INDEX

3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during a year 2017-18					
Sr. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference
1	Prof. Patil K.S.	NA	Performance Evaluation of Solar Parabolic Trough Collector Using Two Fluids Water and Ethylene Glycol	National Conference Recent Innovations in Science and Engineering (NC-RISE 17) ISSN: 2321-8169 Volume: 5 Issue: 9	National Conference Recent Innovations in Science and Engineering (NC-RISE 17) ISSN: 2321-8169 Volume: 5 Issue: 9
2	Dr. Ajit M. Kate	NA	Design and Implementation of Ecofriendly vehicle and its Impact on Environment	Proceedings of the International Conference on Communication and Electronics Systems (ICCES 2018)	International Conference on Communication and Electronics Systems

Head of the Department

Head of Department
Dept. of Mechanical Engineering
ZES's Zeal College of Engineering
& Research, Pune-411041

Performance Evaluation of Solar Parabolic Trough Collector Using Two Fluids Water and Ethylene Glycol

Roshan. V. Marode
Assistant Professor
Mechanical Engineering
Department
MGCOET, Shegaon
(M.S), India
roshan.marode@gmail.com

Ketan S. Patil
Assistant Professor
Mechanical Engineering
Department
ZCOER, Pune
(M.S.), India
ketanpatil6887@gmail.com

Abhinav K. Chavan
Final Year
Mechanical Engineering
Department
MGICOET, Shegaon
(M.S.), India
abhinavchavan143@gmail.com

Abstract—The Section "Parabolic Trough Collectors" presents the solar thermal energy technology using parabolic trough collectors for the concentration of solar radiation. Performance of solar collectors depends upon various factors like collector & receiver material, solar intensity, nature of working fluid etc. Above all, nature & the properties of the working fluid which flows through the collectors, greatly affects its performance. Here, an attempt has been made to improve the performance of a parabolic solar collector by using ethylene glycol and water as working fluid. The present investigation mainly focuses on the ethylene glycol based concentrating parabolic solar collector. The performance of a parabolic solar collector is investigated experimentally by studying the effect of ethylene glycol and water as working fluids. Study is taken under the constant mass flow rate. Comparison of water and ethylene glycol is done as a working fluid the value for maximum instantaneous & thermal will evaluate the performance of solar parabolic trough collector. An investigation has been carried out with two fluids and on the basis of comparative results is made which one give the best heat transfer rates.

*Keywords:*Parabolic Trough Collectors, Thermal Energy Technology, Ethylene Glycol,Heat Transfer Rates.

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I. INTRODUCTION

A parabolic trough is a type of solar thermal collector. It is that straight in one dimension and curved as a parabola in the other two. It is lined with a polished metal mirror. The energy of sunlight which enters the mirror parallel to its plane of symmetry is focused along the focal line. On focal line the objects are positioned that are intended to be heated. For example, food may be placed at the focal line of a trough, which causes the food to be cooked when the trough is aimed so the Sun is in its plane of symmetry. For other purposes, there is often a tube, known as receiver tube, which runs the length of the trough at its focal line. The mirror is oriented so that sunlight which it reflects is concentrated on the tube, which contains a fluid which is heated to a high temperature by the energy of the sunlight. The hot fluid can be used for many purposes. Often, it is piped to a heat engine, which uses the heat energy to drive machinery or to generate electricity. This solar energy collector is the most common and best known type of parabolic trough. The paragraphs below therefore concentrate on this type.

The parabolic trough collectors are reflectors curved around an axis in linear parabolic shape, which collect parallel rays around a single focus line, where a long pipe receiver is placed for heating the heat exchange fluid. The heat collector element (HCE) consists of a copper tube with a selective coating of metal-ceramic enclosed by an evacuated antireflective glass tube. The vacuum envelope primarily serves to significantly reduce thermal losses at highoperating temperatures and to protect the surface of the absorber from oxidation. The vacuum in the HCE should be below theconduction band Knudsen gas to reduce convective losses in the annular space, which is typically maintained close to 0.0001 mm Hg. The metal-ceramic multilayer cover is placed over the steel tube to provide optimum optical properties with high absorptive of direct solar radiation and low thermal emissivity at the temperature of operation to reduce heatradiation. The glass cylinder has an outer antireflective coating to reduce Fresnel reflective losses from glass surface, maximizing the solar transmittance. It considers the effects of solar intensity and incident angle, collector dimensions, material properties, fluid properties, ambient conditions and operating conditions on the performance of the collector for use in a power plant.

II. OBJECTIVE AND SCOPE OF WORK

The proposed work has the following objectives and contributions in the field of parabolic trough solar collector system:

• To propose a methodology by which the design and selection of parabolic trough solar collector system can be made comprehensive and easy.

• Optimization of PTSC system with respect to the performance i.e. collector efficiency, quality, liability and most importantly the cost of different materials constituting the PTSC system
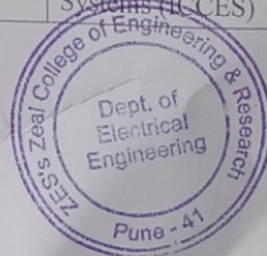
INDEX

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| Sr. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference
1	Prof. S. G. Mane	NA	Comparative analysis of a TCPWM with SVPWM connected to three phase load	2017 International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS)	2017 International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS)
2	Ranjit M. Zende	NA	Solar powered water pumping system	2017 Third International Conference on Sensing, Signal Processing and security	2017 Third International Conference on Sensing, Signal Processing and security
3	Ranjit M. Zende	NA	Comparison between UPQC, iUPQC and improved iUPQC	2017 Third International Conference on Sensing, Signal Processing and security	2017 Third International Conference on Sensing, Signal Processing and security
4	Prof. M. R. Hans	NA	Detection of broken rotor bar along with thermal overload protection	2017 2nd International Conference on Communication and Electronics Systems (ICCES)	2017 2nd International Conference on Communication and Electronics Systems (ICCES)
5	Prof. M. R. Hans	NA	Implementation of shunt active power filter to mitigate harmonics	2017 2nd International Conference on Communication and Electronics Systems (ICCES)	2017 2nd International Conference on Communication and Electronics Systems (ICCES)

1

Sr. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference
6	Prof. M. R. Hans	NA	Implementation of Integrated Converter Topologies for connected Photovoltaic Module	International Conference on energy, Communication, Data analysis and soft computing (ICECDS 2017)	International Conference on energy, Communication, Data analysis and soft computing (ICECDS 2017)
7	Prof. M. R. Hans	NA	Voltage Regulation of STATCOM using Flexible Pi Control	2nd International Conference on Communication and Electronics systems (ICCES2017)	2nd International Conference on Communication and Electronics systems (ICCES2017)

Head of the Department
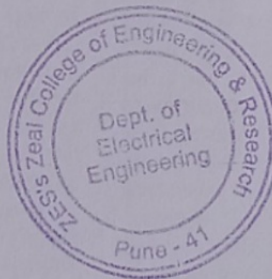
Comparative Analysis of a TCPWM with SVPWM Connected to Three Phase Load

Prof. Sudhir G Mane
Electrical Engineering department
ZCOER Pune-41
Maharashtra, India.
manesudhir4375@gmail.com

Ms. Amruta M Patil
Electrical Engineering department
ZCOER, Pune-41.
Maharashtra, India.
patil.amruta3@gmail.com

Dr. Iranna Korachagaon
EEE department
TCOE, Gadag.
Karnataka, India.
irannamk@gmail.com

Abstract — As now days, it's very important to have continues supply, we have to see some good alternative so that we can store power in form of DC whenever there is excess production. And we can use it as we require to have continues supply. So overcome these problem there any many techniques are used such as inverter, UPS etc. Technique which is used now a day is TCPWM which is also called as SPWM. There is one more technique which is becoming more interested with respect to research is SVPWM. As it is having many advantages as compared with TCPWM.

