

Sustainable Green Technology in Replacing Fuel in Automobiles

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Abstract- Now-a-days we see automobiles running with solar power, hydrogen, water etc but my idea is to capture the energy of air which is opposing the vehicle, when the vehicle is moving forward with high speed. Generally when we travel in car on the high ways with high speeds we observe high velocity of air striking as back, so, our idea is to capture the kinetic energy in the air striking back and convert this into electrical energy to run the car.

Keywords: alternative fuel, wind energy, electrical car, piezo electric cells.

I. INTRODUCTION

The increase in energy consumption particularly in the past several decades has raised fears of burning the globe inturn pollution raise in the future. Many experts now believe that renewable sources are poised to achieve a major breakthrough in the world's pollution control.

Wind power is one of the most sustainable, efficient sources of alternative energy. The only way to harness wind energy is wind turbine. But it's impossible to mount a wind turbine on car. Even though there are vertical type wind turbines with less height (e.g.; helical wind turbine) due to its weight we can't mount vertical wind turbines on automobiles due to effect of drag force... The only solution for this is by using piezo electric transducers.

Research is going on to capture K.E. of wind by piezo electric cells. A new device VIBRO WIND MILL is invented recently to capture the wind energy and convert this energy to electrical.

Another device TREE SHAPED WIND POWER SYSTEM is also invented recently. By mounting any of the above devices we can capture wind energy and convert this to electrical energy.

II. DESIGN PROCESS

Vibro wind mill: This has a frame which mounts 25 pads made of foam .Each pad is coupled with piezoelectric transducer. These pads vibrate when wind flows over them and each individual pad will produce electricity which can be stored in batteries.

Tree shaded with wind power system: A piezoelectric wind power system based on a tree is invented recently, where the 'trunk' makes use of the piezoceramic material PZT ($\text{Pb}(\text{Zr-Ti})\text{O}_3$) and the 'leaves' are made from a relatively soft, flexible polymer poly(vinylidene fluoride) (PVDF). The idea is that the more rigid trunk can harvest energy more effectively in stronger winds and the leaves work best at lower wind speeds, and both send a trickle of electricity down to a rechargeable battery at the base of the system. Their final prototype suggests the inclusion of a flexible film of a solar cell onto the leaves for electricity production on windless days.

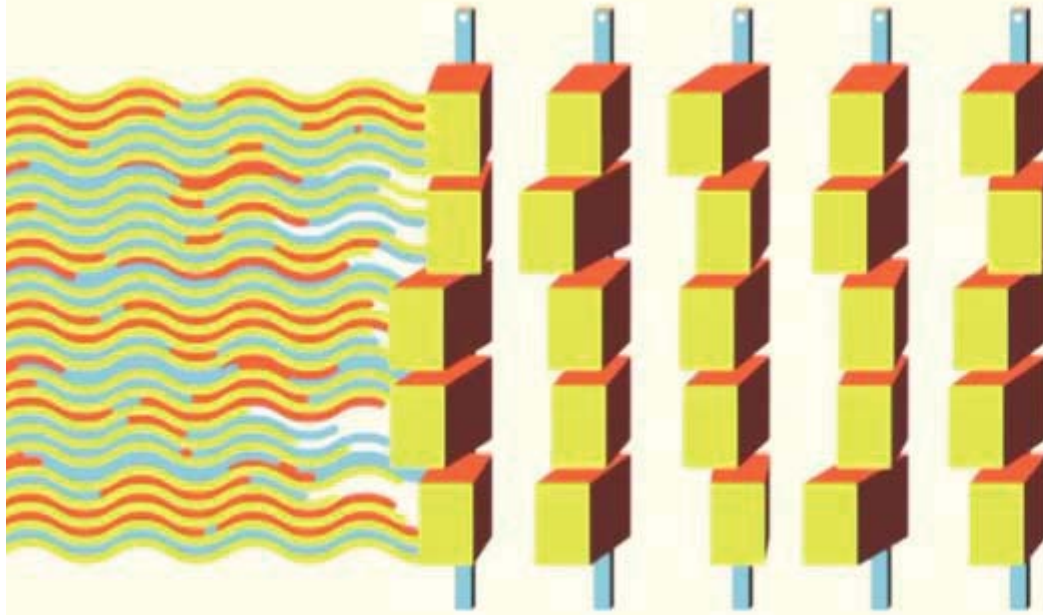


Figure 1 air striking the foam oscillators

III. WORKING PROCEDURE

The electric car with rechargeable batteries and wind harvesting device (Vibro wind mill or tree shaped with wind power system) starts initially with the battery, after some distance traveled by the car the windmill grasps the air which is flowing with the velocity equal to the car velocity, and generates electricity. This generated electricity is stored in the lead acid batteries; these batteries power the vehicle to move forward. This car can be also accomplished with solar panels which can generate electricity in the absence of wind. The initial electric power in the batteries can be obtained from solar panel or by direct recharging the batteries. This type of automobile is generally useful in high ways, where there is no traffic

IV. ADVANTAGES

1. No pollutions
2. The weight of vibro windmill setup is less.
3. As we are using less material, installation cost of vibro windmill is much cheaper when compared to normal windmill.
4. This electric energy generated is high when compared to normal windmill.
5. The air required to move the foam oscillators of windmill is less. as small as air currents hit the windmill make the foam oscillators to vibrate and produce electrical

V. ALTERNATIVES

1. Instead of using piezoelectric transducer we can also use electromagnetic coils.
2. We can also use tree shaped with wind power system to generate electricity.
3. We can use solar panel along with the wind harnessing device to get electric energy in the windless days.

VI. CONCLUSION.

1. Till today no one has concentrated to generate electricity by using wind energy and run the car. And not even a research paper on this, hope my idea will help and this paper will be guideline to whom they are going to work in this field
2. This study demonstrates a methodology for harnessing the power from freely available wind. .
3. "Self powered & pollution free" GREEN INDIA

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