



NAAC SSR - DVV Clarification Response

Criterion-3 Research Innovations and Extensions

Key Indicator-3.3 Research Publications and Awards

3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years.

Findings of DVV:

Provide Cover page , Content Page and first page of(Fabrication Of Six Leg Kinematic Walker For Off Road, Smart Shopping Trolley With Payment Gateway, Power Generation Using Maglev Wind Turbines, Solar Operated Grass Cutter, Regenerative Hybrid Electric Bike, Improve Machining Process And Cost Of Job tooth Wheel, Review And Analysis of Stainless- Steel Slat chain Conveyor, Power Point Presentation Control Using Hand Gestures Recognition, Vibration Investigation Of 3- Wheeler Speedometer Using Vibration Fixture, Project Stage-1)with ISBN numbers, author, Department/ School/division/centre/Unit/Cell, name and year of publication.

Response:

Details of Cover Page, Content Page & First Page are attached with ISBN No., author, Department Name and Year of Publication in Annexure 1.

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Our Inspiration



Late. Tatyasaheb Gunjal
Founder, JCEI, Narayangaon



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FABRICATION OF SIX LEG KINEMATIC WALKER FOR OFF ROAD

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ABSTRACT

Research into legged machines is expanding rapidly. There are several reasons why this is happening at this particular time. The main one is that it has recently become popular and practicable to build on-board computers into small vehicles. In the last few years, the development of computer-controlled machines, especially industrial robots, has resulted in techniques which taken together provide most of the technical base to make walking machines possible. For many years, walking machines have been thought of as rough-country vehicles. Generally, the walking mechanisms are developed by imitating natures like insects movement. Legged machine has been used for at least a hundred years and are superior to wheels. Legged locomotion should be mechanically superior to wheeled or to tracked locomotion over a variety of soil conditions and certainly superior for crossing obstacles.

1. INTRODUCTION

The introduction to wheeled robot in industries has been made for faster transport of material, and to make available a greater load carrying capacity. The wheeled robot as has no moving linkages can be given a higher load carrying capacity. Wheeled robots are the simplest and cheapest but not over almost all kinds of terrain There are different types of legged walking robots. They are roughly divided into groups according to the number of legs they possess. Bipedes have two legs, quadrupeds have four, hexapods have six and octopods have eight legs. Bipedes' robots are dynamically stable, but statically unstable, such robots are harder to balance, and dynamic balance can only be achieved during walking. Hexapods are six legged robots, on the other hand, have advantages of being statically stable. During walking they can move three legs at a time, thus leaving three other legs always on the ground forming a triangle. The applications of walking machines can be divided into those for which legs are an alternative to other forms of locomotion and for those, which are essential.

The former category includes many tasks currently considered suitable for wheeled, tracked or ground-effect vehicles but for which legs may offer an added advantage. The second group involves modeled legged animals. Practical applications of legged robot are divided into the following main categories: 1. Transport on rough ground. 2. Transport in buildings. 3. Transport in unusual environments such as pipes or orbiting structures. 4. Animal modeling. 5. These categories are not mutually exclusive. They cut across areas of application and industry. Why legged mechanism? The main advantage of legged robots is their ability to access places impossible for wheeled robots. By copying to the physical structure of legged animals, it may be possible to improve the performance of mobile robots. To provide more stable and faster walking, scientists and engineers can implement the relevant biological concepts in their design. The most forceful motivation for studying legged robots is To give access to places which are dirty To give access to places those are dangerous Job which are highly difficult Legged robots can be used for rescue work after earthquakes and in hazardous places such as the inside of a nuclear reactor, giving biologically inspired autonomous legged robots great potential. Low power consumption and weight are further advantages of walking robots, so it is important to use the minimum number of actuators. In this context, an objective is set in this project to develop a six- legged mobile robot whose structure is based on the biomechanics of insects.

2. PROBLEM STATEMENT

Use of wheeled robot is not always the best in some cases. In general, wheels are not used in drive over obstacle situation. Depending on the terrain, a robot needs to pass small or large obstacles. For a wheel to get over a vertical obstacle, it has to be at least twice as tall as the vertical obstacle.