Keywords—Pulse width modulation (PWM), Space vector modulation (SVM), Triangle Comparison based pulse width modulation (TCPWM), Sinusoidal Pulse width modulation (SVPWM).

I. INTRODUTION

As on now most of the electrical power is used in industries, as they have most of application based on AC derives. They use Ac drives most compared to DC drives only because they can control both Frequency as well as voltage. Due to which they can be easily control as per required speed. From few years, Pulse width modulation is becomes topic of research. As this has huge advantage than any other DC to AC converter. PWM can be used in most of the application such as speed derives, UPS etc. since harmonics are very difficult to remove from output side of power, and it may damage different application and may reduce life span of that application. To overcome this we can use PWM techniques as it reduce production to generating low order harmonics at the output side of the system. This is disadvantage of classical inverters when used in lower or medium power applications. To eliminate the disadvantages of lower and medium power applications PWM control techniques is adopted.

A. PWM strategy

PWM generation can be relegated into two; (a) Triangle comparison predicated PWM (TCPWM) and (b) Space Vector predicated PWM (SVPWM). In TCPWM technique common triangular signal is used as carrier signal and three sinusoidal phase voltages are taken as reference signal. When reference signal is greater than carrier signal it produces pulse. In this was we generate PWM through TCPWM [4]. In SVPWM technique we study that a rotating position vector is used. Load side magnitude and frequency component are controlled

bus voltage in space vector modulation is more efficient [2]. And fewer harmonic distortion in three phase voltage supply inverter [5]-[6].

II. SPACE VECTOR PULSE WIDTH MODULATION TECHNIQUE

A. SVPWM (Space Vector PWM)

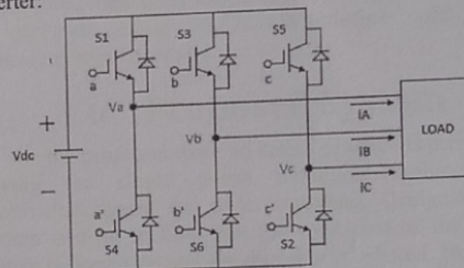Figure 1 represents circuit of three phase voltage source inverter:

Fig. 1. PWM, three phase voltage supply Inverter.

Six power switches S1 to S6 are used to get required output by controlling by the gate variables a, a′, b, b′, c and c′. When upper switches in figure 1 are switched ON, i.e., a, b, and c are at high power level (one/high), than the lower transistor are switched OFF, i.e., a′. b′ and c′ are at low power level (zero/low). As per required output voltage the switches can be turned ON and OFF. SVPWM is base on space vector illustration of voltage in the α-β plane. We can calculate α-β components using Clark's transformation method. Upper power transistors have special switching sequence, this three phase power inverter is called as SVPWM. Because of good performance, in recent years it is finding many applications.

B. Space Vector Concept

To drive space vector, rotating field of three phase induction motor is used. By using modulation technique, three phase quantity rotating or fixed frame can be changed into two phase quantity. The reference vector magnitude can be found from these two phase components and utilized for modulate the inverters output. The process of obtaining the revolving space vector is expounded as below, considering the stationary reference frame. Considering motionless
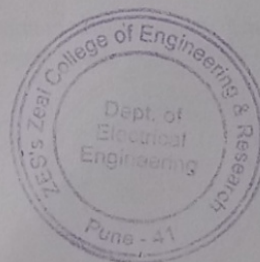
Solar Powered Water Pumping System

Sonal S. Patil

Zeal College of Engineering and Research, Narhe
Pune, India
patilsonal61@gmail.com

Prof. Mr. Ranjit M. Zende

Zeal College of Engineering and Research, Narhe
Pune, India
ranjit.zende@zealeducation.com

Abstract— **This paper proposes highly economical, low price photovoltaic water pumping system incorporating a boost converter and a diode clamped multilevel inverter employing photovoltaic panel is initiated without batteries. This system is used in areas where electrical power is not accessible. Using photovoltaic energy is one of the solution to this problem. The converter boosts the voltage of the panel and inverter drives the Induction Motor by using Sinusoidal Pulse Width Modulation (SPWM) control. At the given irradiance level MPPT technique pushes the photovoltaic panel to obtain peak power.**

Keywords— dc-dc boost converter, multilevel inverter, SPWM, Induction Motor, MPPT, Incremental Conductance.

I. Introduction

On account of electrical power disaster worldwide, usage of undepletable energy sources like wind, sunlight, tides etc. have become the requirement of these days and need of prospect. Among these the photovoltaic panels are often used and universally acquired over the previous few years [1]. By using photovoltaic as the supply for pumping the water is taken into account of PV application. Typically PV panel (or array), inverter, controller, motor and pump are taken by PV water pumping systems. Wherever electricity is unobtainable these systems are used to supply water in distant regions. The water pumped up may be employed in several applications such as for irrigation and for domestic use. The benefits of usage of such pumps which are powered by PV comprises of high reliability, low maintenance, simple fitting [2].

As PV module induces electric power only when sun being there, a battery is needed for the storage of energy generated during the day and to use it when sunlight is not available. Even if the batteries permit the pumping system to work at its rated power, the integration between batteries and pumping system decreases the typical life expectancy of complete system significantly [3]. Hence for reducing the maintenance cost and improving the duration of the system, batteries are eluded.

In commercial systems majority in the motors were DC motors. But because of its lesser efficiency and high maintenance cost compared to motors like induction motors they are not preferred for applications in obscured areas. Also the low voltage DC motors are inconvenient [5][6]. As a result single phase induction motor with greater efficiency, lower cost, robustness has been preferred for the system. Hence the system needs greatly economical and lesser price

electronic network between induction motor and PV panel which helps to improve the duration of the system.

Five level diode clamped multilevel inverter drives the Induction Motor with SPWM technique which reduces the lower order harmonics. This reduces heating caused by harmonic current and improves efficiency of the system. The system uses DC to DC converter which extracts utmost power from the solar cells [7].

Here, the water pumping system powered by PV cell is simulated using MATLAB and the interpretation of a single-phase induction motor drive is obtained. The model is executed using MATLAB/Simulink with SPWM controlled inverter model.

II. Proposed System

For the proposed work an actual practice is presented for driving the single phase induction motor from a photovoltaic panel for water pumping. Designing of the system is done in kind that the total cost of the pumping system is decreased and the duration is inflated. Here, single photovoltaic panel drives the induction motor by using DC to DC boost converter and multilevel inverter. The DC to DC converter boosts the panel voltage to a degree which is essential for driving the motor. At required frequency and amplitude the DC-AC inverter (Diode Clamped Multilevel Inverter) converts the DC power into AC. These inverters are used in adjustable speed drive applications to drive the AC motors. Here switching technique used is SPWM control strategy.
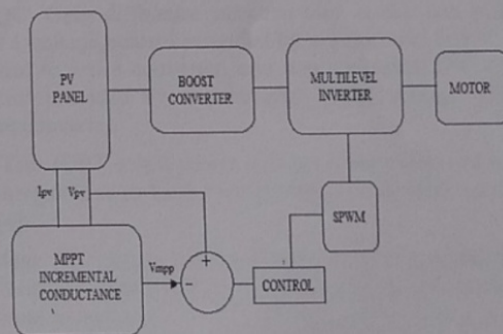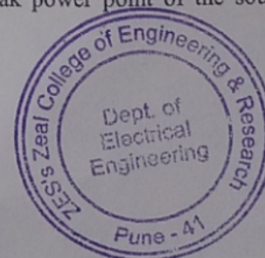

