

SOLAR AND WIND POWERED ELECTRIC CAR

Mr. Swapnil M.Dorle¹, Mr. Ameya V.Borgaonkar², Mr. Dipankar Shinde³,
Mr. Harshal Rakhade⁴, Mr. Meghraj R.Jane⁵, Prof.Sandip.G.Ghugal⁶

¹²³⁴⁵⁶Professor, B.E Student of Mechanical Engg. PBCOE, Nagpur, Maharashtra, India

Abstract- Due to scarcity of fossil fuel in future and its detrimental effect on the environment, an alternative energy has to be discovered. Wind power is clean and sustainable natural resources that has yet to be fully utilized in the automotive industry. Also the sun is probably the most important source of renewable energy available today. The hybrid system has been designed and installed to generate power which combines wind turbine and solar panel. The hybrid model system is renewable energy system, which helps conserve energy by reducing the use of fuel in vehicle. Hence developing a new method for the economical evaluation of Hybrid Systems for electricity production.

Keywords- Scarcity, fossil fuel, environment, alternative energy, natural resources, renewable energy.

1 .INTRODUCTION

Here the hybrid car is specially designed so that the energy limitation can be easily overcome by using the hybrid technology.

As the battery running are beneficial for the society and more often this type of technology is fruitful for the environment. so to overcome the energy limitation we have installed wind with solar energy and that is called the regeneration of

A. Reducing Carbon Dioxide Emissions

The most effective way to reduce carbon dioxide (CO₂) emissions is to reduce fossil fuel consumption. Many strategies for reducing CO₂ emissions from energy are cross-cutting and apply to homes, businesses, industry, and transportation.

B.SOLAR ENERGY

Solar energy is radiant light and heat from the Sun harnessed using a range of ever-evolving technologies such as solar heating, photovoltaic's, solar thermal energy, solar architecture and artificial photosynthesis. The large magnitude of solar energy available makes it a highly appealing source of electricity.

C.WIND ENERGY

Wind power is the use of air flow through wind turbines to mechanically power generators for electricity. Wind power, as an alternative to burning fossil fuels, is plentiful,

renewable, widely distributed, clean, produces no greenhouse gas emissions during operation, and uses little land.

2. FIELD OF INVENTION

The fixed wind powered electricity generation systems in use, till now are dependent on wind direction and the force of the wind. But the wind is not available at all places and all time throughout the year. Therefore, there exists an immense need of a system for generating electricity from wind induced by moving vehicles which is available throughout the year at various places and with sufficient force of wind. Also solar powered electric vehicle is there but need to install it as an auxiliary fuel for fuel vehicle. Therefore need of inventing a hybrid renewable energy source as an auxiliary source for fuel vehicle. Therefore this invention provides a solution to the problem for generating electricity in this manner.

3. OBJECTIVES

1. The main object of the present invention is to provide a method and a system for generating electricity using easily available wind induced by moving vehicles and solar energy in transit or in operation.
2. The other objective is to provide a solution for reducing pollution created by fuel vehicle by use of freely available renewable energy source i.e. solar and wind energy.

4. METHODOLOGY

This paper deals with how energy can be stored by moving or standstill vehicle which has a fuel kit using wind and solar energy.

5. WORKING

Here first of all the vehicle that is presently running on battery say for ola electric vehicle can be modified by installing various new circuits.

The solar panel will charge the battery on the day time. The circuit attached to the battery will protect the battery from damages the sunlight intensity is more in the summer the solar panel passes more amount of voltage than required by the battery and this leads to the battery damage so for

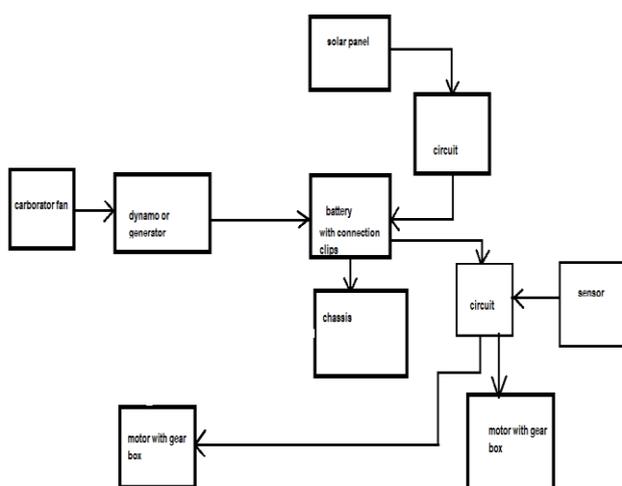
stabilizing the voltage the circuit will be installed between the solar and the battery.

As there is no one in the electric car we can install the carburetor fan and the fan will be attached to the generator and the vehicle is in moving position even in the night time when the solar panel will not work the battery will be charged through the wind energy that is from the fan with dynamo attached and the battery will be charged.

