buildings are isolated biosphere only based on man-made lights to maintain people's optical activities. It is considered to be one of the best sensor materials available and has been used widely since the 1990s. Hungarian architect, Aron Losonczi, first introduced the idea of light transmitting concrete in 2001 and then successfully produced the first transparent concrete block in 2003, named LiTraCon . Optical fibers are used most often as a means to transmit light between the two ends of the fiber and find wide usage in fiber-optic communications, where they permit transmission over longer distances and at higher bandwidths (data rates) than wire cables. It can be produced as prefabricated building blocks and panels. Due to the small size of the Fiber s, they blend into concrete becoming a component of the material like small pieces of aggregate. In this manner, the result is not only two materials - glass in concrete - mixed, but a third, new material, which is homogeneous in its inner structure and on its main surfaces as well. The glass Fiber s leads light by points between the two sides of the blocks. Some special-purpose optical fiber is constructed with a non-cylindrical core and/or cladding layer, usually with an elliptical or rectangular cross-section. These include polarization-maintaining fiber and fiber designed to suppress whispering gallery mode propagation. Polarization-maintaining fiber is a unique type of fiber that is commonly used in fiber optic sensors due to its ability to maintain the polarization of the light inserted into it.

II. LITERATURE REVIEW

Momin,et,al.,(2014) states that The translucent concrete comes in precast blocks of different sizes. In Light-transmitting concrete, which is also known as translucent concrete, optical fiber's strands are cast into the concrete to transmit light, by either naturally or artificially through translucent panels. The fibers in the concrete run parallel to one another, transmitting light between the two surfaces of the concrete component in which they are embedded. Optical fibers transmit light so efficiently that there is almost no loss of light conducted through the fibers. To make translucent concrete, Fiber Optic Plastic (FOP) and ROCALITE micro concrete are needed.- Shanmugavadivu, et,al.,(2014) States that LiTraCon

"Flexural Behaviour of Bamboo Reinforced Concrete Beams"

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Abstract*: The strengthening of plain cement concrete structure by using bamboo reinforcement. Bamboo is a non- conventional material. The advantages of bamboo include light weight, corrosion resistant, low cost and easily available material. The tensile strength and shear strength of bamboo and were to be conducted. Stress-strain and load displacement behaviour were to be studied. The objective this work is to evaluate the flexural behaviour of bamboo reinforced concrete beams. The problem in hand involves reinforced concrete beams of size 3200x25x150mm and M20 grades of concrete were used for the beam. The 10mm rectangular cross section of bamboo is used. The 6mm dia of stirrups where used for reinforcement. The flexural behaviour of bamboo reinforced concrete beam where compared with the steel reinforced concrete beam. The flexural strength of bamboo reinforced concrete beam attains 70% of that of steel reinforced concrete member.

Keywords*: Bamboo reinforcement, Tensile strength, Shear strength, Flexural behaviour, two points loading, Load deflection.

I. INTRODUCTION

A. General:

In most countries, concrete is widely used as the foundation for the infrastructure. Concrete is used largely because it is economical, readily available and has suitable building properties such as its ability to support large compressive loads. However, the use of concrete is limited because it has low tensile strength. The tensile strength of bamboo is relatively high and can reach 370MPa. In some parts of the word many buildings are constructed only with concrete or mud-bricks. This is dangerous in case of seismic activity. These buildings have little hope of standing in the case of an earthquake. Scientists and engineers are constantly seeking for new materials for structural systems: the idea of using bamboo as possible reinforcement has gained popularity.

B. Bamboo Characteristics:

Bamboo is giant grass, not a tree. Bamboo columns are a cylindrical shell divided by solid transversal diaphragms at nodes and have some intriguing properties such as high strength in the direction parallel to the fibers, which run longitudinally along the length of the Culm, and low strength in a direction perpendicular to they fibers. The density of fibers in cross-section of a bamboo shell varies with thickness as well as height. Fiber distribution is more uniform at the base than at the top or the middle. This is because bamboo is subjected to maximum bending stress due to wing at the top portion of the Culm. Bamboo is a natural functionally graded material. It is a composite with hierarchical structure. The strength of bamboo is greater than most of the timber products.

The mechanical properties vary with height and age of the bamboo culms. Research findings indicated that the strength of bamboo increase with age. The optimum strength value occurs between 3 and 4 years. The function of the nodes is to prevent buckling and they play a role of axial crack arresters. The amazing aspect of bamboo is the way it interacts with the environment. It has been discovered that bamboo can prevent pollution by absorbing large amounts of nitrogen from waste water and reducing the amount of carbon dioxide in the air.

C. Physical and mechanical properties of solid bamboo:

The mechanical analysis is the study of a materials behavior when subjected to loads. This results in the deformation of the materials. Bamboo, being one of the oldest building materials, has been used in Tukul construction. Bamboo is an orthotropic material; it has particular mechanical properties in the three mutual directions, longitudinal, radial and tangential. This study was carried out to investigate the variation

"The Strength Properties of Concrete by Partially Replacing Cement with Metakaolin"

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ABSTRACT--**Concrete is one such material which has a wide range of applications in construction world. The addition of mineral admixture in cement has dramatically increased along with the development of concrete industry, due to the consideration of cost saving, energy saving, environmental protection and conservation of resources. Nowadays there is an increasing trend of utilization of waste/non-conventional materials in cement and concrete matrices. These materials are often used as a part replacement of cement reducing the cost of construction and help to overcome the deficiencies associated with the use of Ordinary Portland Cement (OPC) alone in which damage caused by the extraction of raw material and carbon dioxide emission during cement manufacture have brought pressures to reduce cement consumption by the use of supplementary materials. Metakaoline is a waste/non-conventional material which can be utilized beneficially in the construction industry. From the recent experimental works done by using Metakaoline, it has been proved that it is one of the pozzolanic material and it effectively enhances the strength parameters of concrete. However, the workability is slightly compromised and durability of concrete is increases. In the present work, an experimental investigation was carried out, replacing cement with Flyash. For improving the mechanical and durability properties of concrete by adding the metakaoline.**

Keywords: **Metakaoline· compressive strength · Split tensile strength · Strength properties.**

I. INRODUCTION

Concrete is one such a important material for construction The utilization of cement in development is as old as the times of Greek and roman progress. In any case, for various reasons, the solid development industry is not economical. It expends a great deal of virgin materials and the central crude material of cement i.e. bond is in charge of green house gas emanations making a danger domain through an Earth-wide temperature boost. In this manner, the industry has seen different sorts of cement looking for an answer for reasonable advancement. Because of a headway in framework, which in the long run prompted improvement of various types of solid like high quality solid, superior cement and so on the historical backdrop of establishing material is as old as the historical backdrop of building development. Some sort of solidifying materials were utilized by Egyptians, Romans, and Indians in their old developments. There used to be a conviction that early Egyptians generally utilized cementitious materials by consuming gypsum. The tale of the innovation of Portland bond is, nonetheless, credited to Joseph Aspdin, a Leeds Builder and block layer, despite the fact that comparative methods had been received by different designers. Joseph Aspdin took the patent of Portland concrete on 21st October 1824. The favor name of Portland was offered inferable from the likeness of this solidified concrete to the normal stone happening at Portland in England. Aspdin in his assembling procedure, had blended lime stones powder into a fine mud to frame a slurry and consumed it in a heater like a lime furnace till the CO2 was removed. The blend so calcined was then ground to a fine powder. Roman developers utilized volcanic tuff found close Pozzuoli town close Mount Vesuvius in Italy. Silica is the principle part of this volcanic tuff and thus is called puzzolona. Later on, the name Pozzolona was connected to some other material, normal or counterfeit, having about an indistinguishable piece from that of volcanic tuff or fiery remains found at Pozzuoli. The word Pozzolona, exceptionally siliceous in nature was taken from Pozzuoli, a town in Italy a couple of The utilization of cement in development is as old as the times of Greek and roman human advancement. In any case, for various reasons, the

"Monitoring seasonal shoreline changes of Pillaichavady(Puducherry) coastal region using GPS Techniques"

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Abstract-- **The Puducherry coastal region situated along the East coast of South India has been accustomed to abnormal shore line change from the past few decades and has lost valuable coast and its upland. The above fact is mainly due to improper planning of coastal related projects without a sound knowledge on its negative impact on the coast. Moreover the natural phenomenon such as seasonal storm and storm surges further aggravate the problems created by human endeavors. Hence, to avoid the consequence by the above problem it is a mandate to evaluate the coast for its suitability to accommodate the project without causing any negative impact. The evaluation of a coast for any coastal related projects can be achieved by continuous monitoring and updating the shoreline positions, rate of sediment movement and volumetric changes of beaches and its near shore uplands. Monitoring shoreline changes using GPS survey is one of the most reliable techniques which could be swift, reliable, inexpensive and accurate. A study was conducted using GPS along the selected coastal stretch of Pillaichavady, a hamlet village belonging to Puducherry region for the assessment of shoreline changes. From the observation in general, it was found that, the coast has undergone a drastic profile modification after the construction of groin structure in the year 2017 about five km south of this coast. The periodical data's collected from the study area revealed that, the steepness of the coast has transformed from steep to gentle slope during the North east monsoon with only a modest development of beach. During the South west monsoon it was observed that the beach has recessed and the steepness has increased than usual which showed a sign of erosion .A slow recession of beach was observed during the non monsoon period. From the observed data's it was concluded that the coast has witnessed severe accretion for the past one year.**

Keywords: GPS, Shoreline changes, monsoon seasons etc..