Fig. 1. Block diagram of the proposed system

Maximum Power Point Tracking (MPPT) algorithm traces peak power point of the source and keep it as the

Comparison between UPQC, iUPQC and improved iUPQC

Sayali Paithankar
Department of Electrical Engineering
Savitribai Phule Pune University
Pune, Maharashtra, India
spelectrical08@gmail.com

Ranjit Zende
Department of Electrical Engineering
Savitribai Phule Pune University
Pune, Maharashtra, India
ranjit.zende@zealeducation.com

Abstract— In this paper a new proposal for the control of power quality is made by interline unified power quality conditioner (iUPQC) and comparison is shown with conventional unified power quality conditioner. Improved iUPQC controller provides additional regulation as STATCOM to grid voltage. In this interline UPQC two back to back connected series and shunt converter are used. Source emulated by UPQC and iUPQC controller is different. One converter is act as controlled sinusoidal voltage that is shunt type and another is current source that is series type .These two techniques are solution for power quality problems in distribution and transmission system.

Keywords—STATCOM; active power filter; PWM.

I. Introduction

Now days, customers and industries use electronic devices and converter, these electronics devices draws the harmonics and reactive power which affects the system efficiency. Because of more and more use of non linear loads and power converters devices in industry and also by consumer, it can be observed an increasing in droop of the power system voltage and current waveform. In order to provide quality power to end customers, various power electronics and power system engineers develops the equipment.

In power system, quality power is supplied by using Unified power quality conditioner device. The UPQC is technique for simultaneously active filtering the supply voltage and load current. UPQC is generally a collaboration of series and shunt power filter connect back to back by common dc link.

In the last years, researches have been done to increase the performance of UPQC and reduce the complexity of design of controller. Generally, in unified power quality conditioners series active filter is used for compensating supply voltage whereas the shunt one is used for remunerate load current. So, series converter works as a directed non sinusoidal voltage source and shunt converter works as non sinusoidal current source [3][6]. Configuration of UPQC is shown in fig. 1.

Limitation to the power flow through the compensator due to high frequency switching converters is the disadvantage of the system. In order to mitigate the above mentioned drawback new approach is made i.e. iUPQC dual topology of UPQC.

The shunt active filter works as directed sinusoidal voltage source and series active filter of iUPQC works as controlled sinusoidal current source and So by interchanging the converter's source type, the voltages and currents synthesized are now sinusoidal & balanced at fundamental frequency, it helps to reduce the switching losses[4].
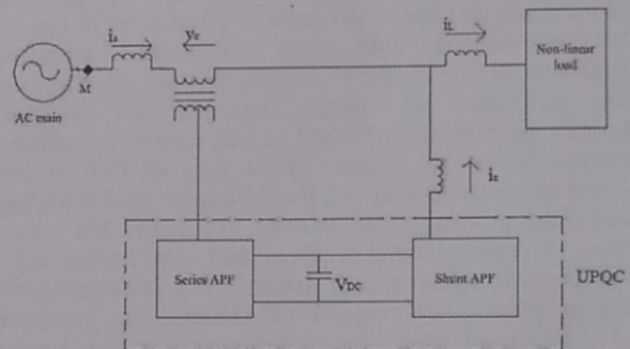

Fig.1 Configuration of UPQC

II. Circuit Description Of UPQC

The circuit configuration of the iUPQC is same as that of UPQC. Only difference between two is the non sinusoidal PWM voltage control provided by a sinusoidal PWM current control to series converter, and non sinusoidal PWM current control provided by a sinusoidal PWM voltage control to shunt converter.

Two IGBT based power converter has combined together, connected back to back by common dc link as shown in fig.2 [1][4].

One three single phase transformer is connected in series with supply voltage and one coupling transformer is connected in shunt to the load.
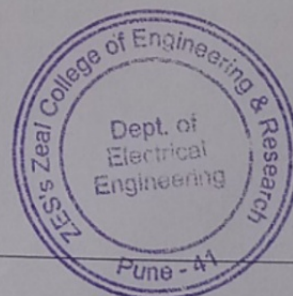
Detection of Broken Rotor Bar along with Thermal Overload Protection

Manoj R. Hans
Asso. Prof., Zeal College of Engineering & Research
Pune, India
manojrhans@gmail.com

Prajakta D. Mane
PG student, Zeal College of Engineering & Research
Pune, India
maneprajakta851@gmail.com

Abstract - Induction motors have critical significance in the industry as failures of induction motors causes financial losses to industry. Induction motors are significantly damaged by broken rotor bars, if its development is not detected timely. Broken rotor bar leads to thermal and mechanical stresses, which may further start damaging side bars and other parts of motor. Therefore, timely detection of broken rotor faults becomes a necessity for industry to minimize financial losses. Condition monitoring could be used in to cue fault development in induction motor. However, condition monitoring methods require specially designed tools and sensors. Hence, the identification of motor faults requires a high determination range to isolate distinct frequency factors. The Discrete Fourier Transform (DFT) could be used to accomplish these prerequisites. This paper presents a technique based on rotor current analysis for broken rotor bars detection and thermal overloading of induction motor with Fast Fourier Transform (FFT). This method is analyzed on practical setup, and obtained results show that proposed method is reliable and efficient for detecting broken rotor bar. The simplicity and reliability of presented method in implementation makes it suitable for industry.

Keywords — FFT, MCSA, Motor diagnostics, Rotor bar fault, thermal overload protection.

I.   INTRODUCTION

Induction motors (IM) has several advantages over other electrical machine, which makes it suitable for industries. These motors provide reliable operations, however these are subjects to undesirable failures. Failures of these motor could be classified into three groups: environmental, electrical and mechanical [1]. In contrast to IM failure, a late review on IM demonstrates that about 10% of overall faults in IM are rotor relevant. This necessitates detecting these faults in preliminary stages [2] - [4]. A major and common rotor fault in squirrel cage IM is broken rotor bar fault [5]. Broken rotor bar increases current in neighboring rotor bar which lead to increased forces in bar. This results in significant reduction in average torque i.e. IM performance reduces. Hence, there is need to detect rotor fault in IM at nascent stage.

Around the world 41% to 51% of energy is consumed by induction motors. This shows that in most of the cases IM are responsible for the working of the productive system. Therefore, remedial care and maintenance of IM requires a huge cost. Additionally, it requires unexpected downtime and which affects the manufacturing process. Many techniques and commercial tools are available for industry to detect the failure in IM. Even after this, still most of the industries do not use those monitoring and detection approach of electrical machines [6].

For reliable operation, protection of these IM is necessary. However, IM are naturally reliable and require minimal care, even though slow developing faults such as broken rotor bar significantly damage IM. Therefore, monitoring of electric machines specially IM has been increased in the industry to attest stable and safe operation of modernized frameworks. This offer ascends to the requirement for cost effective and evaluation of the real-time signals of the induction motors. For observing and determination of rotor broken bar induction motors, a method based on FFT is used which screens the motor without expelling it from the production line as it is simple to apply, low-cost and reliable [7]. Aim of this paper is to detect and analyze broken rotor fault at the developing stage, it would permit controlled and expected upkeep rather than sudden breakdown, thus diminishing blackout time, harm to the hardware and manufacturing losses could be avoided. In addition thermal overload protection is provided to ensure safe and reliable operations.

