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AUTOMATIC BATTERY CHARGING VEHICLE

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Abstract - *This paper consists the research of usage of wind energy while car is moving to produce an electrical energy by using propeller to charge the battery and use it for long distance running without taking any halt for charging battery.*

Key Words: Propeller, Battery

1. INTRODUCTION

In today's scenario it is predictable that the natural resources like petrol, diesel are on way to end. Therefore there is need to use the nonconventional energy for transportation. There are many cars invented which use non conventional energy as a source. There are many hybrid cars which runs on battery as well as fuel. The problem regarding to fuel is reduced but not solved . In today's world the battery car is invented which use a non conventional energy as a source. But peoples does not buy it and it is not used widely because its battery backup is low. Due to which it cannot be used for long distance. At climbing the car cannot produce the required torque and battery usages is more. So at such conditions we get less efficiency. There is no charging stations to charge the battery. But this drawback can overcome by keeping the battery full charged at every condition

1.1 COMPONENTS USED

Propeller fan, Generator, AC to DC converter, Battery.

2. WORKING OF SYSTEM

For charging the battery the wind energy can be used. The wind energy can be converted into mechanical and that mechanical energy can be converted into an electrical energy which can be used to charge the battery. To convert the wind energy into electrical, the propeller fan can be used. The propeller fan can be coupled with the generator motor. When the fan of the propeller rotates the shaft of the propeller is also rotated. Thus the wind energy is converted into mechanical. And when the shaft rotates at some speed it creates magnetic field in the generator and the electrical energy is generated. Hence the mechanical energy is converted into electrical energy. This electrical energy can be used to charge the battery. For generating the electrical energy efficiently The propeller fan is to be placed vertically at the roof which will help to use the all air coming from the front side of the car. The assumed diameter of fan is 30 cm and with length of 15cm with generator assembly. To generate the electricity the fan should be rotated at 1320rpm. The electrical energy produced by the propeller is in ac form which cannot be directly used to charge the battery as to charge the battery we need an dc supply. Therefore this ac current produced by the generator is no be converted in dc form which can be done by using ac to dc converter. The ac to dc converter will convert the electric current to dc form which is given directly to the battery and battery will start charging.Hence the battery can be kept charged by using such procedure.

2.1. CALCULATION FOR SPEED

Minimum shaft speed required to generate the electricity is 15mph.

$$1\text{mph} = 1\text{rpm} * 60$$

$$1\text{min} * 5280$$

Calculating speed in rpm so taking time as 1 minute . And therefore, by using the upper formula, for 15mhp we get **1320rpm** .Now to rotate the propeller shaft at 1320 rpm the minimum wind speed should be 35kph to 55kph which means my car should move at speed of minimum at speed of 35km/hr If car run at speed of 35km/hr , then by using wind energy we can produce the required electrical energy to charge the battery.

3.DRAWBACKS OF SYSTEM

There are certain drawbacks of this system. As the car designed has the aerodynamic shapes the air coming from the windshield will avoid the wind and propeller will receive less amount of wind which will result in less efficiency of system. This drawback can be overcome by tilting the assembly by some angle. By tilting the assembly by some angle along with the front air, the air coming from windshield can also be used as the wind energy. By tilting the assembly it will be greater advantage as we can get the desired output at low speed.

The second drawback is if car is at stationary position then the propeller will not get the required wind energy to rotate at speed to generate the electricity. This case can be

happened in heavy traffic condition and it dose not have any of the solution.

4. ADVANTAGES

By doing this the peoples will change their mind and buy the battery vehicle as it will be most economical for use. Purchasing of car will be the only one time investment. The use of the car will be very economical.

It will increase the use of non conventional energy in large scale, which will helps in reduction of pollution.

It will also decrease the usage of convention energies like petrol and diesel.

It will reduce Air Pollution.

5. CONCLUSION

By using the propeller and generator we can charge the battery which will help to use battery vehicle for long distance. It will increase the use of non conventional energy in large scale, which will helps in reduction of pollution.

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