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Dr. S. B. Deshpande
PRINCIPAL

Date:- 20/09/2022

To

The KAPILA Team

MoE's Innovation Cell

All India Council for Technical Education (AICTE), New Delhi

Dear Sir / Mam,

Subject: Formation and Approval of KAPILA committee

The following members have been selected as per the guidelines for approving the innovative ideas for KAPILA scheme.

Sl. No.	Designation	Name	Institute /Company name	Contact No.	Email Address
1.	Principal	Dr. Sadanand B. Deshpande	VIT College, Nagpur	9545900290	principal.vit.2k9@gmail.com
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5.	Faculty Member (Senior Faculty Member - Convenor Single Point of Contact)	Dr. Nilesh Bodne	VIT College, Nagpur	9822194102	nileshbodne@gmail.com

I hereby declare that the above-mentioned members have been selected for the KAPILA committee. They will further shortlist the innovative ideas for KAPILA submission from the submitted ideas at the institute level.



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Review Paper of Exoskeleton Arm

Author1 Mr. Aman Dhanvijay, Vidarbha Institute of Technology, Nagpur.

Author2 Prof. Vaibhav Bankar, Vidarbha Institute of Technology, Nagpur,

Email: vhbkar@gmail.com

Abstract— The arm exoskeleton is widely used in medical and industrial areas because of its assistant ability. Many universities and institutes do some relevant works describes a prosthetic-arm exoskeleton that uses a parallel mechanism inspired by the human forearm to allow naturalistic shoulder movements. The patients who survived a stroke and the elderly who do not have enough strength to move their limbs clearly present the development of the exoskeleton system for amplifying human strength.

Keyword: Exoskeletons arm, Anatomy of the human upper limb

1. INTRODUCTION

A familiar definition for an exoskeleton in general is an artificial external structure. In other words, exoskeletons are wearable machines. These machines that can be used can be controlled using different types of power sources such as: electromechanical, pneumatic or hydraulic. Exoskeletons are systems that are considered human-robot systems. The preferred goal of exoskeleton development is to enhance the person or provide physical improvement. An exoskeleton would aid in the lifting process to improve lifting capacity or perhaps provide the ability to move faster while carrying a load.

From research on the many upper body exoskeletons already on the market, it has been concluded that the best frame to have for an exoskeleton would be made of tubes. It is based on the fact that ease of manufacture is a priority as well as the cost of manufacturing the frame.

The main objective of this thesis is to formulate a methodology that would facilitate the definition of the best cross-section of the tubes used as the body frame for the body of the exoskeleton being manufactured, while considering the parameters relevant to the design and exoskeleton.

State-of-the-art exoskeleton designs are now being developed for haptic, tele-operation, rehabilitation and power enhancement applications. Tele-operation is a system in which the slave robot is controlled, at a distance, by the movement of the force and the movement of the user with the help of the exoskeleton arm. Haptic interface is the interaction of the exoskeleton with the operator through human touch that can be used to control the virtual reality environment.

Power enhancements are applied to exoskeleton devices to help people lift or carry large weights.

Exoskeletons are a type of skeletal structure that surrounds the wearer instead of creating a traditional interior. Exoskeleton-wearing robots follow the same principle of having vital parts outside the user that allow the system to function as a suit. Similar exoskeleton structures can be used as input devices for easy human control of various procedures, as they are applied to surgical procedures that allow remote control of special equipment, and interactive interactions with the environment, the user can interact within the digital device. Such exoskeletons are called Rehabilitation Robots. An exoskeleton can reduce the number of therapists required by allowing even a disabled patient to be trained by one therapist, where many currently exist. Training can also be uniform, easy to review and can be customized for each patient. Nowadays, there are many projects that create training aids for rehabilitation.

2. Literature Review

1)"Design, Analysis, and Experiment of A Non-humanoid Arm Exoskeleton for Lifting Load",

Xin Li, Zhengwei Jia, Xiang Cui, Lijian Zhang Research Center of Human Performance Modification Technology Beijing Institute of Mechanical Equipment Beijing, China Published in 2018 The International Conference of Intelligent Robotic and Control Engineering.[4]

2)"Design of Exoskeleton Arm for Enhancing Human Limb Movement "

Thunyanoot Prasertsakul, Teerapong Sookjit, and Warakorn Charoensuk Published in: Proceedings of the 2011 IEEE International Conference on Robotics and Biomimetics December 7-11, 2011, Phuket, Thailand.

3)"Improvement of Upper Extremity Rehabilitation Robotic Exoskeleton, NREX "

Won-Kyung Song and Jun-Yong Song Department of Rehabilitative and Assistive Technology, National Rehabilitation Center, Published in: 2017 14th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI) June 28 - July 1, 2017, at Maison Glad Jeju, Jeju, Korea.[10]

ANNEXURE 2



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Research Work on Design and Analysis of Exoskeleton Arm

Mr. Aman Dhanvijay, Dept. Of Mechanical Engineering, Vidarbha Institute of Technology, Nagpur, India.
Prof. Vaibhav Bankar, Dept. Of Mechanical Engineering, Vidarbha Institute of Technology, Nagpur, India.
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For centuries now, humans have developed machines that are too labor-intensive for species cannot do. So, imagination and subtle engineering have led to the development of the powered exoskeleton. It is a device that can be attached to the human body. A powered exoskeleton enables a person to perform tasks that are beyond physical prowess by mimicking muscular movements. We have outlined the process of designing an exoskeleton arm that increases the load lifting capacity of a human. The PAM has a thin-walled, rubber bladder inside an axially stiff but radically compliant braided sleeve. As the rubber bladder expands due to an increase in pressure, the diameter of the combined sleeve and bladder increases. The diameter of the combined sleeve and bladder easily changes in the radial direction and the PAM contracts in the axial direction. As the consequence of this contraction, a large contraction force produced can perform work at a rapid rate. However, non-linearity exists as the force changes in the bladder because its area expands proportionally to the square of the diameter. Also as the outer material moves, its length is dependent on trigonometric relationships involving the outer sheath material, which are non-

From the study of many already existing upper body exoskeletons in the market, it has been concluded that the best frame to have for the exoskeleton would be made out of tubes. That is considering the fact of having ease of manufacturing as priority as well as cost of manufacturing of the frame.

The main target of the presented thesis is to form a methodology that would ease the definition of the best cross-section of the tubes being used as body frame structure for the body of the exoskeleton being manufactured while considering the parameters that would matter while designing and exoskeleton.

Current upper-limb exoskeleton designs are mainly built for haptic, tele-operations, rehabilitation and strength improvements applications. Tele-operation is the process by which a slave robot is controlled, at a distance, via the replication of forces and movements performed by an operator with the help of an exoskeleton arm. Haptic interface is the interaction of the exoskeleton and the operator through human touch which can be used in controlling virtual reality environments. Strength improvement is implemented in exoskeleton devices to aid individuals in bearing or carrying large loads.

Exoskeletons are a type of skeletal architecture that surrounds the wearer instead of the traditional internal design. Exoskeleton wearable robots follow the same principle of having the pivotal structures outside its user allowing the mechanical system to be used as a suit. Similar exoskeleton structures can be used as input devices for easy human control of separate mechanisms, as is being applied in surgical procedures allowing the remote control of specialized equipment, and in virtual environment interaction where the user can interact with objects rendered inside of digital devices. Such exoskeletons are called Step Rehabilitation Robots. An exoskeleton could reduce the number of therapists needed by allowing even the most impaired patient to be trained by one therapist, whereas several are currently needed. Also training could be more uniform, easier to analyze retrospectively and can be specifically customized for each patient. At this time there are

Pneumatic Actuation, Muscle sensor, Flex sensor, Acceleration, Degrees of freedom.

I. INTRODUCTION

The known definition for an exoskeleton in general is an artificial external supporting structure. In other words, exoskeletons are wearable machines. Those wearable machines are powered by using different kinds of power sources such as: electrical, mechanical, pneumatic, or hydraulic. Exoskeletons are considered as human-robotic systems. The main target of exoskeleton development is to augment human, providing physical improvement. An exoskeleton would assist the user in the process to improve weightlifting ability or maybe increase the efficiency of faster moving while carrying a load.

