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IOT Based Solar Street Light Intensity Control System

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Abstract - This project presents the IOT based solar street light intensity control system. The Sunlight Tracker Solar Powered IOT Based Light Control System is the subject of this project's abstract. This idea aims to save energy and lessen pollution brought on by finite resources. Due to its low cost and open source nature, it is implemented using an Arduino Uno. The purpose of this system is to interact with the Arduino Uno board to control the lighting system while using IR sensors to detect human presence in the immediate area. The intelligent system operates in accordance with presence and sets up the lighting's dimmer and control system while also operating the solar tracker concurrently. By following the sun's path, the solar tracker receives sunlight more effectively than a traditional solar panel. Key words: LCD, IR emitter, and LDR.

I. Introduction

The project involves automating lighting systems that are powered by solar trackers for effective lighting system use. The current energy crisis is a serious problem because of the rising demand for electricity. Currently, smart lighting guarantees a decrease in energy usage. The IOT-based auto sunshine tracker driven light control system encourages the use of renewable energy in addition to reducing power usage through light management. We accomplish this by continuously monitoring ambient lighting conditions and human presence using IR sensors and LDRs. Compared to a standard solar panel that is stationary, the solar tracker is 30% more efficient. Using the solar energy captured by solar panels will also help us to solve that problem.

II. Methodology

The implementation of an IoT-based Automatic Street Lighting System is the primary goal of this project. As traffic gradually decreases during the late hours of the night, the intensity gradually decreases until morning in order to conserve energy; as a result, street lights turn on at dusk and automatically turn off at dawn. Every day, the procedure is repeated. Traditional HID bulbs are replaced with White Light Emitting Diodes (LED) in the street lighting system to include a dimming capability. The high intensity discharge (HID) lamp, which is typically used in metropolitan street lights, cannot be utilised to modulate the intensity. Because of their high lifespan and minimal energy use, LED lights are the lighting of the future. Due to the ability to alter intensity, LED lights are quickly replacing traditional lighting.

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IOT Based Solar Street Light Intensity Control System

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A B S T R A C T

This project presents the IOT based solar street light intensity control system. The Sunlight Tracker Solar Powered IOT Based Light Control System is the subject of this project's abstract. This idea aims to save energy and lessen pollution brought on by finite resources. Due to its low cost and open source nature, it is implemented using an Arduino Uno. The purpose of this system is to interact with the Arduino Uno board to control the lighting system while using IR sensors to detect human presence in the immediate area. The intelligent system operates in accordance with presence and sets up the lighting's dimmer and control system while also operating the solar tracker concurrently. By following the sun's path, the solar tracker receives sunlight more effectively than a traditional solar panel. Key words: LCD, IR emitter, and LDR.

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1. Introduction

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• RELATED WORK

A. Proposed system Objective

1. The implementation of an IoT-based Automatic Street Lighting System is the primary goal of this project. As traffic gradually decreases during the late hours of the night, the intensity gradually decreases until morning in order to conserve energy; as a result, at the dusk street lights turned on and automatically turn off at dawn.

2. Solar-panel movement tracking

3. IOT-based device monitoring and control

4. Development of Power Saving devices.

2. Methodology

The implementation of an IoT-based Automatic Street Lighting System is the primary goal of this project. As traffic gradually decreases during the late hours of the night, the intensity gradually decreases until morning in order to conserve energy; as a result, street lights turn on at dusk and automatically turn off at dawn. Every day, the procedure is repeated. Traditional HID bulbs are replaced with White Light Emitting Diodes (LED) in the street lighting system to include a dimming capability. The high intensity discharge (HID) lamp, which is typically used in metropolitan street lights, cannot be utilised to modulate the intensity. Because of their high lifespan and minimal energy use, LED lights are the lighting of the future. Due to the ability to alter intensity, LED lights are quickly replacing traditional lighting.

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Research JoSDC

Maze Solving Robot using Arduino

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Abstract

Maze solving problem is a completely old problem but still, now it is far taken into consideration as an essential area of robotics. This area is based on decision-making algorithms. The most important goal of this mission is to make an Arduino-based efficient independent maze solver robot. To implement in real-time hardware development, software programme development and maze creation have been done. The capability of finding the shortest direction is also verified. A maze-solving robot is just like a line follower which simply has to follow a predetermined row and is not always recognized beforehand. However, this robot is designed to be independent as it essentially carries out different tasks. Autonomous navigation is an essential generation that allows a mobile robot to transport independently and navigate via unknown regions which might be not possible for humans to venture because of problems of physical capabilities or maybe danger that can threaten life. By solving a maze, the algorithms and behavior of the robot may be studied and improved. Detection of walls and starting in the maze had been accomplished by the use of ultrasonic range-finders. The robot will be capable to analyze the maze, discover all possible routes, and resolve the use of the shortest one. For the proposed design, a wall following algorithm is used. The constructed robot obtains input from ultrasonic sensor and wheel rotation encoders, and then make the decision to solve the maze. One of the best applications of this designed robot could be for navigational purposes. On the basis of navigation, an Arduino-based robot was constructed.