Smart Shopping Trolley with Payment Gateway

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Abstract— An automatic mobile trolley was a prototype of a wheel robot that serves as a trolley or shopping cart. This paper proposed an automatic mobile trolley using ultrasonic sensors. It can follow human movement automatically. It did not need to be encouraged or withdrawn. It would make shopping easier for people as customers. The trolley is controlled by a microcontroller module unit. It can stop, turn right, turn left, forward and backward. It can follow wherever they go, while they are in range. Based on the test results, the trolley succeeded to move forward by 80%, move backward 80%, turn left, 70%, turn right 70%, and stop 80%.

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

INTRODUCTION

The most valuable thing in today's world is time, people are referring to those things which consume less time. Billing in Shopping mall takes a lot of time. Billing of products from the mall is quite difficult because it takes more time as people have to wait for a long time in a queue for billing. Looking at the advancement in technology, we came up with an innovative idea of "Smart Shopping Cart for Automatic Billing in Supermarkets". This project consists of RFID reader, motion detector sensor, Liquid Crystal Display, push buttons, switches. If the user wants to use smart trolley functions then the start button should be pressed. When a user puts some product in a trolley then its code will be detected using RFID reader and cost of a product added to the list and sensor will sense the direction of motion of the product for fault detection and buzzer will be on if fault detected. In case, if the user wants to remove some product then the user should press the remove switch and product code will be detected by RFID reader and again for any false activity buzzer will be on. At last, the counter with the least number of queues will be detected and displayed on the cart LCD.

Literature Review

In [1], The authors "GalandeJayshree, RutujaGholap, PreetiYada" proposed RFID based automatic billing trolley, with this model the system consists RFID reader and the products in the malls equipped with RFID tags. When a person puts any product in the trolley its code will be detected by RFID reader and the price of the product will be

stored in the memory. At the billing counter the total bill data will be transferred to the pc by wireless RF modules. In [2] The authors "S.Sainath, K.Surender, V.VikramAnarvind" proposed a model Automated Shopping Trolley for supermarket Billing system in which the automated shopping trolley is a smart trolley which integrates a raspberry pie embedded chip with two barcode scanners and a battery kit to allow users to self check out at supermarket. In [3], the authors "Mr.YathishaL,Abhishek A, Harshit R, Darshan Koundinya" proposed a model automation of shopping cart to ease queues in malls by using RFID modules. In this system we are using RFID tags instead of bar codes. Whenever a customer puts a product into a trolley, it will get scanned by RFID reader and product price and it will be displayed on the LCD. In [4], the authors "JadhavRahul, Pradeep, Nandkumar, TaraliShivkumarJ" proposed a model of RFID based automated billing trolley. In this technology, the communication is in between RFID tag and reader, each tag has a magnetic strip with specific code and tags read by RFID Reader module. The automated billing system based on the passive RFID provides a suitable solution to the manual billing method in shopping malls. In [5], the authors "UditaGangwal, Sanchita Roy, JyotsnaBapat" proposed a system of smart shopping cart for automated billing purposes using wireless sensor networks. In this paper authors describe the implementation of a reliable, fair and cost efficient shopping card using wireless sensor networks. In [6], the authors "KalyaniDawkar, Shraddha Domae, SamruddhiMahabaleshwarkar" proposed a model of electronic shopping cart for effective shopping based on RFID in which a system consist of smart trolley will have RFID reader, lcd display. When the person puts a product in trolley it will scan and the cost, name and expiry date of the product will be displayed. In [7], the authors "YnajunZuo" describe the importance of RFID for automatic item identification and data capture. He developed a secured tag reader authentication protocol to ensure

Proposed System

The normal material handling systems & conveyor assembly normally involves the use of channels, rollers and shaft that are heavy by virtue of their structure and the material used as steel also they will have operated on power sources. There is continuous power consumption. To overcome this

Power Generation Using Maglev Wind Turbines

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Abstract - Renewable energy is generally electricity supplied from sources, such as wind power, solar power, geothermal energy, hydropower and various forms of biomass. These sources have been coined renewable due to their continuous replenishment and availability for use over and over again. The popularity of renewable energy has experienced a significant upsurge in recent times due to the exhaustion of conventional power generation methods and increasing realization of its adverse effects on the environment. It is estimated that renewable sources might contribute about 20%-50% to energy consumption in the later part of the 21st century. Facts from the World Wind Energy Association estimates that by 2010, 160GW of wind power capacity is expected to be installed worldwide which implies an anticipated net growth rate of more than 21% per year. Lots of efforts have been made to develop the horizontal axis wind turbines but vertical axis wind turbines did not get much attention over the past couple of decades. Blade is the most important component of a wind turbine which controls the performance of a wind turbine and design of other components attached to it. The design of blade are made using Design software.

