

Design And Development Of Solar Powered Tricycle For Differently Able Person

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Abstract

Solar Technology plays a vital role in our day to day life. We have Designed And developed the Solar Tricycle for Differently Able Person. The aim of the experiment is to use electricity generated by solar panel, The Energy which is available in plenty in the nature free of cost. The Power produced by the available green energy is used to run a vehicle with high load caring capacity and sufficient speed. Hence in that case no human efforts are required, with zero fuel cost & low maintenance cost and our aim to provide in-dependency to differently able person is fulfilled here.

Keywords: Tricycle, Solar tricycle, Solar powered vehicle, E-Vehicle

1. INTRODUCTION

Now a days global warming is becoming one of the most important issues in the world. which is caused by types of pollution's. Fuel needed for daily used vehicles like petrol, diesel, CNG, etc are non-renewable & are vanishing day by day. Many Convenient & Improved Facilities are provided by modern devices but only for common man, but those (Divyang) who are in actual need to become Independent are generally not served by this kind. On concentrating on the above crises we tried to construct a highly efficient eco friendly solar vehicle. The vehicle will also be able to carry sufficient load with maximum efficiency. Any common person can operate this vehicle & it is specially designed for handicapped people. By our experiment we can give comfort to physically handicapped people. Fuel used will be solar energy which is renewable & is available free of cost & in plenty in the nature.

2. WORKING MODEL

Objective:

The objective of this experiment is to construct such a highly efficient eco-friendly vehicle using input as a renewable energy resource & get the most efficient output. Which will also be able to give comfort as well provide in-dependency to differently abled person. By this program we can also provide employment to differently able person.

The use of renewable energy resource which is available free of cost, in plenty in nature. Do not cause or increase any type of pollution. It achieves maximum efficiency. The use of energy generation for the development and saving mechanics. Optimum utilization of energy. Reduce effort required for cycling & increase human comfort. Reduces capital and working cost.

Problem Addressed:

One of the community of our human society i.e differently able people have much guts to work hard & earn but unfortunately they are physically challenged. By focusing on the above issue we tried to construct a Solar Tricycle For Differently Able People by which they can start a Travelling Shop and also travel from one point to other almost free of cost. Whereas our experiment is Proved to be successful in various ways of aspects. (Feedback by users)

Construction:

It consist of a Vehicle Model, 250w DC Motor,12V 65A Battery, 16A MCB, Switches, Head Light, Tail Light, Wire, Box,12V 50W Solar Panel, Speedometer Indicator. All the above components are connected in parallel on 12V operating voltage.

HARDWARE DESCRIPTION:

1. Vehicle Model, Make-Avon, Wheel 24" inches, Material-Stainless Steel.
2. MOTOR: Make - Unite Motors Co. Ltd. Current Rating – 28A Winding Material- Copper Winding Material- Copper Casing - Aluminium Alloy Wattage – 250Watt(73% Efficiency) Voltage – 12V DC DC motor has 3000rpm speed at the rotor & with the help of gear box output speed is reduced to 300rpm.
3. BATTERY: Make –Rocket Batteries Rating - 12V, 65A Type - Sealed Lead Acid battery Description It is rechargeable battery and it stores energy in charging condition and supply when required.
4. Solar Panel Loom Solar 12V 50Watts Description- The Solar panel absorbs sun rays & gives out electrical energy. It gives out 50 watts.
5. Mini Volt Meter Range 3V to 32V Type: DC Accessories: Speedometer, Headlight, Taillight, Indicator, Switches.
6. TESTING: 1. Load Carrying capacity – 200kg* 2. Speed –0Km/hr Max (Locked) 3.Average- 70Km (Solar Power On) 4.Average-40Km (solar Power Off) 5.Price of one charge –Free 6. Rs/Km – 0/1

3. Comparison

Solar Tricycle		vs Electric Bike	
Parameter	Solar Tricycle		Electric Bike
Cost	Low		High
Human Efforts	No		No
Operating Cost	Low		High
Average	70Km		60Km
Fuel cost	0		10/charge
Energy Used	Renewable		Non-renewable
Charging Time	N.A		8-10hrs
Max Speed	10km/hr		30km/hr

Figure 1.



Figure 2.



Figure 3.



Figure 4.

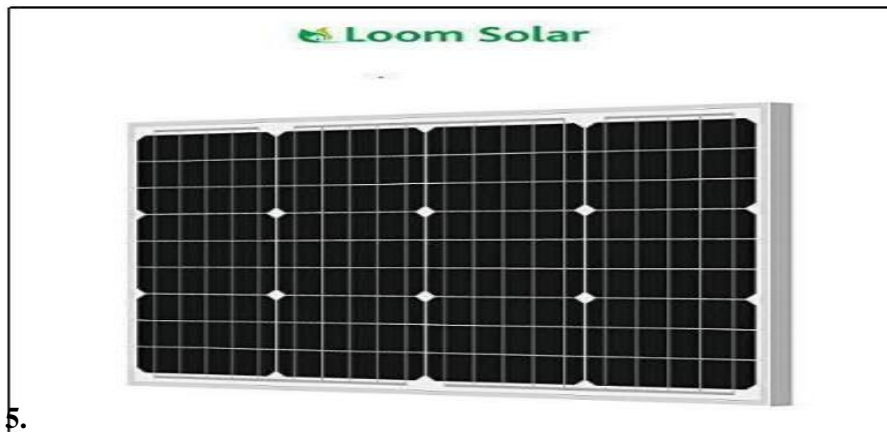


Figure 5.

4. CONCLUSION:

In short, the project is successful in proving the concept, that use of renewable energy in field of intercommunication field is efficiently possible while considering the differently able person. Also the project is pollution free. Successful working & installation of energy saving and energy generating system.

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