I. INTRODUCTION

Coastal areas plays a major role for human being in ancient time for trading, living etc. one third of the people depends the coastal region and natural resources for daily life. Due to the development of the urbanization and abundant natural resources, population rapidly increase on the coastal areas. Due to rapid migration of people from land to coastal areas various development of projects has developed on the coastal areas like harbour, various offshore structure and wind mills etc gives a toughest task to coastal engineers. The development of coastal structure gives drastic changes in the shoreline results like beach erosion, seawater, intrusion, shoreline change etc. various factor affect Shoreline change mainly occurred due to natural like wind ,wave, current etc and manmade activities like construction of harbour ,breakwater, jetties, pier etc on the seaward side. Management of coastal erosion is an important one for the coastal engineers. Salghuna et al.(2015) state that shoreline is a more dynamic and complex region for all geological features present, as it has a mixed results of tidal, Aeolian, tectonic, and sometime river activity. Ateeth shetty et al (2015) states that coastal zone is increasingly under pressure from human activities such as fishing coral, sand mining, sewage disposal ,urban expansion and tourism. Harvesting of Mangroves, sand mining are the major negative impact of beach stability, it gives the results of beach erosion and drastic shoreline changes. Dredging, construction of harbour, mineral exploration, removal of vegetation, gives a major impact on the coastal stretch among the other human activities. Coastal erosion is not a single country problem its an universal one, which mostly cause a sea level rise and increase the number of storms events across the globe. Chentamilselvan et al (2016) studied the shoreline changes of puducherry on the northern side of puducherry fishing harbour reported that shoreline change that have occurred for the past 23 years due to construction of harbour breakwater on the northern side elsewhere have contributed substantially modification of shoreline. The use of GPS technique and analysing shoreline changes provide a better understanding of beach changes, sediment transport, and storm impact (Robert.A et al.1993)

"Effect of Silica Fume in Flow Properties and Compressive Strength of Self Compacting Concrete"

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Abstract: *In the present paper to evaluate performance of Self Compacting Concrete (SCC) by replacing cement with varying the silica fume (SF) percentages. An attempt was made to study the performance of fresh concrete by slump flow test, T_{500} test and the hardened properties of concrete by compression test. There were four mixes of SCC were made by replacement of cement with various percentages of silica fume from 5 to 20% with an increment of 5%. Tests were carried out to assess the compressive strength of concrete at different ages namely 7, 14 and 28 days. For SCC, super-plasticizer (Conplast SP430) was added in optimized dosage. It was found that replacement of cement by 10% of silica fume with a water to powder (w/p) ratio of 0.8 gave better results on fresh properties and compressive strength of admixed concrete.*

Keywords: *SCC, slump flow, w/p ratio, compressive strength, silica fume.*

I. INTRODUCTION

A. General

Self compacting concrete is one of the modern types of concrete widely employed in the construction industry. It has vital properties like flow ability, passing ability, etc. To develop SCC, one should play a key role in handling chemical and mineral admixtures. In present study, SCC was developed by replacing cement by Silica fume (varying from 5% to 20% with an increment of 5%). Silica fume also referred to as micro silica or condensed silica fume, is another material that is used as an artificial pozzolonic admixture. It is a product resulting from reduction of high purity quartz with coal in an electric and furnace in the manufacture of silicon or ferrosilicon alloy. Silica fume rises as oxidized vapors. It cools, condenses and is collected in cloth bags. It is further processed to remove impurities and to control particle size. Condensed silica fume is essentially silicon dioxide (more than 90%) in non-crystalline form. It is extremely fine with particle size less than 1 micron and with an average diameter of about 0.1 micron, about 100 times smaller than average cement particles.

B. Silica fume Characteristics

Self compacting concrete a highly flow able, yet stable concrete that can spread readily into place and fill the formwork without any consolidation. The characteristics of materials and the mix proportion influences self-compatability to a great extent[2]. An experimental study on self-compacting concrete (SCC) was made with three types of mixes, the first consist of different percentages of fly ash (FA), the second uses different percentages of silica fume (SF), and the third uses a mixture of FA and SF in cement replacement. The slump and V-funnel test was carried out on the fresh state and SCC with 15% of SF gives higher values of compressive strength than those with 30% of FA[3]. Silica fume was a viable secondary mineral material, leads to higher than usual modulus value and from the mixes was studied. It was suggested that no more than 6% silica be replaced by mass[4].

C. Physical and mechanical properties:

Sieve analysis was carried out for fine aggregate and coarse aggregate and the results were obtained. Proportioning of aggregate was done to find the proportion of coarse to fine aggregate in SCC to obtain maximum density. Preliminary tests such as consistency test and setting time tests were carried out on the Ordinary Portland Cement (OPC). The specific gravity of silica fume material and cement were determined using density bottle method.

Cement: Ordinary Portland cement, 53 grade was used. The typical content of cement is 350 – 450 kg/m^3. The maximum size of coarse

"COMPARATIVE STUDY ON NORMAL STRENGTH CONCRETE CUBE AND CYLINDER USING CERAMIC WASTE"

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Abstract— **there is a growing interest in using waste materials such as ceramics as alternative aggregate materials for construction. While other ceramic product wastes such as sanitary wares and electrical insulators have been extensively investigated, not much findings are available on ceramic wall and floor tiles wastes. Thus, the current study focuses on the mechanical characterization of waste ceramic wall and floor tiles aggregate concrete. Ceramic wastes sourced from construction and demolition wastes were separated from other debris and crushed using a quarry metal hammer. Ceramic tiles were sieved into fine and coarse aggregates in line with standards. Other materials used were gravel, river sand, cement and potable water.**

I. INTRODUCTION

In modern way of construction, the consumption of ceramic materials has building upday by day in the form of tiles, sanitary fittings and other electrical goods like insulators and ceramic waste. In most of industries the electrical insulator ceramic waste are used as a land-fill or sluiced to storage lagoons. This ceramic insulator was used in manufacturing of transformers. This type of Ceramic waste from industries is mounting day by day in processing, transporting and fixing due to its brittle nature. It is reported that soundness of recycled coarse aggregate is higher than the natural aggregate and similar trends were reported even for compressive and flexural strength National Conference on recent advancements in civil engineering. National Conference on recent advancements in civil engineering. National Conference on recent advancements in civil engineering.

Ceramic waste is generated at the end process of the manufacturing of tiles in ceramic industries. Million tons ceramic waste is generated every year, which is almost 20 to 30% of total production and as well as household waste and recyclable materials. Concrete is widely used in construction of buildings, bridges and other structures. Great demand for building materials like sand and blue metal due to cost, scarcity has made the civil brains to find alternatives with the use of waste materials, by-products and recyclables. So we collect the ceramic waste in electricity board.

Ceramic waste as replaced 5% and 10% in the form of coarse aggregate. Concrete mix for M20 grade is prepared with a water cement ratio and placed in moulds for cubes of size 150 mm x 150 mm x 150 mm, cylinders of diameter 150 mm & height 300 mm and prisms of 100mm x100mm x 500mm. In fresh state, slump cone test have been conducted. Test for compression have been done in hardened state on 7 days and 28 days.

A. scope of work

Use of industrial waste in a useful manner.

To conduct compression test and flexural test on ceramic waste aggregate + conventional coarse aggregate) and control concrete on standard IS specimen

- To provide economical construction material.
- Provide safeguard to the environment by utilizing waste properly.
- To replace the coarse aggregate by ceramic waste in different ratio such as 0%, 5% and 10% in M20 mix concrete.

"Comparative Study on Mechanical Properties of Recycled Aggregate Concrete (RAC) and Normal Aggregate Concrete (NAC)"

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Abstract— **The construction waste volume is dramatically increasing day by day with the ever increasing infrastructure needs coupled with technology advancement. Conservation of natural resources and preservation of environment is the essence of any modern development. Management of construction waste disposal is also a matter of concern from environmental protection point of view. Recycled Aggregates are made from material which is usually recovered from demolition of projects which are crushed, screened and washed to produce the required grading. The Recycled Coarse Aggregates (RAC) obtained from dismantled structures by crushing old concrete are being used as coarse aggregate/fine aggregate in concrete production. Recycled aggregates are the materials for the future. These are eco-friendly materials and they also reduce the cost of concrete production.**

It is proposed in the present project work to compare the mechanical properties like workability; compressive strength and split tensile strength of Recycled Aggregate Concrete (RAC) using locally available recycled material in Hyderabad with Natural Aggregate Concrete (NAC). It is also proposed to study the rate of increase of compressive strength of Recycled Coarse Aggregates (RAC) with increase in age. In this study, it is proposed to cast 150x150x150 mm cubes for compressive strength and 150 mm ϕ x300mm cylindrical cubes for split tensile strength. The compressive strength at different ages i.e., 7, 28 and 56 days will be tested. Workability by standard slump cone test and compaction factor test will be studied.

Keywords—**Recycled Aggregate Concrete, Natural Aggregate Concrete, compressive strength, workability, cylindrical cubes**

1. INTRODUCTION

Global Construction industry growth is substantial in size. Conservation of natural resources and preservation of environment is the essence of any modern development. Concrete is the single most widely used material in the world. Almost in every civil engineering works including low and high rise buildings and other local or domestic development, concrete is the major component used.

Recycling is the act of processing the used material for reuse in creating a new product. The usage of natural aggregate is getting more and more intense with the development in construction industry. In order to reduce the usage of natural aggregate, recycled aggregate can be used as a replacement materials.

Recycled aggregate are comprised of crushed, graded inorganic particles processed from the materials that have been used in the constructions and demolition debris. These materials are generally from absolute buildings, roads, bridges, and sometimes even from catastrophes, such as wars and earthquakes.

A. Objectives of the Study

The objectives of the present study are:

- ✓ To assess the physical and structural properties of RAC
- ✓ To study the effectiveness of recycled aggregate in concrete.
- ✓ To design optimum mix of concrete by using recycled aggregate.
- ✓ To study mechanical properties such as compressive strength and split tensile

"Mechanical Properties of High Strength Concrete using Mineral Admixtures"

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Abstract—Due to advancement in technology and constantly increasing economy, construction industry develops in everlasting leaps and bound day by day. This boom in construction demands massive amount of concrete to be produce to satisfy the current need. This enormous quantity of concrete requires a deal of quality raw material which produce concrete. In this research work, a study has been carried out by replacing three different mineral admixtures to impart the strength into great extent by using as Ground granulated blast furnace slag (GGBFS), Metakaolin (MK) and bottom ash. In this study cement has been replaced by 20% of ground granulated blast furnace slag and 20% of Metakaolin maintained to be constant throughout this study with 0%, 15%, 30%, 45%, 60%, and 75% replacement of bottom ash was carried into individual cases.

Key Words—High Strength Concrete; Ground granulated blast furnaceslag ,Metakaolin and bottom ash

Metakaolin

I. INTRODUCTION

A. GENERAL:

Concrete is prepared by mixing various constituents like cement, aggregates, water, etc. which are economically available. Concrete is the second most highly used item in the world after water. Production of cement used in concrete involves emission of large amount of CO_2 which is the major contributor for greenhouse effect and global warming. Energy is the main backbone of modern civilization of the world over, and the electric power from thermal power stations is a major source of energy, in the form of electricity.

In India, over 70% of electricity generated by combustion of fossil fuels, out of which nearly 61% is produced by coal-fired plants. This results in the production of roughly 110 million tons of ash per year. Replacing cement by pozzolanic leads to lower heat of hydration. Commonly used industrial waste materials are fly ash, bottom ash and blast furnace slag. Alternative cementations materials such as Metakaolin, silica fume, steel fibers, quarry dust, wood ash, and lime stone, calcined clays are of interest in concrete. The use of coal ash in normal strength concrete is a new dimension in concrete mix design and if applied on large scale would revolutionize the construction industry, by economizing the construction cost and decreasing the ash content. The challenge for the civil engineering community in the near future is to realize projects in harmony with the concept of sustainable development and this involves the use of high performance materials and products manufactured at reasonable cost with the lowest possible environmental impact. At present, the construction industry is plagued with the scarcity of this essential constituent material of concrete. Therefore, in the present circumstances of scant sources of river sand and boom in infrastructure development, it becomes essential and more significant to find out its substitute material in concrete.