INTRODUCTION

The use of fossil fuel is being done to generate energy for decades. Fossil fuels are burnt to reach the electricity demand. In the modern world, the need for electricity is rising but, at the same time, the reserves of fossil fuels are reducing. Since, fossil fuels like coal, petroleum and diesel are depleting and will need ages to naturally generate again, we need to search for other sources of producing electricity. In India, about 60% of electricity is produced from fossil fuels like coal and diesel. There can be a scarcity of such fossil fuels in the near future and it would result in high

energy generation costs. To reduce the dependency on fossil fuels for electricity generation and generate electricity at low costs, we are working on the “Maglev wind turbine” for the final year project. This project will make use of bare minimum resources which is easily and cheaply available.

Problem Definition

The wind dispersed by vehicles can be used in numerous ways therefore there exists an immense need of a system for generating electricity from wind induced by moving vehicles. The problem arises in designing as well as in optimization of blades and materials required for the amount of wind speed and voltage to be generated

Objective

1. Incorporation of more renewable energy to the power system.
2. Design of a new method of generation of electricity using the wind energy generated by the moving vehicles on the highways, roads, OR home terrace or balcony or school colleges terrace.
3. To reduce energy loss due to friction in bearing.
4. Design and development of magnetic levitated wind turbine.
5. Development Standalone system for providing the power to the highways or streetlamps, singles, cctv...etc...
6. Main constrain a Low-cost device middle class or small-scale industries or society can purchase.

Scope

To Design a Maglev windmill model in Catia v5
Fabrication of working model of Maglev wind turbine

SOLAR OPERATED GRASS CUTTER

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ABSTRACT

From time immemorial, the sun has been the major source of energy for life on earth used for heat and lighting. Nowadays, solar energy is known as a renewable energy source. It is an alternative energy to that of fossil fuel and it can be collected from renewable resources such as sun, wind, hydro. Due to the continuous increase in the cost of fuel and the effect of emission on gases from the burnt fuel into the atmosphere, these necessitate the use of the abundant solar energy from the sun as a source of power to drive a grass cutter. A solar operated grass cutter was designed and developed, based on the general principle of moving. The designed solar operated grass cutter comprises of a direct current (D.C) motor, a rechargeable battery, a solar panel, a stainless-steel blade, and control switch. The solar operated grass cutter is operated by switch on the board which closes the circuit and allows the flow of current to the motor which in turn drive the blade used for moving. The battery recharges through the solar charging controller.

1. INTRODUCTION

Pollution is manmade and can be seen in own homes. In case Gas powered grass cutters due to the emission of gases it is responsible for pollution. Also, the cost of fuel is increasing hence it is not efficient. So, the Solar powered grass cutters are introduced. Solar powered grass cutter can be described as the application of solar energy to power an electric motor which in turn rotates a blade which does the mowing of a lawn. But the cost of those grass cutters is high. This design is an alternative for environmentally hazardous gas-powered grass cutter. Solar energy is the form of renewable energy source, and this source is characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. Basically, solar energy is a free energy source which can be used easily. Then by using this free solar energy, solar based grass cutter machine will be operating automatically. All the assumptions and considerations made in this project design are taken according to the

conditions in India. The solar powered grass cutter is operated by the switch on the board which closes the circuit and allows the flow of current to the motor which in turn drive the blade used for mowing. The battery recharges through the solar charging controller. Performance evaluation of the developed machine was carried out with different types of grasses. A grass cutter with solar energy will be easier to use, it eliminates down time by frequent trips to the gas station for fill-ups and danger associated with gasoline spillage. The dangerous emissions generated by the gasoline spillage and that of the internal combustion engine into the atmosphere are eliminated. The solar powered grass cutter will help to reduce air pollution. Thus, solar grass cutter is used

2. PROBLEM STATEMENT

The solar operated grass cutter is the taken into consideration after the efficiency of others felt lacking, which was because of the following factors: 1. Pollution is there due to the use of a grass cutter working on IC engine. 2. Grass cutters working on electricity are efficient, but it also increases electricity consumption. 3. More time is required to accomplish the work. 4. Human effort required is more. 5. There are many safety issues regarding grass cutters such as obstruction in the way of the cutter can cause damage to the blades of the cutter or it can cause obstructions such as stones to fly and cause harm to the operator. We usually see the grass cutter machine used at the housing park and residence bungalow and the commercial are like industry area, we usually see the manually and conventional method was used grass cutter machine was used the fuel as source of power. The cost of fuels which are being used for cutters are also increasing. Our aim is to study alternative sources of power like solar energy. In addition to this modification will be done to the blade to use different material and non-hazardous to the operator. Thus, providing user friendly and pollution free grass cutters.