With the growth of industrial scenario, it has turned out to be important to monitor the situation of the machine. Many condition monitoring strategies are there including thermal monitoring, chemical monitoring, vibration monitoring, yet all these monitoring techniques need costly sensors or specially designed tools whereas current monitoring among these does not need extra sensors [1]. There has been a generous measure of research in the course of recent decades on the improvement of different steady state condition observing systems, which fundamentally depend on the Fast Fourier transform (FFT) [5]. In this paper fault in an induction motor is detected utilizing electrical signature analysis approach. By observing the current of the electrical machines we can fairly diminish the expenses of upkeep by granting the disclosure of faults earlier, which could be costly to repair.

For detecting the thermal overload in the motor the earlier method was to use Resistance Temperature Detector (RTD) into the stator and rotor. But installing these in the rotors was not feasible because of some technical issues, cost, and reliability. In addition to this, the reason to deny the RTD for thermal protection is that the conventional RTD has an
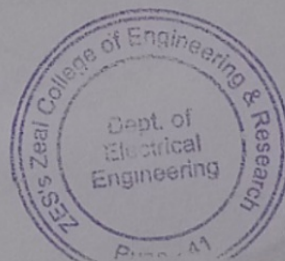
Implementation Of Shunt Active Power Filter to Mitigate Harmonics

Ms.Priyanka S. Salunkhe
Research Student
(Electrical Engineering Department)
Zeal College Of Engineering, Narhe
Pune,India
priyankasalunkhe71@gmail.com

Prof.Mrs. Shruti Gaur
Assistant Professor
(Electrical Engineering Department)
Zeal College Of Engineering, Narhe
Pune,India
shruti.gaur@zealeducation.com

Prof. Mr. M.R. Hans
Assistant Professor
(Electrical Engineering Department)
Zeal College Of Engineering, Narhe
Pune,India
shruti.gaur@zealeducation.com

Abstract – In this paper, a comparative study of shunt active filter (SAPF) with Sinusoidal pulse width modulation (SPWM) and Space vector pulse width modulation (SVPWM) technique to mitigate source current harmonics which are producing by the nonlinear load. In conventional diode clamped multilevel inverter extra diodes and balancing circuit is required. In proposed H- bridge inverter reduction of complexity and cost. The performance of SPWM and SVPWM technique is analysed by using MATLAB/ Simulink software

Keywords: H-Bridge Inverter; Shunt Active Power Filter(SAPF); Sinusoidal Pulse Width Modulation (SVPWM) Technique, Total Harmonic Distortions (THD).

I. INTRODUCTION

Now a days , the power electronics devices are vastly used and these devices are more sensitive to power quality variations. Any power problem that's occurs in the voltage, current or frequency deviation that's results in failure or misoperation of customer equipment. In electronics equipment , inverter is tremendously used and it is necessary to control the output of inverter. Sinusoidal pulse width modulation technique and Space vector pulse width modulation technique is used to control the output voltage of the inverters. The output voltage of the inverter contains harmonics whenever it is non-sinusoidal. These harmonics can be reduced by using proper control schemes.

To improve the performance of power system some type of filters are used. Such as series and shunt active power filters etc. Shunt active power filter (Shunt APF) is used to compensate source current harmonics as well as to supply reactive power. Series active power filter is used to eliminating voltage harmonics [3].

II. SHUNT ACTIVE POWER FILTER

The active power filter is connected parallel or shunt to the system ,it is used to reduced current harmonics created by Non-linear loads. The active filter is used to cancelled the harmonic current components which are presents in a load current [1].

The advantage of this shunt active filter is that other hysteresis PWM technique sinusoidal PWM is conveniently used. Due to high Switching losses in hysteresis control the efficiency of the shunt active filter is reduced [10].

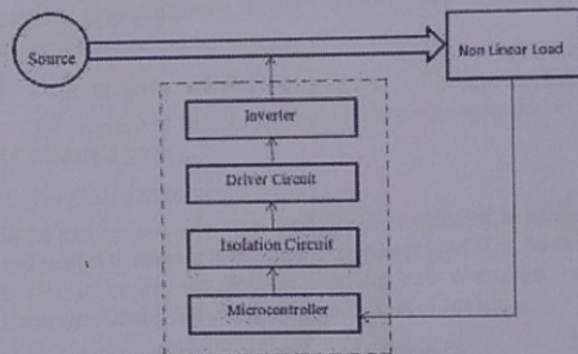Fig. 1: Block diagram of shunt Active power filter

Shunt active power filter is connected parallel to the nonlinear load to mitigate the source current harmonics. It can be used to provide reactive power to the load as well.

The control algorithm is used for pulse generation as well as capacitor voltage regulation. Space vector pulse width modulation is used for pulse generation for inverter operation.
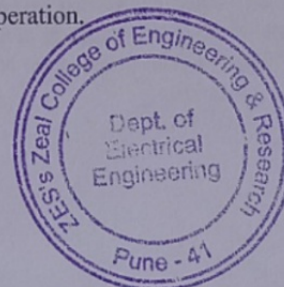
Implementation of Integrated Converter Topologies for Grid-Connected Photovoltaic Module

Hans Manoj Raghubir
PG Coordinator
ZES's Zeal College of Engineering & Research
Narhe, Pune, India
manoj.hans@zealeducation.com

Mahamuni Nilesh Nandkumar
P.G. Student
ZES's Zeal College of Engineering & Research
Narhe, Pune, India
nileshsnnm@gmail.com

Abstract— The growth of photovoltaic (PV) module generation is growing at almost an exponential rate. A PV power system with high voltage gain and the steady-state analysis are presented in this paper. For a typical photovoltaic cell, the output voltage is comparatively low, and for grid connection it required high voltage gain. Hence the proposed topology uses interleaved converter coupled with inductor coil and PWM technique as a primary conversion stage which moderate the voltage to a high dc bus voltage. In second stage a bridge inverter with bidirectional power flow strategy which interconnect grid. In addition to this for power balancing a Maximum Power Point Tracking (MPPT) system is applied gives high performance with minimum cost and high dynamic response.

Keywords— Photovoltaic module, Interleaved converter, PWM technique, Maximum power point tracking (MPPT) system, Inverter topologies, Electrical grid.

I. INTRODUCTION

As the world's power demand increases, growth of generation from renewable sources also needed to increase and PV arrays are most feasible source but photovoltaic (PV) power supplied to the utility grid is gaining more and more importance [1]. For connecting PV power to grid there are four different configurations are developed (a) The string inverter system (b) The centralized inverter system, (c) The multistring inverter system, (d) Module-integrated inverter system[1]–[4].

The output voltage of PV array in normally liaises between 150V to 450V. Therefore in conventional system large number of PV models is in series and total power is always greater than 500 W. The average rating of integrated inverter module is less than 500 W, normally power rating of inverter module is between 100 to 200 W. Another method is by using high frequency state up transformer but it has disadvantages of large weight and size [3] [4].

The PV system connection to grid includes two conversion stages including a step-up Zero voltage Transformer (ZVT) interleaved boost converter for increasing a voltage of PV module to the high dc-bus voltage, which is equal to grid voltage rating; Bridge inverter for converting the dc current into a ac waveform synchronized with the utility grid. The interleaved boost converter is responsible for the MPPT and the bridge inverter has the capability of stabilizing the ac-bus voltage to a grid value.

In this system power electronic inverters are used to done the power conversion stages, grid interconnection, and control optimization [3], [4]. Now days, pulse width modulation (PWM) and voltage source inverters (VSIs) are widely used in gird-connected PV systems, which have two main advantages. First, the voltage of the dc-bus inverter should be stabilized to a specific value and the effect of maximum power-point tracking (MPPT). Second, the power should be fed from the PV modules into the utility grid by inverting the dc power into ac waveform synchronized with utility grid.