B. BOTTOM ASH:

Bottom ash is the fine, solid mineral residue that results from the burning of coal in boilers. It is of dark gray color granular and porous in nature over 70% of electricity generated in India, is by combustion of fossil fuels. In which nearly 61% is produced by coal-fired plants. Disposal of either dry, or wet to an open area mixing it with water and dumping yards. It is obtained by quenching molten iron slag (a by-product of iron and steel-making) from a blast furnace in water or steam, to produce a glassy, granular product that is then dried and ground into a fine powder. The addition of GGBS makes concrete more durable, due to its lower setting time the heat of hydration is lowered. GGBS contains silicates and alumino-silicates of calcium and is a by-product of iron manufactured in a blast furnace. The GGBS can be replaced with cement up to 10-50%, 7, 14 and 28 days.

"EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF CEMENT BY ZEOLITE AND FULL REPLACEMENT OF M-SAND AND ITS EFFECTS WITH SEA WATER AND FRESH WATER"

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Abstract — **The paper provides an overview of study on the use of natural zeolite as a partial replacement for cement in concrete. In the research zeolite has been partially substitute the ordinary Portland cement in concrete. The presence of silicon-dioxide in the natural zeolite was expected to increase the concrete strength through the reaction with calcium hydroxide from the hydration of ordinary Portland cement. Also nowadays the carbon-di-oxide concentration in atmosphere is getting increased leading to serious effects like global warming. Zeolite has a tendency to absorbing the carbon-di-oxide gas also. A fresh concrete is made to study the workability properties of partial replacement of zeolite concrete and conventional concrete. Harden concrete are test on cube, prism, cylinders were made to study the strength of the concrete made of partial replacement of zeolite concrete and conventional concrete. The influence have been studied in different proportions such as 5%,10%,15%,20% and 25% of zeolite replacement. The mix design is M25 according to IS[10262-2009]. The mixing and curing are done in both fresh water and sea water. The concrete is mixed with fresh water and cured under sea water for 7,14and 56 days. The concrete is mixed with sea water and cured under fresh water for 7,14and 28 days.**

Index Terms—: **Cement, Zeolite, M Sand, Coarse aggregate, fresh water, Sea water**

I. INTRODUCTION

Concrete is a very strong and versatile mouldable construction material. It consists of cement, sand and aggregate (e.g., gravel or crushed rock) mixed with water. The cement and water form a paste or gel which coats the sand and aggregate. When the cement has chemically reacted with water (hydrated), it hardens and binds the whole mix together. The major component of concrete is cement, which has own environmental and social impact. The cement industry is one of the primary producers of carbon dioxide. Now a day sustainable development for construction involves the use of non-conventional and innovative materials, and in order to compensate the lack of natural resources and to find alternative ways conserving the environment. Zeolite constitute a unique class of solid substances with multifarious applications to industrial processes and to the control of environmental pollution. They may be used in both pre-emptive decontamination strategies and to clean up toxic spillages of various kinds. Four million tones are mined annually, mainly to be used in the construction industry.

Zeolite is a crystalline hydrated aluminosilicate and alkaline earth cations having an infinite, open and three dimension structure. For large scale environmental application, it is preferable to use a natural zeolite containing mineral. Due to multiple advantages (such as its low price, adequate mechanical characteristics, its easy forming in various shapes and sizes, etc..,)concrete is the most widely used construction materials. Despite of mentioned advantages, the use of concrete causes environmental problems since the cement industry has been responsible for 7%of global carbon dioxide (CO_2) emission. Also durability problems of concrete structure, especially in aggressive environment, can affect the lifespan of the structure.

"Stabilization of soil using geogrids"

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Abstract- **The basic concept of soil reinforcement is to impart tensile strength to the soil, which is weak in tension. The potential benefits of geogrid reinforcement in granular soil have been studied by series of laboratory scale static load tests on a circular footing placed on the fill surface. Parameters of the test programe includes depth of placement of reinforcement, diameters of geogrid. The response of circular footing depends on its load which is a measure of their strength or stiffness. A subgrade stiffness/ strength characterization is the modulus of subgrade reaction (Ks) which is measured by plate load tests performed to measure the plate displacements. In various standards, such as PCA (1984) , IRC : 58 (2002) , AUSTROADS (2004) , modulus of subgrade reaction are specified depending upon the soil type.**

This thesis presents an experimental study to evaluate the response of circular footing stress - settlement and sub grade modulus of the soil with and without reinforcement.

The various tests are performed to verify the behavior of circular footing on geogrid with different diameters. The test results indicate that the inclusion of reinforcement in the unreinforced sand decreases the settlement with increase of sub grade modulus.

I. INTRODUCTION

With huge scope of infrastructure growth in the 21st century engineers and scientists are looking for new techniques which are much faster, easier and cheaper to ground improvement techniques.

A Geogrid is a geosynthetic material used to reinforce soils which is strong in tension. This allows the apertures to transfer forces to larger area of soil. Geogrid is used in layers with aggregate fills or any other soil to create a strong layer.

The influence of geogrid reinforcement on sand bed were studied in this thesis. The response of circular footing on geogrid reinforced foundation beds were studied through series of laboratory tests using small scale plate load test. In this thesis the parameters studied are footing stress - stress settlement and subgrade modulus of the soil. The settlements derived from the plate load test were used in the calculation of subgrade modulus.

II. MATERIALS USED

A.GEOGRID

A **geogrid** is a geosynthetic material used to reinforce soils and used to reinforce retaining walls, sub base or sub soils. Geogrids are commonly made of polymer materials such as polyester, polyethylene or polypropylene made up of high modulus. They are stiff net like material with large openings called apertures, which allow interlocking with the surrounding soil and rock to perform the function of reinforcement. They are incorporated in the base layers of paved or finished surface layers of walls and slopes and provide stabilizing force within the soil structure itself. The interlocking effect is determined by the geogrid strength, mesh size and base materials used. Geogrids are dimensionally stable and have high tensile modulus and open geogrid structure that provides soil reinforcement interaction.

"USE OF PLASTIC WASTE IN BITUMINOUS PAVEMENT"

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Abstract— **The waste plastic and its disposal is a major threat to the environment, which results in pollution and global warming. The utilization of plastic waste in bituminous mixes enhances its properties and also its strength. In addition it will also be a solution to plastic disposal & various defects in pavement viz., pot holes, corrugation, ruts, etc. the waste plastic used are poly-ethylene, poly-styrene, poly-propylene. The waste plastic is shredded & coated over aggregate & mixed with hot bitumen and resulted mix is used for pavement construction. This will not only strengthen the pavement and also increases its durability.**

The titanium-di- oxide is used as a smoke absorbent material, which will absorb the smoke from the vehicles. This innovative technology will be boon for Indian hot-humid climate. It's economical and eco-friendly. In this paper, we have discussed about the soil properties to be considered in design of pavement, pavement design, process of construction flexible and plastic-smoke absorbent pavement.

Keywords— **Plastic waste, Bituminous, Pavement,** Aggregates,

I. INTRODUCTION

The major threat to the environment is the disposal of waste plastic. In a highway, the potholes and corrugation is the major problem. Plastic pavement will be a better solution to the above stated problems. A material that contain one or more organic polymer of large molecular weight, solid in its finished state, can be shaped by its flow is called as "plastic". The durability of plastic is high and it degrades very slowly. And also plastic has high resistant to degradation. Plastic can be divided into two major categories- thermosets & thermoplastics. Thermosets have high durability and strength because it solidifies irreversibly when heated, henceforth can be used primarily in construction application. Plastic is a non-degradable waste, causes green-house effect and global warming. The various experiments have been carried out whether the waste plastic can be reused productively. The various literature indicated that the waste plastic when added to hot aggregates will form a fine coat of plastic over the aggregate and such aggregates when mixed with binder is found to have higher strength, higher resistance and better performance over a period of time. Along with bitumen, use waste plastic increases its life and smoothness. It is economical and eco-friendly. Addition of plastic waste in construction of pavements reduces the plastic shrinkage and drying shrinkage. The use of waste plastic improves the abrasion and slip resistance of asphalt pavement. In India, because of hot and extremely humid climate, plastic pavements of greatest advantage.

In order absorb the smoke from the vehicles; titanium di-oxide can be used. It also enhances the mechanical properties of the plastic, resulting in higher strength and high resistance.

II. OBJECTIVE

The objectives of this project are:

- To carry out the soil test.
- To design the flexible pavement
- To design the asphalt pavement with aggregate-plastic- bitumen mix.
- To coat the aggregate with plastic and incorporate titanium di-oxide.
- To test the bitumen and the modified bitumen.

III. SCOPE OF THE PROJECT

- To eradicate potholes
- To minimize the global warming , greenhouse gases and pollution.
- The lifespan of the roads can be increased.
- Eco-friendly in nature.

"Experimental Investigation of waste glass powder as partially replacement of cement"

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Abstract--Glass is used in many forms in day-to-day life. It has limited life span and after use it is either stock piled or sent to landfills. Since glass is non-biodegradable, landfills do not provide an environment friendly solution. Hence, there is strong need to utilize waste glasses. Many efforts have been made to use waste glass in concrete industry as a replacement of coarse aggregate, fine aggregate and cement. Its performance as a coarse aggregate replacement has been found to be non-satisfactory because of strength regression and expansion due to alkali-silica reaction. The research shows that there is strength loss due to fine aggregate substitution also.

In this project we are going to replace the cement partially using glass powder which is rich in silica. Therefore, we have planned to prepare some numbers of cubes, using glass powder at various proportions like 0%, 10%, 20%, and 30%and going to test them for its compressive strength. The casted specimens will be tested for its strength. We have also planned to prepare some numbers of cubes using conventional concrete. From the test results, we are going to compare the behavior of glass powder concrete with conventional concrete. In this work we are going to use waste glasses, so the cost will be comparatively low when compared with normal concrete.

Keywords-- Tensile strength · Durability · Strength properties.

I. INTRODUCTION

Today many researches are ongoing into the use of Portland cement replacements, using many waste materials and industrial by products, for example, pulverized fly ash (PFA) and ground granulated blast furnace slag (GGBS). Like PFA and GGBS, a glass powder (GLP) is also used as a binder with partial replacement of cement which takes some part of reaction at the time of hydration; also it is act as a filler material.

The term glass comprises several chemical varieties including binary alkali silicate glass, boro-silicate glass, and ternary soda lime silicate glass. Partial replacement of cement with milled waste glass benefits the microstructure and stability of cementitious materials.

A denser (less porous) and more homogeneous structure is produced when milled waste glass is used as partial replacement for cement, which benefits the resistance to moisture sorption and thus the long-term durability of cementitious materials.

Partial replacement of cement with milled waste glass also benefits the stability of cementitious materials when potentially deleterious reactions between cement hydrates and the reactive aggregates is a concern.

Mixed-color waste glass, when milled to about the particle size of cement and used in concrete as replacement for about 20% of cement, improves the moisture barrier qualities, durability, and mechanical performance of concrete.

These improvements result from the beneficial chemical reactions of milled waste glass with cement hydrates, which yield chemically stable products capable of refining the pore system in concrete. .

