THE MODERN ERA OF ELECTRIC VEHICLES REPLACING NON-RENEWABLE SOURCES OF ENERGY

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Abstract

Non-renewable sources of energy are one which cannot be readily replaced by natural means on a level equal to its consumption. In the present scenario, large scale exploitation of these sources has been emerged because of using it haphazardly. Furthermore, the utilization of these resources has the drastic impact on our environment. Also, as their supplies dwindle, they will become too expensive, difficult to retrieve, also have baneful impact on our environment. So, tendency of ours on renewable sources of energy is the demand of the present. Among the different renewable sources of energy, wind energy and solar energy plays crucial role in conserving energy by reducing the use of fuel in vehicle. Furthermore, they are also use for lighting purpose and charging the batteries. Hence, the concept of running the vehicle using solar and wind energy came which includes the way the hybrid system to be designed and installed to generate power which include wind turbine and solar panel.

Keywords: Baneful, Exploitation, Non-renewable sources of energy, Renewable sources of energy, Vehicles

Introduction

As the hybrid system has beneficial impact on the environment. So, in order to overcome the energy limitation and also its exploitation, the concept of using solar energy and wind energy in the automotive sector has been developed. It also helps in reducing the carbon dioxide emission by reducing the fossil fuel consumption. The two categories of energy for running the vehicle has been explained below:

A. Wind energy

Wind power is clean and sustainable natural resources which uses the flow of air through wind turbines to mechanically generate electricity with no green house gases emission during its operation. The kinetic energy of the wind is being absorbed by the rotor which constitutes blades which are mechanically coupled to the alternator. There are three types of alternator technologies to interface with wind turbine.

- Non-power frequency generation that
requires an inverter or convertor interface.

- Doubly fed wound rotor induction machines which employ power convertor to control the rotor current to provide reactive power support and load.
- Conventional wound rotor or squirrel cage induction machines. these are supplemented by capacitor to supply reactive power needs.

B. Solar energy

Solar energy is basically the radiation produced by the nuclear fusion reactions in the core of the sun. the radiation travels to the earth through the space in the form of energy called photons. solar energy collector are special kind of heat exchangers that transforms the solar radiation energy into internal energy of the transport medium. the major component of any solar system is the solar plate collector. the solar energy thus collected is carried from the circulating fluid either directly to hot water or space conditioning equipment or to a thermal energy storage tank from which can be drawn for use during night and cloudy days. solar collector may be classified according to their collecting characteristics and the way in which they are mounted and depends on the type of working fluid which is employed into the collector. the collector generally uses liquid or a gas as working medium to transfer heat. the most common liquids are water or water-ethylene glycol solution.

Solar car uses solar energy in order to run. the concept of invention of solar car is that it produces zero harmful emission, operation is quiet, requires low maintenance, doesn’t requires expensive fuel source.

Despite of having some advantages it has some disadvantages also. following are some disadvantages of solar cars: expensive, don’t have speed, can be operated for limited distances only, weather dependent.

Design:
1. SOLAR ENERGY CARS:

- Small solar panels can be used for vehicles.
- The solar energy stored can be used to effectively for headlights, charging mobiles etc.
- The small solar energy panels can be used for bike helmets and can be used for charging mobiles.

2. WIND ENERGY CARS:

- The small fan can be used to on front side of vehicles which will generate the wind energy into mechanical energy.
- The mechanical energy can be converted into electric energy by using dynamos.
- The converted energy can be stored in batteries and can be used as and when required.
- This energy is effective for headlights, charging mobiles, etc.
- Even the same principle can also be used for helmets along with one fan and one or two Headlight fitted in the helmets.
- The other arrangements required to convert the energy can be made in separate dickey.

Conclusion:

After the research work it was found that
our research was successful. It was found that the prototype captured the solar energy through solar panel and wind energy through the fan induced on it. There are huge potential for producing electricity from renewable sources. This paper gives a clear idea that vehicle powered with the help of solar energy and wind energy is more effective than fuel vehicle. For increasing the load capacity of the motor, the generator Dc motor is also installed that will increase the loading capacity of the motor without consuming more voltage and power from the battery.

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