Therefore, it is clear that inverter-based PV system has advantage of low power quality issues like as lower value of harmonic distortion, high power factor, and fast dynamic response, largely depends on the control strategy created by the inverters.

II. ELAEVOLUTION OF PHOTOVOLTAIC INVERTERS

An overview of existing power converter topologies for the AC-Module is given.

A. The Past: Centralized Inverters

In the past centralize inverter modules are connected in series and parallel to achieve high voltage and power level. The power Losses in series and parallel modules are overcome by Generation Control which also the possibilities of hot spots.

B. The Present: String Inverters and AC-Modules

The Recent string inverter technology uses single string of modules, to obtain a high input voltage to the inverter. Though it overcome the losses genrated by the string diodes and an individual MPPT but suffered with host spot risks.
The AC-Module removes the hot spot risks to some extends as well as it also minimized losses due to mismatch between modules and inverter, as well as it supports optimal adjustment between the module and the inverter.

C. The Future: AC-Modules and AC-Cells

The future AC modules are integration of one great PV-cell and the inverter. To amplify the cell' inherent very low voltages up to an appropriate level for the grid-connected inverter and at the same time to reach a high efficiency are key challenges with

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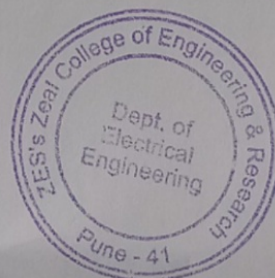
Voltage Regulation of STATCOM using Flexible Pi Control

Prof. Hans Manoj R.
Asso. Professor, Department of
Electrical Engineering,
Zeal College of Engineering, Narhe,
Savitribai Phule Pune University, Pune
India
manojrhans@gmail.com

Ms.Gaikwad Kavita S.
PG Student, Department of Electrical
Engineering,
Zeal College of Engineering,Narhe,
Savitribai Phule University,Pune,India
kavitagaikwad846@gmail.com

Dr. Vivekkant Jogi
Associate Professor, MATS University,
Raipur, Chattisgarh India

Abstract— Static Synchronous compensator is a voltage source inverter that converts a dc voltage at its input terminals into 3-phase set of ac voltages at fundamental frequency with controllable magnitude and phase angle. In Flexible Alternating Current Transmission system, STATCOM is important as well as necessary device for reactive compensation. Reactive power compensation is an important issue in the control of electric power systems. Facts system is new technology for reactive power control as well as controlling various parameters like voltage, current, phase angle and impedance. In electrical transmission line, static synchronous compensator acts as source or sink of reactive ac power to an electricity network. Static Var generators used in power system to following main objective is that increase power transmission capability from generating station to load station. In this paper a new control model is implemented that i.e. voltage regulation of STATCOM using improved adaptable PI controller. In during disturbance this improved Adaptable PI controller spontaneously and effectively adjust the proportional – integral gains and performance of various parameters match the proposed control system.

Keywords— Flexible AC Transmission System (FACTS); Proportional-Integral (PI) Control; Static Synchronous Compensator (STATCOM)

I. INTRODUCTION

In the new modern power system increasing demand day by day therefore stressed on transmission network and their parameter increased. In recent years, on transmission network greater demands increases because of increasing in generators and all other utilities. Hence increased in demands, reduced of long term generating planning and the power quality of supply in the system. In power transmission system, all stations and loads are connected to each other via generators, motors, transformers and therefore which can be subdivided into four main parts that is

1. Generating Stations
2. Transmitting stations
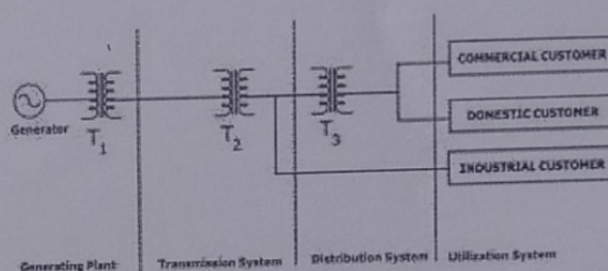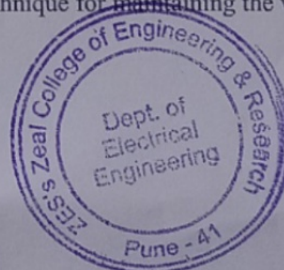3. Distributing stations
4. Utility

Figure 1: Parts of Electrical Power System

Above figure shows the parts of electrical power system and generators connecting to transformer of T_1, T_2, T_3. Electrical power system is generating up to 22kv voltage and up to 400Kv it raise voltage by T_1 transformer in the electrical power system. Transformer T_2 reduced voltage up to 66kv and supply this voltage various factory loads. This given power level reduced cost of line as well as sufficient energy given to the customer. With transformer T_3 which reduced the voltage up to 66Kv to 11Kv. various residential like domestic or residential like office, apartment, and hotels supplied energy up to 440v or 11Kv respectively. For improve and increase the transmission capacity and stability of transmission line we are introduced a new technology that is FACTS devices [2].

II. LITERATURE SURVEY

A. Jain, K. Joshi exhibit about modeling and controlling of STATCOM based on voltage regulation. In this modeling control strategy, load voltage magnitude and reactive current of STATCOM is based on the instantaneous current. In power system, voltage regulation problems are present therefore linear and non-linear design controller results compared with simulation results. When the disturbance is present internal dynamics of STATCOM are modeled using this strategy. STATCOM has higher bandwidth then adaptive controllers are designed based on pulse width modulation voltage source converter technique for maintaining the voltage [5].

INDEX

Sr. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference
		3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during a year 2017-18			
1	Prof. U. L. Talware	Secure Ranked Keyword Search Method with Conditional Random Fields over Encrypted Cloud Data	NA	NA	NA
2	Prof. Sujata Asabe	NA	Comparison of Image Enhancement Techniques	International Conference on Communication, Computing, Storage and Energy, 2018	International Conference on Communication, Computing, Storage and Energy, 2018
3	Prof. Patil Vikas M	NA	Efficient Implementation of Access Control System in Public Cloud	International Conference on Communication, Computing, Storage and Energy, 2018	International Conference on Communication, Computing, Storage and Energy, 2018
4	Prof. Pritee M. Shendkar	NA	Building Abnormal Behavioral Identification System with Auto Generated Notifications using Advanced Intrusion Detection Techniques	International Conference on Communication, Computing, Storage and Energy, 2018	International Conference on Communication, Computing, Storage and Energy, 2018
5	Prof. Urmila Prabhakar Mane	NA	Sequential Classification for Itemset data by using SVM	International Conference on Communication, Computing, Storage and Energy, 2018	International Conference on Communication, Computing, Storage and Energy, 2018
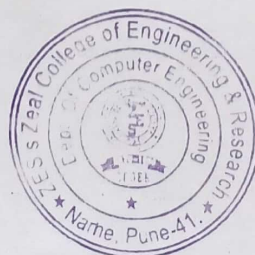
Head of the Department
HOD
Dept. of Comp. Engineering
ZES's Zeal College
of Engineering & Research
Narhe, Pune - 411 041.

