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WIND POWER GENERATION ELECTRICITY BY FAST MOVING VEHICLES – A REVIEW

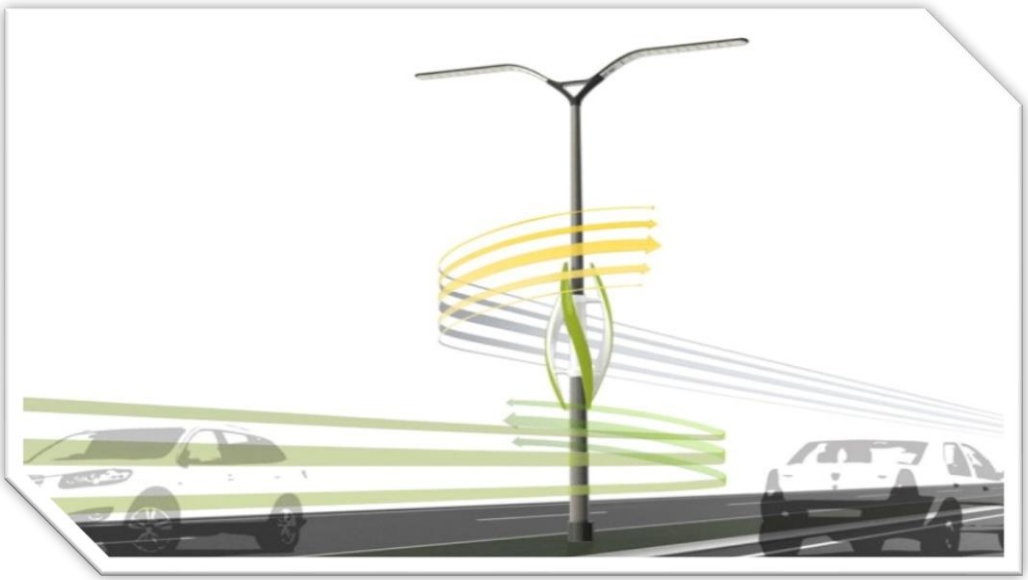
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ABSTRACT

A method for generating electricity using high wind pressure generated by fast moving vehicles controlling the induced wind in the direction of the wind turbine; changing the energy of the wind into mechanical energy by using wind turbine; and changing the mechanical energy into electrical energy by using a generating device and can be used for applications. The amount of wind energy production by strong places rises from the high-speed moving vehicles. At this study to use highway moving vehicles wake energy for the generation of electrical energy through horizontal axis wind turbine throughout the valuable to all over India's highway where vehicles speed is regularly high. The generated electrical energy is used for renewable self-powered applications for lighting purposes such as traffic signals, highway lights, and light guidelines in a highway by high-speed moving vehicles.

INTRODUCTION

The main goal of this project is creation of a highway windmill. This project changes wind energy into electrical energy. A windmill is a kind of machine. It usages the wind to make energy. To do this it uses vanes so-called blades. The energy made by windmills can be used in various ways. Modern wind power machines are used to produce electricity. These are termed as wind turbines. The windmill has been in history for several years. A wind turbine is a device that converts the wind kinetic energy into electrical energy. Wind turbines are manufactured in a wide range of vertical and horizontal axis categories. The smallest turbines are used for applications such as battery charging for secondary power for boats to power traffic warning signs. Slightly larger turbines can be used for making contributions to a domestic power supply while selling unused power back to the valuable supplier by the electrical grid. Selections of large turbines, known as wind farms, are becoming an more and more important source of alternating renewable energy and are used by many countries as part of a strategy to decrease their reliance on fossil fuels. An electrical maker is a machine which converts mechanical energy into electrical energy.



Induced EMF is produced in it according to Faraday's law of electromagnetic induction. This EMF sources a current to flow if the conductor circuit is closed. An inverter is an electronic device or electric circuit that changes direct Current (DC) to Alternating Current (AC). The input voltage, output voltage and frequency, and total power handling depend on the design of the specific device or circuitry. The inverter does not produce power at all, the power is provided by the DC source. It just changes direct current into alternating current. In this project wind turbine uses wind's kinetic energy and changes into mechanical energy. This highway windmill uses wind energy generated by the moving vehicles and converts into mechanical energy. The DC generator converts the mechanical energy into

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electrical energy. Then electric energy stored in battery and used for street light generation.