Keywords: Arduino, maze solving robot, pathfinding, ultrasonic sensor

INTRODUCTION

A maze is a network of paths designed as puzzles through which one has to find a way. The concept of the maze is thousand years old which was invented in Egypt. Since then, mathematicians have found various algorithms to solve the maze. A maze solving problem is an important field of robotics [1]. It is based on a "decision-making algorithm". There are many types of maze-solving robots using various types of algorithms. In this project, the design of maze solving robot has ultrasonic sensors as obstacle avoidance and then sensors will detect the wall. This robot will use wall following algorithms such as left wall following and right wall following [2]. A maze solver robot must navigate from starting point to the endpoint of the maze. This robot is programmed in such a way that the robot will find its path without touching the walls. The designed robot uses wall following algorithms [3].

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METHODOLOGY

The block diagram of the proposed methodology is given in Figure 1.

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Automatically Water Management System For Society Or Home Using Arduino

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Abstract

Humans needs the water in almost all daily activities such as washing, cleaning, taking bath, needs. However, the amount of clean water is decreasing, whereas the number of people in the world are always increasing. The most vital natural resource that humans require is water. Water is a necessity for humans in practically every aspect of life, including bathing, cleaning, and laundry. But as the world's population is constantly growing, the supply of clean water is shrinking. Technology is frequently created to make it easier for individuals to complete certain tasks. As a result, the technological revolution typically starts the cultural upheaval. The use of automation technique constitutes a few of the current technologies. In some situations, people prefer to have their tasks completed instantly so they may conserve their energy for other tasks. To set various tasks automatically, some highly developed automation substances, such the Arduino UNO microprocessor, have been developed.

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Prepaid Smart Energy Meter Using ESP8266

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A B S T R A C T

This project presents the IOT based smart energy meter to track the energy consumption automatically of the residential load. This meter is capable of sending the consumptions to the consumer as well as electricity supplier. The readings are taken automatically by using HLW8012 sensor. Then a predefined set of program calculates the total bill of energy consumed over the selected interval using ESP8266 microcontroller. In future this idea can be implemented for prepaid metering, which will eventually increase the revenue of the electricity distribution company. The platform of virtuino android app is used. Which reflect all the value of Voltage, Current, Power and unit consumed on the mobile screen.

Keywords: ESP8266, HLW8012 Module, IOT, Microcontroller.

1. Introduction

The Internet of Things concept enables us to connect the normal day to day devices with each other over the internet. The devices connected through IoT concept can be controlled and analyzed remotely. The IoT concept provides the basic infrastructure and opportunities to form a connection between the physical world and computer-based systems. The concept has been gaining importance with more and more wireless devices that are increasing rapidly in the market. It connects the hardware devices with each other over the internet. The ESP 8266 Wi-Fi module used in the system provides the connectivity with the internet in the system. Now-a-days the demand for electricity is increasing at a constant rate throughout the population and is being utilized for various purposes wiz, agriculture, industries, household purposes, hospitals etc. So, it is becoming more and more complicated to handle the electricity maintenance and requirements. Therefor there is an immediate requisite to save as much electricity as possible. As the demand from the newer generations of population for electricity is increasing so in accordance with it the technology improvement is needed. The proposed system provides a technical twist to the normal energy meters using the IoT technology. Also, there are other issues that we have to address such as power theft and meter tampering which in turn generate economic loss to the nation. Monitoring, Optimized power usage and reduction of power wastage are the major objectives that lie ahead for a better system. The present system vastly depends on human involvement for billing. Billing requires a human individual to visit each and every customer's energy meter and generate the bill by taking the unit readings from the energy meter. This is a time-consuming process. To address all the mentioned constraints, we developed a system on the basis of IoT technology. The proposed system stores the energy consumption reading on the cloud database by using simple networking protocols so that any user can view the data of energy meter. This information exchange to disjoin unit at MSEB. MSEB is certainly not a specialized word yet it is power dispersion board "Maharashtra State Electricity Board". The information is gotten by the web and at whatever point a key is squeezed microcontroller send SMS through the web to the transmitter to get the perusing of the meter. It is hard to manual perusing and computing bill of exclusively. This will help for the best possible and precise perusing of charging process. By taking every one of these highlights that should be possible by IOT based vitality meter effectively.

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Weedinator- Weed Identification and Removal Using Image Processing

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Abstract –

Agriculture is facing crisis in terms of production due to unwanted weed among the crops. The main objective of this work is a weed control system that differentiates the weed from crops and restricts weed growth alone by the precise removal of it. This is implemented in real time by capturing the images of the field at regular intervals and processing them with a Raspberry Pi board by making use of an image processing algorithm to differentiate the desired plants from the weeds. This is based on features like color and size of the crop and weed. Once the weeds are identified and located correctly through image processing, a signal is transmitted from the Raspberry Pi board to turn on the weed cutting system and spraying herbicides for required area only.