II. METHODOLOGY

A detailed survey was made on the different composite structures were done by researchers in different parts of the world. In this chapter, the review of the published literature in the field of present study is given in summarized form.

A. MATERIAL COLLECTION

This part includes the materials used, Study of properties of the materials.

B. TESTING OF MATERIALS

This part includes mix design of concrete, Slump test and Compressive strength test for concrete.

Slump test was carried out (Methods of Sampling and Analysis of Concrete) to measure the consistency of concrete. The slump cone mould in the shape of a truncated cone with the internal dimensions 200mm diameter at the base, 100mm diameter at the top and height of 300 mm.

The trial mix was performed to calculate the characteristics concrete compressive strength of cylinders and cubes for M25 mix.

"Flexural Behaviour of Fly Ash Based Slurry Infiltrated Fibrous Concrete"

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Abstract—**Slurry Infiltrated Fibrous Concrete (SIFCON) is considered as an exceptional steel fibre reinforced concrete (SFRC) which differs from the conventional SFRC in the amount of fibres used and method of fabrication. The matrix consists of cement-sand slurry without any coarse aggregates. This paper reports the influence of fibre volume percentage of hooked end steel fibres having length/aspect ratio 30/30, on the flexural strength and toughness (energy absorption capacity) of SIFCON beams. SIFCON beams were casted with 6, 8 and 10% volume fraction of fibres and for comparison, a control beam of full slurry without fibres is made. From the test results of experimentation, it is observed that SIFCON beams exhibit higher flexural strength and toughness characteristics when compared to the control beam. SIFCON beam with the highest (10%) fibre volume concentration exhibited superior performance among the beam specimens.**

Key words: SIFCON, Fibre volume, Flyash, Flexural strength, Toughness.

1. Introduction

Among the various cementitious composites developed in civil engineering, SIFCON has been represented as a High performance Fibre Reinforced Concrete (HPFRC) which possess outstanding compressive, tensile, shear and particularly flexural strength along with extra-ordinary energy absorption capacities and ductility characteristics.

SIFCON was first developed in USA, in the year 1983 by Lankard [1] and SIFCON's basic properties like load-deflection curve, flexural strength and compressive strength, abrasion and impact resistance were studied. Homrich and Namaan [2] investigated SIFCON composites under compression and tension, in order to study the characteristics of stress-strain curves. The effect of low volume steel fibre fraction in FRC was studied by Ramakrishnan et al. [3] and it was reported that the mechanical performance is very high compared to non – fibrous concrete. Parameswaran et al. [4] examined the behaviour of steel fibre mortar specimens having high volume fraction of fibres in the range of 8%, subjected to flexure and reported that they possess flexural strength more than 40MPa.Sudarsanarao et al. [5] tested SIFCON slabs under flexure and compared it with FRC and PCC slabs. It was reported that compared to PCC and FRC slabs, SIFCON slabs display excellent characteristics in flexure. Ipek et al.[6] through his experimentations on prisms reported that increase in pre- setting pressure shows improvement in the flexural strength and toughness value. A maximum flexure strength of 67.54 MPa was achieved when pre-setting pressure given was 15MPa. Adel et al. [7] examined improvement in the mechanical properties of HPFRC with the change in mineral admixture and fibre concentration, and reported that flexural toughness of HPFRC is 33 times higher than plain concrete. From the above literatures, it can be noted that studies on the flexural strength characteristics of SIFCON beams have been very rare. Flexural behaviour is a very important aspect in case of beams as in practical applications they have to resist various flexural loads. Hence there is a need to conduct experimentations on SIFCON beams under flexure.

The aim of this research is to determine experimentally the flexural strength, load-deflection response and energy absorption capacity for SIFCON beams with 6, 8 and 10%

"ASSESSMENT OF PHYSIOCHEMICAL CHARACTERISTICS OF COASTAL AQUIFER ALONG THE PONDICHERRY COASTAL STRETCH"

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Abstract – **The water samples were collected from different point and nonpoint sources and analyzed, for various physico-chemical water quality using appropriate certified and acceptable procedures. The study area experiences a seasonal climate and broadly divided into three seasons as winter (September & October), Rainy (November & December) and summer (January to March). Based on the demand for the potable water, the productivity has become a major concern which depends on the physico-chemical characteristic of the water body. The test was carried out for determining water quality parameters such as colour, Temperature, pH, Total Dissolved Solids (TDS), Suspended Solids (SS), Hardness, Chloride, Dissolved Oxygen (DO), for periodical water samples collected along the Pondicherry coastal stretch based on the values recommended by WHO and BIS standards.**

Key words: **Water Pollution, Coastal stretch, Physiochemical.**

I. INTRODUCTION

Water is essential for every living organism in the world. From the survey, a man can live without food for three to four days but no one can live without water for one day. Groundwater is one of the main sources of the living organisms in the world. The exploitation of drinking water is mainly due to usage of domestic, industrial and agriculture purpose. The quantity of the groundwater fully depends upon natural precipitations, inland surface water and sub-surface geochemical processes. In nature, the groundwater does not require any treatment for the use of domestic and agriculture purpose. The quality of groundwater is very difficult to regain its original position if not treated at its initial stage of contaminate. Temporal changes in the different layers of soil mass, hydrological factors and human activities are the main cause for alternate in the quality of groundwater.

In India it is reported that about 70% of the available water is polluted. It is observed that human activities are the major factor in determining the quality of the surface and groundwater through atmospheric pollution, effluent discharges, use of agricultural chemicals, and land use. The chief source of pollution is identified as sewage constituting 84 to 92 percent of the waste water. Industrial waste water comprised 8 to 16 percent.

Water occurs in the earth in different forms like surface water, ground water, glaciers and sea water. Among which the ground water serves the majority of purpose for day to day requirements where there are no other alternate sources. In Developing countries, the settlement along the coastal stretch are in multifold which depletion of ground water in India is mainly due to continuous exploitation and dis management of ground water.

Pondicherry is about 293 km^2 and has a population of around 9.5 Lakhs (Source: O/o Registrar General & Census Commissioner, India, 2011.) and generates wastewater of about 60 MLD, with the entire amount discharged untreated into the sea through backwaters and creeks.

The present study aims at assessing the spatial and temporal distribution pattern of physical and chemical characteristics of ground water during pre-monsoon, monsoon and post monsoon. In order to examine the quality of water by determine the characteristics of physical, chemical and biological phenomena. The objectives of the present work are to discuss the quality of water and its physio-chemical characteristics.

II. MATERIALS AND METHODS

In this study the collected sample is used to assess the phsico-chemical characteristics of water. The Pondicherry region is the largest among the four isolated domains of the union territory of Pondicherry and is located on the east coast of India and 11.9139° N, 79.8145° E, forming enclaves within the cuddalore district of Tamil nadu state. The region covers around 24 km of coastal stretch. For this study, initially the

"Impact Studies on Automated Highway Systems"

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Abstract- **The Automated Highway System (AHS) concept defines a new relationship between vehicles and the highway infrastructure. AHS refers to a set of designated lanes on a limited access roadway where specially equipped vehicles are operated under completely automatic control. AHS uses vehicle and highway control technologies that shift driving functions from the driver/operator to the vehicle. Throttle, steering, and braking are automatically controlled to provide safer and more convenient travel. AHS also uses communication, sensor and obstacle-detection technologies to recognize and react to external infrastructure conditions. The vehicles and highway cooperate to coordinate vehicle movement, avoid obstacles and improve traffic flow, improving safety and reducing congestion. In sum, the AHS concept combines on-board vehicle intelligence with a range of intelligent technologies installed onto existing highway infrastructure and communication technologies that connect vehicles to highway infrastructure.**

Among others, the University of California Partners in Advanced Transport and Highways (PATH) has carried out significant research and development in the field of highway automation since the 1980's. With the passage of the 1991 Intermodal Surface Transport Efficiency Act (ISTEA), efforts were on early prototype development and testing of fully automated vehicles and highways. This act prompted the US DOT to develop the National Automated Highway System Research Programme (NAHSRP), whose goal was to develop specifications for a fully automated highway system concept that would support and stimulate the improvement of vehicle and highway technologies.

Keywords: **Automated Highway, System(AHS), Vehicle, Highways, Communication Technologies, Highway Technologies, Improvement.**

I. INTRODUCTION

The idea of automated driving dates back to almost 50 years ago when General Motors (GM) presented a vision of —driverless vehicles under automated control at the 1939 World fairs in New York. In the 1950's research by industrial organizations conceptualized automated vehicles controlled by mechanical systems and radio controls. After the first appearance of the computers in the 1960's, researchers began to consider the potential use of computers to provide lateral and longitudinal control and traffic management.

The fully automated highway concept was initially examined by GM with sponsorship from the US department of Transportation (DOT) in the late1970's. During these times, focus was laid on automated vehicles on a highway as computers were not powerful enough to consider a complete fully automated highway system.

In 1994, the US Department of Transportation launched the National Highway System Consortium (NAHSC). The consortium consisted of nine major categories of organization including academia, federal, state, regional and local government besides representatives from vehicle, highway, electronics and communications industries.

The consortium believed in expanding the program's expertise and resources, and maintained that the collaborative approach among the stakeholders would be critical in building the common interest that would be required in the early development and deployment of fully automated highway systems.

Research continues to this day though it is largely sketchy owing to the withdrawal of the financial support for the National Automated Highway Systems Research Programme (NAHSRP) by the US Department of Transportation in the year 1997.

Many studies conducted by the National Automated Highway Systems Consortium (NAHSC) continue in partial way with a couple of federal programmes like the Intelligent Vehicle Initiative (IVI) with more focus on a nearer-term horizon.

"Comparative Study on bottom ash based clay bricks with ordinary clay bricks"

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Abstract--**This paper presents the results of investigation done on bottom ash based clay bricks. This is an approach to improve the properties of clay with the inclusion of non plastic additive such as bottom ash, to reduce the shrinkage and to improve the properties of clay. Bricks were produced at various percentage of bottom ash mixed with ordinary clay. Tests for strength, water absorption and efflorescence were done under Indian standard code provisions. The results demonstrate that the compressive strength of the burnt bricks of minimum percentage bottom ash added posses' excellent strength and other properties with contrast to normal burnt clay bricks. It is noted that good quality bottom ash based bricks contributing to sustainable development for the future and also this bricks are superior to the normal bricks.**

Keywords: **Clay Bricks, Plastic Limit, Shrinkage Cracks, Efflorescence, Compressive Strength.**

I. INTRODUCTION

Green technology in building industry is becoming increasingly significant now-a-days to address issues of environmental pollution and sustainability. This makes engineers to use waste materials in construction. Coal fired thermal power plants generate large volumes of bottom ash which are currently sent to landfills. In the brick making industry, there has also been research into how to reuse different waste products in order to manufacture better quality bricks. Such risks have paved the way to extensive studies on the physical–chemical properties of bottom ash. The increase in the popularity of using environmental friendly, low cost and lightweight construction materials is needed for building industry. Recycling of industrial wastes as building materials appears to be viable solution for pollution problem and economic design of buildings. This project deals about the attempt of using the bottom ash, as a material in the clay brick production, and the effects on the bricks property like physical and mechanical properties are enhanced.

