

Production of Electricity by Fast Moving Vehicles

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Abstract— In living word population is increase hence daily use of non renewable source is also increase. But in the world there is more non renewable source available like wind, solar, tidal, nuclear energy source. In this thesis using of the wind source of energy it is easy to generate electricity. Hence using of the wind energy source installing turbine on the roof of the train electricity will be produce. Actually when the train is in the motion, the velocity of the upstream air is high and it can be used for the generation of electricity. Using high wind pressure by moving train the direction of the wind is rotate turbine and there are energy should be convert into the mechanical using the turbine and then it is converted into the electrical energy using converting devices.

Keywords: Fast Moving Vehicles, Turbine, Alternator

I. INTRODUCTION

Energy is a necessary ingredient of socio-economic development and economic process. Renewable energy resources exist over wide geographical areas, in contrast to other energy sources, which are concentrated in a limited number of countries. Rapid readying of renewable energy and energy potency is leading to vital energy security, climate change mitigation, and economic benefits. There is robust support for promoting renewable sources like alternative energy and alternative energy. It would also reduce environmental pollution such as air pollution caused by burning of fossil fuels and improve public health, reduce premature mortalities due to pollution and save associated health costs. Renewable energy sources like wind energy can help in reducing the dependency on fossil fuels. It has been calculable that roughly ten million MW of energy area unit ceaselessly out there within the earth's wind. Recently, wind energy has become one in all the foremost quickly increasing renewable energy resources. The wind is a source of free energy which has been used since ancient times in windmills for pumping water, electricity generation and grinding flour. They are still dependent on the vagaries of the weather. Not simply on the wind direction however on the intermittent and unpredictable force of the wind. Areas where winds are stronger and more constant, such as offshore and high altitude site are preferred locations for wind farms. Between these extremes, cost efficient installations have been developed to extract energy from the wind. Modern technology has been making improvements to the efficiency of windmills, which are now extensively used for electricity generation. The use of alternative energy sources in automobiles is gaining importance with each passing year due to the rapidly depletion of available energy resources, the rise in fuel prices depending on this depletion, and environmental factors. The most important factors in the acceptance of alternative energy sources are the initial purchase cost of the system, the cheapness of the fuel, station availability and filling duration

of the fuel, vehicle vary and performance, and therefore the environmental impact.

II. LITERATURE SURVEY

Neeraj Kumar [3] production of electricity by using the concept of the rotation of wind turbine due to the wind caused by the moving train. Wind turbine is provided with ventilated casing to reduce the large air pressure. The mouth of casing is given valve to regulate the wind flow. The blade is mounted on the roof of the train and total mechanical support is provided .The electricity produced will run the various loads connected to the train cabin. The excess power is stored in battery for further use. This will help to cut down the usage of non-renewable sources which is on the verge of extinction and the entire process is nonpolluting.

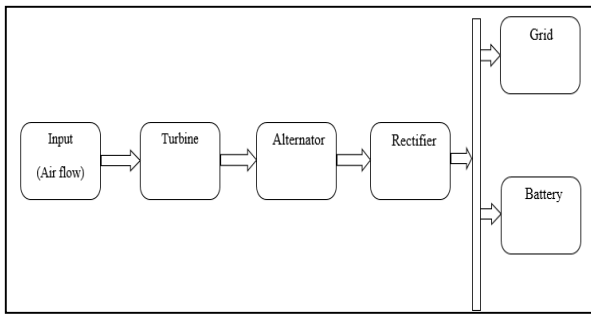
Suresh Mashyal system [4] Highways can provide a required considerable amount of wind to drive a turbine due to high vehicle traffic. This energy is unused. Extensive analysis on wind patterns is needed to work out the typical rate of the wind created by oncoming vehicles. The wind turbines are placed on the medians so fluid be due either side of the road are thought of within the style. Using all of the collected data, existing streetlights on the medians can be fitted with these wind turbines. Additionally, since the wind source will fluctuate, a storage system for the power generated will be designed to distribute and maintain a constant source of power.

G. Prasanth, [5] wind energy produced by trains is very unique, as it does not depend on any natural energy resource. A moving train compresses the air within the front of it and pushes the air to its sides thereby making a vacuum at its rear and its sides as it moves forward. To fill up this vacuum a mass of airflow rushes into the sides and the rear. The K.E. of the wind movement therefore created is employed to come up with electricity. This paper deals with moving train compresses the air in the front of it and pushes the air to its sides thereby creating a vacuum at its rear and its sides as it moves forward. As a result, turbine is rotated is placed in a sides of the train.

III. SYSTEM DESIGN

A. Implementation

As G. Prasanth says in there paper name (“A Renewable Energy Approach By Fast Moving Vehicles”, Proceedings of the National Seminar & Exhibition on Non-Destructive Evaluation NDE 2011, December 8-10, 2011) is the turbine is assemble in side of the train but we are assemble the vertical turbine on the roof of the train. The vertical turbine is better than the vertical because when we assemble on the side of the train the pressure of the wind and the distance between the 2 train is less hence sometime it will be crash or due to the pressure of the air it is damage.



Block Diagram

1) Input

We are using the wind energy to generate electricity, the flow of air which is created due to the movement of train is used.

2) Turbine

A wind turbine is a device that converts kinetic energy to electrical power. As the wind currents created due to disturbance in air molecules because of movement of train, will strike on the turbine and turbine will rotate. The turbine which are used are bidirectional wind turbines. Further the turbine is connected to the alternator through shaft where we will get the electrical output.

3) Alternator

A generator may be a generator that converts energy to electricity within the type of AC.

4) Rectifier

The process is known as rectification. A rectifier may be a circuit that's used for changing AC provide into unidirectional DC provide. The electrical energy which is generated from an alternator in the form of ac current is then passed through the rectifier for rectification.

5) Grid

The term grid refers to a network, Grid may also be used to refer to an entire electrical network, In our project the grid which we are implying are the grid or the electrification system in the train such as the fans and tube lights inside the train or coaches of the train.

6) Battery

The energy from the rectifier will supplied to the grid and the extra energy which is remaining will be stored in the batteries.

IV. METHODOLOGY

- 1) Step 1 - Selection of blade material and blade.
- 2) Step 2 - Selection of dynamo for model.
- 3) Step 3 – Fabrication of whole model.
- 4) Step 4 - Test performance on developed model.



V. CONCLUSION

As the Dr. A.P.J. Abdul Kalam says in year of 2020 India become a superpower country. But day to day life using of non renewable source are most of used, this is non creatable, hence we need to used the renewable energy source for the generating the electricity. there is an urgent need for transition from non-renewable energy systems to one based on renewable resources to decrease dependency on depleting resources. We can also utilize the wind energy which is going in vain and can be used for electrification of train. The rail network in the would may contribute lot of energy harnessed from wind as a natural resource. This project model concept of electricity generating using fast moving train, which can further be extended on long scale.

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