Index Terms: Agriculture, Crop, Image Processing, RaspberryPi, Weed Detection, Weed Removal.

I. INTRODUCTION

In olden days weed detection was done by employing some men, especially for that purpose. They were detecting the weed by checking each and every place of the field. Then they were plucking them out manually using their hands. But to detect the weeds they were still using manual power. Then they started using image processing for this purpose. In this proposed system our main aim is to detect the weed in the crop by using image processing as shown in figure 1.

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Walking Bot – Theo Jansen Mechanism

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ABSTRACT

This report described the design and fabrication process of a 2n-legged passive walker based on the work of Theo Jansen; the primary focus of this project is the design of a crank based leg linkage. In last several decades a wide variety of legged mechanism have been researched for the applications of legged locomotion such as planetary exploration, walking chairs for the disable and for military transport and rescue in radioactive zones for nuclear industries and other hostile environments. Although legged walking mechanism have a high potential in mobility and energy efficiency on rough terrain. They often involve a large number of geometrical dimensions, which makes it necessary to resort to optimization to achieve a high quality design. Reduce the energy loss has always been the interest in designing the legged mechanism

Keywords: Walking Bot –Mechanism, Theo Jansen, Links

INTRODUCTION

Industrial It is well known that animals can travel over rough terrain at speeds much greater than those possible with wheeled or tracked vehicles. It has been established that legged, off-road vehicles exhibit better mobility, obtain higher energy efficiency, and provide more comfortable movement than those of tracked or wheeled vehicles while moving on rough terrain. Compared to a wheel, a leg mechanism is potentially better fitted and energy efficient on uneven terrain, as it can step over obstacles. A leg mechanism (walking mechanism) is an assembly of links and joints (a linkage)intended to simulate the walking motion of humans or animals. Mechanical legs can have one or more actuators, and can perform simple planar or complex motion. Conclusion to all this is that to design and construct a mechanism such that it will give a smooth leg like motion.

METHODOLOGY

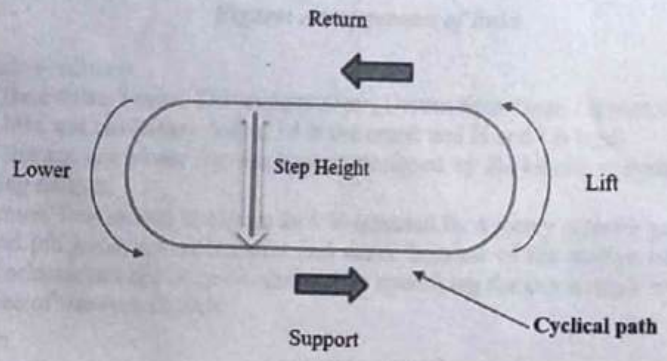

Figure: Mechanism

In this section we will discuss the traits that will be selected for in the design and optimization of our walking mechanism. The traits are listed below:

1. Thelocus must have a uniform velocity during the support phase.
2. The crank must have a uniform angular velocity during the entire locomotive cycle.
3. The inertial forces and inertial torques on the crank should be balanced during the full locomotion cycle.
4. The energy required for the lift should be recovered by the lower leg.
5. The ratio of the duration of the support phase to the duration of the full leg cycle is greater than or equal to 0.5.

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DESIGN AND FABRICATION OF WEARABLE CHAIR

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ABSTRACT

We have designed and fabricated wearable chair for reducing the pain of long standing. It is a mechanical ergonomics device that is designed as per the shape and function of the human body, with segments and joints corresponding to those of the person it is externally coupled with it. The device never touches the ground, which makes it easier to wear: a belt secures it to the hips and it has straps that wrap around the thighs. These are specially designed for industrial purpose on assembly line or continue standing works like manual welding. It is attached with any footwear and touches the ground only when in a stationary position. The user just moves into the desired pose. Pneumatic cylinders are used in this project so that all the load is taken by the cylinder and is transferred to the ground through wearable.

Keywords: – Ergonomics, Exoskeleton, Wearable, etc.

1. INTRODUCTION

If you work in an industry then you'll know how tiring it can be to stand for several hours at a time. Unfortunately, however, it isn't always practical or safe to carry a stool around with you wherever you go. That's why we created the wearable chair. Worn as an exoskeleton on the back of the legs, it lets you walk or even run as needed, but can be locked into a supporting structure when you go into a sitting position. Now in prototype form and being actively marketed, the device utilizes a powered variable pneumatic double acting cylinder to support and suspension the wearer's body weight. The user simply bends their knees to get down to the level at which they'd like to sit, and then engages the bolt into required slot. The Wearable Chair then locks into that configuration, directing their weight down to the heels their shoe, to which it is attached it also attaches to the thighs via straps and to the waist using a belt.