ANNEXURE 1



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Paper on Solar PV based Scalable DC Microgrid Design and simulation for Rural Electrification

¹ Mr. Gajanan S. Deotale Electrical Dept. VIT, College

² Dr. Nilesh Bodne Electronic Dept. VIT, College,

³ Prof. Saurab Lawate

Abstract: In this paper We present the analysis and design of the dc micro grid system for electrification. The micro grid configuration has been driven by field information gathered from India. The important parameter of such system depends on the Micro grid capacity of the transmission network which overflows the value of the voltage and the current from the main grid, which power the cost matrix analysis of the overall system which has to be equal. In this paper, we compute that the excessive cost of power (COE) for the proposed dc micro grid framework will be under minimal charges as put forth by the electrification governing agency according to the per kW-hr. We additionally present test results from a privately introduced dc micro grid model that exhibit the consistent state conduct, the bother reaction, and the general efficiency of the framework. The results show the reasonableness of the introduced dc micro grid design has totally inflicts with the main grid feasibly and found out to be very easy to implement without any extra cost to the system as far as the rising districts and the number of population in such districts are concerns.

1. INTRODUCTION

Power machine harmonic distortion has existed for the reason By 2035, the population of the world is supposed to increase by almost 1.5 billion which will make the population reach 8.8 billion people. This increase in the population will cause two things. The first one is an increase of the demand on energies. The demand on energies will cause the decrease of fossil fuels resources and the increase of CO2 emissions to reach approximately 39 billion tones by 2035. The second one is creating issues related to power grids which can be resumed to;

- Congestion : The components of the power grids are old and cannot satisfy the demand for a growing population
- Security, protection, transmission losses and losses due to the gap between production and consumption.
- Problems emerge when the power grids are far from where the power is needed.

2. BACKGROUND

The energy that is collected from renewable resources is called renewable energy, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and other mal heat.

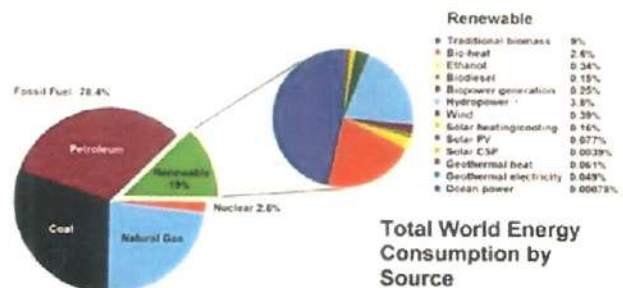


Figure 1 World energy consumption by renewable sources

3. SMARTGRID

A smart grid refers to a new and innovative system of electrical distribution that has the ability to manage and control information and power generation. It is capable of using different power sources to get the energy needed. The smart grid is also capable to store the produced energy that was not used by the consumer [2]. What makes the smart grid really innovative is the shift that one can notice between the old grid and the new one. A smart grid relies more on a two-way communication system between the power supplier and the power consumer. Here the power supplier will produce energy using different energy sources (solar, windpower) based on the information got from the power consumer[3]. One can notice the difference compared to the old grid where a hierarchical system was followed, i.e. the power producers continue to produce energy even if the demand was met

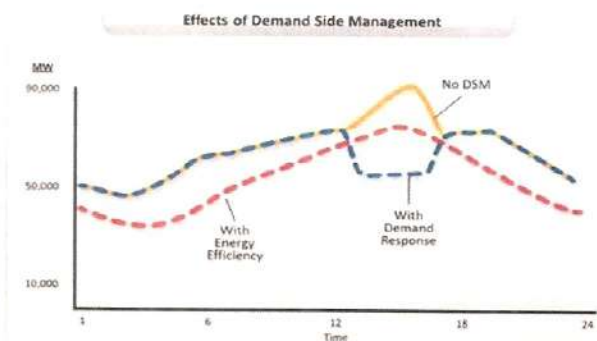


Figure 2: Effects of demand side management



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TOGETHER WE REACH THE GOAL
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SMART STREET LIGHT USING WIND-SOLAR HYBRID ENERGY SYSTEM

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Nagpur, Maharashtra, India.

DOI: <https://www.doi.org/10.56726/IRJETS29552>

ABSTRACT

Renewable energy resources such as both energies are becoming advantageous compared to the non-renewable sources of electricity production. Hybrid system for environmental friendly, efficiently and widely available in India. However, the hybrid power system that mainly depends on the intermittent non-conventional energy sources will generate a fluctuating voltage that leads to affect the machines that operate on a constant supply. The combination of this solar and wind energy helps to glow the lamp throughout a year without isolating the generation of electricity in the absence of sun rays.

Keywords: PV Panel, Solar Tracker, Wind Turbine, Arduino UNO Charge Controller, Relay Module, LED Panel.

I. INTRODUCTION

Global energy scenario

Energy, a word everybody is well acquainted with, mathematically means power consumption in a certain span of time. From the first hour of the day till the last hour the daily needs of a man start consuming energy in one form or the other. Nowadays people can't even imagine their lives without energy. A man without a major body part is called to be handicapped; likewise a world without energy is like a crippled world.

Mankind is getting developed year by year and the total population of the world is also increasing as years are passing. As a result, the total energy requirement is also increasing rapidly to keep pace with the rapid modernization of mankind and with the rapid increase in population. According to a survey the primary energy demand is increasing by 1.5% per year and by 2030 the total energy demand will be 16,800Mtoe, with an overall increase of 40%. According to BP Statistical Review of World Energy, world energy consumption got increased by 2.5% in 2011, less than 5.1% in 2010 but well in coordination with the historical average till date.

II. METHODOLOGY

It is useful to have a well-defined and standardized frame to hybrid system for power generation rural areas. These steps are:

a) Demand Assessment :

Using correct load forecasting of remote villages, the load demand can be fetched. Demand assessment can be done by asking to gram pradhans, college teachers, local people, workers etc.

During load survey, following factors be considered:

1. street light .
2. Number of educational premises, commercial, houses, health centers present and the energy required by them, number of small scale industries and their energy demand.
3. Miscellaneous demand.

b) Resource Assessment :

Resource assessment can be occur by calculating available potential in wind, MHP, solar, Biomass, Biogas, and other renewable energy resources using data available.

c) Barriers/Constraints:

1. Annual electricity demand.
2. Employment.
3. Net Present cost.
4. Reliability.

Smart Street Light Using Wind-Solar Hybrid Energy System

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^{1,2,3} Department of Electrical Engineering, Vidarbha Institute of Technology, Nagpur, Dr. Babasaheb Ambedkar Technological University, Lonere, India

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Abstract— Renewable energy resources such as both energies are becoming advantageous compared to the non-renewable sources of electricity production. Hybrid system for environmental friendly, efficiently and widely available in India. However, the hybrid power system that mainly depends on the intermittent non-conventional energy sources will generate a fluctuating voltage that leads to affect the machines that operate on a constant supply. The combination of this solar and wind energy helps to glow the lamp throughout a year without isolating the generation of electricity in the absence of sun rays.

Key words- PV panel, solar tracker, wind turbine, Arduino uno charge controller, Relay module, LED panel.

This chapter includes importance of a photovoltaic model and a wind model. To improve their efficiency is the hybridisation of electricity generated by both sources.

I INTRODUCTION

1.1. Global energy scenario

Energy, a word everybody is well acquainted with, mathematically means power consumption in a certain span of time. From the first hour of the day till the last hour the daily needs of a man start consuming energy in one form or the other. Nowadays people can't even imagine their lives without energy. A man without a major body part is called to be handicapped; likewise a world without energy is like a crippled world.

Mankind is getting developed year by year and the total population of the world is also increasing as years are passing. As a result, the total energy requirement is also increasing rapidly to keep pace with the rapid modernization of mankind and with the rapid increase in population. According to a survey the primary energy demand is increasing by 1.5% per year and by 2030 the total energy demand will be 16,800Mtoe, with an overall increase of 40%. According to BP Statistical Review of World Energy, world energy consumption got increased by 2.5% in 2011, less than 5.1% in 2010 but well in coordination with the historical average till date.