SCOPE OF WORK

1) It is useful for advertisement and in terms of safety we will provide warning signs or regulatory signs.
2) By decreasing reliance on fossil fuels, wind energy helps to reduce air pollution that causes respiratory and cardiovascular issues to mankind.
3) No greenhouse gases during operation, helping to mitigate climate change and reduce air pollution.
4) This entire project is sustainable in nature and material can be recycled.

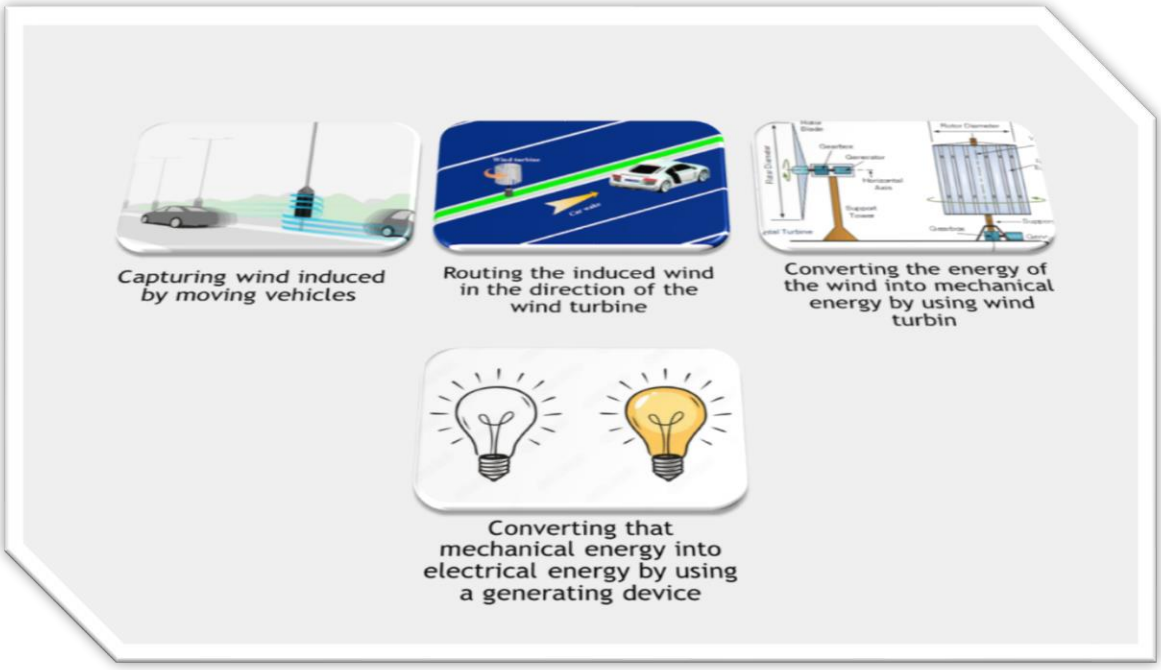
MATERIAL AND METHODS

Material

1) PVC PIPE: The full form of PVC is Poly Vinyl Chloride. PVC is a polymer which is made from Vinyl Chloride Polymerisation. PVC is being used in a various type of products, including raincoats, wires, pipes, bottles.
2) GRATAION MOTOR: A generation motor, also known as a motor-generator, is a combination of an electric motor and an electric generator that can convert electrical and mechanical energy.
3) WIRE: Wires are pieces of metal that transport electricity. They are frequently flexible which makes them easier to use.
4) BATTERY: A rechargeable battery is a battery that can be charged and used multiple times.
5) SWITCH: A small button or something similar that you press up or down in order to turn on electricity.

Methodology

1) Arrange the material and resources.
2) Placing the project on the Old Mumbai Pune highway.
3) Capturing the wind made by moving vehicles.
4) Directing the induced wind in the direction of the wind turbine.
5) Converting the wind energy into mechanical energy by using wind turbine.
6) Converting that mechanical energy into electrical energy by using a generating motor.
7) This electrical energy is used for generation of street light.



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