Secure Ranked Keyword Search Method with Conditional Random Fields over Encrypted Cloud Data

*Priyanka V. Deshpande
*Student, Dept. of Comp. Engg. Zeal College of Engineering and Research, Pune,
India
pshirve@gmail.com

**U. L. Talware
** Dept. of Comp. Engg. Zeal College of Engineering and Research, Pune, India
talware1@gmail.com

Abstract- Cloud computing allows users or data owners to outsource their private data in a cloud server while also allowing this data access to other users. As a result there is a need for preserving the privacy of data of the data owner while not compromising on the search capability. The cloud systems support millions of users at a time, so there is need of efficient search technique with privacy preserving. This paper proposes the design and implementation of privacy preserving multi keyword rank search method over encrypted data. Privacy preserving technique maintains the security of data and ranking method improves the user search experience. In proposed system, Expectation Maximization (EM) clustering algorithm is used to improve the multi key word search efficiency. Experimental evaluation proves that EM clustering is better than dynamic K-means clustering in terms of search time and accuracy. To improve the relevance of results, proposed system makes use of Conditional Random Field (CRF). The experimental results also prove the effectiveness of proposed system with CRF model.

Keywords: Document clustering, multi-keyword search, CRF, Dynamic k-means clustering, EM clustering.

1   INTRODUCTION

Users search for encrypted information using searchable encryptions however these techniques support only Boolean keyword search. This causes two main downfalls when directly applied to Cloud Computing. First, users not having pre-information of the encoded cloud information need to post handle each record retrieved, for discovering the most relevant ones. Second was routinely getting all documents containing the queried keyword makes the search more complex when recovering multiple documents. [1]Single keyword searchable encryption framework mostly constructs an encrypted searchable index with the end goal that, its substance is not visible to the server, unless it is given suitable trapdoors produced by means of mystery key(s).

Comparison of Image Enhancement Techniques

Sujata Asabe
Assistant Professor CSE Dept.
Zeal College Of Engineering and Research Pune

Minakshi R. Shinde
Assistant Professor IT Dept.
Zeal College Of Engineering and Research Pune

ABSTRACT

Photo enhancement is the key and critical step in digital picture processing. If the photograph is not clean, it can not be capable of perform precisely edge detection, segmentation and different photo processing steps. For enhancement of photos which can be multi resolution, image fusion affords the first-rate output consequences. photo fusion is the approach of mixing applicable records from supply pics, to get the fused image having maximum of the data from the supply photographs. This technique may be used in various utility areas like aerial photos, forensic, flash photography, real lifestyles pix and and so on. on this paper, authors discusses the implementation of 3 categories of photograph fusion algorithms – fundamental fusion algorithms, pyramid based algorithms and the primary DWT algorithms and those set of rules are assessed using numerous goal assessment metrics for picture enhancement .those fusion algorithms are in comparison in opposition to the general photograph enhancement strategies for distinct pictures with the assist of error analysis strategies i.e. average distinction(ad), Normalized suggest square error (NMSE) and the height signal to Noise Ratio (PSNR) and and many others.The picture fusion techniques provide better outcomes than the overall picture enhancement techniques.

General Terms

Digital Image Processing, Image Enhancement

Keywords

Image Pyramid, Decomposition, Quality Metrics, Principal Component Analysis, Discrete Wavelet Transform, Image Fusion

1. INTRODUCTION

Image enhancement is the method for improving perception of information from the images for human viewers and providing better input for the automated image processing techniques. The images which are captured from real life scenario with high dynamic range contain both dark and bright regions.

The objective of image enhancement is to modify attributes of the captured image to make it more suitable for further processing. During this process, attributes of the image are modified according to the method applied on that. The choice of attributes and the way they are varied are specific to a given application. [10] [11]

1.1 Image enhancement techniques

Image enhancement techniques can be classified into two categories namely -Spatial domain, Frequency domain. [7] [14]

1.1.1 Spatial Domain

Spatial domain technique enhances an image by direct manipulation of pixels in an image. [1][7][11]

1.1.1.1 Image Negative

The negative of an image can be obtained by using the negative transformation with gray levels in the range [0, L-1].

$$s = L - 1 - r$$

where r & s denote the values of the pixels before and after the processing. This method is used for enhancing white or gray detail embedded in the dark regions of an image.

1.1.1.2 Log Transform

The Log transform can be given by

$$s = c \log (1 + r)$$

c is a constant. This transformation maps a narrow range of low gray-level values to the input image in a wider range of output levels.

1.1.1.3 Power Law Transform

It can be given by the expression below

$$s = cr^\gamma$$ where c and γ are constants. Value of $\gamma > 1$ enhances the contrast of high-value portions of the image at the expense of low-value regions, while reverse for $\gamma < 1$. This gives the power-law transform properties similar to both the logarithmic ($\gamma < 1$) and exponential ($\gamma > 1$) transforms. The constant c performs range scaling.

1.1.1.4 Exponential Transformation

This transformation is inverse of Log transform. It enhances the detail in high-value regions (bright) while decreasing the dynamic range in low-value regions (dark) of the image.

1.1.1.5 Gray Level Slicing

In this method fixed threshold values are taken for highlighting a specific range of gray values in the image. There are two different techniques for implementing this, one is Gray-Level Slicing without Preserving Background and another is Gray-Level Slicing with Background.

1.1.1.6 Contrast Enhancement

The basic objective behind contrast enhancement is to increase the dynamic range of gray levels of the image because of poor illumination, lack of contrast because of certain conditions.

1.1.1.7 Logical Operations

AND and OR operations are used for the masking. The sub images in an image can be selected with the help of these operations, operate on a pixel-by-pixel basis. The pixel of the given input image and the mask are logically ANDed or ORed for obtaining results. Depending on the mask the user can obtain the desired part and skip the undesired part of a particular image as required by his application.

Efficient Implementation of Access Control System in Public Cloud

Mrs. Amruta Vikas Patil
Assistant Professor

Department of Information Technology
Zeal College of Engineering and Research
Pune.
amrutayadav2010@gmail.com

Mr. Vikas Madhukar Patil
Assistant Professor,

Department of Computer Engineering
Zeal College of Engineering and Research
Pune.
vikas.patil@zealeducation.com

ABSTRACT

When information are put away in the cloud, cloud implementation systems arranges for information proprietors from the specialized administration, and is less demanding for the information proprietors to share their information with expected beneficiaries. On the opposite side, it realizes new difficulties about security and security insurance. To secure information classification against outside entrusted zone, inquisitive cloud specialist organization, various works have been proposed get to control the cloud related data and transformations. As per reviews, till now, no effective plans can give the situation to control together with the limit of time-delicate information distributing. So in this solution, implantation of planned discharge encryption into CP-ABE (Cipher-text-Strategy Attribute-based Encryption) is preferred and we propose another time and quality components consolidated access control on time sensitive information put away in cloud which is highly dependent on time variations. Our proposed plan is effective and fulfills the security necessities for time-delicate information stockpiling out in the open cloud. The proposed system includes following points: 1) the key escrow issue could be unraveled by without escrow key issuing convention, which is developed utilizing the protected two-party calculation between the key age focus and the information putting away focus, 2) fine-grained client disavowal per each characteristic should be possible as a substitute encryption which exploits the particular quality gathering key dispersion over the ABE. The proposed system is safely deal with the information appropriated in the information sharing framework in the public cloud.

General Terms

CP-ABE (Cipher-text- Strategy Attribute-based Encryption), TAFC , Cloud

Keywords

Cloud Storage, Access control, Time-sensitive data, Fine granularity. Data sharing, attribute-based encryption, revocation, access control, removing escrow.

