

PAPER on SOLAR CUM PEDAL OPERATED HYBRID TRICYCLE: a REVIEW

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Abstract:

Today we need to use more renewable sources of energy, which are not harmful to our mother earth. Solar energy is one of them. It is freely available energy. It is the only source of renewable energy which can be a capable alternative for fossil fuels like petrol and diesel. We are reviewing papers to overcome the major problem of fuel and pollution with the help of solar operated hybrid vehicle system. We have also worked to help solar hybrid tricycle especially for handicapped persons. The importance is basically given to enhance the comfort of the person in the tricycle. The idea basically projects the current status of the technologies. We are working on designing a solar operated tricycle at a low cost.

Keyword - Solar Panel, Lead Acid Batteries, DC Motor, Charge Controller

I. INTRODUCTION

The reason behind designing tricycle is to make it transportation relevant. And vehicle friendly to use for handicapped person. We all need energy for different use. Since everything is made of energy. The use of fossil fuel based vehicles is one of the major reasons that have accelerated the drawing out of these non-renewable resources. Fossil fuel costs huge to be used as compare to fuel like solar energy. As per the researchers survey the fossil fuels available is very less. It is going to diminish within some years. Using solar vehicles will be one of the solutions to extract eco-friendly energy. This vehicle requires PV cells, which are helpful in converting sunlight energy into electricity. The electric energy is used to drive the motors. The advantage of using the photovoltaic solar power is to make it, "the world's most favorable renewable energy source."

The solar panel is to be connected in such a position that it is easy to grab the sunlight. Top position is best for fixing solar

panel. The photovoltaic cells are used to store the electrical energy. The battery generally takes 7 to 8 hours to get charged. The batteries will be charged with the help of solar panel via charge controller. The batteries are going to be fully charged at first. And will be connected to charging module.

II. LITERATURE SURVEY

Rajendra Beedu et.al has designed and evaluated performance of solar power assisted tricycle. Solar cum pedal operated hybrid tricycle system consists of following components, solar panel, battery, charge controller, accelerator, and hub motor.

II.1 SOLAR PANEL: -



Fig 1 solar panel

This paper consists of two solar panel having capacity of 80 watts is used to charge the batteries. Both the solar panels are mounted at the top of vehicle. To converts solar energy into electrical current photovoltaic cell is used which is present in solar panels.

II.2 ACCELERATOR: -



Fig 2 accelerator

It is a device which is used to controls the speed of vehicle. The main components of accelerator are rubber bush, screw nut, diode, wires, plate, lag pin. [1]

Ranjeet Singh et.al has worked on hybrid mild cars which are operated on solar energy.

II.3 HUB MOTOR: -



Fig 3 hub motor

Specification of hub motor

Power capacity = 2.2kw

Motor RPM = 2300

Above specified motor has been used to run the solar tricycle with 40 km/hrs [2].

Yogesh Sunil Wamborikar et.al worked on, vehicle working on solar power.

TABLE 1

Components Used	Range	Quantity
Batteries (lead acid batteries)	12W/30Ah	4
Solar panel	80W	2
Hub Mottor	2300 rpm	1

Other than the above listed components, speed control switch is used to control the speed of the motor. It is given below: -

II.4 SPEED CONTROL SWITCH:

controlling the speed of motor is a vital part of tricycle. The switch consists of two terminals; one is connected for the battery connection and other for the motor connection. [3]

T.Balamrugam et.al has designed a hybrid vehicle which is solar and electric powered. It also worked on optimizing it for energy cost.

II.5 CHARGE CONTROLLER:



Fig 4 Charge Controller

The use of charge controller is to overcome the problems like over charging of battery. It vents the damage of the batteries and hence, increases the life. Overcharging and deep charging is prevented by charge controller. Charge controller consists of circuitry that controls the depth of discharge of battery. [4]

Arun Monohar Gurram, P.S.V Ramana Rao, Raghuvveer Dontikurti design the solar powored wheel chair : mobility for physically challenged In the market lot of solutions are present. In this chair are claimed by stairs, obey voice commands (Scott Elshout et al, 2007) or even respond to human thoughts. rates cost are few dollars to limited dollars. They can be around to ten lakes Indian rupees. it can be raised to some rupees also. In the huge market is in a basic design which can provide for a person in the simplest way he can achieve .he can go anywhere and see where is rooming. And

they are operated by joysticks and going through some few switches can press a few switches and can be operated by a joystick control. Most of the machines have the characters to go up in a short ramp, but not steps. [5]

III. CONCLUSION

The result revel that a solar powered tricycle is feasible alternative for local trip. The rechargeable capacity of the panels is the satisfactory. By our opinion in future the first step designing and fabricating such kind of automobiles. If this vehicle became commercialized it will be a one stop solution for all the problems that the world is worried of currently.

IV. REFERENCE

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