2. LITERATURE SURVEY

S. T. Mccaw and b. T. Gates described the effects of mild leg length inequality on posture has been the source of much controversy. Many opinions have been expressed both for and against the need for intervention to reduce the magnitude of the discrepancy. Their paper emphasizes the need for accurate and reliable assessment of leg length differences using a clinically functional radiographic technique, and reviews the biomechanical implications of leg length inequality as related to the development of stress fractures, low back pain and osteoarthritis. [1]

Aydin Tozeren wrote a book on how Human movement obeys basic laws that govern static and dynamic bodies, and this textbook takes a quantitative approach to studying human biomechanics. A quantitative approach to studying human biomechanics, presenting principles of classical mechanics using case studies involving human movement. Vector algebra and vector differentiation are used to describe the motion of objects and 3D motion mechanics are treated indepth. Diagram and software-created sequences are used to illustrate human movement. [2]

Robert Peter Matthew et.al. work helped us get an overview on active and passive type of exoskeletons. Assistive devices such as exoskeletons are capable of providing rehabilitative improvement and independence for individuals suffering from

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"Design, Development & Testing Of Hydroxyl (HHO) Gas Generator By Using Dry Cell"

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ABSTRACT

Air pollution is now largely attributable to the use of vehicles that produce high pollution. The purpose of this study is to determine the contribution of HHO generator in reducing air pollution by looking at the emission level of exhaust gas. In addition, to know the type of catalyst is the best in lowering the level of these pollutants. The research using an experimental method. The subject is Honda Supra X 125 the Year 2013 by adding a dry cell HHO generator. Emissions data collection using gas analyzer against the use of HHO generator with catalyst variation (KOH, NaOH, and NAHCO3). Data analysis was done by descriptive quantitative. The results showed all types of catalysts studied (KOH, NaOH, and NAHCO3) as electrolyte solution media for HHO generators which greatly affected the reduction of CO and HC emissions in vehicles, Catalyst NaOH type is the most effective catalyst in reducing CO and HC emissions. This is evidenced by the results of NaOH solution to obtain average CO gas concentration is 0.13% or a decrease of 81.74% and the use of NaOH solution to get an average concentration of HC gas is 524.33 ppm or a decrease of 69.62% when compared to standard conditions (without HHO generator).

Keywords: Emission, HHO Generator, Catalyst, Electrolyt etc.

INTRODUCTION

In the present scenario the growing concern of the people living in every part of society is the ever-increasing price of fuel and the harmful effects caused due to higher level of pollutants in the atmosphere. The increasing demand for petroleum fuel associated with limited non-renewable stored quantities has resulted in a huge increase in crude oil prices. Consequently, we have seen a shift toward automobiles that consume less fuel. We spend one third of our income for our vehicle fueling and the vehicle gives harmful decomposed materials like CO, NOx, HC etc. in the form of smoke. These materials are all effects of the engine's performance and pollute the environment. It is explicit that we use fuel in abundant amount and pollute the atmosphere. This has encouraged researchers to seek an alternative fuel that can be used in engines without the need for a dramatic change in the vehicle design.

To avoid these drawbacks, a thought was given to add an alternative to improve the combustion efficiency of the engine, reduce operating cost and increase its productivity. The Secondary fuels that we use should have the same efficiency or greater efficiency of the engine when used with ordinary fuel. Contemporary research into secondary sources of energy for transportation focuses mainly on electric/battery, hybrid and hydrogen powered vehicles. Such focus assumes that the current technology has to be discarded and cannot be improved. However, it is possible to introduce interim technology to alleviate the current challenges arising from continued reliance on fossil fuels. Such challenges include increased greenhouse gas (GHG) emissions with consequent global warming and climate change impacts.

PROBLEM STATEMENT: To develop HHO gas generator to increase efficiency and life of an engine.

OBJECTIVES:

- The project involves the design and construction of a simple HHO generation dry system and its testing with the IC engine.
- Experimentally test the effect on fuel consumption and exhaust emissions like HC, CO, CO2 and O2 after adding HHO gas.

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Railway Track Power Generation

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Abstract

Electricity is the most widely used form of energy. Electricity is lifeblood of our modern society. Demand for power is positively and highly correlated with the population and economic growth. We can leave without all those modern objects but our body still needs electricity. In this project we have attempted the methodology of electrical power generation by simply running train on the railway track by using a simple method of non-conventional energy source method. Today's there is high need of non-conventional energy source to our nation. The energy gathered by the simple method of railway track is one of the provenances to provide the non-conventional energy. As the technology is propelling the swallowing of power is firmly climbing. The cost of provision and the dispute of power generation plays valuable role in the country's appropriateness in the world economy. It should be known that major non-conventional energy sources found in our country. Non-conventional energy is abundant, renewable, pollution free and eco-friendly sources. It can be more conveniently supplied to rural, urban and even remote areas. Thus, it is adaptable of clarifying the twin problems of energy supply in the decentralized manner and helping in sustaining cleaner environment. It is the energy of the future. No wonder, non-conventional energy is fast catching the imagination of the people in India. For this reason, we are using non-conventional energy resources and even energy can be gained from the wasted materials. The energy harvested from the railway track is one of the renewable energy sources because there is no need of fuel as the input to generate the output power as the electrical power. These are done by using mechanism of simple gear drive mechanism. The mechanism carries the flap, rack and pinion, gears, fly wheel, free wheel, DC generator, battery. This proposed arrangement can result in high production of electricity and this power is utilized for the track side infrastructures.