- ***Material used:***

Bottom ash consists of heavier particles that fall to the bottom of the furnace. Bottom ash is also composed primarily of amorphous or glassy alumina silicate materials derived from the melted mineral phases. Most bottom ash is produced in dry-bottom boilers, where the ash cools in a dry state Boiler slag is a type of bottom ash collected in wet-bottom boilers (slag tap or cyclone furnaces, which operate at very high temperatures), where the molten particles are cooled in water quench

- **Physical properties of bottom ash:**

Blaine fineness (cm^2/g) = 2.7

Density (kg/m3) = 1.93

Specific gravity = 10.06

Plasticity = None

Dry Unit Weight (kN/m^3) = 7.07 - 15.72

Fineness modulus = 2.7

Specific gravity = 2.1-2.7

Water absorption = 10.062

A. Mix Proportions:

It is very similar to the ordinary brick but the addition of bottom ash in various proportions to the clay soil defines the project. Addition of water is about 1/4th of weight of bottom ash mixed soil. As per the code (IS: 2117-1991) the water may be sprinkled to the surface of the soil so as to retain the moisture before the moulding process.

"Evaluation Report of ongoing Kaleswaram major irrigation project on river Godavari basin in Telangana state"

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Abstract-**At the outset "There is a truth that God is truth" at the same time "water finds its own level is also truth". Contrary to the "God saying", the Government of Telangana taking the water against truth and proving that it intend to provide water for parched and virgin lands by delivering the water against gravity .In normal way ,in irrigation practices, water will be provided towards gravity. But contrary to the nature, it is in opposite way. In this project the Kaleswaram Dam is being constructing at tail end and carrying the water upstream by pumping and gravity including tunnelling. The salient features of the Kaleswaram Project are briefly projected contrary to the natural flow water would be taken back in this project. At Kaleswaram on Godavari, another tributary is joining from Maharashtra and as such good water is available. Therefore, downstream of Kaleswaram at Medigadda, one barrage is proposed, there by lifting the water to Yallampalli. Total cost of project is Rs 80,500 crores and total capacity 225 TMC.**

I. INTRODUCTION

The Government of Telangana has taken up major irrigation project on river Godavari at Kaleshwaram. This is located in Jaya Shankar Bhupalapalli District at Medigadda. This is a Lift Irrigation Project. This is the starting point and at Medigadda one pump would be constructed. From here the water will be diverted to Annaram Barrage. The Kaleshwaram lift irrigation and drinking water supply is the biggest with an estimated cost of rupees 80,500 crores. During the 2 to 3 years time such a big project has not been after up any where is our India. This is supposed to be the biggest among the two telangana states.

All the designs are to be approved by CWC, Government of India recently accorded the Environmental clearance. The honourable Chief Minister of Telangana has been inspected the main works at Kaleswaram. In this paper, actual work schedule has been discussed. There are about 12 packages in this project. The project has been started 3 years ago 2014, and to be completed by 2020.

From this project it could be seen that from Annaram pump house, the water will be diverted to sundilla pump house, the water will be diverted to Yellampalli. From Yellampalli; through tunnels, canals, by lifting arrangement, the water will be diverted to Mid- Manair. From Mid-Manair the water will be diverted to mallana sagar, Konda pochamma reservoiers etc., at Siddipeta. From there, the water will be diverted to reservoirs namely Gandharala, Baswapur located in Yadadri district. This is the dead end of the layout.

Infact upto August 13, 2017 only 230 TMC available below SRSP. At SRSP upto August 15, 2017 the available water is 117 TMC at Yellampalli, the water availability is 4.39 TMC. In the main Godavari river, available water is limited. However, the tributary Pranahita from Maharastra joining at Tummidihatti and is contributing very good quantity of water. As per Government of India, gauging from 1st June to 15th August, a quantity of 230 TMC has been let out into the down stream. Now, with the proposal of Kaleshwaram lift irrigation project, this water could be utilised for lifting and also letting into Bay of Bengal. The total

"EVALUATION STUDIES ON "SELF-HEALING CONCRETE"

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Abstract- Concrete is one of the widely used building material. However, it is one of the major producers of carbon dioxide (CO2) which is directly contributing to destroying our environment. Not to mention that enormous costs are being spent each year to maintain concrete constructions. Cracks of various sizes form in all concrete constructions which need to be sealed manually strengthening the life of a particular construction. On the other hand, Self-healing concrete (SHC) is a revolutionary building material that has the solution to all these problems and is definitely the building material of the near future. Therefore, we need to understand its properties and mechanism and foresee how it impacts the architectural designs of the time to come, which standards are needed to create useful and aesthetic buildings and constructions.

Keywords: self-healing, concrete, building material, smart material, cracks, mechanism, repair, design, architecture.

I. INTRODUCTION:

Self-healing concrete could solve the problem of concrete structures deteriorating well before the end of their service life. Concrete is still one of the main materials used in the construction industry, from the foundation of buildings to the structure of bridges and underground parking lots.

Traditional concrete has a flaw, it tends to crack when subjected to tension. A healing agent that works when bacteria embedded in the concrete convert nutrients into limestone has been under development at the Civil Engineering and Geosciences Faculty in Delft since 2006. The project is part of a wider programme to study the self-healing potential of plastics, polymers, composites, asphalt and metals as well as concrete. Dr Henk Jonkers, a microbiologist who specialises in the behaviour of bacteria in the environment, has developed self-healing concrete in the laboratory and full-scale outdoor testing will start in 2011. The first self-healing concrete products (successful research results permitting) are expected to hit the market in future and are expected to increase the lifespan of many civil engineering structures. Jonkers has worked closely with civil and structural engineers to learn about the properties of concrete and steel reinforcement, and develop the concrete.

II. DESCREPTION:

A self-healing material is described as a material that is capable of repairing itself back to the original state. The concept of self-healing concrete (SHC) that happens over time (autogenic) has been noticed for the past 20 years. It can be observed in many old structures which have

"IMPACT STUDIES ON HYDRAID ZEOLITE FILTER"

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Abstract- Water born diseases are the major cause of deaths worldwide. The use of contaminated water for drinking is major cause for infection and diseases that kill millions and sicken more than a billion people each year. Alarming statistics, such as 1.2 billion people in the world are lacking a safe water supply. There is a need for a sustainable, cost-effective and reliable water treatment to provide safe drinking water in the rural communities of developed and developing countries. Technologies commonly employed in the developing world are typically too expensive, too complex to be locally maintained and repaired. Hydraid Zeolite Filter (HZF) is a modification of traditional slow sand filter. It is cost – effective, reliable water treatment to provide safe drinking water in the rural communities. The materials used in HZF sand (coarse, fine), zeolite, gravel are locally available materials.HZF is effectively in removal of pathogens, improve the taste of the water, allow for intermittent flow, removal of odor.

KEYWORDS: Water born diseases, intermittent flow, low cost, effective pathogen removal, turbidity.

I. INTRODUCTION:

Water born diseases are the major cause of deaths worldwide. The use of contaminated water for drinking is major cause for infection and diseases that kill millions and sicken more than a billion people each year. Alarming statistics, such as 1.2 billion people in the world are lacking a safe water supply. "Villages are the backbone of the country", still facilities for treating drinking water, to render it safe to the consumers, are limited in rural areas. As a result, consumption of unsafe drinking water in these areas is common and can lead to illness and water related diseases. The most common disease is diarrhea including cholera, giardiasis, and Escherichia- coli (E.Coli) based diarrhea other water related diseases of concern include typhoid, hepatitis, schistosomiasis, trachoma.

The provision of appropriate water treatment and safe storage systems, at a household scale, can reduce these diseases. The appropriateness of any treatment technology for use in a developing region will be dependent on many factors including raw water quality, cost, education level and local customs, types of water-related diseases present, acceptance and uptake of the technology and its ability to be properly operated and maintained, the availability of water and other environmental factors.

This is a multimedia filter which is a partial replacement of fine sand with zeolite in SSF. The SSF was developed in 1988 by Dr. David Manz of the University of Calgary, Canada, in response to various issues that were brought to attention from previous water treatment projects. The issues the slow sand filter had to face were higher flow rates than the traditional slow sand filter, effective pathogen removal, improve the taste of the water, allow for intermittent flow, removal of odor, color and still provide an appropriate technology for the

"THE IMPACT OF AGRICULTURAL CHEMICALS AND PESTICIDES ON WATER QUALITY"

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Abstract— the accelerated use of agricultural chemicals over the past 20 to 30 years has profitably increased production but has also had an unfavorable impact on water quality in many of the major agricultural areas. Water pollution is an important factor for concerning the quality of environment. Water has been used for many purposes, especially for agriculture, industry, recreation, and household. Nowadays, the quality of surface and ground water is declining due to several reasons. The pesticide in water has become an important problem in many developed countries. The use of chemicals was increased to obtain enough crops in many countries. This intensive use caused surface and ground water pollution.

Water always contains dissolved and suspended matter of organic and mineral origin. When these minerals in water exceed the permissible limits, it is called as pollutants or contaminants. Water contamination is mainly attributed to outdated farm management practices. These include excessive use of fertilizers for high product yields, traditional irrigation practices, use of pesticides and herbicides and poorly managed animal farming operations.

There are many reasons of water contamination. They
may be because of careless human attitude, gasoline and other harmful liquids leak from underground storage tanks into the groundwater supply, groundwater is polluted by runoff from fertilized fields, livestock areas, abandoned mines, salted roads and industrial areas etc.
In this paper, the causes and effects of chemicals and pesticide pollution have been discussed **and management practices explained briefly.**

Keywords—**Agricultural chemicals, water quality, water pollution**

I. INTRODUCTION

Water is a key natural resource which is precious for the survival of all ecosystems on the planet. All living organisms depend on water during their life.
Not only do we need water to grow our food, generate our power and run our industries, but also we need it as a basic part of our daily lives.
According to World health Organization (1993), water covers more than 70% of the earth; but only few percentage of the earth's water is available as a source of drinking. WHO/UNICEF (2006a) noted that an important indicator of risk exposure to water related diseases is access to safe drinking water. "Improved water supply" is defined to include "reasonable access" to protected water resources which include protected springs and dug wells, boreholes, public stand pipes and household connections.

Sources of Pollution: Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, and groundwater). This may be defined in terms of the undesirable changes in the chemical and physical properties of water which are not favourable to all those living things utilizing water for their lives. There are two basic forms of water pollution;
1) Changing the types and amounts of materials carried by water, and
2) Altering the physical characteristics of a body of water.
In most of the technologically advanced countries, organochlorine (OC) insecticides, which were used successfully in controlling a number of diseases such as malaria and typhus, have been banned or restricted.

