

Review on Vertical Type Light Weight Enlil Trubine

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ABSTRACT

Enlil turbine is one type of wind turbine. Enlil turbine is a combination of solar panel and wind turbine. It convert wind energy and solar energy to electric energy. In this paper a detail review has been done regarding the Enlil type turbine. Working of turbine and previous designs and developments also enlighten in this paper. Focus is given to reduce in weight of Enlil turbine so it can be used in local area to generate the power. In many countries this kind of Enlil turbine were installed at toll plaza and highways for the testing purpose.

Keywords:- Wind energy, torque, power generation , solar energy

INTRODUCTION

We know that the demand of energy is increasing day by day. Now this time we have limited amount of non-renewable resources of energy. The consumption of more energy generated from non-renewable resources created more pollution like coal, nuclear and atomic energy. So now world is looking for renewable energy sources which are pollution free and easily available. Wind energy is a great source to generate electricity from air velocity and its being used form many years. Wind energy can be categorized by the orientation of their axis of rotation into two group horizontal axis wind turbine (HAWTs) and vertical axis wind turbine (VAWTs). Wind energy has in last century emerged as a new large scale renewable energy technology.

So, Turkish company DeveciTech from istanbull created a wind turbine. The name of the wind turbine is enlil turbine and also known as enlil vertical wind turbine.

The turbine is designed vertically with long blades. The device is capable of producing approximately 100 watts per hour of electricity. A single ENLIL turbine can provide the average daily electrical desires of two households. The wind energy which is getting wasted is utilized by this method for producing electricity. In last previous years so many vertical axis wind turbines are developed to generate energy near to sea shore. One useful type of the VAWT is Darrieus type wind turbine.



Fig.1:-Darrieus Vertical Axis Wind Turbine
swedan



Fig.2:-Vertical axis wind turbine in

LITERATURE SURVEY

Erik Mollerstrom et al (2015) have developed Vertical axis wind turbines (VAWTs) with time been outrivalled by the today common and economically feasible horizontal axis wind turbines (HAWTs). The work between the department of construction and energy engineering at Halmsyand University and the division for electricity at Uppsala University. This particular turbine has wooden tower which is semi-guy-wired, that means tower is both firmly attached to the ground and supported by guy wires.

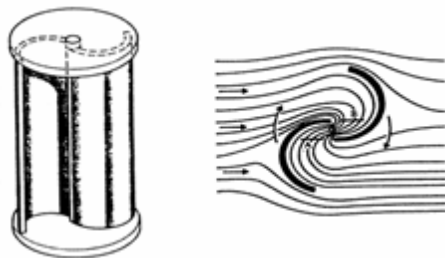


Fig.3:-Savonius type turbine operation

Senad Apelfrojd, et al.[3] have done review and research on Vertical Axis Wind

Turbines at Uppsala University. They have shown an overview of the 200KW VAWT located in Frankenberg, Sweden, also an explanation of the work done on the 12KW prototype VAWT in marsta, Sweden. In this system they have reduced the maintenance cost and investment cost as all the operating control is handled by electrical converter.

P.Karthikeyan, P.Dineshkumar, R.Gokul, G.Tamilvanan [5] have designed and Developed an Enlil wind turbine which works on highway roads and generates electricity from the city wind velocity. Energy generated by the velocity of air generated by moving vehicles and normal atmospheric air flow. When heavy and high speed vehicles pass on road it generate high velocity of air which rotates the turbine blade and generate electricity. Anil Prasad, Satish Karemmanavar et al.[6] have developed and tested the vertical axis wind turbine having Involute shape designed, which is ideal to be located at the highways medians to generate electricity, powered by wind.

This is a unique type of design which include Enlil turbine with involute or

triangle shape having light weight and simple construction / setup.

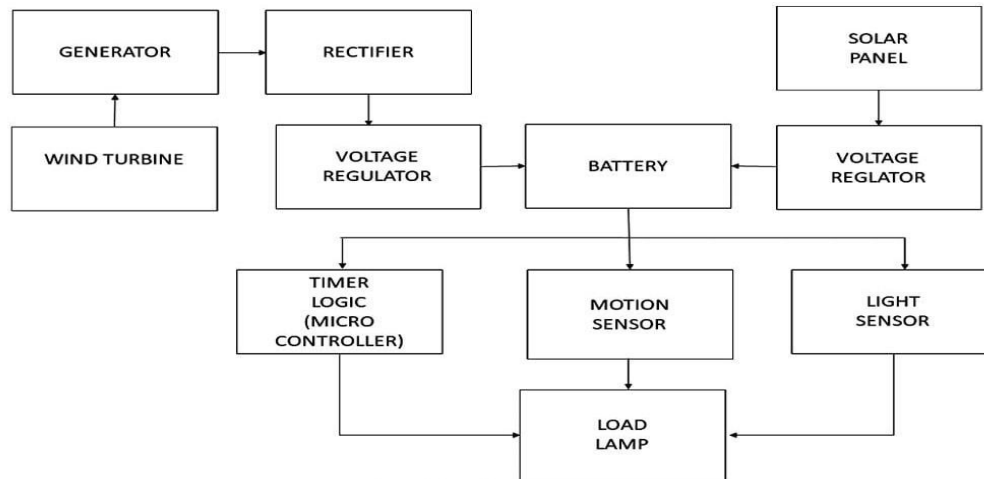


Fig.4:- Block diagram of connection

Mohammad Omar Farooque (2019) has shown that Renewable energy plays vital role to increase country's economy and growth. However, renewable energy will improve life performance of the living beings. There are numerous ways to generate electricity. Although, wind energy resource is highly recommended due to its clean and non-polluting fuel sources with no water resources required to generate electricity.

Sachin Y. Sayais, Govind P. Salunkhe[8] have designed and developed modified savonius type wind turbine which is located on Divider of state highway road. This VAWT is solar enabled so if any source of wind energy is mission it can generate energy by using solar energy. Energy generated will be stored in battery and used for streetlight and electricity at toll plaza. This is renewable and ecofriendly energy generation.

Atul kumar, Muhammad Zafarullah khan, Bishwajeet Pandey [10] done review on the outline of wind innovation, where the approach depends on standards and down to earth executions. After the solar energy, wind energy is another big source of

renewable energy which can be easily available.

Sujoy Chakraborty, Abhijit Sinha, Saptarshi Dutta [11] observed that Wind energy conversion systems have become a focal point in the research of renewable energy sources. The Scientists and researchers attempted to accelerate solution for wind energy generation design parameters.

Lucas deisadze, Drew digser, et al. (2013) have done a project study on potential for installing roof mounted vertical axis wind turbine systems on house roofs. The project designed several types of VAWT blades with the goal of maximizing the efficiency of a shrouded turbine.

CONCLUSION

This system is environmental friendly. Renewable energy like solar energy and wind power used to generate electricity without any pollution. This paper shows the several key aspects have been tested and successfully demonstrated at our two Experimental research sites. Some constrains still need to improve to improve the efficiency of vertical axis wind turbine.

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