II LITERATURE SURVEY

Highly Efficient Tracking Solar Cells for White LED-Based Lighting System : The erawat Jinayimetal. (2007) proposed this system use the dc power generated by fixed solar cells module to energize White LED light sources that are operated by directly connected White LED with current limitation resistor. This paper presents the use of LED as a lighting application powered by tracking solar cells plate and using pulse to apply the electrical power to the LED. A Simplified Life Cycle

Assessment applied to Solar and Eolic street light -

The Scientist P. D. Daidone, L.E. Ascaui proposed in this paper about Wind and solar-powered light post as per the United States Design Patent USD626686S in Nov. 2, 2010. This methodology is described and applied to the study of a new type of



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Performance Analysis of Z Source Inverter Fed Induction Motor Drive-A Review

Pankaj Ingle¹, Nilesh P. Bodne², Kiran Kimmatkar³

Student, Department of Electrical Engineering¹

Assistant Professor, Department of Electrical Engineering^{2,3}

Vidarbha Institute of Technology, Nagpur, Maharashtra, India

Abstract: *The use of induction motors have been increasing greatly since the day of its development. The reason for its day by day increasing reputation can be primarily attributed to its robust construction, simplicity in design and cost effectiveness. They are being used in robotics, domestic and other applications. So, for wide range of use in the industry, the machine requires an efficient drive circuit arrangement. Currently, conventional voltage source inverter (VSI) or current source inverter (CSI) is dealing as key part in the field of induction motor drive circuit. These inverters fail to perform at our desired level due to some crucial drawbacks. In this project the drawbacks of traditional inverters are eliminated by replacing it with Z-Source inverter (ZSI). This project is mainly focused on effective control of induction motor with Z-Source inverter (ZSI).*

Keywords: VSI, CSI, Z- Source

I. INTRODUCTION

Conventional converter topologies such as voltage source inverter (VSI) and current source inverter (CSI) are commonly used as power electronics circuits for power conversion purposes. The VSI produces an ac output (after filtering it) which is limited below the dc input voltage, which means that VSI is buck type converter. The buck operation nature of the VSI limits its operation to power conversion applications and ac drive circuits. An additional dc-dc unit is connected to the dc input of the converter in order to further increase the dc input voltage, which leads to an increase in the ac output voltage. As a result, the additional dc-dc boost converter increases the system cost, control complexity and reduces the efficiency. Further, anti-parallel gating of the inverter bridge switches cause short circuit and destroys the power switching devices. For that, a dead-time is set between the upper and the lower switching devices of the same leg in order to avoid short circuit occurrences. The idea of impedance-source converter (ZSI) was originally developed due to the limitation in VSIs and CSIs. The conceptual and theoretical limitations in the conventional converters types reduce their application and complicate their control methods. While the ZSI great advantage can be seen as: it can operate as VSI inverter (buck type) or as CSI inverter (boost type) depending on the application. The output voltage can ideally ranges from zero to infinity. Since the invention of the ZSI inverter, there are number of research works on this interesting topology, and this project presents its basic operation and control. The limitations of traditional converter are:

- The capability of traditional converter is only used as buck converter or boost converter.
- Efficiency lower down where over drive is required
- No two thyristors can be gated ON in the same leg
- Only 8 switching states are available in traditional converter.
- Either capacitor or inductor available for energy storage and suppress ripples.

The Z-source inverter mainly used the shoot-through states to boost the dc bus voltage for the turning ON two thyristors of the upper and lower phase same leg. As a result the Z-source inverter can buck and boost voltage to a wanted output voltage that is more than dc bus voltage. Therefore improve the reliability of an inverter, the shoot-through cannot occurs to burnout the circuit. The advantages of ZSI has a low-cost, reliable and highly efficient single-stage structure for boost and buck power conversion. The main structure circuit of the Z-source inverter is presented in Fig.1. The maximum constant boost control can greatly reduce the L and C requirements of the Z-source impedance network.



Simulation and Performance Analysis of Z Source Inverter Fed Induction Motor Drive

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Assistant Professor, Department of Electrical Engineering Vidarbha Institute of Technology, Nagpur, India

Assistant Professor, Department of Electrical Engineering Vidarbha Institute of Technology, Nagpur, India

ABSTRACT: The use of induction motors have been increasing greatly since the day of its development. The reason for its day by day increasing reputation can be primarily attributed to its robust construction, simplicity in design and cost effectiveness. They are being used in robotics, domestic and other applications. So, for wide range of use in the industry, the machine requires an efficient drive circuit arrangement. Currently, conventional voltage source inverter (VSI) or current source inverter (CSI) is dealing a key part in the field of induction motor drive circuit. These inverters fail to perform at our desired level due to some crucial drawbacks. In this project the drawbacks of traditional inverters are eliminated by replacing it with Z-Source inverter (ZSI). This project is mainly focused on effective control of induction motor with Z-Source inverter (ZSI).

KEYWORDS: VSI, CSI, Z-Source,

I. INTRODUCTION

Conventional converter topologies such as voltage source inverter (VSI) and current source inverter (CSI) are commonly used as power electronics circuits for power conversion purposes. The VSI produces an ac output (after filtering it) which is limited below the dc input voltage, which means that VSI is buck type converter. The buck operation nature of the VSI limits its operation to power conversion applications and ac drive circuits. An additional dc-dc unit is connected to the dc input of the converter in order to further increase the dc input voltage, which leads to an increase in the ac output voltage. As a result, the additional dc-dc boost converter increases the system cost, control complexity and reduces the efficiency. Further, a mis-timing of the inverter bridge switches cause short circuit and destroys the power switching devices. For that, a dead-time is set between the upper and the lower switching devices of the same leg in order to avoid short circuit occurrences. The idea of impedance-source converter (ZSI) was originally developed due to the limitation in VSIs and CSIs. The conceptual and theoretical limitations in the conventional converters types reduce their application and complicate their control methods. While the ZSI great advantage can be seen as: it can operate as VSI inverter (buck type) or as CSI inverter (boost type) depending on the application. The output voltage can ideally ranges from zero to infinity. Since the invention of the ZSI inverter, there are number of research works on this interesting topology, and this project presents its basic operation and control. The limitations of traditional converter are:

- The capability of traditional converter is only used as buck converter or boost converter.
- Efficiency lower down where over drive is required
- No two thyristors can be gated ON in the same leg
- Only 8 switching states are available in traditional converter.
- Either capacitor or inductor available for energy storage and suppress ripples.

The Z-source inverter mainly used the shoot-through states to boost the dc bus voltage for the turning ON two thyristors of the upper and lower phase same leg. As a result the Z-source inverter can buck and boost voltage to a wanted output voltage that is more than dc bus voltage. Therefore improve the reliability of an inverter, the shoot-through cannot occurs to burnout the circuit. The advantages of ZSI has a low-cost, reliable and highly efficient single-stage structure for boost and buck power

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Dual Control Regenerative Braking Strategy for Two-Wheeler Applications-A Review

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Abstract: In this paper, Review on bi-directional DC/DC buck-boost converter with dual control strategy during regenerative braking is used for a two-wheeler application. To reduce the harmful emissions from automobiles and massive surges in fuel prices, automotive electric vehicles are an effective alternate solution. In this paper, a cascaded bi-directional DC/DC buck-boost converter with dual control strategy during regenerative braking is used for atwo-wheeler application. The dual control strategy with the cascaded converter is used to increase the average power stored during the braking period and to reduce the vehicle's stopping time. The converter with the proposed control strategy used in this work has made it possible to charge the battery even when the back emf of the machine is less than the battery voltage. A fuzzy logic control strategy is used to consider the non-linear factors like SOC, speed of the vehicle and the required brake force. This is done in order to make the system more reliable and realistic. implementing the dual control strategy, the average power stored by the battery is increased by 2.5 times and the vehicle comes to halt faster in comparison with the existing control strategy. The versatility of the strategy is shown by examining three different scenarios during the regenerative braking process.

