DEVELOPMENT OF 500 WATTS MOVABLE AXISRECTANGULAR WIND POWER GENERATION

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Abstract-- **Wind energy is the most available form of renewable energy among all the energy sources .wind energy can be extracted by a wind turbine and can be converted into electrical energy using proper electricity generating apparatus. In day today life the demand on electricity is much higher than that of its production the main objective of our project is to produce electricity. Most of the wind turbine is in big size, and need lot of space to occupy ,and needs high velocity of wind lot of limitations. This problem can be overcome by using the Movable Axis Wind Turbine(MAWT).This is a new unique method of power generation. This method can be applied in different areas such as homes ,offices, etc. the shape of the wind turbine can be designed according to the shape of the window. if we take a window, we can add number of turbine in the form of arrays, each turbines consists of two generators, and each generator are coupled together with the help of the multiplexer.**

Index Terms--(VWT)Vertical axis wind turbine, (HWT)Horizontal axis wind turbine.

I. INTRODUCTION

Power has been extracted from the wind over hundreds of years with historic designs. wind is the form of renewable energy. wind is the movement of air from an area of high pressure to an area of low pressure. human use this wind flow, or motion energy .the wind turbine was made to produce energy for a clean and safe environment the term wind energy or wind power describes the process by which the wind is used to generate mechanical power or electricity. wind turbines convert the kinetic energy in the wind into mechanical power. this mechanical power can be used for specific tasks or a generator can convert this mechanical power into electricity.

A wind turbine is a device that converts kinetic energy from the wind into electrical power wind turbines operate on a simple principle. the energy in the wind turbines made up of three or more propeller like blades around a rotor. the rotor is connected with the main shaft.

now available type of wind turbine is not suitable for all wind direction and it gives partial efficiency and also increase in cost of design, installation ,and maintenance .to overcome all these problems a new unique method of wind is to be introduced this paper have kept one step forward of windmills technology with use full application. this main aim of this project is to produce energy by using renewable energy resources in that manner the wind is very much eco-friendly and very compactable one. by using that energy in a useful manner we can produce a continuous power

II. LITERATURE REVIEW

[1] This project mainly differs that the blade is designed using different types of airfoils which are oriented at different angle of attack and the blade design is responsible for the efficiency for the wind turbine, where the designs of blades are done using Q- BLADE software. **[2]** This project provides a complete picture of wind turbine blade design and shows the dominance of modern turbines almost exclusive use of horizontal axis rotors.

[3] This model was solved using a genetic algorithm, and good complementarily between the two energy source was reported. and the fuel cell system was used as backup resources ,where as the main energy sources were the solar and wind system. **[4]** In this wind turbine where producing wind power has the

potential to supply much of energy demand of the world, according to rotational concept wind turbines can classified into two categories one is horizontal axis and another one is vertical axis. a vertical axis wind turbine has several advantages, it will propelled by wind from any direction, and gravitational stress on the vertical axis turbine are even, allowing lighter and larger constructions.

[5] In this project introduce newer technologies and that are making the extraction of wind energy much more efficient. and it up less space than the average power station . windmills only have to occupy a few square meters for the base , this allows the land around the turbine to be used for many purposes. the design ,that it can be efficient used for household purposes. [6] The conventional large scale wind turbines normally operate in the uniform areas where wind speed and turbulence characteristics are well investigated and the constructional design of the wind turbines is regulated by the standard classes for different conditions. design of VAWT is subjected to a number of interlinked parameters which are calibrated or optimized in order to have an efficient working model

[7]The durries blade s were not performing as anticipated and in fact, it was causing a resistance when used in a combined assembly. the probable causes for this may depend upon many other factors which improper and may depend upon many other factors which failed to take into consideration because of lack of literature. the savonious blades were rotating at the desired speed but were less efficient than we expected. this may be because of the higher RPM rating of the motor, thus producing lower voltage.

[8] The need to expand and to restructure the power system with greater use of primary sources makes distributed generation increasingly competitive, being wind generation one of the most relevant non-pollutant renewable forms. the voltage deviation index , current deviation index and technical losses of the system are chosen indicators to be evaluated.

[9] This wind turbine ,the heavy parts can be placed on the ground and they can be maintained easily. VAWT can capture the wind from all direction. asynchronous generator connected directly to the power grid is the one of the simplest method for wind generation system. the models of each part and the control schemes are proposed . especially , the model of VAWT is given in details including the

phenomena such as tower shadow and wind shear. finally 55w experimental VAWT is accomplished.

[10] This vertical axis highway turbine gives an idea about the new way of power generation and also about the new windmill technology. the power generation using VAHT is an eco friendly method and power production here is almost a continuous one.