1. INTRODUCTION

In Distributed storage information are no longer in information stock area, and anyone can't put stock in the cloud server to lead secure information get to control. In this manner, the secure access control issue has turned into a testing issue in distributed storage. CP-ABE is used in a considerations, since they can ensure information proprietor fine-grained and adaptable access control of anybody's own information. The time factor is more often than not assumes an imperative part in managing time sensitive information

Building Abnormal Behavioral Identification System with Auto Generated Notifications using Advanced Intrusion Detection Techniques

Pritee M. Shendkar
Department of Computer Engineering
ZES's Zeal College of Engineering and Research, Pune
shendkar.pritee@gmail.com

Tejaswini U. Mane
Department of Computer Engineering
ZES's Zeal College of Engineering and Research, Pune
tejaswinimane18@gmail.com

Abstract—The computer systems make use of Ids and passwords for user authentication and identification. If Ids and passwords are shared with the friends or relatives, then a fake users can prove themselves as authenticated and access the system as a legitimate user. Most of the intrusion detection systems existing today has the responsibility to identify external attacks and malicious Malware attaching the system by implementation of firewalls. The internal attacks done by sharing of Ids and passwords by the legitimate user or stealing Ids and passwords remain an identifiable because of various shortcomings in the intrusion detection system. The Attacks done by stealing user credentials can be identified only if they are detected at the system level by analyzing the set of system calls generated within the specified duration of time. We have proposed an Internal Intrusion Detection System (IIDS) which analyze the set of system calls generated within the time and categorize them based on the past history. The set of system calls which are generated are considered as the user habits and hence a user or a set of users are termed as intruders there by blocking the system for a specified duration of time on acknowledging the legitimate user through registered cell phone number or email address. The intention of the proposed system is to effectively avoid intruders from proving themselves as legitimate users by accessing the system using actual user credentials. From the experimental results, the obtained accuracy is 96% with response time of 0.30 seconds from the first system call.

Index Terms—Intrusion Detection System, System calls, Intruders, User behaviors, Data mining.

I. INTRODUCTION

Computer systems have been widely used in everyday life. It ranges from colleges, industries, banking, financial sector, IT sector and artificial intelligence. The growth of computer systems in various areas has increased the number of attacks taking place on computer systems. Security has been one of the major issues in tackling the attacks taking place. The identification of attacks where external intruders attack the system and try to behave abnormally is very easy to detect and tackle. The attacks which are taking place internally where the intruder is closely connected to the legitimate user or who knows the actual user's credentials are very difficult to identify and eliminate. The internal intruders can steal the information, initiate unwanted actions, send unwanted data or crucial data to the competitors, update the information in such a way to make the useful information as garbage.

The most well-known attacks are farming attack, denial of service and Firewall attacks. These types of attacks are external attacks which can be blocked to using powerful firewalls implemented in the system. These firewalls act as a goalkeeper for incoming intrusion attacks by the external elements. The internal attacks are usually difficult to trace as the system is implemented to isolate external attacks. To authenticate users, ids and passwords are the only way to give them complete access to the system. Illegal users often install malicious programs in the system which copies laws of ids and passwords and store them in a separate database.

When malicious users login to the system, they can access the database for user Ids and passwords. These users can use Ids and passwords to break the software level authentication system attached to every software. Once the access is given to the malicious users, they can enter the system and update in the crucial information. They can even add or delete users as well as files. They may steal the information or become just a listener who read the information and use it for self benefits. The later use of the legitimate system can help the competitors to grab the market.

To identify, detect and tackle internal attacks on the system we can work on the system calls. Whenever any user generates an action on the software, a system call is generated. The series of generated system calls can be logged on the database for a specified duration of time. The series of generated system calls can be traced using the logs created for a particular user. Various forensic systems and data mining systems can be used in collaboration to identify the malicious behaviour of the user. If the behaviour is identified as malicious, the user is termed as illegal and the system is blocked from being accessed.

Data mining is the process of discovering knowledge from different data sets and drawing a conclusion from it. The process of data mining can be introduced in this scenario where the logs of system calls can be analyzed to identify the malicious behaviour. The evidences found in the digital media are computer system can be used to investigate the behaviour of the malicious user to label them as malicious. The process

Sequential Classification for Itemset data by using SVM

Prof Sneha Pradip Vanjari,
Department of Information Technology
Zeal College of Engineering and Research, Pune
sneha.vanjari@zealeducation.com

Prof Urmila Prabhakar Mane,
Department of Computer Engineering
Zeal College of Engineering and Research, Pune
urmila.mane@zealeducation.com

Abstract—Information retrieval, health informatics, finance, and abnormal detection are the applications of sequence classifi-cation. Unique in relation to the task of classification on feature vectors, sequences don't have explicit features. Indeed, even with modern feature selection methods, the dimensionality of potential features may in any case be high and the consecutive nature of features is hard to capture. This makes sequence classification a more difficult task than classification on feature vectors. This paper tackle the issue of sequence classification by utilizing rules composed of interesting patterns or itemsets found in a dataset of labeled sequences and going with class labels. For pattern generation system will use FP-Growth, and will demonstrate that it is better than Apriori algorithm. Interesting patterns from class of sequences are created by combining the union and the help of the pattern. After this discovered patterns are changed over into classification rules which will be additionally classified by using SVM classifier. Proposed framework is tested on NEWS dataset and experimental outcomes demonstrate that the rule based classifier (SVM) is better than existing classifier in terms of accuracy and stability.

Index Terms—Sequence classification, interesting patterns, classification rules, feature vectors.

I. Introduction

Real word datasets is consist of texts, videos, speech signals, biological structures and web use logs, those are composed of sequential events or components. On account of extensive variety of applications, the critical issue in statstical machine learning and information mining is sequential classification.

The sequence classification task is described as assigning class labels to new sequence on the basis of knowledge gained at the time of training stage. In the existing studies integrat-ing pattern mining strategies and classification, for example, classification based on association rules, sequential pattern based sequence classifier, and numerous others [1]. These consolidated techniques can give great results and also provide users with data helpful for understanding the characteristics of the datasets.

Consecutive pattern mining is locating statistically signif-icant patterns among data examples where the qualities are conveyed in a sequence[4][10]. It is a part of information mining. It is additionally incorporates assumed that the values are discrete, and hence time series mining is closely related, yet normally considered an alternate action. A special case of organized information mining is sequential pattern mining.

There are number of key traditional computational issues in-side this field. These comprise of building productive databases and indexes for training data. In the existing studies the every now and again happening examples and contrasting the successions for likeness. Recuperating missing arrangement individuals. Succession mining issues can be delegated string mining. String mining depends on string preparing calculations and itemset mining, it depends on affiliation control learning [4].

SVM is a state-of-the-art technique, which gives profoundly exact outcomes in the passive learning situation and the prop-erties of SVM :(I) SVMs learns a linear decision boundary, by utilizing kernel include space and measuring the distance of a sample to this boundary is clear and gives an estimation of its in development. (ii) Efficient web based learning algorithms make it conceivable to get an adequately exact approximation of the ideal SVM solution without retraining in general dataset. (iii) The SVM can weight the impact of single samples in a basic way [6].

II. Review of Literature

An imperative task in information mining is Sequence clas-sification. In [1] address the issue of sequence classification, In a dataset of labeled sequences interesting patterns are found and going with class labels. Authors decide the interestingness quality of a pattern in a given class of sequences and joining the union and the help of the pattern. Author utilize the dis-covered patterns and produces certain classification rules and exhibiting the two distinctive classifier. The essential classifier is enhanced form of the current strategy for classification and completely based on association rules. The secondary raks the rules by first measuring their particular incentive to the new information data object. Experimental outcomes are our rule based classifiers outperform existing equivalent classifiers in terms of exactness and solidness. They test a some of pattern feature based models that utilized various types of patterns as features to represent to each sequence as a component vector. At that point by utilizing a variety of machine learning algorithms to sequence classification.