REGENERATIVE HYBRID ELECTRIC BIKE

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ABSTRACT

The word “Hybrid” means a “Mix”, blend between two different things. In automotive industry hybrid is used to describe the powertrain of vehicle. A Hybrid Electric Vehicle (HEV) is a vehicle which is using two energy sources for propulsion, at least one of the energy sources being electrical energy. The vast majority of hybrid electric vehicles are using a combination of petrol (gasoline) engines and electric motor(s). Regenerative braking is one of the new technologies applied in modern days used to improve fuel efficiency. Unlike frictional loss in conventional braking, regenerative braking converts kinetic energy of vehicle into electrical energy. Keywords— Hybrid, Electric, Regenerative, energy, petrol, motor

1. INTRODUCTION

With the invention of Internal Combustion Engine by Nicolas Otto, there was revolution in Automobile field. Later on, Petrol and Diesel became the main source of fuel for these vehicles. This technology made Human Efforts very easy through commercializing in the market. As, the world went through 20th Century, there happened many advancements for making this technology efficient and cost-effective. Due, to which it became the commercial success and its use in the day to day period increased. People could reach thousands of kilometers/miles in hours with the help of this technology. As we know everything has its own positive and negative side. The rate of Carbon Monoxide (CO) and Carbon Dioxide (CO₂) suddenly increased at the dangerous level in the beginning of 21st Century which made a negative impact on Ecosystem, reason for Global Warming, Health related issues, etc. This forced Scientist, Researchers and Policymakers to focus or made them start thinking for Green Technology or the technology which can stop the adverse effect happening on Nature. Hence, the 21st Century will become the Century for Evolution in various technologies with the main focus in Automobile Sector. The technologies which will change the face of Automobile Sector would be “Hybrid Electric Vehicle”, “Hybrid Solar Vehicle”, “Hydrogen Fuel Cell”, etc. From all this Hybrid Electric Vehicle is considered as the most industrially matured technology and has efficiency more than cars running on Petrol/Diesel/CNG while Hybrid Solar Vehicle has lower efficiency than vehicle running on

Petrol/Diesel/CNG. So, this technology is for drivers who want to cover less distance. To overcome this constraint, “Plug-In Hybrid Electric Vehicle” came into existence. A hybrid electric vehicle is a type of vehicle which combines a conventional internal combustion engine propulsion system with an electric propulsion system. Or in a technical way, a Hybrid Electric Vehicle is a type of technology which indulges both mechanical drive train and electric drive. A mechanical drive consists of the Fuel tank (containing conventional fuels like petrol/diesel/CNG), the Combustion Engine, the gear box and transmission to the wheels. And electric drive consists of the Battery, an electric motor and Power Electronics for control. What is Regenerative Hybrid Electric Bike? become more fuel efficient. Just like conventional HEVs four wheelers, the RHEB will have same technology and same working but the whole HEV system is placed within small/compact chassis of bike. This Regenerative Hybrid Electric Bike is based on Plug-In Hybrid technology. Where both petrol and electric charge is used as fuel to run bike. The working of RHEB is follows by charging the main batteries of bike externally and the bike will run with help of electric motor by electric charge supplied by main batteries until the battery deflects to low levels, then after IC engine starts running to accelerate bike. This Hybrid Bike run by both electric motor and ICE with help of gear transmission. During running condition whether it is driven by ICE or Battery packs the regenerative braking system starts working to save excess energy at wheel and energy loss during braking and reuses that energy to be stored in battery packs for further use.

Regenerative Hybrid Electric bike is introducing a hybrid electric vehicle technology in regular bikes or sports bikes. With this technology bike or two wheeler will

2. PROBLEM STATEMENT

A. Problem Statement • Introducing Hybrid technology in either conventional petrol powered bikes (two wheeler vehicles) or in electric bikes will increase range and mileage of bikes. Hybridization of bikes will reduce the environmental concerns such as pollution, noise, dependency on crude oil and spending on fuel. • Hybrid Electric Bikes will become budget friendly as it is much cheaper than Hybrid Electric cars or Electric car and little costlier than Electric Bikes.