Keywords: *Rack and pinion; power harvesting; railway track; non-conventional method; energy*

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I. INTRODUCTION

Electricity is one of the most widely used forms of energy. Today also there is great scarcity of electricity. In this study an innovative concept of Generating Electricity from moving vehicles is presented i.e., Railway Track Power Generator by Using Flip Plate Mechanism. Producing electricity from a Railway Track Power Generator is a new concept that is undergoing research. The number of vehicles on Railway Track is increasing rapidly and if we convert some of the kinetic energy of these vehicle into the rotational motion of generator then we can produce considerable amount of electricity, this is the main concept of this project. Today our whole life style is dependent on electricity. With the increasing population the use of electric power is also increasing. But we know that the resources to generate electricity are limited, and this has led to the energy crisis. During this scenario we need to generate electricity from the things used in day-to-day life. In this project the speed breakers present on Railway Track s are used to generate electricity. As we know that vehicles on Railway Track are increasing day by day which will help us to generate electricity as these vehicles pass through the speed breakers? This electricity generated can be used for different purpose such as lighting of signals and streetlights on Railway Track etc.The principle of the electric power generation using sliding mechanism is very simple. It is based on the same principle as in the case of electricity generation in case of hydroelectric power plant, thermal electric power plant, nuclear power plant, geothermal energy, wind energy, tidal energy etc. In all of the above power plant mechanical energy is converted into electrical energy. In this setup also mechanical energy is converted into electrical power using a D.C. generator. Here the vertical motion of the top of the sliding plate is converted into the rotational motion, which in turn rotates the generator and generates electricity.

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DOMESTIC DETENTION CHARGES BY USING SIX SIGMA

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ABSTRACT

Detention is the charge that the factory pays for the use of the container / Vehicle outside of the terminal or plant, beyond the free time period. Detention time – export for export cargo, the detention time is the period from the pick-up of the empty container/ vehicle from the terminal or plant until gate-out of the full container from the factory.

The aim of the project is the reduction of the Throughput time of each process assigned at factory by using **'six sigma'**control tools. Six sigma' is the primary process improvement method that can be helps to define & accommodate the throughput time of defined process. Six Sigma is a quality-control process that businesses used to eliminate problems and improve processes also helps to improve performance by eliminating waste and defects while boosting the standardization of work. By using **FTA & C & E** analysis we can reduced the TAT of the activity settled & designed at plant. '

we have optimized the extra expenses over all 50 % of actual spend 2020

FTA - Fault Tree Analysis

C & E - cause-and-effect matrix

1. INTRODUCTION

1. Detention is the charge that the factory pays for the use of the container / Vehicle outside of the terminal or plant , beyond the free time period. Detention time – export for export cargo, the detention time is the period from the pick-up of the empty container/ vehicle from the terminal or plant until gate-in of the full container in the terminal.
2. The aim of the project is the reduction of the Throughput time of each process assigned at factory by using six sigma control tools. Six Sigma is a quality-control process that businesses used to eliminate problems and improve processes.

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MANUALLY OPERATED BIO-GAS FILLING MACHINE

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ABSTRACT

Due to industrial revolutions human have been dependent on fuels such as petrol, diesel, LPG, CNG for automobiles, cooking, electricity generation etc. So, we need to utilize new alternative fuels in automobiles, cooking due to very limited stock of conventional fuels & it is diminishing day by day so need make a new concept for utilizing renewable fuel or gas.

I. INTRODUCTION

Biogas is becoming an increasingly important source of energy for rural areas in developing countries due to readily available organic wastes like kitchen wastes. Biogas has advantage in terms of low-cost sustainable energy. Biogas is an appropriate alternative to the traditional solid and gaseous cooking fuels used by developing rural communities. Biogas digester is used to collect kitchen wastes and convert it to biogas through anaerobic digestion processes. Biogas is a clean-burning, renewable fuel that contains 50-60% methane and can be used in household cooking applications. Without an appropriate method of compression, the gas remains of a large volume, and it is difficult for transport and storage. The aim of the project is to design a system to compress and store the biogas in such a way that it will be suitable for cooking gas in rural communities. For compression of biogas, we have designed a piston cylinder system i.e., a Hand Operated pump which is the best compression method due to its low cost and can reach the required pressure within a short time. We have taken a Rubber Balloon which is the suitable storage container for biogas.

II. METHODOLOGY

Biogas is produced by means of a process known as anaerobic digestion. It is a process whereby organic matter is broken down by microbiological activity and, as the name suggests, it is a process, which takes place in the absence of air. It is a phenomenon that occurs naturally at the bottom of ponds and marshes and gives rise to marsh gas or methane, which is a combustible gas.