Keywords: Braking, Bidirectional Converter, Fuzzy, SOC

I. INTRODUCTION

Today's world of dwindling resources and ever increasing prices, spending a lot on fuel has become a major part of economic budget. Reducing fuel consumption can have a major impact on decreasing the capital spent on fuel. To overcome this, hybrid electric vehicles (HEV) and plug in hybrid electric vehicles (PHEV) [2] are an alternate solution. Development of high energy battery packs and regenerative braking play an important role in improving the drive range of the electric vehicles as well as improving the battery life. In order to extract the maximum electrical energy from rotational mechanical energy, DC/DC converters with appropriate charging and discharging profile are required. Various topologies of DC/DC converters have been discussed in [1]. However, regenerative braking [7], has to be carried out with the conventional frictional braking. In the braking process, there are two issues that are to be addressed. First is to effectively applying the brakes which restrains the vehicle speed and maintains the vehicle's travelling course. And the second issue is to recover the braking energy to increase the energy efficiency of the battery. In practical scenario, factors like state of charge (SOC) of batteries, speed of the vehicle and driver's brake force requirements limit the effectiveness of electric braking. Thereby mechanical braking has to be incorporated along with regenerative braking. In literature, many works on regenerative braking and various algorithms for the control during the regenerative braking are proposed. The work [3] proposed a method wherein vehicle's speed is taken into account and not the SOC. Authors in [4] have taken the SOC into account and computed the regenerative force. However, the above works have not stated any methods to utilize the regenerative power to charge the battery. Works carried out in [5] and [6] have used different topologies of bi-directional DC/DC converters to charge the battery. However, the converters used in the works do not address the issue that arises if the terminal voltage of the machine falls below the battery voltage during low speed of vehicle. The back emf is neglected when the battery voltage is greater than the terminal voltage of the machine. In this paper, the focus is on the dual (voltage and current) control strategy which is used to extract the maximum possible energy during the regenerative braking and to ensure that the vehicle stops in an optimum time frame. In addition, fuzzy control is used to determine the battery charging current as its determining factors (SOC, vehicle speed and brake

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A Dual Control Regenerative Braking Strategy for Two-Wheeler Applications

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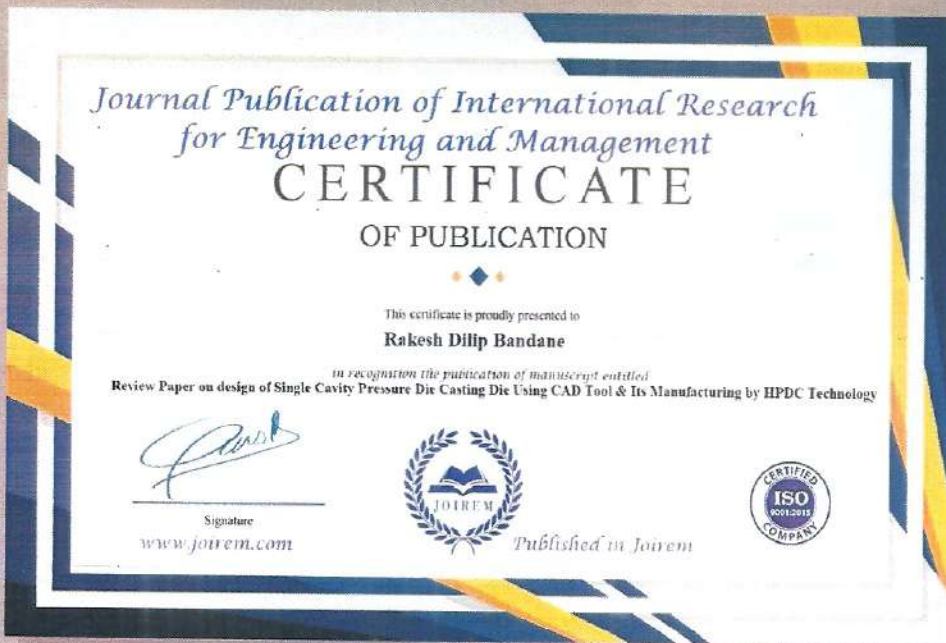
Assistant Professor, Department of Electrical Engineering, Vidarbha Institute of Technology, Nagpur, India

ABSTRACT: In this paper, bi-directional DC/DC buck-boost converter with dual control strategy during regenerative braking is used for a two-wheeler application. Proposed system combining of two source one as PV array and other as Battery which use to provide as input to bidirectional DC DC converter. During the normal and Good Solar Irradiation Conditions the PV array generated maximum voltage therefore it play important role during motoring mode to supply power to motor but when Availability or less amount of solar irradiations output battery will supply power to motor. PV and battery not sufficient to provide power to motor some time. The converter with the proposed control strategy used in this work has made it possible to charge the battery even when the back emf of the machine is less than the battery voltage. A fuzzy logic control strategy is used to consider the non-linear factors like SOC, speed of the vehicle and the required brake force. This is done in order to make the system more reliable and realistic. The model is completely simulated in MATLAB/Simulink. By implementing the dual control strategy, the average power stored by the battery is increased and the vehicle comes to halt faster in comparison with the existing control strategy. To support the above claims, simulation results are presented to show the effectiveness of the proposed method

KEYWORDS: Braking, Bidirectional Converter, Fuzzy, SOC

I. INTRODUCTION

In today's world of dwindling resources and ever increasing prices, spending a lot on fuel has become a major part of the economic budget. Reducing fuel consumption can have a major impact on decreasing the capital spent on fuel. To achieve this, hybrid electric vehicles (HEV) and plug in hybrid electric vehicles (PHEV) [2] are an alternate solution. Installation of high energy battery packs and regenerative braking play an important role in improving the drive range [7] of the electric vehicles as well as improving the battery life. In order to extract the maximum electrical energy from the rotational mechanical energy, DC/DC converters with appropriate charging and discharging profile are required. Various topologies of DC/DC converters have been discussed in [1]. However, regenerative braking [7], has to be carried out with the conventional frictional braking. In the braking process, there are two issues that are to be addressed. First is accurately applying the brakes which restrains the vehicle speed and maintains the vehicle's travelling course. And the second issue is to recover the braking energy to increase the energy efficiency of the battery. In practical scenario, factors like state of charge (SOC) of batteries, speed of the vehicle and driver's brake force requirements limit the effectiveness of electric braking. Thereby mechanical braking has to be incorporated along with regenerative braking. In literature, many works on regenerative braking and various algorithms for the control during the regenerative braking are proposed. The work proposed a method wherein vehicle's speed is taken into account and not the SOC. Authors in [4] have taken the SOC into account and computed the regenerative force. However, the above works have not stated any methods to utilize the regenerative power to charge the battery. Works carried out in [5] and [6] have used different topologies of bi-directional DC/DC converters to charge the battery. However, the converters used in the works do not address the issue that arises if the terminal voltage of the machine falls below the battery voltage during low speed of the vehicle. The back emf is neglected when the battery voltage is greater than the terminal voltage of the machine. In this paper, the focus is on the dual (voltage and current) control strategy which is used to extract the maximum possible energy during the regenerative braking and to ensure that the vehicle stops in an optimum time frame. In addition, fuzzy logic control is used to determine the battery charging current as its determining factors (SOC, vehicle speed and brake force requirement) have an uncertain relation with it. In addition, a cascaded bi-directional DC/DC buck-boost converter with a PMDC machine has been used. This is done to charge the battery even when the back emf of the PMDC machine is less than the battery voltage and at the same time have an effective braking while taking the safety issues and battery conditions into consideration. In this paper we have PV as parallel source to the





Design of Single Cavity Pressure Die Casting Die for Automotive Part of Aluminum Alloy (AlSi-12) Using CAD Tool & Its Manufacturing by HPDC Technology

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Abstract - Manufacturers can create a sharply defined textured or smooth surface of metal parts by using a manufacturing process described in high-pressure die-casting technology. The mechanism under this technology forces and injects molten metal into a reusable metal die at a speed of 27-45 m/s. The manufacturers will use the hot chamber or cold chamber method to inject the metal into the die on the basis of the type of metal chosen to fabricate the part. The designer must incorporate numerous manufacturability-related factors into the design of a die to produce successful castings economically. To achieve this overall design goal, the die fills completely with molten metal, quickly & consistent solidification of molten metal, the part ejects easily from the die without damage, the part requires a minimum of die construction and die maintenance difficulties, the part meets the customer's tolerance requirement. Proper estimation of part manufacturing is essential for tender procurement & reduction in manufacturing lead time. The project gives a brief introduction of design considerations in manufacturing single cavity pressure die casting die. It explains the process flow from quotation to dispatch of the PDC tool. UNIGRAPHICS NX software is used for doing the work accomplished in design.

Keywords — Single Cavity Pressure Die Casting Die, UNIGRAPHICS NX

1. INTRODUCTION

This project includes information about design and manufacturing of die. DIE CASTINGS are produced by forcing molten metal under pressure into metal moulds called dies. Mould filling in permanent moulds casting depends on the force of gravity, die casting involves metal flow at high velocities induced by the application of pressure. Because of this high velocity filling, die casting can produce shapes that are more complex than shapes that can be produced by permanent mould casting.

