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RESEARCH ARTICLE OPEN ACCESS

Electric Bike with Solar Charging

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ABSTRACT

• Since the fuel prices decrease not only in India but throughout the world is increasing day by day thus there is a tremendous need to search for an alternative to conserve these natural resources. Thus a solar electric bike provides that alternative options by solar energy to charge the battery and thus provide required voltage to run the motor.

Keywords;BLDC MOTOR,SOLAR PANEL,CONTROLLER,ETC

I. INTRODUCTION

- A solar electric bike is a bike which runs using the electrical energy of battery to run the hub motor which ultimately runs the bike. Solar energy is used to charge the battery. Two or more photovolatic cells may be used to solar energy to generate voltage to charge the battery. Battery gives required voltage to the hub motor to run the bike.
- E-bikes use rechargeable batteries that can travel up to 25 to 45 km/h, much faster than most people would cycle, getting you to your destination quicker and in better shape. In a nutshell they offer low cost, energy efficient and emission free transportation which also has physical and health benefits.

II. METHODOLOGY

(WORKING CONSTRUCTION PART)

- Electric bike is the electric device which is use to easy to transfer one place to another place due to electric ntrolenergy or solar energy.
- Electric bike main working component is Battery and Solar panel and BLDC motor. This component is the base of the electric bike.
- Electric bike is basically start by the electric supply or battery,
- Battery is generated the power or current to supply the power to the motor, motor shaft is rotated inside the casing, power is pass to the controller, controller is required power is pass to the escalator or governing system
- Governing system is operated by the human, human is desirable power use and easy to operated the bike.
- Most of the important part is controller, controller is co the all of the systems like power supply controller, braking system, motor controller, some accessories are operated by the power supply its control by the controller.
- In the electric bike solar panel is attached in the outer side, sun light is directed reflected in the panel, solar panel is use to absorbing the sun light energy.
- Some common accessories are work or operated by human. Accessories name is dish break, governing system, switches.

- Controller is attached to the hole of systems.
- We have finding some unique idea for our project. We find old LUNA moped as base of our e bike.
- We are welding the base of Luna. And attached BLDC motor, gear, and chain as per the dimension. We are paint the Luna light orange colure are paint and base of Luna are painted black colure. We are collecting some information about battery and solar panel near to the electronic shop.

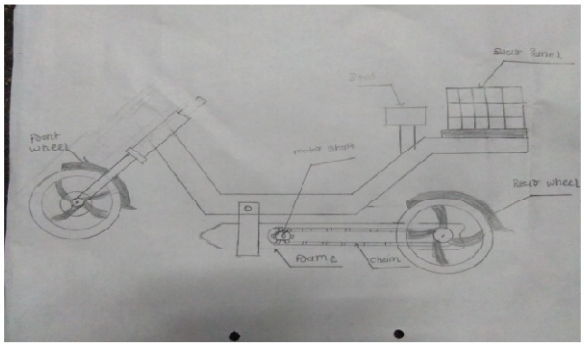

FIG 1. Hand made of electric bike with solar charging

- Motor is fitted as per welding dimension as test the motor and ready the Luna outer body with the paint. extra accessories are collect and fitted in the Luna.
- Battery (48 watt) collect and solar panel (48 watt) collect by the shop.
- All wiring are joint with help of you tube and Google. And inner assembly and wiring is completed.
- **(WORKING COMPONENT)**
- BLDC motor: BLDC motor works on the principle similar to that of a conventional DC motor, i.e., the Lorentz force law which states that whenever a current carrying conductor placed in a magnetic field it experiences a force. As a

consequence of reaction force, the magnet will experience an equal and opposite force.

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FIG : BLDC MOTOR

Battery: Lithium ion and acid battery are used in the electric bike. Electric energy stored in the battery. Battery gives electrical energy to the motor and activates the hub motor. Lithium ion battery is widely used in electric vehicle, portable electronics and aerospace.

FIG :Battery

1. Controller: Controller is the main heart of the electric bike controller is the brain of Electric bike main function of the controller is control the motor speed, starts, and stop. It is concerned to all the electronic parts. Like battery, motor, throttle, speed meter.