"An Experimental Investigation of Strength and Permeability of Geopolymer Concrete"

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Abstract: **Geopolymer chemical binders like Sodium silicate (Na_2O_3Si) & Sodium hydroxide, offers an alternative to replacement for ordinary Portland cement (OPC). Geo polymer technology also has the potential to reduce global greenhouse emissions caused by OPC production. There is already a considerable amount of work and research conducted on Geopolymer till now, and it is now possible to implement this technology commercially. However, to ensure that Geopolymer became commercially available and able to be used in the world, further understanding of its ability to provide durable and long lasting construction materials is required. The properties which are still relatively unexplored compared to other properties are its permeability. In the present work, three different grades namely ordinary, standard & high strength Geopolymer and their counterparts are prepared and examined their performance characteristics like strength and permeability experimentally.**

This alkali activation of waste materials is a chemical process that allows the user to transform glassy structures into very compact well-cemented composites. Now a day, the knowledge concerning the mechanisms controlling the alkali activation process is considerably advanced; however, there are still many things to investigate. In the present paper, the mechanism of activation of a fly ash (no other solid material was used) with highly alkaline solutions is described. These solutions, made with NaOH, Na_2Sio_3. This paper, report on the study of the processing of geopolymer using fly ash and alkaline activator with different molarities like sodium silicate (Na_2O_3Si) & Sodium hydroxide (NaOH) Geopolymerization process. The factors that influence the early age compressive strength such as molarities of sodium hydroxide (NaOH) have been studied. Sodium hydroxide and Sodium silicate solution were used as an alkaline activator. These studies comprise the comparison of the normal concrete and geopolymer concrete. The Geopolymer paste samples were cured at 60°C for 1 day and keep in room temperature until the testing days. The Compressive strength was done at 7 days, 28 days and 91 days. The result showed that the geopolymer paste with sodium hydroxide and sodium silicate concentration, compressive strength increase with molarities increases.

Keywords: **Chemical composition of fly ash, characteristic compressive strength, split tensile strength and rapid chloride permeability test (RCPT).**

I. INTRODUCTION

Utilization of concrete as a major construction material is a worldwide phenomenon and the concrete industry is the largest user of natural resources in the world. This use of concrete is driving the massive global production of cement, estimated at over 2.8 billion tons according to recent industry data. Associated with this, is the inevitable carbon dioxide emissions estimated to be responsible for 5 to 7% of the total global production of carbon dioxide. Significant increases in cement production have been observed and were anticipated to increase due to the massive increase in infrastructure and industrialization in India, China.

On the other hand, the climate change due to global warming has become a major concern. The global warming is caused by the emission of greenhouse gases, such as carbon dioxide (CO_2), to the atmosphere by human activities. Among the greenhouse gases, CO_2 contributes about 65% of global warming (McCaffery, 2002). The cement industry is held responsible for some of the CO_2 emissions, because the production of one ton of Portland cement emits approximately one ton of CO_2 into the atmosphere (Davidovits, 1994; McCaffery, 2002).

"STRENGTH PROPERTIES OF CONCRETE WITH BAGASSE ASH AND M-SAND"

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Abstract-**Concrete being the second most used material after water in the world is prone to many damages due to its low tensile strength. Concrete made with Portland cement has certain characteristics; it is relatively strong in compression and weak in tension and tends to be brittle. These two weaknesses have limited its use. The demand for concrete as a construction material has increased due to its durability, low cost, the growth of world's population and the rapid development of the construction industry. The increased use of concrete consequently increases the use of Portland cement and leads to high emissions and energy consumption. In consideration of the environmental concerns, the reduction in the use of Portland cement by replacing part of it with supplementary cementitious materials has become extremely important and at the same time when it comes to environmental issues, the insufficiency of river and the harmful effects of extracting river sand should also be duly noted. In order to overcome these problems, in our research we are partially replacing cement with bagasse and sand with M-sand and aim to give the same strength as conventional concrete. The compressive test and split tensile strength was carried out at different ages to find the correct amount of Bagasse and M-sand that can be partially replaced in the preparation of concrete. It has been concluded that the partial replacement of cement with bagasse ash and sand with M- sand gives optimum result at 10% but it is less than the conventional concrete. The result showed that partially replace cement with bagasse ash and sand with M-sand more than 10% as the compressive strength and split tensile strength keeps decreasing progressively.**

Keywords: ***Bagasse ash · Tensile strength · M-sand · Compressive strength.***

1. INTRODUCTION

Concrete is the most widely material of construction all over the world. A huge quantity of concrete is consumed by construction industry all over the world. In India, the conventional concrete is produced by using natural sand obtained from the riverbeds as fine aggregate. One of the important ingredients of conventional concrete is natural sand or river sand, which is expensive and scarce. However, due to the increased use of concrete in almost all types of construction works, the demand of natural or river sand has been increased. To meet this demand of construction industry, excessive quarrying of sand from river beds is taking place causing the depletion of sand resources. The scarcity of natural sand due to such heavy demands in growing construction activities have forced to find the suitable substitute. One of the cheapest and the easiest ways of getting substitute for natural sand is by crushing natural stone to get artificial sand of desired size and grade [1]. The promotional use of artificial sand will conserve the natural resources for the sustainable development of the concrete in construction industry [2].

Artificial sand is a process controlled crushed fine aggregate produced from quarried stone by crushing or grinding and classification to obtain a controlled gradation product that completely passes the 4.75 mm sieve. Artificial sand generally contain more angular particles with rough surface textures and

"High Strength of Concrete by adding Admixtures"

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Abstract:
Concrete is indispensable one to the development of infrastructures. We need to develop high strength as well as durable concretes which are known as high strength concrete. Objectives of this study are developing a high strength concrete by partially replacing the cement content with fly ash, silica fume and partially replacing the fine aggregate concrete with quarry dust, and studying the mechanical properties of this concrete as well as control concrete. The mechanical properties which includes cube compressive strength, indirect tensile strength, cylinder compressive strength, splitting tensile strength and modulus of elasticity of concrete.

High strength of concrete can be achieved by lowering the water/binder ratio. And it has been done by adding high range water reducing admixtures. A high strength concrete should be durable. To test the durability of the concrete acid, sulphate and salt water resistance tests were conducted.

This study shows that the industrial by products like silica fume, fly ash and quarry dust may be used to produce concrete and they will enhance the properties of concrete.

I. INTRODUCTION

A. General

High strength concrete (HSC) has been defined as concrete that possesses high workability, high strength and high durability. American concrete institute (ACI) has defined HSC as a concrete in which certain characteristics are developed for a particular application and environment.

High strength concrete (HSC) is a concrete made with appropriate material combined according to a selected mix design; properly mixed, transported, placed, consolidated and cured so that the resulting concrete will give excellent strength in the structure in which it is placed in the environment to which it is exposed and with the loads to which it will be subject for its design life. Mix proportions for high strength concrete (HSC) are influenced by many factors, including specified preferences properties, locally available, materials, local experience, personal preferences and cost. With today's technology, there are many products available for use in concrete its properties

B .Characteristics of HSC

A high strength concrete will possess the following characteristics:

Ease of placement and consolidation without affecting strength, long-term mechanical properties early high strength, toughness, volume stability, longer life in severe environments. High strength in a board manner can be related to any property of concrete.

It can mean excellent workability in the fresh state like self-leveling concrete or low heat of hydration in case of mass concrete, or very rigid setting and hardening of concrete in case of sprayed concrete or quick repair and airfields or very low imperviousness of storage vessels, or very low leakage rates of encapsulation containments for contaminating material.

However, when 'high strength' is linked to 'structural behavior' high strength is usually synonymous with high strength

C. Materials for HSC

Pozzolans, such as fly ash and silica fume, are the most commonly used mineral admixtures in high strength concrete. These materials impart additional strength to the concrete by reacting with Portland cement hydration products to create additional C-S-H the part of the paste responsible for concrete strength.

It would be difficult to produce high strength concrete mixtures without using mechanical admixtures. A common practice is to use a super plasticizer. It gives the concrete adequate workability at low water-binder ratios, leading to concrete with greater strength.

"GLOBAL WARMING –IT'S IMPACT ON CLIMATE AND IT' S EFFECTS AND MITIGATIONS - CASE STUDY"

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Abstract: **Water is the prime necessity for all forms of life. Human civilization has progressed early era with utilization of available water resources. Villages and towns formed near by the water sources gradually developed to cities. Due to the increase in the population, rural population immigrated to urban cities, wherein many industries were developed. On account of the pollution caused by the industries, transportation vehicles, burning of fossil fuel, deforestation, and untreated sewage lines resulted to emission of GHGs (Green House Gases).**

The emission of the Green House Gases is worsening the eco-system of the atmosphere resulting to Global warming year by year. During the past 100years upto 2000 millennium the temperature rise was very meagre.

The rate of Global warming is predicted to achieve from 1.5° C to 5.4° C by the end of 21st century in different countries around the globe. It is proposed to study the rate of change of temperature and its impact on the environment on the Earth. Mitigation measures to be adopted to reduce the Green House Gases will be studied.

I.INTRODUCTION

Water is the prime necessity for all forms of life. Human civilization has progressed early era with utilization of available water resources. This water in the form of clouds precipitates depending on the different temperatures in the different countries on the earth surface. Temperature is the main ingredient to attract the clouds precipitation. As studied from 20th century to 21st century global warming is increasing. It is a long term rise in the average temperature of the earth's climate system shown by temperature measurement tools. The surface Global warming refers only to the Earth's rising surface temperature, while climate change includes warming and the 'side effects' of warming—like melting glaciers, heavier rainstorms, or more frequent drought. Said another way, global warming is one symptom of the much larger problem of human-caused climate change. Global temperature increases while the change occurs statistically in any region on the globe. Global warming is one of the most important environmental challenges, effecting food production, water supply, health, energy, etc.

Climate change on the earth surface in different zones requires a good scientific understanding as well as coordinated action at national and global level. This paper discusses the intensity of the effects of global warming. Obviously, the responsibility for greenhouse gas emission increase lies largely with the industrialized world, though the developing countries are likely to be the source of an increasing proportion of future emissions.

II. LITERATURE REVIEW

Since 1979, the average temperature of the lower troposphere has increased between 0.12 and 0.135 °C (0.216 and 0.243 °F) per decade, satellite temperature measurements confirm. Climate proxies show the temperature to have been relatively stable over the one or two thousand years before 1850, with regionally varying fluctuations such as the Medieval Warm Period and the Little Ice Age.

Multiple independently produced datasets confirm that from 1880 to 2012 the global average (land and ocean) surface temperature increased by 0.85 [0.65 to 1.06] °C. From 1906 to 2005, Earth's average surface temperature rose by 0.74±0.18 °C. The rate of

"INVESTIGATION ON ACID CURING MORTARS"

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Abstract: The main aim of this project is to see change in concrete by hydrochloric acid attack. It is well known that the concrete under acidic environment is deteriorated due to a chemical attack. For example, acid rain cause mortar unexpectedly short service life due to the damages for mortars/ concrete cover. This paper presents the effect of Hydrochloric acid (HCl) on Blended Cement (Fly ash based (BC)) and Silica Fume Blended Cement (SFBC) when cement replaced. The BC and SFBC and their mortars produced with HCl dosage of 100, 150,300, 500 and 900 mg/l added in distilled water. In addition to this control specimens were prepared with distilled water (without HCl) for comparison.