III. MODELLING AND ANALYSIS

Parameters on project site:

- PLANT LOCATION : VIDNI TEL-PHALTAN

Digester size:

- Depth: 7 feet. (2.1336 meter)
- Diameter: 8 feet (2.4384 meter)
- Float height: 7feet.
- Float Diameter: 6 feet.
- Digester volume = 9.9635 m^3

Diameter of pipe at biogas tank outlet:

- Outer diameter: 20.4mm
- Thickness: 3.2mm
- Inner diameter = Outer diameter - (2 x 3.2)
  = 20.4-6.4
  = 14mm

Other parameter of biogas:

- Temp of gas at inlet= 40.5°C
- Ambient temp = 36°C
- Velocity of flow = 4.5m/s

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FABRICATION AND DESIGN OF AUTOMATIC SUGAR CANE BUD CUTTER

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ABSTRACT

Sugarcane is an oldest crop known to man, a major crop of tropical regions worldwide. Sugarcane is a glycophyte, sucrose storing member of tall growing perennial monocotyledonous grass. Across the world 70% sugar is manufactured from sugarcane. Sugarcane is a major source of raw material for sugar industries and other allied group of by-prodict industries. The economic importance of crop is much more that signified by its share in gross cropped area.

Keywords: Machine, Fabrication, Sugarcane, Bud.

I. INTRODUCTION

Agriculture is one of the most significant sectors of the Indian Economy. Agriculture is the only means of living for almost two thirds of the workers in India. The agriculture sector of India has occupied 43% of India's geographical area, and is contributing 16.1%of India's GDP (Gross Domestic Product). There are number of crops grown by farmers. These include different food crops commercial crops, oil seeds etc. sugarcane is one of the sugarcanes is grown primarily in the tropical and sub-tropical zones of the southern hemisphere.

Sugarcane is the raw material for production of white sugar. It is also used for chewing and extraction of juice for beverage purpose. About 7.5% of the rural population covering about 45 million sugarcane farmers their dependents and a large number of agricultural labours are involved in sugar cane cultivation, harvesting and ancillary activities.

II. LITERATUTRE REVIEW

In sugarcane bud cutting operation what is the advantage and limitation in existing machine. An exclusive literature review has been done to consume basic idea about what actually done.

Ningappa H. kuri, in existing machine people uses traditional process in which hand operated leaver is installed to cut the bud from sugar cane and there is setting arrangement there is chance of occurring the muscle pain, cramps etc. the injuries while operation performed is also occurs so to overcome these problems, we proposed the peddle operated machine which deals to reduced and it can be prevent from the injuries while performing operation.

As we install pedal instead of hand leaver, according to ergonomics aspects the effort gets reduce. As the hand take much more effort compared with the foot. By using two side cutting tool, two buds cut at same time. The effort requires for cutting operation is reduced so the time-consuming related to cutting operation is also reduced. The machine made by suraj s. magdum [2] there is one disadvantages; we found that tool gets blunt after taking continuous cutting operation. So, to overcome this problem we used three alternative tools as per the various size of sugarcane. As alternative tool is used the production may not hamper.

Sanjay patil, in another traditional machine there is only single cutting tool is used known as "scooping tool". Though the single scooping tool is used in existing machine slippage occurs and due to that there is possibility to damage and wastage of sugarcane while cutting. To avoid this, we implement clamping device while cutting sugarcane to hold properly Because of proper holding, the bud is cut in proper shape and size and reduce the wastage of sugarcane. As implementation of holding device leads to reduce injuries. Also we proposed the length of the table. We increase the length of table that support the sugarcane from bending an avoid slippage because of this proper shape and size of bud can be cut from the sugarcane.

In another research paper we found that the traditional machine made by the Roshanlal Vishvakarma a farmer of small village in Madhya Pradesh. In which he used single cutting tool. As the single cutting tool is used

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DESIGN, DEVELOPMENT AND MODELLING OF HEAVY LOAD SHIFTER MACHINE

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ABSTRACT

We describe the development of hydraulic forklift intended to operate alongside human personnel, handling palletized materials within existing, busy, semi-structured outdoor storage facilities. The main objective of this project is to fabricate a hydraulic operated Mechanical forklift for material handling (Lifting, picking & placing) in industries. In this paper a robotic vehicle is fabricated which runs to carry material from one place to another by using hydraulic jack. Nowadays in industries, forklift used with hydraulic system. To use forklift, it requires one spot guide to guide a forklift driver because of less visibility. This paper discusses how to integrate hydraulic jack into a forklift machine and use it for shifting, picking, loading unloading work task in organization.

Keywords: Hydraulic Jack Technology, Forklift Machine, Visibility, And Human Safety.