In paper [2] authors proposed a technique, which combines both low and high-level data classification techniques. The low-level classification implemented by any classification tech-nique, while the high-level classification underlying networks

INDEX

3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during a year 2017-18

Sr. No.	Name of the teacher	Title of Paper	Title of the proceedings of the conference	Name of the conference
1.	Sachin M. Elgandelwar	Power Analysis of Eeg Bands in Alzheimer Disease	International Conference on Science and Innovative Engineering	Other
2.	Dr. Suresh D. Shirbahadurkar	Naturalness Improvement in Text to Speech Synthesis using Threshold Amplitude of the Syllable	International Conference on Power, Control, Signals and Instrumentation Engineering	IEEE Explore

H.O.D.
(E&TC Engineering)

34. ADVANCED E-NOSE DETECTION OF TRIMETHYLAMINURIA DISORDER

1N. Ilaya raja
2T. Kavin
3K.Elangovan
1,2 IV Year, Department of ECE, Sriram Engineering College
3Assistant Professor, Department of ECE, Sriram Engineering College

The sensor design and implementation   of an sensing trimethylaminuria disorder (Fish Odor Syndrome) for general test of urinary analysis instead using Mass spectrometry and Gas chromatography and to get instance result test. This disorder is rare genetically and disorder it occur due flavin-containing monooxygenase 3 (FMO3) in liver which is impaired gene it is not function well and not able to convert nitrogen compound substances and it cause excess extraction of trimethylamine-N-oxide in urine, sweats and other body liquids. And this lead a affected person cause rotting smell over on him. This testing currently used Mass spectrometry and Gas chromatography for calculated ratio of two main acid in sample of urine of person to detect trimethylaminuria disorder and we overcome by using simple electrode sensor by fabricating by own to test and analysis sample to detect whether trimethylaminuria disorder present or not. Current medical sample testing laboratory   where not mostly available for this disorder test but only some laboratory available.

35. POWER ANALYSIS OF EEG BANDS IN ALZHEIMER DISEASE

Sachin M. Elgandelwar1,3and Dr. Vinayak K. Bairagi2
1PhD Scholar, Dept. of E&TC, AISSMS IOIT, Pune 01.
sachin.elgandelwar@gmail.com
2Professor, Dept. of E&TC, AISSMS IOIT, Pune 01.
3Asst. Professor, Dept. of E&TC, Zeal College of Engg. and Research, Pune 41.

The ability to make the diagnosis of alzheimer disease (AD) and its initial stage mild cognitive impairment (MCI) from normal subject is more essential as the treatment is most effective in the preliminary stages of AD. The main objective of the present study is to evaluate the usefulness of the technique totally based on electroencephalography (EEG) band power analysis to classify the alzheimer and normal subject. This EEG study put up the relationship between particular EEG frequencies and their relative power bands. EEGs had been recorded at rest in 20 normal elderly subjects and 20 alzheimer disease subjects. Relative and absolute power was separately computed for different EEG band. The use of normal subjects as a reference, discriminate the alzheimer disease subjects from the normal subjects. Alzheimer disease subjects are acknowledged to have slowing of the EEG, mainly through the increase of delta and theta power, along with the decrease of the alpha power. This power analysis may additionally probe to classify the different stages of alzheimer disease.

36. TURBO WHEELS – A VEHICLE BASED 3D GAME

1Mr. V. Nallarasan, 2Sampada Talwar, 3Divij Bhakoo, 4Shreashi Das
1,2,3,4Department of Information Technology
1,2,3,4SRM Institute of Science and Technology, Kattankulathur

Over the past few decades, PC game development has grown at an exponential rate in complexity, highlighting the need of development methodologies to enhance productivity. Game designing and development is an interactive and creative part of modern IT culture. This has encouraged various

Naturalness Improvement in Text to Speech Synthesis using Threshold Amplitude of the Syllable

(Marathi Language)

Pravin M Ghate

National Institute of Electronics & Information Technology
Dr.Babasaheb Ambedkar Marathwada Universirty.
Aurangabad, (Maharashtra) India
pmghate@gmail.com

Dr. S.D. Shirbhadurkar

Zeal College of Engineering & Research
SPPU, Pune (Maharashtra)
India
shirsd@gmail.com

Abstract— This paper presents approach to concatenation of syllable like units to produce speech output from the text input. In the development of a speech synthesis system, unit selection and concatenation is an important stage. The main goal of the talk is to increase cooperation between the speech coding community and the TTS community, and in particular to motivate the need for speech coding algorithms that meet the requirements of the next generation speech synthesis technology. Here, a threshold point of amplitude is used for concatenation of two words while synthesizing the whole sentence.

Keywords: Concatenation, Marathi Phonology, Speech Synthesis, Text Normalization, TTS,

1. INTRODUCTION

Speech processing technology has been a mainstream area of research for more than 50 years. The ultimate goal of speech research is to build systems that mimic human capabilities in understanding, generating and coding speech for a range of human-to-human and human-to-machine interactions.

Speech Synthesis is the technique of artificially generating human speech [1]. A system doing this synthesis function is called as synthesizer. A text to speech system normal text of any language for which it is design into speech. It is widely used in audio reading devices for blind people now days. In the last few years however, the use of text-to-speech conversion technology has grown far beyond the disabled community to become a major adjunct to the rapidly growing use of digital voice storage for voice mail and voice response systems. Also developments in Speech synthesis technology for various languages have already taken place. A text to speech (TTS) synthesizer is a computer based system that can read text aloud automatically, regardless of whether the text is introduced by a computer input stream or a scanned input submitted to an Optical character recognition (OCR) engine. A speech synthesizer can be implemented by both hardware and software. It has been made a very fast improvement in this field over the couple of decades and lot of high quality TTS systems are now available for commercial use. Speech is often based on concatenation of natural speech i.e. units that are taken from natural speech put together to form a word or

sentence. Concatenative speech synthesis has become very popular in recent years due to its improved sensitivity to unit context over simpler predecessors. Rhythm is an important factor that makes the synthesized speech of a TTS system more natural and understandable. The prosodic structure measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations provides important information for the prosody generation model to produce effects in synthesized speech. Many TTS systems are developed based on the principle, corpus-based speech synthesis. It is very popular for its high quality and natural speech output. According to, the next generation TTS systems are asked to deal with emotions in speaking styles. and there has been growing interest in developing commercial systems based on Limited Domain (LD-TTS), which restricts the scope of the input text so as to obtain high quality speech synthesis. As there are number of research prototypes of TTS systems has been developed and none was compared with the commercial grade TTS systems for quality. The main reason is that it needs improvisation in collaboration between linguistics and technologists. Text to speech should be made audibly communicate information to the user, when digital audio recordings are inadequate, for developing a user friendly speech synthesizer. Thus this system widely helps in developing a Computer-Human interaction like- voice annotations to files, Speech enabled applications, talking computer systems (GPS, Phone-based) etc.

2. STRUCTURE OF SPEECH

In current practice, speech structure is understood as follows: Speech is a continuous audio stream where rather stable states mix with dynamically changed states. In this sequence of states, one can define more or less similar classes of sounds, or phones. Words are understood to be built of phones, but this is certainly not true. The acoustic properties of a waveform corresponding to a phone can vary greatly depending on many factors - phone context, speaker, style of speech and so on. The so called co articulation makes phones sound very different from their "canonical" representation. Next, since transitions between words are more informative than stable regions, developers often talk about diphones - parts of phones between two consecutive phones. Sometimes developers talk