Indexterms: hydrochloric acid, Cement, Aggregates, Flyash, GGBS.

1. INTRODUCTION

First section of the research paper.Aim is to show the reaction of hydrochloric acid on concrete. To begin with relatively broad background of the topic is given; it helps to point out the gaps in the literature. Background scope is progressively narrowed to the specific problem. All the compounds present in the cement are anhydrous, but when brought in contact with water, they get hydrolysed, forming hydrated compounds. Since water helps to form the strength giving cement gel, the quality of water is to be critically monitored and controlled during the process of concrete making as the water universally the most abundant and naturally available solvent, can be contain large no of impurities ranging from less to very high concentration of them. In practice, very often great control on properties of cement and aggregate is exercised but the control on the quality of water is often neglected. A popular yardstick to the suitability of water for mixingconcrete is that, if it is fit for drinking, it is fit for making concrete. This doesn't appear to be a true statement for all condition. Sometimes, water contain a small amount of sugar would be suitable for drinking, but not for making concrete and conversely water suitable for making concrete may not be necessarily be fit for drinking, especially if the water contains pathogenic microbial contaminants. After checking the quality of water it is mixed with specimens for going through reaction by hydrochloric acid. Hence the further reaction is done.

2. MATERIALS USED

2.1 Cement :

In this experiment 43 grade ordinary Portland cement is used. The testing of cement is done as per IS Code the specific gravity of cement found is 3.10.

Properties of cement

Property	value
Specific gravity	3.15
Fineness of Cement by Sieve	4%
Initial setting time	55min
Final setting time	9 hour 30 min
Standard consistency	30%
Compressive strength	54.2 N/mm2

2.2 Fine Aggregates:

"Fine aggregate" is defined as material that will pass a No. 4 sieve and will, for the most part, be retained on a No. 200 sieve. For increased workability and for economy as reflected by use of less cement, the fine aggregate should have a rounded shape. The purpose of the fine aggregate is to fill the voids in the coarse aggregate and to act as a workability agent.

2.3 Properties of fine aggregates

Description	Result
Sand zone	Zone 3
Specific gravity	2.59

"STUDY ON SAFETY OF LABOUR IN CONSTRUCTION SITE"

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ABSTRACT-In general a research starts with finding a problem in the society and will try to resolve or reduce it at most. Dr. Kalam said that "Youth will build the nation" in addition to that now we shall say that "Youth will build the nation mentally and labour will build the nation physically". The face of the earth is built by labour under proper guidance of Engineers/Architect. A country is said to be developed when it has good infrastructure. A good infrastructure demands safety and security of the labour. This paper gives a detailed study on safety of labour in construction site. In this paper there are investigations carried over labour, engineers and contractors . practical examples, incidents are taken into consideration. The safety aspects are taken from the initiation, processing and handing over the structures to the respective. surveys are studied on the safety of labour regarding injuries and also deaths .

In our construction field the major aspects such as unskilled labour, unawareness of the tasks/incidents, safety measures, precautions are explained in detailed. The need of connecting the proper communication between the engineers, supervisors and the labour is explained. The loop holes which are responsible for the accidents, hazard conditions are explained. A literature study was carried out to concentrate on the causes of hazardous conditions .The paper examines the over all study of safety of workers, importance of PPE, safe work practices, safe work environment, safe use of equipment, emergency action plan.

I. INTRODUCTION

In every part of the world, when we compare with other streams, Our civil engineering has high employment productivity in working population. Unorganized sector holds the major part of the Indian economy . 90% of the workers in construction feild are unorganized. As per civil engineering prospects the major hazardous place is construction site. 1 in 5 workplace injuries are fatal in the construction industry. "All Indians are my brother's and sisters", This oath questions me that are my brother's and sisters safe in construction sites? A developed country has good infrastructure, A good infrastructure is construed by the workers under the guidance of an engineer who don't have minimum safety needs. 60% of injuries in the construction industry occur during 1st year on the job. The average amount of time it takes to return to work after an injury is 31 days. People who are between 25-34 have high chances of injured on the job.

In this paper a literature study on types of hazards , good work practices , safe work environment, safe use of equipment, emergency action plan are explained. An investigation on real incidents is carried over labour, contractors and engineers. Few surveys , graphicals are mentioned in the paper. The importance and usage of PPE (Personal protective equipment) is described. Practical interactions with the labour is done in this research which are also mentioned. The set backs of providing safety to the labour is also described. In this paper Construction safety tips, safety measures/precautions have touch on. A short description is given on food security, social security, sanitary needs etc. The paper examinees overall study of safety of workers, proper wages for unskilled labour, unawareness of the tasks/incidents, safe use of equipment, set backs responsible for the accidents, hazard conditions, safe work practices, emergency action plan, problems faced in employment .

A CASE STUDY OF MID MANAIR RESERVIOR PROJECT OF KARIM NAGAR DISTRICT IN TELANGANA STATE

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ABSTRACT-**The Mid Manair Dam is a major irrigation project was constructed across the Manair River, at Manwada Village, Boinpalli Mandal, Rajanna Sircilla district; Telangana. It has a capacity of 25.87 tmcft with 25 radial gates. It has a capacity to irrigate 2, 00,000 acres. It is now part of the prestigious Kaleshwaram project from which 2-3 tmcft water will be lifted and router to Mid Manair Dam. The project was completed in April 2018.The balancing reservoir initiated as part of SRSP stage-II. The Gross Capacity of the reservoir is 25.873 Tmcft. The Left Bank Canal 21 km to irrigate 9,500 acres. The Right Bank Canal 64 km to irrigate 90,500 acres. The Kaleshwaram project feed Mid-Manair Reservoir with the Godavari water and stabilize the ayacut under existing projects.**

Keywords: Mid Manair Dam, Rajanna Sircilla district, Kaleshwaram project, ayacut

I. INTRODUCTION

Karimnagar district, which was the epi-centre of Telangana movement, is now likely to be emerging as the irrigation hub of State with the existing irrigation projects and the ongoing new irrigation projects, including the Kaleshwaram lift irrigation project.

Already, the erstwhile Karimnagar district is called the North Godavari district in terms of production of paddy with the availability of water from the Godavari through the existing Sriramsagar Project, Lower Manair Dam, Upper Manair Dam, SSRSP flood flow canal, Sripada Yellampalli project major irrigation projects. The execution of Mid Manair Dam and the Kaleshwaram lift irrigation projects would completely transform the district on the irrigation front and turn it into irrigation hub, providing water to the entire State.

Erection of all 25 crest gates on Mid Manair Project was completed in April 2018 thus signaling the beginning of a crucial phase in the irrigation sector in Telangana. The project, with its enhanced storage capacity is now fully equipped to retain 25 tmc of water.

The project was conceived as balancing reservoirs as part of the SRSP phase II for which the foundation stone was laid way back in 1991. The government had spent Rs 2,150 crore for completing the project after putting its implementation on fast track.

Mid manair would provide the vital link integrating Kaleshwaram project with SRSP. The completion of mid manair is viewed as a major leap forward in fulfilling the avowed goal of giving water to one crore acres in the State.

The government had implemented almost every component of the project on war footing. Even the payment of compensation to the land oustees was also made adopting the same approach.

The Minister directed officials to ensure prompt payment of another Rs 50 crore to farmers displaced in 12 of the project affected villages. As part of the rehabilitation and resettlement package 13 colonies were building all facilities.

Moves were afoot for giving water to Yellampalli project during this kharif for providing water to one lakh acres. The Irrigation Department is planning to provide water to Manakondur and Husnabad Assembly Constituencies.

Indian Concrete Institute

Indian Concrete Institute is one of the leading professional bodies in India, catering to the professional needs of individuals and organizations involved in Concrete. Being a non-profit Organization, it is dedicated to the cause of Disseminating Knowledge on Concrete, to Promote Concrete Technology and Construction and to address the Research Needs of Concrete.

The Genesis of ICI dates back to the year 1982, when SERC Chennai and Anna University jointly conducted an International Seminar on Modern Concrete Construction Practices. The overwhelming response to the seminar prompted the Organizers to start the Indian Concrete Institute. Thus, the ICI was born in 1982 with around 500 members from 5 regional Centers. Since then, there is no looking back and ICI has grown in leaps and bounds. Today ICI is a strong professional body having more than 12, 000 enrolled members, from 38 regional Centers in all major cities, spread across the entire length and breadth of the country. Of these, more than 270 are Organizational Members. All segments of cement and concrete industries are widely represented in the membership.

To meet the objectives of ICI, the regional Centers conduct varieties of programs like Seminars, Workshops, Conferences, Exhibitions, etc. throughout the year. These are at both National and International level. These events prove to be a unique platform, for all the stakeholders in the concrete industry, wherein Practicing Engineers, Manufacturers, Academics, Consultants and Researchers make their global participation, to discuss the issues, to share their views and experience on the concrete related matters. Thus, ICI derives the synergy amongst the various categories of people associated with concrete.

Any professional Body is recognized by the technical documents it creates. Today, at ICI, several Technical Committees are striving hard to bring out technical documents, to frame guidelines, to standardize, to fix norms for various specialty, concretes and construction practices, to create unified code and to bring out Hand Books etc. The outcome of these committees has placed ICI high in the concrete Arena.

ICI works in close coordination with various Central and State Government Bodies like CPWD, PWDs, Municipal Corporation etc, for the adoption of Latest Technologies and practices in Infrastructure Building. ICI members represent in several Codal Committees of BIS.

ICI is an active participant in Asian Concrete Federation (ACF), which is a cluster of nine Asian Countries. ICI has signed MOU with other concrete institutes like Singapore Concrete Institute, Concrete Institute of Australia, Korea Concrete Institute, American Concrete Institute and RILEM for exchange of technological Information, technical documents and to organize programmes, jointly.

A professional body has got its responsibilities towards society. So also, ICI is committed to the society for its well being. ICI is focused towards advocating the concept of sustainability in construction practices. Many of the ICI events are focused on achieving sustainability through innovative materials and techniques. Response to such programmes from Government Bodies is overwhelming.

ICI embraces budding civil engineers thro ICI Students Chapters. There are more than 200 students chapters, all over the country and this number is on the increase. The very objective of these students' chapters is to bridge the gap between their theoretical knowledge and what is being practiced in the field. Their involvement in ICI activities help them shape themselves to face the challenges in the field, when they come out of the Institutions and enhance their Employability Quotient. ICI also conducts value-added courses in concrete for the benefit of Practicing Engineers and Students.

ICI identifies, recognizes and rewards the experts in the field of Concrete for their contributions to the development of concrete technology and Concrete Construction. Sixteen such awards are presented every year at the time of AGM. ICI brings out several publications, proceedings of all the important events for the benefit of members and others. Work is on to bring out a journal of international standard, through one of the world renowned Publisher.