IMPROVE MACHINING PROCESS AND COST OF JOB TOOTH WHEEL)

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ABSTRACT

Tooth wheel which is used in the train assembly in the mosco train. In this job I have tried to reduce the set up because the more setup are released the stress from the job and the job life was decrease. Due to more setup the job is not dispatch on the date so customer complaints are occurs. First in our industry the plate material was used so the material taking more time to come in company for machining. Also the plate material is not hard material so chips are not form and this material is not machining so fast as compare to forging material. In forging material the chips are formed and due to the hardening the material this material is easy to machining. Index Terms – Manufacturing Processes, Design, Tooth Wheel

1. INTRODUCTION

As Tooth wheel is, which is used in the train assembly in the Moscow train. In this job we are tried to reduce the set up because the more setup are released the stress from the job and the job life was decrease. Due to more setup the job is not dispatch on the date so customer complaints are occurs. First in our industry the plate material was used so the material taking more time to come in company for machining. Also the plate material is not hard material so chips are not form and this material is not machining so fast as compare to forging material. In forging material the chips are formed and due to the hardening the material this material is easy to machining. The material is used for to produce this job is not costly also that material doesn't gone any cracks on it. Also time required is less for machining

2. PROBLEM STATEMENT

Due to plate material cost and cycle time is increased. Machining flow of work is not defined. Inserts break due to the not hardening material and chips are not formed. Difficult to operating and maintenance.

3. OBJECTIVES

3.1 Scope

1. Reduce time required for machining. 2. Reduce the cost of machine. 3. Make effectively and easy handling. 4. Quality of Product improves

4. SCOPE

n tooth wheel of railway we improve the machining process and reduce the cost of wheel. By using machining method we save time also we get more life of wheel because of its less wearing. We easily use in train at low cost.

5. REFERENCES

6. LITERATURE SURVEY

Subhash C. Sarin et al., in their paper, have explained methodology to reduce the idle time of the machine. The first method is based on heuristic procedure and second one is based on mathematical programmed. In the first method, efficient and systematic sequencing of the lots to the machine is done to reduce the idle time of machine as far as possible. The lot with leaser production time is done first. In the second method Linear and integer programming based model used to analyze manufacturing systems. It gives optimal solution for reduction of idle time in turns the efficiency and productivity is increased. S.Santhosh Kumar, M.Pradeep Kumar (2014). Assembly line balancing is the process of assigning operations to workstations along an assembly line, in such a way that the assignment is optimal in some sense. This paper deals with studying the existing operation time for assembling, line balancing to avoid station delay, and the implementation of lean tools resulting in a shortening of the cycle time in an assembly line. 2.1 Comments On Key Papers By doing the study of all the above paper we got the information regarding the tooth wheel of train. For manufacturing of tooth wheel we can reduce the method also improve the quality as well as available it in low cost. 3. Different manufacturing process of model

REVIEW AND ANALYSIS OF STAINLESS STEEL SLAT CHAIN CONVEYOR

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ABSTRACT

Conveyors are an integral part of material handling equipment, which are used for transportation of goods from one location to another. When high amount of material or if materials subjected to high temperature (casting components) needs to be transported, then slat chain conveyors are used. This research paper discusses Design, Development and Analysis of Stainless Steel slat chain conveyor for carrying casting components. In this paper we are suggesting a modification in conveyor system for carrying casting component for a company. Material selection process and Numerical simulation by Finite element analysis (FEA) were used in order to reduce the conveyor frame weight and to increase the Factor of safety of shaft in order to prevent it from failing. With the proposed system cost of material for shaft and frame are reduced. This conveyor can carry 10 casting components at a time.