I. INTRODUCTION

A forklift is a vehicle like a small lifting device that has two metal forks on the front used to lift heavy objects. The fork is lifting by hydraulic jack which has maximum 5-ton capacity. Forklift is totally run-on hydraulic bottle jack which are control by a lever operator by means of lever will connected with bottle which has fix to the base of vehicle. [1, 6, 7] With electrical motor it gives the motion to the forklift vehicle like forward, back, left turn, right turn and pallet controlling up down motion, which are controlled with remote, and which will be transmitting signals to receiver and receiver will convert signals to operation. It is helpful to operator will be situated at only one position and it will operate the forklift from one position and he we are monitoring on the neighbour environment due to that he will avoid the accident and operate with vision cameras.

II. METHODOLOGY

In the market analysis we actually saw many forklifts and compared their prices each other, as a result we got solution & developed a forklift machine as in low budget & understanding the need of organisation.

Analysis

As we visited in the market we saw a mini forklift and their cost, load lifting capacity etc. and we got result. This analysis would helped us a lot to develop the model as per the organization requirements. After the market analysis we developed a virtual design by using 3d rendering software's (AUTOCAD, CATIA etc.).

Design & development.

Applied different fabrication process (drilling, welding, cutting, grinding) on steel block to develop the machine. Finally physically tested as we got result of its fine working & handling the load.

III. MODELLING AND ANALYSIS

The design of the mechanical assembly is derived from the scaled dimension the forklift named Heavy load shifter as HLS – H26 is for standard model. The material selected to prepare the prototype model is Stainless Steel due to its properties like hardness as it can be strong and drilled fabricated easily into any shape, [2]

For the mechanical point of view, we had used a Hydraulic bottle jack; the output of this jack is lifting a fork with more stable & it is used to carry the work piece or heavy object

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DESIGN AND DEVELOPMENT OF A MATERIAL HANDLING TROLLEY OPERATED BY SELF-WEIGHT OF THE JOB

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ABSTRACT

Design and Development of material handing trolley operated by self-weight of the job, constructed and evaluated its Performance. In modern driving environment cost cutting across various of production is firm, material handling completely. In this paper, a spring-operated system is developed. This system does not need external energy or man power to operate which reduce the material handling cost as well as production cost. short distance hav e less running cost. material handling trolley designed which operate on self-weight device put on it on removal of load its returns to the original position by spring force. load of 30 kg cover the distance of the 1.35m and return without any external force.

Keywords: Material handling, Spring, Gear, Mechanical Design, Industry

1. INTRODUCTION

2. Material handling trolley is the media of transportation of Material from one location to another location in a commercial spaces . spring operated material handling trolley has huge load carrying capacity , large covering area simplified design, easy maintenance & high reliability of operation.
3. Use of appropriate material handling equipment can improves the production process,& enhance system flexibility.

4. MATERIALS AND METHODS

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Railway Track Power Generation

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Abstract

Electricity is the most widely used form of energy. Electricity is lifeblood of our modern society. Demand for power is positively and highly correlated with the population and economic growth. We can leave without all those modern objects but our body still needs electricity. In this project we have attempted the methodology of electrical power generation by simply running train on the railway track by using a simple method of non-conventional energy source method. Today's there is high need of non-conventional energy source to our nation. The energy gathered by the simple method of railway track is one of the provenances to provide the non-conventional energy. As the technology is propelling the swallowing of power is firmly climbing. The cost of provision and the dispute of power generation plays valuable role in the country's appropriateness in the world economy. It should be known that major non-conventional energy sources found in our country. Non-conventional energy is abundant, renewable, pollution free and eco-friendly sources. It can be more conveniently supplied to rural, urban and even remote areas. Thus, it is adaptable of clarifying the twin problems of energy supply in the decentralized manner and helping in sustaining cleaner environment. It is the energy of the future. No wonder, non-conventional energy is fast catching the imagination of the people in India. For this reason, we are using non-conventional energy resources and even energy can be gained from the wasted materials. The energy harvested from the railway track is one of the renewable energy sources because there is no need of fuel as the input to generate the output power as the electrical power. These are done by using mechanism of simple gear drive mechanism. The mechanism carries the flap, rack and pinion, gears, fly wheel, free wheel, DC generator, battery. This proposed arrangement can result in high production of electricity and this power is utilized for the track side infrastructures.

Keywords: *Rack and pinion; power harvesting; railway track; non-conventional method; energy*

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I. INTRODUCTION

Electricity is one of the most widely used forms of energy. Today also there is great scarcity of electricity. In this study an innovative concept of Generating Electricity from moving vehicles is presented i.e., Railway Track Power Generator by Using Flip Plate Mechanism. Producing electricity from a Railway Track Power Generator is a new concept that is undergoing research. The number of vehicles on Railway Track is increasing rapidly and if we convert some of the kinetic energy of these vehicle into the rotational motion of generator then we can produce considerable amount of electricity, this is the main concept of this project. Today our whole life style is dependent on electricity. With the increasing population the use of electric power is also increasing. But we know that the resources to generate electricity are limited, and this has led to the energy crisis. During this scenario we need to generate electricity from the things used in day-to-day life. In this project the speed breakers present on Railway Track s are used to generate electricity. As we know that vehicles on Railway Track are increasing day by day which will help us to generate electricity as these vehicles pass through the speed breakers? This electricity generated can be used for different purpose such as lighting of signals and streetlights on Railway Track etc.The principle of the electric power generation using sliding mechanism is very simple. It is based on the same principle as in the case of electricity generation in case of hydroelectric power plant, thermal electric power plant, nuclear power plant, geothermal energy, wind energy, tidal energy etc. In all of the above power plant mechanical energy is converted into electrical energy. In this setup also mechanical energy is converted into electrical power using a D.C. generator. Here the vertical motion of the top of the sliding plate is converted into the rotational motion, which in turn rotates the generator and generates electricity.

