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Parabola Top Covered Solar E-Bike

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ABSTRACT

Electric bike are plug-in electric vehicles with two or three wheels that can be recharged from any external source of electricity, and the electricity is stored in a rechargeable battery, which provides power to one or more electric motors to attain movement. The electricity generated from an external source helps in acceleration of the motorcycle.

The speed of this cycle is limited and the electricity is generated using a solar panel. The generated electricity is stored using a battery and the locomotion and movement of the vehicle is hence propelled using a motor.

The bike need not be continuously fed with solar energy in order to gain the capacity to run. It gets its energy from the batteries where the energy is stored. Conventionally, these types of vehicles are hard to use with the help of just mechanical energy.

The energy we get from human effort. But when energy is converted using solar energy and a battery, it becomes more easy and helpful in the propulsion of the motorcycle.

The motorcycle, not using an engine, becomes an effective way of road transport as it causes no pollution. It is eco-friendly and it definitely reduces human effort.

PARABOLA TOP solar ebike designed and fabricated by 1000KV TECHNOLOGIES, HYDERABAD

Keyword: E-bike, motorcycle,solar e bike, parabola solar e bike, solar panel, 1000kv technologies, kartheek kandhi.

INTRODUCTION

The project is to design a Bike with renewable solar energy.Solar Bike aims to be a small research and development business that develops renewable technology and helps everyone start riding electric bicycles around rather than using their cars.A solar panel is a flat rectangular shaped device, typically somewhere between the size of a radiator and the size of a door, made up of many individual photovoltaic energy collectors called solar cells

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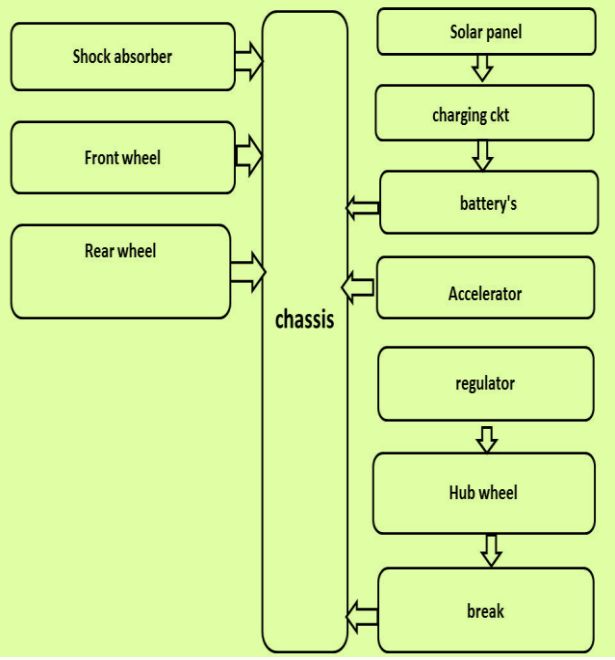
covered with a sheet of glass on its surface. The cells, each of which is about the size of a palm of an adult, are usually octagonal in shape and colored bluish black. Similar to the cells in a battery, the cells inside a solar panel are designed to generate electricity; but where a battery's cells make electricity from chemicals, a solar panel's cells produce power by capturing sunlight instead In this project we are going to use solar panel and DC hub motor. The voltage generated by the solar panel is stored in battery (48V/20AH) through charging circuit. From the battery, power will be supplied to the DC hub motor (48V/200W) through accelerator followed by gate switch. The purpose of gate switch is when break is applied then automatically it opens the connection between motor and accelerometer. The wheel hub motor is an electric motor that is incorporated into the hub of a wheel and drives it directly.

Hub motor electromagnetic fields are supplied to the stationary windings of the motor. The outer part of the motor in turn follows, those fields, turning the wheel attached.

BLOCK DIAGRAM



Technical Specifications

Motor

Motor type	-brushless dc
Motor power	-250w

Battery

Type of	-VRLA
Voltage	-48v
Capacity	-20Ah
Series connection	

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Charger -12v/5w*6
Parallel -30w
Retire -43 V. 2.5A
Charging time -8-10hrs.