Clips are attached so that the user can change power source for charging the battery from solar to wind when required. And in another part the sensor based circuit is also installed this circuit will be connected to the motors of the vehicle in the night time or at that when the driver forgets to apply brake in the traffic portion or when driver falls asleep while driving in the night time this sensor circuit will continuously bypass the invisible rays and the rays will detect the in front object of the vehicle if suddenly in front objects say for any vehicle has applied brake and the driver forgets to apply brake this sensor will automatically calculate the distance and the both objects come closer then the sensor will pass command to the circuit and the brakes will be applied automatically.

This system can save a lot of life even it can avoid accidents. For increasing the loading capacity of the motor the gear section that is the gear box is also installed that will increase the loading capacity of the motor without consuming more voltage and power from the battery.

Chart -1: CIRCUIT DIAGRAM



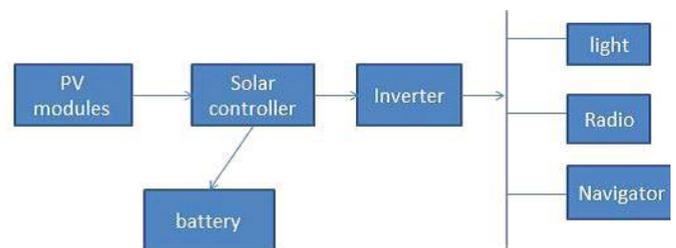
A. CONVERSION OF WIND ENERGY INTO ELECTRIC ENERGY :

In this prototype the wind capturing device is a fan. Fan is mounted on the front side of the chassis with the truncated cone in front of it. Fan will get rotated by the wind blown by the blower which will get directed toward the fan due to cone where in actual it will be the wind around the vehicle when

vehicle is in running condition. Rotating fan will convert the captured kinetic energy of wind into mechanical energy. The centre shaft motor which is connected to battery will convert this mechanical energy into electric energy which is going to be stored in the battery. Fig shows below the energy stored by prototype from wind energy.

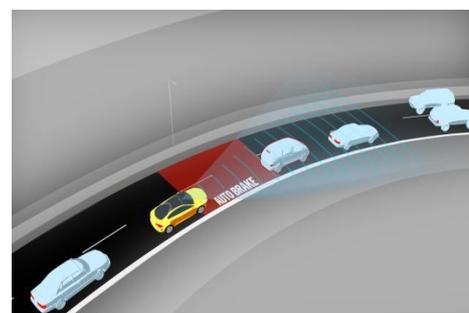
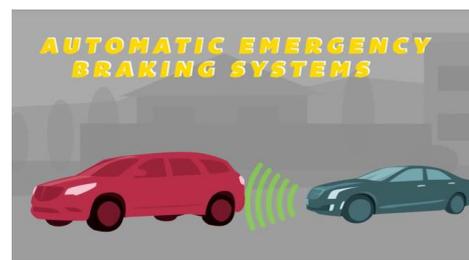
B.CONVERSION OF SOLAR ENERGY INTO ELECTRIC ENERGY:

Solar panel is situated on the top of battery in the prototype. Where in actual vehicle it will be mounted on the upper body of chassis of four wheeler. While the vehicle is in running position or stand still and has a sufficient solar energy the solar panel will trap that energy and due to the photovoltaic effect of solar panel, it will convert this solar energy into electric energy which will get stored into the battery.



6. AUTOMOTIVE TRACKING SENSORS

The sensors used to track objects and monitor the movement of the host vehicle as well as the movement of the surrounding objects to predict collisions are known as 'tracking sensors'. In automotive applications, cost of the sensor is a major factor.



7. ADVANTAGES

1. Zero Carbon emission

2. Accidents are avoided due to automatic braking
3. Use of brushed motor
4. Vehicle speed has been increased
5. Can run in the city as well as on highways.

8. DIS-ADVANTAGES:

1. Limited vehicle speed
2. Limited distance covered
3. Takes more time to charge the battery.
4. Only can be used in city.

9. CONCLUSIONS

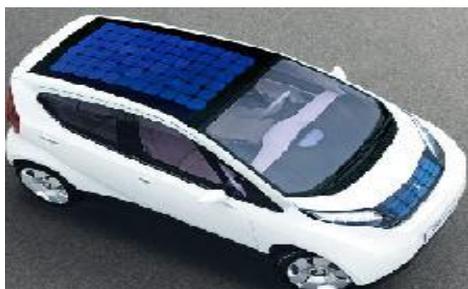
After making the final completion of project it is found that project is in working condition. It is found that prototype captured the solar energy through solar panel and wind energy through fan induced on it. There are huge potential for producing electricity from renewable sources. This paper gives a clear idea that vehicle powered with the help of solar energy and wind energy is more effective than fuel vehicle.

GEARED DC MOTOR: For increasing the loading capacity of the motor the geared 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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