III. METHODOLOGY

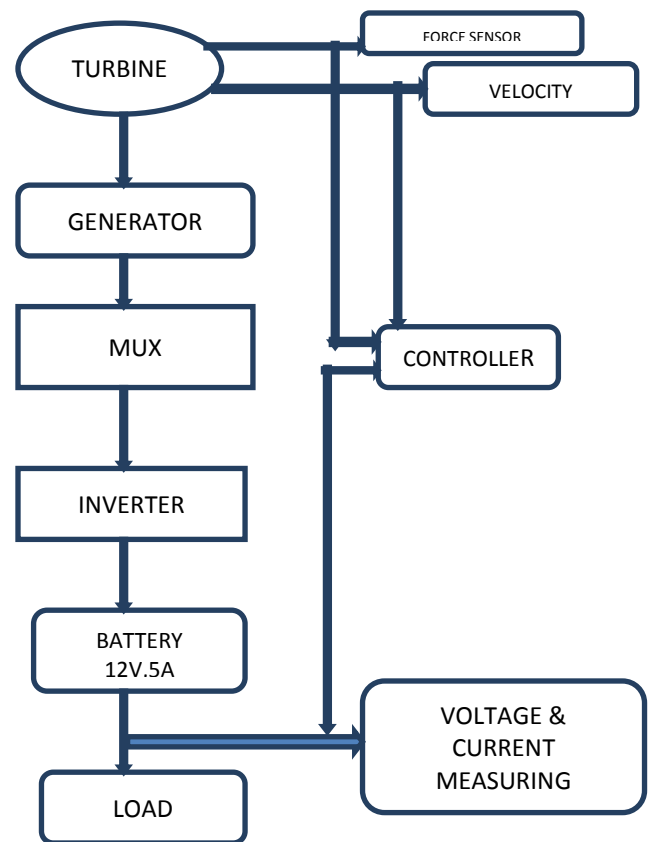The proposed methodology basically consist of one block diagram, the major part is rectangular type frame .

Fig 3.1.Block diagram of wind system

IV. IMPLEMENTATION

TURBINE

The turbine is the device that convert into kinetic energy into electrical energy. The turbine operate on simple principle. The energy in the wind turns two or

three propeller-like blades around a rotor. The rotor is connected to the main shaft, which spins a generator to create electricity.
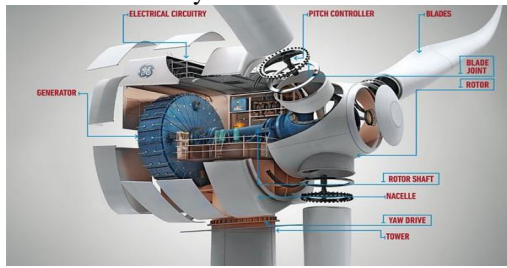

fig 4.1. wind turbine

GENERATOR

A generator is a device that convert motive power into electric power for use in an external circuit. The source of the mechanical energy is wind power. Generator provide nearly all of the power for electric power grids.

fig 4.2. wind generator

MULTIPLEXER

The multiplexer(MUX) is a electronic device that combines several analogs or digital input signals and forwards them into single input line. A multiplexer of input has select lines, which are used to select which input line to the output.
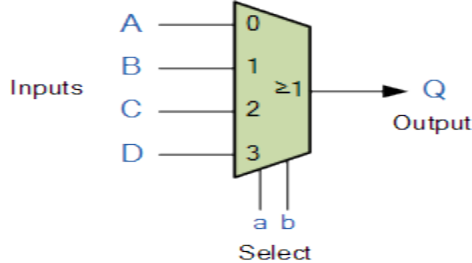

fig4.3. multiplexer

INVERTER

A power inverter or inverter is an electronic device or circuitry that changes direct current(DC) to alternating current(AC). The input voltage, output voltage and frequency, and overall power handling depend on the design of the specific device or circuitry.

fig4.4. inverter

BATTERY

An electric battery is an device consisting of one or more electrochemical cell with external connections provide to power electrical devices such as flashlights, smart phones, and electric cars. When a battery is supplying electric power, its positive terminal is the cathode and its negative terminal is the anode.

fig4.5. battery

FORCE SENSOR

The flexi force sensor acts as a force sensing resistor in an electrical circuit. When the force sensor is unloaded, its resistance is very high . When the force is applied to the sensor, there a proportional decrease in resistance measurementof higher load than other force sensitive resistor.

fig4.6. force sensor

VELOCITY SENSOR

A velocity receiver or velocity sensor is a sensor that responds to velocity rather than absolute position movement causes the coil to move relative to the magnet , which in turn generators a voltage that is proportional to the velocity of that movement.fig

.   fig4.7. velocity sensor

CONTROLLER

It is the main controller used here it control the voltage and its gives the signals to the display to displaying different process while doing.

A controller is a complex circuit, is a hardware device or a software program that manages or direct the flow of data between two entities. In computing controllers may be cards, microchip for the control of a peripheral device. In a general sense, a controller can be thought of as something that interfaces between two systems and manages communication between them.

fig4.8. controller

CURRENT& VOLTAGE SENSOR

A current sensor is a device that detects electric current in a wire, and generate a signal proportional to that current. The generated signal could be analog voltage or current or even a digital output, unipolar output, which is proportional to the average value of the sensed current.

fig4.9. current & voltage sensor

LOAD

An electrical load is an electrical component or portion of a circuit that consumes electric power. This is opposed to a power source, such as a battery or generator, which produces power.

In electric power circuit examples for loads are appliances and lights. The term may also refer to the power consumed by a circuit.

fig4.10. electric load

IV.   CONCLUSION

By completing this project we have achieved of a clear knowledge and a comfort wind generation system for a our society. We developed combination of vertical axis and horizontal axis wind generation system, here have lot of advantages than normal wind generation system. And also provides a specific wind utilization method.

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VI. ACKNOWLEDGMENT