1. INTRODUCTION

Conveyor system is a type of mechanical system used in moving materials from one place to another. It is used in most processing and manufacturing industries such as: chemical, mechanical, automotive, mineral, pharmaceutical, electronics, etc. Various types of conveyor systems available are gravity roller conveyor, belt conveyor, slat conveyor, bucket conveyor flexible conveyor, belt driven live roller conveyor, chain conveyor, etc. Conveyor operation includes loading, moving and unloading of materials from one stage of manufacturing process to another. A slat conveyor has the open links of chain drag material along the bottom of hard faced MS (mild steel) or SS (stainless steel) troughs. Mainly stainless steel is used in slat as a material as it avoids creation of rust, dust and bacteria and slats can easily be cleaned thus preventing contamination mainly in food industries. Conveyor systems allow quick and efficient transportation for variety of materials, which make them popular in the material handling and packaging industries. Conveyor systems provides variety of benefits such as they are able to safely transport materials from one level to another, which when done by human labour would be strenuous and expensive. They can move loads of all shapes, sizes and weights. Also, many have

advanced safety features that help prevent accidents. Conveyor systems can run by methods such as hydraulic, mechanical and fully automated systems, which are equipped to fit individual needs. Conveyor systems are commonly used in many industries, including the automotive, agricultural, computer, electronic, food processing, aerospace, pharmaceutical, chemical, bottling and canning, print finishing and packaging. The choice however depends on the volume to be transported, speed of transportation, size and weight of materials to be transported, height or distance of transportation, nature of material, method of production employed. By using conveyor system we can boost productivity, reduce product handling and damage, and minimize labour required in a manufacturing or distribution facility. Conveyors are classified as either unit load Conveyors and process conveyor. Unit load conveyor are designed to handle specific uniform units such as cartons or pallets, and Process Conveyors that are designed to handle loose product such as sand, gravel, coffee, cookies, etc. which are fed to machinery for further operations or mixing. It is quite common for manufacturing plants to combine both Process and Unit Load conveyors in its operations.

1.1 Conclusion

1) The weight is reduced by 92 kg and the total cost saved is INR 1,46,412 for Aluminium 7075 in comparison with SS 440 grade C. 2) The FOS is increased by 3.5 times and the total cost saved is INR 1718 for Carbon Steel AISI 1095 in comparison with Plain Carbon Steel 3) All the Pre-manufacturing work (material selection, process planning, material costing, welding estimation) of proposed system has been completed as per the process flow chart.

2. LITERATURE REVIEW

In this paper, a brief review of the past research work carried out in the field of Stainless steel slat chain conveyor has been discussed in brief, for identification of the gaps, and for proposal of the new research work listed in the present study. Review of literature on regenerative suspension system.

1-Saurabh Dhemare, Ajit Kadam, Balasaheb Kanase and others 2020 "Design, Development and Analysis of Slat Conveyor for Bagasse Handling in Sugar Industry" A conveyor system is a common piece of material handling equipment that moves materials from one location to another.

POWER POINT PRESENTATION CONTROL USING HAND GESTURES RECOGNITION

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ABSTRACT

The created system enables efficient and simple human-computer interaction using the real-time static hand gesture recognition. This method generates control of a Power Point presentation may be possible by distance. The user does not have to manage the Power. Use a laser Pointer, mouse, or keyboard to make presentations. The suggested system uses data from a small webcam with four hand-held gestures. Following that, the image obtained from the input data is processed, followed by the histogram of features with directed gradients distilled from it. The transformed image is then compared to the gesture image database. Image comparison and identification making use of the CNN (Convolutional Neural Network) method. Real-time static hand gesture recognition is used in the development of the suggested system to enable efficient and painless human-computer interaction. Through the use of this technique, Power Point presentations can be remotely controlled.

Keywords: Hand Gesture Recognition, Human-Computer Interaction, PowerPoint Presentation, HAAR Cascade Algorithm.

1. INTRODUCTION

In recent years hand gesture recognition system is one of the most trending topic for research. Gesture recognition is essential for human-computer interaction in the modern world. Communication between humans and computers is facilitated through gesture recognition. With the suggested method, users can control a slide show without ever touching a computer by using just four simple gestures. The background elements and fluctuating ambient lighting combine to create the final visual gesture. The captured image is then subjected to segmentation. Additional processing is used to make the segmented image appropriate for comparison with the gesture images stored in

the database. In modern world, gesture recognition is essential for human-computer interaction. Gesture recognition makes it easier for people to communicate with computers and allows them to do so without the use of mechanical devices like keyboards, laser pens or any other number of items. Users of the proposed system can operate the SLIDESHOW presentation with just four easy gestures without ever touching the PC. Gesturing can help people for clearer thoughts, speak in tighter sentences and use more declarative language. Hand gestures can increase your impact when you are having an important conversation, making a speech or giving a presentation.