In die casting, die has been closed and locked; molten metal is delivered through plunger or pump. The pump plunger is advanced to drive molten metal too quickly through the feeding system while the air in the die escapes through vents. Sufficient metal is introduced to overflow the die cavities, fill overflow wells and develop some flash. As the extraneous metal

solidifies, pressure is applied to the remaining metal and is maintained through a specified dwell time to allow the casting to solidify. The die opens and the casting is then ejected. While the casting die is open, it is cleaned and lubricated as required. Then the die is closed and locked, and the cycle is repeated.

1.1 Objectives

- To study the type and the nature of the process to determine the layout of the die.
- To identify the parameter for die design
- To conduct flow analysis for the component for solidification and filling
- To identify areas of concern for the potential defects in the casting
- To decide upon the type and the location of the gate/runner/feeder system
- To design the die for effecting a good quality component (defect free)
- To perform trial and testing for experimentation to validate the design

1.2 Component Details

- Component name: Cover CJ 145 mm LEFT & RIGHT 129500 & 129520.
- Tool used: Single Cavity Pressure Die Casting Die.
- Work order no: 1023005
- Customer name: Akar Industries Pvt. Ltd., Nagpur.
- Material : Aluminum alloy

S.T Bus Ticket Automation by Scanning QR Code by using Raspberry-pi Module

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ABSTRACT

Day by day Technology has been upgrade, and it is help to sophisticate human life. The necessity of using this technology in our daily routine life is should be made worth while. With the power of technology today, we can acquire anything that we need it, in just a few clicks. Therefore, a system is introduced where the people get ticket

by paying online by scanning QR code. This system use an application that select from one place to another destination place. And the system generate QR code by scanned by mobile camera, then the passenger pay ticket charge by online payment ,Internet banking like google pay, phone pay,



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BUS TICKET AUTOMATION BY SCANNING QR CODE BY USING RASPBERRY-PI MODULE

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ay by day Technology has upgrade, and it is help to sophisticate human life. The necessity of using this technology in our daily routine life is should be made worth while. With the power of technology today, we can acquire anything that we need it, in just a few ticks. Therefore, a system is introduced where the people get ticket by paying line by scanning QR code. This system use an application that select from one place to another destination place. And the system generate QR code by scanned by mobile camera, then the passenger pay ticket charge by online payment ,Internet banking like google y, phone pay, paytm. The whole system is modified by combining Hardware and software.

Keywords: Bus Ticket Automation, Python, Tkinter, QR code, Raspberry Pi.

INTRODUCTION

In this paper we discuss about online ticket payment by scanning QR code with Raspberry-Pi Module. Since from earlier, people use bus transportation facility for travelling. In between we get ticket by pay direct cash. If we don't having any change or free money and the Conductor also does not have any change. Then the balance money has written backside of the ticket. If we forget to get em the conductor has earn free extra money. Due to this reasons we has some change using new technology means use raspberry-Pi Module. This system can be used by the users in performing online Payment by internet banking for their all business proposes. Users can use this program is already setuped on the bus and no need to install any Application or app for it.

The use of bus traveling is a large growing in Nagpur and other States. The process of buying bus ticket slip from Conductor wastes a lot of time on a daily basis or some time we don't having change or free money. The Conductor writes the remaining money back of the bus ticket receipted. Sometime regular passengers or new person also might forget to take remaining money. The conductor gets again free extra money from passengers. In between the passengers losing their own free change. So as a solution to this convenience, We can be used comprising of all the necessary functionalities. Subsequently, people won't dawdle for ticket booking or will there be any chance of losing it. After this, people will be able to get ticket easily and their money will also saved.

Before getting the ticket, we have to choose the place of arrival from our designated place. After selecting the correct location, the QR code will be received. You can pay online by scanning the QR code, Such as debit/credit card, e- wallets or net banking. After receiving the money online, your ticket slip will be received from the machine. Due to this technology our spare money will be saved and we can get tickets easily.

Quick Response(QR) code is a machine readable code that can encode around 4000 characters. The information stored in the QR code would be saved in the main database via the cloud for validation purposes. A QR code scanner will read this QR code and accordingly users information it will generate QR code and we received ticket slip by paying online payment. The digital wallet concept is included in the system will be empower the cashless transactions.

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“Research paper on Fault Detection In Transmission Lines Using Wavelet And Contourlet Features”

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¹(PG Student VIT Nagpur)
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ABSTRACT:

Transmission line protection is an important issue in power system engineering because 85-87% of power system faults are occurring in transmission lines. This paper presents a technique to detect and classify the different shunt faults on a transmission lines for quick and reliable operation of protection schemes. Discrimination among different types of faults on the transmission lines is achieved by application of evolutionary programming tools. This work evaluates a new method for faults detections in transmission lines in HVDC systems. The proposed method uses voltage and current synchronize data. The HVDC systems are simulated using MATLAB software. The method for detection of faults in transmission line uses a self-adaptive threshold and presents a redundancy, which allows the detection of faults even in situations where loss of either voltage or current signal occurs. A monopolar and a bipolar system are simulated using Simulink/MATLAB®. Results might show that percentage errors are lower than 0.01% for all analyzed cases in the monopolar system and lower than 0.5% for all analyzed cases in the bipolar system. We plan to extend the system by adding contourlet transform for adding better accuracy of fault detection committed by the CSP. On the other hand, the CSP needs aegis from any apocryphal allegation that may be claimed by the buyer to get actionable compensations.

Keywords— *The Wavelet Transform, The Discrete K-Nearest Neighbour, Contourlet Transform*

1. Introduction

Fault detection and classification on transmission lines are important task to safeguard electric power systems.

A fundamental part of a protective relay is a selector module which classifies the type of fault that has occurred and also to classify the “normal state”. Reliable phase selection of the faulted phase is thus vitally important in order to avoid either tripping of the incorrect phase or unnecessary three-phase tripping. Moreover, a necessary requirement of phase selectors is high speed operation as the selection process must be completed in the immediate post-fault period before breaker opens. Traditional phase selection schemes suffer from some drawbacks due to complexity of the system model, lack of knowledge of its parameters, effect of remote-end infeed, fault resistance, mutual-coupling from adjacent parallel lines, etc. They do not have the ability to adapt dynamically to the system operating conditions, and to make correct decisions if the signals are uncertain. Fault detection and classification is a very challenging task. Different attempts have been made for fault classification including approaches based on traveling waves [1-2], adaptive Kalman filtering [3], fuzzy logic, neural networks[4], and the fusion of different artificial intelligence techniques. Several researchers have proposed different techniques for fault classification of transmission lines using different types of neural networks and their combination with different transforms, such as wavelet and hyperbolic-s [5]. Although the neural-network based approaches have been quite successful in determining the correct fault type, the main disadvantage of neural-network is that it requires a considerable amount of training effort for good performance, especially under a wide variation of operating conditions (such as system loading level, fault



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"Research paper on Dual-Tree Complex Wavelet Transform Based Control Algorithm for Power Quality

Improvement in a Distribution System"

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ABSTRACT:

Due the intensive use of power converters and other non-linear loads in industry and by consumers in general, it can be observed an increasing deterioration of the power systems voltage and current waveforms. The presence of harmonics in the power lines results in greater power losses in distribution, interference problems in communication systems and, sometimes, in operation failures of electronic equipments, which are more and more sensitive since they include microelectronic control systems, which work with very low energy levels. Because of these problems, the issue of the power quality delivered to the end consumers is, more than ever, an object of great concern. The instantaneous active and reactive power theory or the p-q Theory is widely used to design controllers for active filters. This project deals with some problems due to the miss interpretations of this theory. A historical background of the theory is presented and the problem caused by distorted voltages at the point of common connection (PCC) is analyzed. In addition, the appearance of source current harmonic component not present in the load current (hidden current) caused by different filtering characteristics for the calculation of the oscillating real and imaginary power components is discussed. The problem caused by the voltage distortion can be solved using a phase locked loop (PLL) circuit. For the hidden current, filters with similar characteristics can avoid them. These analysis and solutions are presented to clarify some aspects of the p-q committed by the CSP. On the added hand, the CSP needs a aegis from any apocryphal allegation that may be claimed by the buyer to get actionable compensations.