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Electro Hydraulic Bush Press Machine

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ABSTRACT

We are designing electro-hydraulic bush pressing machine. Industries are facing problem during assembly while fitting the bushes at the respective bore manually. As company orders this bush & fitted parts from the different vendors its accuracy is reduced and if these bushes are not fitted correctly there are chances of breakages. So, we are designing press for fitting these bushes in bore hydraulically. This will reduce time required currently for fitting bush and will also reduce accidents during hammering of bush into bush. It will also reduce the cost involved in defective bushes. In the present investigations, the mathematical and experimental modeling strategies of the welded structure of a 10-tonne electro-hydraulic pressmachine are described.

Keywords: Electro-hydraulic, bushes, etc.

I. INTRODUCTION

We are designing a model for press operation; it is operated on electric motor and battery that's why it is also called as a electro-hydraulic bush pressing machine. Hydraulics is used to transmit the power equally by using the pressurized liquids. Hydraulic press uses pressurized liquid to create force. As we all know the hydraulic pressing machines are works on the Pascal's law: any force applied to a confined fluid is transmitted uniformly in all direction throughout the fluid regardless the shape of the container. In electro-hydraulic bush pressing machine as per the dissimilar component require a new set of tools. And the main difference in electro-hydraulic bush pressing machine and manual bush pressing machine is in electro hydraulic bush is pressed automatic by hydraulic jack. And in manual machine the ram is movedby operator

II. PROBLEM STATEMENT

- Problem is caused by vendor is noticed by organization then organization started fitting this bush in house, online by hammering the bushes into bore.
- This process is time consuming and unsafe for workers and out of ten bushes three bushes are either cracked or break during hammering per boom assembly.

III. OBJECTIVES

1. To design and development of electro hydraulic bush pressing machine of capacity 10 tons by implementing wiper motor.
2. Modeling of hydraulic press using Solid works software.
3. Fabrication of electro hydraulic bush pressing machine.

IV. LIST OF COMPONENTS

Sr.no	Component	Specification	Quantity
1	Mild Steel I-Sections	60-70 HRC Tensile Hardness Strength 300-400 mpa	1
2	Wiper Motor	Speed (45 rpm) Power (14 watts or HP)	1
3	Push Button	Power rating: max 50mA 24VDC	1
4	Battery	12-volt battery	1

To Develop a Novel Approach for the Green Synthesis of Silver Nanoparticles using Aqueous Leaves Extracts

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Abstract:

Silver nanoparticles synthesized by green chemistry offer a novel and potential alternative to chemically synthesized nanoparticles. Green nanoparticle synthesis has been achieved using environmentally acceptable plant extract and ecofriendly reducing and capping agents. Various plants are used for nanoparticle synthesis. The use of plants for synthesis of nanoparticles is rapid, low cost, ecofriendly, and a single-step method for biosynthesis process. In this paper, we will discuss the green synthesis of silver nanoparticles, UV visible spectroscopy, X-ray diffraction patterns and application of silver nanoparticles as antimicrobial agents.

Keywords: ***Nanoparticles, green synthesis, antimicrobial activity, Silver nanoparticles***

1. INTRODUCTION

Nanoparticles represent a particle with a size of 1-100 nm. The Nano scale material has new, unique, and superior physical and chemical properties compared to its bulk structure, due to an increase in the ratio of the surface area per volume of the material or particle. The most widely studied nanoparticle materials are metal nanoparticles because they are easier to synthesize. Moreover, these materials have a wide range of applications like detectors, catalysts, surface coating agents, and antibacterial, antimicrobials among many others. Some of the most studied metallic nanoparticles include silver (Ag) gold (Au), platinum (Pt), and palladium (Pd). Ag nanoparticle is an interesting metal to be studied, especially in thefield of health and medicine. Ag is a strong antibacterial and also toxic to cells. Silver has long been recognized as having inhibitory effect on microbes present in medical and industrial processes. The most important application of silver and silver nanoparticles is in medical industry such as topical ointments to prevent infection against burn and open wounds. Further Among the various known synthesis methods, plant mediated nanoparticles synthesis is preferred as it is cost-effective, environment mediated nanoparticles synthesis is pre ferred as it is cost-effective, environment friendly, and safe for human therapeutic.