2. RELATED WORK

In this paper [1], Explains the solar grass cutter using hand gesture, solar powered robotic grass cutting machine that eliminates the obstacles and could be accessed from every direction by utilizing hand gesture through remote camera which is introduced to the highest point of the motor-vehicle to communicate remote gushing to the users end. The system uses a 6v batteries to drive both the motor vehicle movement and the grass cutter engine. The system also uses solar panels to charge the battery, so that no additional battery is required. The grass cutter and vehicle motors are interfaced with a microcontroller's family which controls all the motors running. It is also interfaced with ultrasonic sensor to track the object. There are essentially three parts of the framework; the transmitter; the receiver and the live gushing area. In this paper [2], Introduced a comparative study of using deep neural networks in non-contact hand gesture recognition based on millimeter wave FMCW radar. Range-doppler maps are processed with a zero-filling strategy to boost the range and velocity information of gesture motions. Two optimal types of deep neural networks, 3D-CNN and CNN-LSTM are respectively constructed to reveal the temporal gesture motion signatures encoded in multiple adjacent radar chirps. With the proposed networks, the recognition accuracy of six popular hand gestures reach to 95 data size on the recognition accuracy

VIBRATION INVESTIGATION OF 3-WHEELER SPEEDOMETER USING VIBRATION FIXTURE, PROJECT STAGE-1.

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ABSTRACT

Vibrations are major problem in working of machine. Unwanted vibrations can cause resonance effect which can damage the delicate machine component, so while designing the machine; vibrations are also considered. After manufacturing of machine/machine component it undergoes various vibration test, Fixture transmit energy to test sample. Fixture design must be rigid simple lightweight and most important economic. Speedometer is a gauge that measures and displays the real-time speed of a vehicle. In this study, we were investigating the vibration sustainability of 3-wheeler Speedometer using vibration fixture. Electronic units which are to be operated under a vibration environment need to be qualified for vibration levels that the unit will undergo during its service life. In the present study the Speedometer fixture is to be subjected to a random vibration. FEA analysis of 3-wheeler Speedometer fixture is being done on ANSYS workbench. Natural frequency of the 3-wheeler Speedometer fixture is observed. Modal and harmonic analysis will be performing on ANSYS workbench. According to results of FEA modification in Speedometer fixture will be done. If the range is between operating frequency, then the fixture is validated to be safe. For experimental validation of FEA results, FFT analyzer and impact hammer will being use.

Keywords: Vibration fixture, Finite Element Analysis, FFT analyzer, Speedometer, optimization.

1. INTRODUCTION

Fixtures are designed for testing the component endurance and ensure fatigue failure of the component. The fixtures

are being manufactured using high strength to weight ratio materials. The fixtures are meant to be stiff enough to absorb the vibrations and shocks generated by random vibrations generated due to unpredictable road conditions. The fixtures do have some limitation, Fixture should be light in weight it should protect the component respect to road shocks and vibrations. Two-wheeler, Trucks, and buses can be utilized in many different applications with a wide variety of working conditions. A competitive market in for example long haulage services, forces companies to steadily work on increasing the working capacity of their vehicle fleets. This leads to a lot of stress on the different components on the vehicle. As technology keep on progressing the amount of electrical and electromechanical components put into two-wheeler, trucks and buses increase in number. They therefore play an increasingly larger role in assuring the proper functionality of a vehicle. A vibration test fixture is the interface between the device under test and the vibration equipment. However, the test fixture needs to be more stiff and rigid than the corresponding part used for mounting on the vehicle, since vibrations during accelerated testing are much more severe than vibrations during true operation of the component. Vibrations are a major problem in the working of automobile machines. Unwanted vibrations can cause resonance effect which can damage the delicate machine component, so while designing the machine, vibrations are also considered. After manufacturing of machine/machine component it undergoes various vibration tests, Fixtures transmit energy to test samples. Fixture design must be rigid simple, lightweight, and most importantly economical. Use of modern analysis tools and Computer Aided Design software has made design of fixtures effortless. Vibration fixture design is a necessary component of vibration testing that is often a challenge for many engineers. When it comes to the design of fixtures, the choice of materials used is

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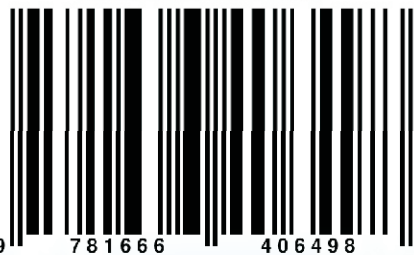
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