Keywords—Power Quality, CPI, DSTATCOM, DVR, Existing Methodology, Problem Statem, Proosed system, System configuration, result

1. Introduction

Both electric utilities and end users of electric power are becoming increasingly concerned about the quality of electric power. The term power quality has become one of the most prolific buzzwords in the power industry since the late 1980s. Power quality is ultimately a

consumer-driven issue, and the end user's point of reference takes precedence. Any power problem manifested in voltage, current, or frequency deviations that result in failure or misoperation of customer equipment. Since power quality problems often involve interactions between the supply system and the customer facility and equipment, regulators should make sure that distribution companies have incentives to work with customers and help customers solve these problems. The power quality is determined by the performance and productivity of end-user equipment. If the electric power is inadequate for those needs, then the "quality" is lacking. AC power systems are designed to operate at a sinusoidal voltage of a given frequency [typically 50 or 60 hertz (Hz)] and magnitude. Any significant deviation in the waveform magnitude, frequency, or purity is a potential power quality problem. Of course, there is always a close relationship between voltage and current in any practical power system. Because of sensitive customer loads, there is a need to define the quality of electricity provided in a common and succinct manner that can be evaluated by the electricity supplier as well as by consumers or equipment suppliers. Although the generators may provide a near-perfect sine-wave voltage, the current passing through the impedance of the system can cause a variety of disturbances to the system.

The ultimate reason that we are interested in power quality is economic value. There are economic impacts on utilities, their customers, and suppliers of load equipment. The quality of power can have a direct economic impact on many industrial consumers. This usually means electronically controlled, energy-efficient equipment that is often much more sensitive to deviations in the supply voltage, current and frequency.

The electric utility is concerned about power quality issues as well. When performing the measurements, it is important to record impacts of the power quality variations at the same time so that problems can be correlated with possible causes.

Power quality monitoring is the process of gathering, analyzing, and interpreting raw measurement data into useful information. The process of gathering data is

Paper 1

Design, Analysis of interconnected air suspensions with independent height and stiffness tuning-A Review

Abstract— A heavy-duty vehicle can benefit from the height control of the chassis that an air suspension provides. For example, to retain a pitch angle parallel to the road, regardless of what load it carries. For the purpose of developing a controller, a model of the air suspension provides evaluation and testing opportunities as well as it gives the option for more advanced model based on analysis by using ANSYS with actual boundary conditions. Furthermore, a model can provide with an accurate axle weight estimation. In this thesis, both virtual and analytical models are developed and parameters are estimated by solving minimization problems. They are then evaluated using data collected from a truck, comparing normalized error values as well as analysis of each model

Keywords: *suspension, Ansys, Analysis, CAD*

INTRODUCTION:

Automobiles were initially developed as self-propelled versions of animal drawn vehicles. However animal drawn vehicles had been designed for relatively slow speeds and lacked a suspension system that could withstand the higher speeds permitted by internal combustion engines. The suspension of modern vehicles need to satisfy a number of requirements whose aims partly conflict because of different operating conditions such as loaded/ unloaded, acceleration/ braking, constant/ variable terrain road, straight running/ cornering. For the purpose of ensuring the optimum handling characteristics of the vehicle in a steady state as well as in a transient state, the wheels must be in a defined position with respect to the road surface for the purpose of generating the necessary lateral forces. The build-up and size of the lateral wheel forces are determined by specific toe and camber changes of the wheels depending on the jounce and movement of the body as a result of the axle kinematics(roll steer) and operative forces(compliance steer). This makes it possible for specific operating conditions such as load and traction to be taken into consideration. By establishing the relevant geometry and kinematics of the axle, it is also possible to prevent the undesirable diving or lifting of the body during braking or accelerating and to ensure that the vehicle

*Corresponding author: Ashish Sangave does not exhibit any tendency to over-steer and displays predictable transition behaviour for the driver.

1. Suspension Parameters

1.1. Undammed System: Undammed systems are those in which there are no forces opposing the vibratory motion to dissipate energy.

1.2. Damped System: Damped systems are those in which energy is dissipated by forces opposing the vibratory motion. 1.3. Damping Ratio: Damping ratio is the ratio of the amount of viscous damping present in a system to that required for critical damping. Where comfort takes priority over performance, leading to low damping ratios, and minimum pitching over bumps. Racecars in general run higher damping ratios, and have a much smaller concern for comfort, leading to some racecars using higher front ride frequencies. The higher damping ratios will reduce the amount of oscillation resultant from road bumps, in return reducing the need for a flat ride.

1.4. Sprung weight and un-sprung weight: All weight which is supported by the suspension, including portions of the weight of the suspension members are regarded as sprung weight. Un-sprung weight includes the suspension upright and all components attached to it; the brake caliper, brake disc, wheel, tire and a portion of suspension arms.

As this system should be able to tune two parameters (ride height and stiffness) independently, it needs two air chambers (pneumatic spring). By using two air chambers and controlling the air pressure

6. William Tyrrell Thomson, Mechanical Vibrations, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1961, pp. 3-5.



Review Paper on Direct A.C. Power Generator by Using Solar Cells

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AC Solar Generator works on a very simple principle. It consists of standard solar cells arranged in circular pattern mounted on a base. Half of the cells are wired in one circuit and half in another circuit. Mounted above the solar panel is a spinning disc powered by a DC electric motor. The DC motor gets its power from four small DC solar cells mounted at the corners of the base. The disc has portals cut into it allowing light to pass through to every other solar cell below it. As the disc spins each of the banks of solar cells is alternately exposed to light and alternately produce power. When the portal between the two cells the voltage cancels and drops to zero. The resulting voltage is sinusoidal or AC. Thus there is no need of conversion equipment's such as inverters, phase synchronizers, etc. This makes the overall concept quite simple yet effective and economical as well as compared to the current trend of extracting the solar energy in the market. Due to this system the efficiency of the overall project increases by 10% to 30%.

Keywords: Solar energy, Solar cells, AC solar generator, DC motor, Series opposition connection, Tracking system, Electric panel, Spinning disk, pwm.

Present global need for clean and renewable energy sources. Fossil fuels are non-renewable and require finite resources, leading to environmental damage and high cost retrieval techniques. So, the need for cheap and obtainable energy is greatly needed. An efficient and more feasible alternative option is solar energy. Solar energy is a more practical type due to its plentiful availability; it is derived directly from the sun. One of the problems which hinder the use of solar energy is the cost of extracting the energy and then converting it into suitable form according to its applications. The panels combined with the price of inverters, phase synchronizers, installation and maintenance has made the price of solar energy quite expensive. Add to that the loss of power from the different components used in the DC to AC conversion process and it becomes more unattractive. AC Solar Generator eliminates the problem of converting DC to AC. It uses solar as its input and through a motor-disc arrangement it converts the DC power of solar cells directly to AC without use of any conversion equipment. The resulting output voltage is thus sinusoidal or AC. Thus there is no need of conversion equipment's such as inverters, phase synchronizers, etc. This makes the overall concept quite simple yet effective and economical as well. The sun which is the primary source of energy and which is readily available is used as an input. This reduces the ever increasing demand for fossil fuels such as coal, petroleum, diesel etc. AC Solar Generator works on a very simple principle. It consists of standard solar cells arranged in circular pattern mounted on a base. Half of the cells are wired in one circuit and half in another circuit. Mounted above the solar panel is a spinning disc powered by a DC electric motor. The DC motor gets its power from four small DC solar cells mounted at the corners of the base. The disc has portals cut into it allowing light to pass through to every other solar cell below it. As the disc spins each of the banks of solar cells is alternately exposed to light and alternately produce power. When the portal between the two cells the voltage cancels and drops to zero. The resulting voltage is sinusoidal or AC. Thus there is no need of conversion equipment's such as inverters, phase synchronizers, etc. This makes the overall concept quite simple yet effective and economical as well. The control of the motor can be done in either of the two ways. One way is using an electronic system to track the astronomical position of the sun at the particular location and accordingly rotate the solar panel at an orientation perpendicular to the sun at preset time intervals. Another of control is using a sensor arrangement to sense the brightness in the sky and rotate the panel at right angles to the orientation of the sun.