OPERATIONAL

Maximum Speed -25 Km /1Hr
Range (Distance/Charge) - 70 Yam' (under standard rest Seat)
Vehicle Kerb Weight -84kge
Standard/Maximum bad carrying capacity- 60KF/100 Kg:
Frame -high rigidity tubular
Shock absorbers type (Front@ Rear) - spring boded Hydraulic: Damper

TYRE SIZE

Front and Rear -16''*3''

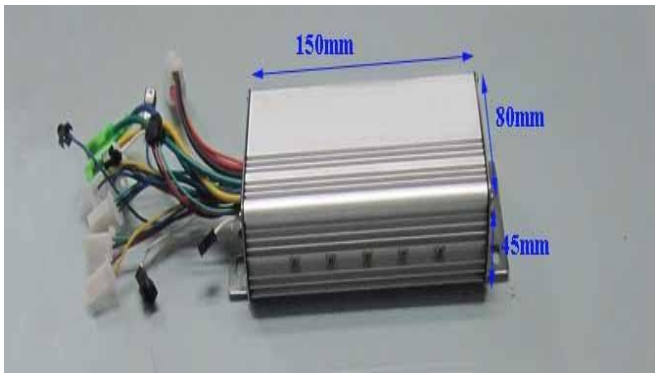
TYRE PRESSURE

Front - 25 PSI
Rear -35 PSI
Wheel Type -Alloy-wheel

BRAKES

Front and Rear - Hand operated. Drum Brake 110man Dia
Bub (all lighting system) - 12 V
Choice of body color (metallid)-cheering Red. Quiok Silver. Misty Grey
Reg4tratica Rewired

48V500W CONTROLLER FOR HUB MOTOR



Hub Motor

Drum brake

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SOLAR PANEL

A renewable energy resource is a natural source of energy which can be replenished with the passage of time, either through biological process of reproduction or any other natural processes. Renewable resources are a part of Earth's natural environment and the largest components of its ecosphere. 16% of total global energy consumption comes from renewable energy resources.

A solar cell (also called a photovoltaic cell) is an electrical device that helps in the conversion of light energy directly into electrical energy by creating voltage when it gets exposed to light. It is a form of photoelectric cell which, when exposed to light, can produce and support an electric current without being attached to any external source of voltage, but requires an external load for power consumption.

HUB MOTOR

Hub motor electromagnetic fields are supplied to the stationary windings of a motor. The outer part ofthe motor followsthose fields that turn the wheel that is attached. In a brushed motor, energy is transferred by brushes which are in direct contact with the rotating shaft of the motor. In a brushless motor, the Energy istransferred electronically, with no physical contact between stationary and moving parts. Although the brushlessmotortechnology is more expensive, most of them are more efficient and longer-lasting than brushed motorsystems.

ADVANTAGES

1. Conservation of Non Renewable energy sources.
2. Maximum output can be obtained.
3. It does not cause any environmental pollution like the fossil fuels and nuclear power.

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4. Solar cells last a longer time and have low running costs
5. Low power consumption.
6. Conservation of energy.
7. Utilization of free available source of energy from sun
8. Storage of energy into rechargeable battery.
9. Stored energy is used for running hub motor.
10. High efficiency can be achieved using inverter.

FUTURE SCOPE

Solar Powered E bike is mainly intended to fabricate a bike which runs withrenewable energy i.e., the solar energy.In this project we are using solar panel for charging a Lead Acid Battery (12V, 1.2 Amp hrs), a Peltierthemyoelectric device which when connected to battery generates cooling effect on one side and heat is dissipated on other side through heat sink, a cooling fan is used for dissipation of heat from the heat sink.

CONCLUSION

Solar energy, a renewable source of energy is an upcoming form, which if properly used, can give rise to tremendous energy which can further be used in different forms. Research is still in progress on application slice solar powered automobiles, solar powered steam turbines, etc. A solar electric scooter, is a basic type of automobile which can run both on solar power as well as electricity. With an unhealthy hike in the prices of petrol and diesel, an automobile running on solar power can create a trend. This kind of a scooter is user-friendly.

It is very simple to use and manage. It comes at an affordable cost and the per unit electricity consumption is very less. It can be used even during the times when there is no sunlight. Because, the sun's energy trapped by the solar panel can be efficiently converted in electrical energy and stored in a battery. The importance of these kinds of applications is gradually increasing with the diminishing nonrenewable energy sources like fossil fuels and the like.

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