

Vertical Axis Wind Turbine for Battery Charging of Electric Vehicle

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Abstract: Wind presents a vast source of renewable energy. We use arrangement of vertical axis blade for power generation called as turbine for power generation. When the car moves with an average speed the wind turbine attached to it also rotates the turbine should place in such a way that the wind strikes the blades. This gives the turbine a rotational movement. The turbine is placed along the path of wind flow path that is mounted on the car. Then the blade rotates and energy is generated. The car moves, the turbine rotates and this rotational energy can be converted into electrical energy via alternator.

Keywords: Turbine, Alternator

1. Introduction

The wind energy is an environment-friendly and efficient source of renewable energy. The kinetic energy of the wind can be used to do work. This energy is harnessed by windmill in the past to do mechanical work. This is used for generating electricity. To generate the electricity, the rotary motion of, the windmill is used to turn the turbine of the electric generator. Now-a-days, renewable energy sources are gaining more attention in power sectors because of the efforts to reduce the usage of fossil fuels to generate the electrical power. And wind power in modern era has become the most established sources in generating the electricity amongst all the renewable sources because of its promising technical and economic prospects. Wind power generation has continued to increase globally. With the latest wind annual report. it is stated that in 2015 around 392 GW is installed all over the world which can sufficiently supply 4% of world's electricity demand. And, it continues to grow approximately 24% per year globally. With the worldwide rise of generation of electricity through wind turbines, the impact on the electric utility grids has also increased. By the end of 2015, six countries including China (145362 MW), Spain (23,025 MW), Germany (44,947 MW), USA (74,471 MW), India (25,088 MW) and UK (13,603 MW) had over 10,000 MW of the installed capacity.

- To increase the efficiency of electric and hybrid vehicle.
- To avoid time loss in recharging of battery.
- To generate electricity using less expensive arrangement.

To give the application of an ac generator and to describe the operating characteristics of that generator including methods of voltage production.

- To generate the DC permanent magnet motor as generator part in electric car.
- To gain the output power from the shaft rotation of DC permanent magnet motor.

2. Figures

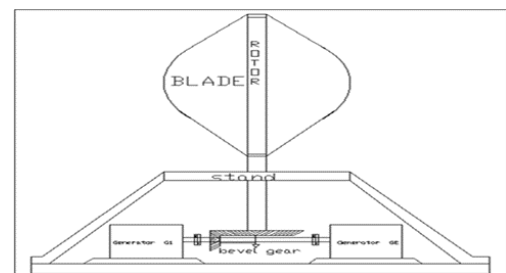


Fig. 1. 2D sketch of the proposed idea

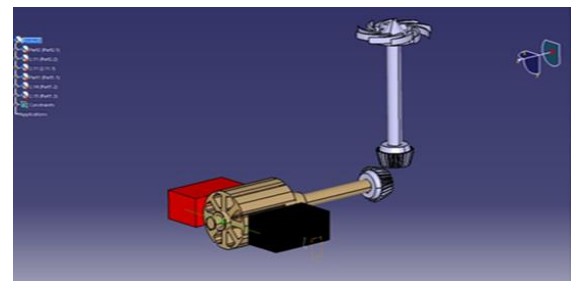


Fig. 2. 3D Catia model of the proposed idea

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