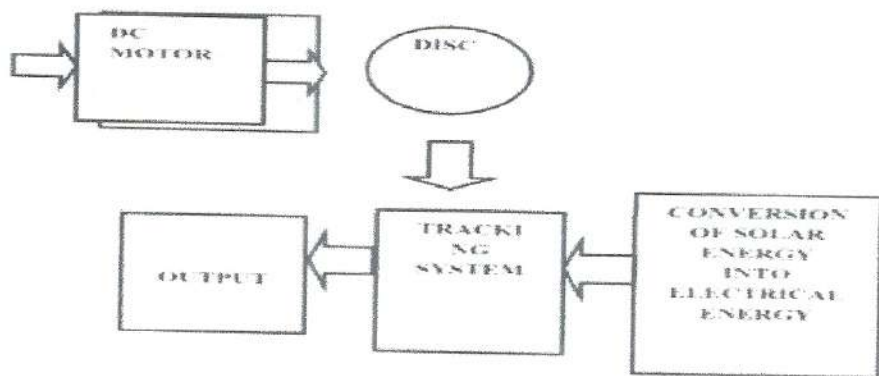


Fig. Block Diagram of AC Solar Generator

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Review Paper On Direct A.C. Power Generator By Using Solar Cells

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ABSTRACT

AC Solar Generator works on a very simple principle. It consists of standard solar cells arranged in circular pattern mounted on a base. Half of the cells are wired in one circuit and half in another circuit. Mounted above the solar cells is a spinning disc powered by a DC electric motor. The DC motor gets its power from four small DC solar cells mounted in the corners of the base. The disc has portals cut into it allowing light to pass through to every other solar cell below it. As the disc spins each of the banks of solar cells is alternately exposed to light and alternately produce power. When the portal is half way between the two cells the voltage cancels and drops to zero. The resulting voltage is sinusoidal or AC. Thus there is no need of conversion equipment's such as inverters, phase synchronizers, etc. This makes the overall concept quite simple yet effective and economical as well as compared to the current trend of extracting the solar energy in the market. Due to the tracking system the efficiency of the overall project increases by 10% to 30%. This paper deals with the design and execution of a solar tracker system dedicated to the PV conversion panels. The proposed single axis solar tracker device ensures the optimization of the conversion of solar energy into electricity by properly orienting the PV panel in accordance with the real position of the sun. The operation of the experimental model of the device is based on a DC motor intelligently controlled by a dedicated drive unit that moves a mini PV panel according to the signals received from two simple but efficient light sensors. The performance and characteristics of the solar tracker are experimentally analyzed.

Keywords: Solar energy, Solar cells, AC solar generator, DC motor, Series opposition connection, Electric load, Solar panel, Spinning disk, pwm, PVC, Solar tracker system, design and execution, experimental investigations.

1. Introduction

There is a current global need for clean and renewable energy sources. Fossil fuels are non-renewable and require finite resources, which are dwindling because of high cost and environmentally damaging retrieval techniques. So, the need for cheap and obtainable resources is greatly needed. An efficient and more feasible alternative option is solar energy. Solar energy is a more practical type of energy due to its plentiful availability; it is derived directly from the sun. One of the problems which hinder the use of solar energy extensively is the cost of extracting the energy and then converting it into suitable form according to its applications. The price of solar panels combined with the price of inverters, phase synchronizers, installation and maintenance has made the price of solar prohibitive. Add to that the loss of power from the different components used in the DC to AC conversion process and it becomes even more unattractive. AC Solar Generator eliminates the problem of converting DC to AC. It uses solar as its input and with the help of a motor-disc arrangement it converts the DC power of solar cells directly to AC without use of any conversion equipment's. The resulting output voltage is thus sinusoidal or AC. Thus there is no need of conversion equipment's such as inverters, phase synchronizers, etc. This makes the overall concept quite simple yet effective and economical as well. The sun which is the never ending source of energy and which is readily available is used as an input. This reduces the ever increasing demand for fossil fuels such as coal, petroleum, diesel etc. AC Solar Generator works on a very simple principle. It consists of standard solar cells arranged in circular pattern mounted on a base. Half of the cells are wired in one circuit and half in another circuit. Mounted above the solar cells is a spinning disc powered by a DC electric motor. The DC motor gets its power from four small DC solar cells mounted in the corners of the base. The disc has portals cut into it allowing light to pass through to every other solar cell below it. As the disc spins each of the banks of solar cells is alternately exposed to

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**“AN AUTHENTICATION GRAPHICAL VERIFYING SYSTEM USING WATERMARK
EMBEDDING”**

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ABSTRACT: Nowadays the most popular method for User Authentication is using Textual Password. This method has many drawbacks like dictionary attack, brute force attack etc. A secure text based Password must be made using a combination of uppercase, lowercase, and special characters. Users have a tendency to choose weak text-based passwords, which are short and easy to remember. To overcome the drawbacks of text-based passwords, many picture-based passwords have been proposed. Picture based password systems often suffer from several problems, one of them is the shoulder surfing attack, i.e. images that users choose as password are both easy for an attacker to watch by snooping over shoulders or by using a camera to record input and also predictable. An authentication system called PassMatrix is used to overcome the shoulder surfing attack. User has to choose images as their password during the registration phase and choose a pass-square per image. To secure the pass-images from the attackers, Generic Visible Watermark Embedding technique is used to blend a cover image and a pass-image. This method can be extended to secure web applications by using QR code

Keywords: PassMatrix, Generic Visible Watermark Embedding Technique

1. INTRODUCTION

Authentication based password is largely used in the computer security and privacy. Most of the traditional passwords are numbers and alphabets character. The unauthorized people can easily identify the password. The identification leads the shoulder surfing attacks. However, human actions such as choosing bad passwords and inputting passwords in an insecure way are regarded as “the weakest link” in the authentication chain. With web applications and mobile apps piling up, people can access these applications anytime and anywhere with various devices. To overcome these problems we introduce a novel authentication system called PassMatrix resist shoulder surfing attacks.

Secure Session Password authentication system is offered that protects users from becoming fatalities of shoulder surfing attacks when inputting passwords in public through the usage of 6x6 square matrix, which is filled with alphabets from a-z and numerical from 0-9. This square matrix is randomly generated on submit of each password character. The matrix provides better security against shoulder surfing attacks, since users use a dynamic pointer to point out the position of their passwords rather than clicking on the password object directly.

2. A GRAPHICAL PASSWORD BASED SYSTEM

Passwords provide security mechanism for authentication and protection services against unwanted access to resources. A graphical based password is one promising alternatives of textual passwords. According to human psychology, humans are able to remember pictures easily. In this paper, we have proposed a new hybrid graphical password based system, which is a combination of recognition and recall based techniques that offers many advantages over the existing systems and may be more convenient for the user. Our scheme is resistant to shoulder surfing attack and many other attacks on graphical passwords. This scheme is proposed for smart mobile devices (like smart phones i.e. ipod, iphone, PDAs etc) which are more

handy and convenient to use than traditional desktop computer systems.

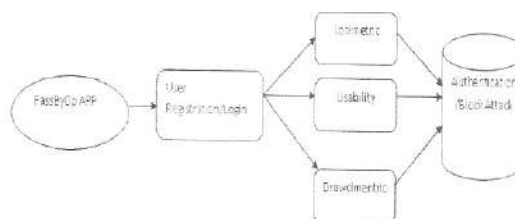


Figure 1: Graphical Password System

3. LITERATURE SURVEY

1. Reducing Shoulder-surfing by Using Gaze-based Password Entry
Authors: Manu Kumar, Tal Garfinkel, Dan Boneh, Terry Winog, The Shoulder-surfing – is using direct observation techniques, such as looking over someone's shoulder, to get passwords credentials, PINs and other sensitive personal information – is a issue that has been difficult to overcome. When a user enters information using a keyboard, mouse or any traditional input device systems, a malicious user may be able to acquire the user's password credentials. We introduced EyePassword, a system that mitigates the problems of shoulder surfing attack via a novel technique to user input. With EyePassword, a user enters sensitive input such as password, PIN, etc. by choosing from an on-screen keyboard using only the orientation of their eye pupils i.e. the position of their gaze on screen, making eavesdropping by a malicious person largely impractical. We introduce a number of design choices and discuss their effect on usability and security. We conducted user studies to evaluate the speed, accuracy and user acceptance of our methodology. The results shows that gaze-based password entry requires marginal additional time over using the keyboard, error rates are same as



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*“Research paper An Authentication Graphical Verifying System Using
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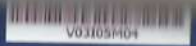
¹(PG Student VIT Nagpur)

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ABSTRACT:

The possibility of adding several watermarks to the same image would enable many interesting applications such as multimedia document tracing, data usage monitoring, and multiple property management. In this paper, we present a novel watermarking scheme, which allows inserting and reliably detecting multiple watermarks sequentially embedded into a digital image. The proposed method, based on elementary linear algebra, is asymmetric, secure under projection attack and robust against distortion due to basic operations such as storage, transmission, and format conversion. Digital watermarking is a process for modifying physical or electronic media to embed a machine-readable code into the media. The media may be modified such that the

embedded code is imperceptible or nearly imperceptible to the user, yet may be detected through an automated detection process. Most commonly, digital watermarking is applied to media signals such as images, audio signals, and video signals. However, it may also be applied to other types of media objects, including documents (e.g., through line, word or character shifting), software, multi-dimensional graphics models, and surface textures of objects. Digital watermarking systems typically have two primary components: an encoder that embeds the watermark in a host media signal, and a decoder that detects and reads the embedded watermark from a signal suspected of containing a watermark (a suspect signal). The encoder embeds a watermark by altering the host media signal. The reading component analyzes a suspect signal to detect whether a watermark is present. In applications where the watermark encodes information,



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A Cloud-Based Smart-Parking System Based on Internet-of-Things Technologies

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ABSTRACT This paper introduces a novel algorithm that increases the efficiency of the current cloud-based smart-parking system and develops a network architecture based on the Internet-of-Things technology. This paper proposed a system that helps users automatically find a free parking space at the least cost based on new performance metrics to calculate the user parking cost by considering the distance and the total number of free places in each car park. This cost will be used to offer a solution of finding an available parking space upon a request by the user and a solution of suggesting a new car park if the current car park is full. The simulation results show that the algorithm helps improve the probability of successful parking and minimizes the user waiting time. We also successfully implemented the proposed system in the real world.

INDEX TERMS Smart-parking system, performance metrics.

INTRODUCTION

In the development of traffic management systems, an intelligent parking system was created to reduce the cost of parking people and for optimal use of resources for car-park owners. Currently, the common method of finding a parking space is manual where the driver usually finds a space in the street through luck and experience. This process takes time and effort and may lead to the worst case of failing to find any parking space if the driver is driving in a city with high vehicle density. The alternative is to find a redefined car park with high capacity. However, this is not an optimal solution because the car park could usually be far away from the user destination. In recent years, research has used vehicle-to-vehicle [21] and vehicle-to-infrastructure [23] interaction with the support of various wireless network technologies such as radio frequency identification (RFID), Zigbee, wireless mesh network [22], and the Internet. This study aimed to provide information about nearby parking spaces for the driver and to make a reservation minutes earlier using supported devices such as smartphones or tablet PCs. Furthermore, the services use the ID of each vehicle in booking a parking space. However, the current intelligent parking system does not provide an overall optimal solution in finding an available parking space, does not solve the problem of load balancing, does not provide economic benefit, and does not plan for vehicle-refusal service.

To resolve the aforementioned problems and take advantage of the significant development in technology, the Internet-of-Things technology (IoT) has created a revolution in many fields in life as well as in smart-parking system (SPS) technology [20]. The present study proposes and develops an effective cloud-based SPS solution based on the Internet of Things. Our system constructs each car park as an IoT network, and the data that include the vehicle GPS location, distance between car parking areas and number of free slots in car park areas will be transferred to the data center. The data center serves as a cloud server to calculate the costs of a parking request, and these costs are frequently updated and are accessible any time by the vehicles in the network. The SPS is based on several innovative technologies and can automatically monitor and manage car parks. Furthermore, in the proposed system, each car park can function independently as a traditional car park. This research also implements a system prototype with wireless access in an open-source physical computing platform based on Arduino with RFID technology using a smartphone that provides the communication and user interface for both the control system and the vehicles to verify the feasibility of the proposed system.

A. RELATED WORKS

In some studies [1]–[3], the authors proposed a new algorithm for treatment planning in real-time parking. First, they used an



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"RESEARCH WORK ONSECURED CENTRALIZED EMPLOYEE MANAGEMENT SYSTEM"

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1. ABSTRACT:

The aim of this analysis Agent ecology arrangement appliance android adaptable is, to automate the agent ecology action in aggregation by their Employee's appointment corpuscle buzz and aswell advance the authoritative advance of the company. In this paper, we altercate about the architecture and Implementing admin application, agent appliance and Centralized server for monitored aggregation employee's appliance android technology. In this arrangement we are accouterment activating database account which retrieves abstracts or advice from centralized database. The android appliance in acute buzz contains all advice about the agent buzz uses like their all Agent SMS history, Agent alarm Logs, Agent Locations, Abstracts uses, Web browser history, and crooked abstracts uses details. This arrangement improves accurateness in managing advisers of the aggregation by extenuative time, abbreviation administrator efforts. Also you can clue the advance and the achievement of the training. This cardboard provides the architecture of a Certificate Administration Arrangement advised for a Baby to Average calibration enterprises with a appropriate accent on security, it aswell describes a new symmetric encryption algorithm Anchored Quick Crypt and its altered block chaining mechanism. Along with this, assorted added baby enhancements in agreement of Compression, Absorption and Book Versioning accept aswell been declared in the paper.

2. Introduction

Its important to accumulate your advisers up to date by accouterment training. The Enhanced Certificate Administration arrangement is a certificate administration arrangement for baby to average organizations for able administration of cyberbanking abstracts in their organization. Up till now, there has not been an able band-aid for managing abstracts that is affordable for baby and average sized enterprises. Abstracts are still transferred from one administration to addition by concrete agency (such as pen-drives and CDs), or are mailed via some web casework (Email, book administration solutions etc). Even if the alignment has a file-server and a LAN setup, it still is not the a lot of able way to administer the documents. Thus, there arises a charge for a "Document Administration System" [1] for able certificate administration for assorted enterprises and government agencies. Assorted software solutions like documentum (from EMC Corporation) and sharepoint (from Microsoft) came into actuality to break this need. However these absolute systems are all web based and don't action abounding allowances in agreement of security, absorption (level), compression [2, 3, 4], and affordability for baby and average calibration organization. Thus, in our paper, we are designing and giving a blueprint of an able Certificate Administration Arrangement as band-aid that addresses the needs of the organizations in today's aggressive apple in a amount able manner. This appliance is accessible to administration of the alignment which maintains



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“REVIEW PAPER ON STATISTICAL ENTITY EXTRACTION FROM WEB”

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1. ABSTRACT:

A article web seek engine is a that is advised to seek for advice on the Apple Wide Web. The seek after-effects are presented in a band of after-effects generally referred to as seek engine after-effects pages. The advice may be a mix of web pages, and added types of files. Some of the seek engines aswell abundance abstracts accessible in databases or accessible directories. Unlike web directories, which are maintained alone the by animal editors, seek engines aswell advance real-time information. Web seek engines get their advice by web ample from website to site. There are assorted kinds of admired semantic advice about real-world entities anchored in web pages and databases. Extracting and amalgam these article advice from the Web is of abundant significance. Comparing to acceptable advice abstraction problems, web article abstraction needs to break several new challenges to absolutely yield advantage of the altered adapted of the Web. In this paper, we acquaint our contempo plan on statistical abstraction of structured entities, named entities, article facts and relations from Web. We aswell briefly acquaint iKnoweb, an alternate ability mining framework for article advice integration. We will use two atypical web applications, Microsoft Academic Seek (aka Libra) and EntityCube, as alive examples. Information about a individual article ability arise in thousand of web pages. Even if a seek engine could acquisition all the relevent web pages about an article , the user would charge to

about-face through all these pages to get a complete appearance of the entity.

2. Introduction

Web agriculture is important sometimes, if we charge to grab too abundant abstracts from some website. Web abrading a web page involves attractive it and extracting from it. Attractive is the downloading of a page (which a browser does if you appearance the page). Therefore, web ample is a capital basic of web scraping, to back pages for after processing. Once fetched, again abstraction can yield place. The agreeable of a page may be parsed, searched, reformatted, its abstracts affected into a spreadsheet, and so on. Web scrapers about yield something out of a page, to accomplish use of it for addition purpose about else. An archetype would be to acquisition and archetype names and buzz numbers, or companies and their URLs, to a account (contact scraping).

In this activity we are traveling to yield one website accepting some activating data. Like user abstracts or some usefull information. We will address cipher in such a way that it will grab abstracts from that website and put the abstracts in our database. This will be accessible to accept abstracts in our database.

There are assorted kinds of admired semantic information. This advice is about the real-world entities and anchored in web pages and databases. Extracting and amalgam these article advice from the Web is of abundant significance. The charge for accession and



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