Benefits of ICI Students Chapter

- **Concessional Delegate fee for participation in ICI events, to get updated on the latest technology & practices in Concrete Industry.**
- **ICI Events provide unique opportunity to listen to, and to interact with experts from within the country and abroad.**
- **Access to Job Portal & E-learning Portal**
- **Concessional rates for Publications of ICI.**
- **Support to conduct Training Programmes, Workshops, Conferences, Site Visits etc.**
- **Support in calling professionals in civil engineering for delivering Guest Lectures, on topics of interest.**
- **"ICI-Update" a monthly e-bulletin from ICI, to keep abreast of the happenings in ICI and to know the Forthcoming Events.**
- **Opportunity to participate in ICI conducted competitions like ICI FEST, which is a zonal meet of Students Chapters.**
- **Waiver of entrance fee to become Life Member of ICI, after graduation.**
- **Access to ICI Archives, which is a collection of valuable Technical Papers.**
- **Access to ICI reference library.**

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The Ready Mixed Concrete Manufacturers' Association (RMCMA)

The Ready Mixed Concrete Manufacturers' Association (RMCMA), India, is a non-profit industry organization of leading ready mixed concrete producers from India.

The RMCMA is a registered body under the Registrars of Societies Act 1860 (Bylaw 21) of the Government of Maharashtra, India. It was established in March 2002.

The vision of RMCMA is to make ready-mixed concrete the preferred building material of choice across the whole of India. The RMCMA is committed to provide leadership to the ready-mixed concrete industry in India. It advances the interests of the entire ready mixed concrete industry in India, without sacrificing the interests of end users, designers, specifiers owners, and others. It provides a variety of services to its Members in respect of trade, commerce, promotion, education, etc. connected with ready mixed concrete.

The RMCMA will encourage the sustainable development of concrete industry in India and its staff and Members would strive to emphasize the fact that concrete is the best environmental-friendly material of construction available today.

The RMCMA would provide latest information on products and services to all its Members so that they are able to upgrade their operations continually. It would share the latest developments in concrete technology with its members and the customers of ready mixed concrete.

The RMCMA would strive to expand the market for ready mixed concrete in India. It would endeavour to bring a large majority of RMC manufactures under its fold so that a strong combined voice of the industry can be used to find meaningful solutions on various issues hindering the healthy growth of the industry.

The RMCMA staff and members would work in a spirit of co-operation and ensure that the ready mixed concrete industry operates harmoniously within communities and the society at large.

The Indian Association of Structural Engineers (IAStructE)

The Indian Association of Structural Engineers, identified as IAStructE, was conceptualized and constituted in the year 2002 by a group of senior professional Structural Engineers from all regions of the country. It was registered under the Societies Registration Act on 20th December 2002. IAStructE has completed more than 13 years of eventful progress in enhancing its professional status as well as credibility in the country.

The Indian Association of Structural Engineers (IAStructE) is a professional body whose membership also comprises very prominent structural engineers from India. IAStructE has a Memorandum of Understanding with Institution of Structural Engineers (IStructE), UK for mutual cooperation and professional advancement. The Association has the prime responsibility, on the one hand to enhance the knowledge base and professionalism amongst the engineers, while on the other, to look after their interests. IAStructE promotes Initial Professional Development (IPD) and Continuing Professional Development (CPD) courses for its members and like-minded professionals practicing in general civil and structural engineering.

IAStructE has been organizing Seminars regularly on different topics of interest to engineers, planners, contractors, suppliers and all stakeholders.

IAStructE has its headquarter in Delhi and State Centres functioning in Ahmedabad, Bengaluru, Hyderabad, Chennai, Kolkata, Mumbai, Noida, and Visakhapatnam.

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Low Voltage Surface Resistance Measurement for Prediction of Flashover Voltage of Insulators

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ABSTRACT: In the USA, presently, non-ceramic materials are used extensively for termination of distribution cables. Currently, non-ceramic insulators have captured the power market to about 35% of the transmission line system. The increasing demand for the use of polymeric insulators and their relatively less on field experience compared to porcelain triggered the need for more research in this area. It should be noted that at present there are no standardized tests for understanding the contamination flashover performance of polymeric insulators. Based on these facts it is of utmost importance to devise an improved method to predict the FOV of an insulator based on the level of contamination.

For new construction, relevant field experience may not be available and laboratory experiments are often time consuming and expensive. A good theoretical model for simulating the flashover process is a big asset as it helps minimize experimental efforts. This research is therefore aimed at developing models by which the FOV based on contamination are to be predicted and the dynamics of flashover to be explained in cases of both highly and nonuniformly contaminated insulator.

KEYWORDS: Equivalent Salt Deposit Density (ESDD), NaCl, NCI, flashover voltage (FOV)

I. Introduction

In practice, there are actually various types of contaminants that tend to settle on the insulators. These contaminants can be classified as soluble and insoluble. Insulators that are located near coastal regions are typically contaminated by soluble contaminants, especially NaCl (Sodium chloride). Insulators that are located near cement or paper industries are typically contaminated by a significant amount of non-soluble contaminants. Some of the contaminants include calcium chloride, carbon and cement dust.

Flashover prediction based on ESDD measurement alone may not be the best method for NCI due to its hydrophobic nature. A hydrophobic surface can have high levels of ESDD, yet the leakage current can be negligible as water formation on such a surface is in the form of discrete droplets as opposed to a continuous film. An alternate method to characterize the electrical performance was introduced based on the measurement of surface resistance under wet conditions. The use of surface resistance for predicting the flashover voltage (FOV) is explored in this work.

II. CONTAMINATION FLASHOVER

Outdoor insulators are being subjected to various operating conditions and environments. Contamination on the surface of the insulators enhances the chances of flashover. Under dry conditions the contaminated surfaces do not conduct, and thus contamination is of little importance in dry periods. In cases when there is light rain, fog or dew, the contamination on the surface dissolves. This promotes a conducting layer on

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..... *in the "2nd International Conference*

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This is to certify that ......*V.kumar*...... *from* *Teegala Krishna Reddy Engineering College, Hyderabad* *has presented a paper titled* *Carrier Based Cascaded H-Bridge Multilevel Inverter* ...... *in the "2nd International Conference on Recent Trends in Engineering Technology and Management" held on 20th June 2020.*

Dr Kantipudi MVV Prasad	Dr S Vijaykumar, M.Tech, PHD	Dr Suresh Akella	Dr P Aravinthan, M.E., Ph.D.,

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Different Topologies of Inverter: A Literature Survey

Kalagotla Chenchireddy, V. Jegathesan and L. Ashok Kumar

Abstract DC to AC control change is a key job in the cutting edge set up of age, transmission, appropriation, and use. DC to AC control converters assume key job in variable recurrence drives, uninterruptible power supplies, cooling, and high-voltage DC control transmission, electric vehicle drives, and static VAR compensators. This paper exhibits a survey on most significant topologies and strategies of control of inverters.

Keywords Inverter topologies · Modulation techniques · Reduce device count

1 Introduction

DC to AC control change is a key activity in the bleeding edge set up of age, transmission, transport, and use. DC to AC control converters accept key employment in Variable Recurrence Drives (VRD), uninterruptible power supplies (UPS), cooling (AC) and high-voltage DC control transmission (HVDC), electric vehicle drives, static VAR compensators. In light of the possibility of the yield voltage waveforms, inverter can be named: single-stage, three-phase, two-measurement inverters and stunned inverters.

In [1], surveyed nine reduce contraption count stunned inverters. Stunned inverters continue grabbing hugeness for high power and medium voltage applications. The upside of reduce device stunned measurement inverters, direct structure, low conduction and trading setbacks, diminished parts, less cost. In [2], studied single-stage transformer less inverters. These inverters planned for photovoltaic applications. Transformerless inverters are growing unmistakable quality in

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Artificial Neural Networks based SPWM technique for speed control of Permanent Magnet Synchronous Motor

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Abstract. The advancement of industry apparatuses for some methods with specific tasks to control the working of a few actuators on the field. Among these actuators, Permanent magnet synchronous motor drives are a mainly all-inclusive machine. Proficient utilization of hesitance torque, generally effectiveness, minor misfortunes and smaller size of the motor are the principle attractions of PMSM when contrasted and different drivers. Precise and rapid torque reaction is one of the parameters to determine differentiating arrangements in the ongoing past. The field-situated power perceived the likely and vigorous answer to accomplish these prerequisites to empower the figuring of streams and voltages in different parts of the inverter and motor under transient and consistent conditions. The primary objective of this paper is to investigate Artificial Neural Network based control of speed for PMSM in both open and closed loop under no-load and loaded condition. A shut circle control framework with ANN procedure in the speed circle intended to work in steady torque and transition debilitating districts. MATLAB reproduction performed in the wake of preparing the neural system (directed learning), results for reference control applications are adequate and appropriate in the process business. Speed control in shut circle at different stacking conditions talked about in detail.

1 Introduction

Permanent Magnet Synchronous Motors (PMSM) extensively utilized in low to medium power applications, for example, mechanical autonomy, outer PC flexible speed drives [1], and electric vehicles. The extension in the market of Permanent Magnet (PM) engine drives has requested the requirement for replication instruments fit for taking care of re-enactments for engine drive. Proliferations [2] including engine drives have helped the way toward growing new frameworks by decreasing expense and time. To encourage the improvement of new techniques, recreations of engine drives in a visual situation have the capacities of performing dynamic [3] Simulation.

In this article, a recreation of a field situated controlled [4,5] PM engine drive framework created including every single reasonable segment of the drive framework are introduced. A shut circle control framework with the ANN controller in the speed circle intended to work in consistent torque and motion debilitating locales [6]. Recreation results displayed for two velocities [7] of task, one underneath evaluated and another above-appraised speed.

Artificial Neural Networks are motivated by our present learning of natural sensory systems, in spite of the fact that they don't attempt [8] to be reasonable in everything about (territory of ANN isn't worried about natural demonstrating, an alternate field) [9, 10]. Some ANN models may, along these lines, be unreasonable from an environmental displaying perspective. As opposed to the ordinary advanced PC, ANN plays out their calculation utilizing numerous basic and very interconnected processors working in parallel [11].

2 Mathematical Modelling of PMSM Drive

Vector control likewise read as decoupling or field-orientated control. Vector control decouples three-stage stator current into two-stage d-q hub present, one delivering motion and other creating torque and permits coordinate control of motion and torque. In this way, by utilizing vector control, the PMSM is comparable to an independently energized dc machine. The model of PMSM is nonlinear. Along these lines, by utilizing vector control, the model of PMSM is direct.

For building a pivoting attractive field and drive the rotor, tweaked current provided to the ABC stator windings. The vector control system figured in the synchronously pivoting reference outline, ABC stator arranges, stationary α-β hub organizes and turning d-q hub facilitates equal relations of streams worked by Clarke – Park [4] and backwards changes Fig.1 demonstrates a vector chart of the PMSM. i_q stacks i_q by

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