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FIG : CONTROLLER

A Solar panel , or photo volatic module is an assembly of photo volatic cells mounted in a framework for installat. Solar panels use sunlight as a source of energy and gernerate direct current electricity. A collection of PV modules is called a PV panel, and a system of panels is an array. Arrays of a photovolatic system supply solar electricity to electrical equipment.

FIG : SOLAR PANEL

Specifications of solar panel

SolaWatt – 12 Volt

Solar Panel – 5 Watts

Open-Circuit Voltage (Voc) 22.3V

Short-Circuit Current (Isc) 0.3A

Temperature Coefficent (Pmax) -0.48 %/°C

Specification of BLDC motor

Maximum system voltage 1000V DC

750w

Bldc Motor 48v |

Solar Electric Motor |

Electric motor for bike Torque 150 Insulation Type Class B Voltage 48 V Efficiency 75% Power 750 W

- WORKING IMPLEMENTATION
- All the group members are going to government technical college for collecting the electric BLDC 750watt motor and get some basic information

about electric BLDC motor. Group members are collecting some information about battery and how to construct the electric bike to briefly understanding by the expert sir in the technical college. Also discussion about how to assemble the bike. And also collecting some basic information about the lithium ion battery.

FIG : WASTE LUNA

- We are collecting some old Luna weld and cut the some extra Luna part with help of cutter and welding machine.
- We are welding the base of Luna. And attached BLDC motor, gear, and chain as per the dimension. We are paint the Luna light orange colure are paint and base of Luna are painted black colure. We are collecting some information

FIG : PAINTED LUNA

- about battery and solar panel near to the electronic shop.

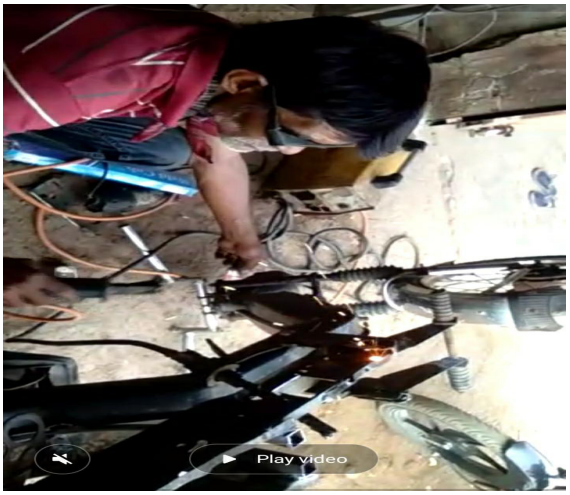

FIG : WELDING PART

- Motor is fitted as per welding dimension as test the motor and ready the Luna outer body with the paint. Extra accessories are collect and fitted in the Luna.

- Battery (48 watt) collect and solar panel (48 watt) collect by the shop.
- All wiring are joint with help of you tube and Google. And inner assembly and wiring is completed.
- Still the battery and solar panel is not working but it is fit in the Luna as per the planning and ready the one experimental prototype of over project.
- Group member are try to practically working the project as soon as possible.
- This project is the theoretically base and made the assumption related to the items of components. Made the assumption directly Google.

FIG: LUNA WITH MOTOR

- **Difference between solar electric bike and other resources vehicle**

• It is cheaper then other resources.

• It increases efficiency and also economical fully effective.

• Easy to run and stop the pollution.

• Smooth and silent. • Reduce human effort.

- **YEARLY GRAPH GROWTH RATE**

FIG : GRAPH GROWTH RATE

Acknowledged

- From the guidence and the support it is helpful for our supporters and the staff Invest.

III.

III . CONCLUSION

- PURCHASE ELECTRIC BIKE AND SAVE OUR MOTHER EARTH.
- IT IS YOU .....WHO CAN STOP POLLUTION AND STARTS A REVOLUTION.
- DUE TO THIS PEOPLE SHOULD ALSO THINK ABOUT THIS PROJECT AWARNESS.

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