

Green Energy Generation Through Rotatory Motion

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Abstract: Green Energy Generation Through Rotatory Motion system is one of the supporting step to produce green and clean energy. This system converts the rotational motion of rotatory body (Fan). This system can store energy in a storage battery and can be given to the body whenever required. The major feature of the introduction is to significantly make use of the rotatory motion in many applications of industries, housing, and many more. This system is used to improve and to maintain balance in ecosystem to reduce usage of fossil fuel. This will allow to use renewable energy rather than natural limited sources.

I. Introduction

In today's busy world the natural and limited energy source consumption is the biggest problem arising. As the fossil fuel consumption leads to pollution, it gives rise to the most biggest issue of Global Warming.

While using any body with rotational motion, the rotational energy is wasted. This energy can be harnessed and by converting it into a suitable form of energy can prove very useful for several applications.

Green Energy Generation Through Rotatory Motion System is able to convert the rotational energy into electrical equivalent. There are two types of output can be given by this i.e AC & DC.

1.1. Problem Statement

The problem of this system is the consumption of this system is more in comparison to its output.

On increasing the load the rotation of the generator slows down.

Reverse current flows across it which leads to the depletion of the speed of the motor.

Large and hectic circuitry leads to major area consumption.

1.2. Objective

The objective of our project is to reduce the usage of fossil fuels and make people aware to use renewable energy. As the usage of our system will make people to use green energy, the use of the rotational energy at the ground level can be done by using the rotational motion of fans. To produce energy wherever the rotational motion is available such as in industries, where huge dynamos are used on a large scale.

II. Material

2.1. IC CA3524E

The CA3524 is silicon monolithic integrated circuits designed to provide all the control circuitry for use in a broad range of switching regulator circuits. It has almost all the features of the industry types.

It consists of zener voltage reference, transconductance error amplifier, precision R-C oscillator, pulse-width modulator, pulse steering flip-flop, dual alternating output switches and current limiting and shutdown circuitry. This device can be used for switching regulators of either polarity transformer-coupled dc-dc converter, transformerless voltage doublers, dc-ac power inverters, high efficient variable power supply and polarity converter as well as other power control applications.



IC CA3524E

2.2. DC Motor

A DC motor is a device which converts the direct electric current energy into mechanical energy.



DC MOTOR

The speed of the Dc Motor can be controlled on a wide range by altering the strength of the currents in its field winding or by varying the supply voltage.

There are two types of DC motors namely

- Brushed DC motor.
- Brushless DC motor

Brushed DC motor:

The torque generated by the Brushed DC motor is directly from the power supplied to the motor by internal commutation.

Advantages of Brushed DC Motor is

- Initial cost is low.
- Reliability is high.
- Controllable motor speed.

Disadvantages of Brushed DC motor is

- High maintenance.
- And low life span for high intensity uses.

Brushless DC motor:

In the rotor of the brushless DC motor, there are one or more permanent magnets on the motor housing of the stator.

Advantages of the brushless DC motor

- Long life span.
- Minimum maintenance.
- High efficiency.

Disadvantages of brushless DC motor

- Initial Cost is high.
- Complicated Speed controllers.

2.3. BATTERY

It is basically used to store the electrical energy. This electrical energy can be used for further application like headlights and music system of the car. Typically a lithium ion battery is used for storing purpose. A lithium ion

battery is used because its rate of discharge is lower and it also has low maintenance as compared to nickel cadmium battery.

2.4. IRF4435

These P-channel power MOSFET's are designed for achieving low on-resistance per silicon area. This provides a benefit to design efficient systems and load management applications.



IRF4435

III. Methodology

At the initial stage of working, we will provide electricity to any rotatory body to work. As the body starts rotating, the connection between the dynamo and the rotatory body is established which results in giving the output of 12V AC current.

The output given by the dynamo is fluctuating in nature. To overcome this fluctuation, a voltage regulator is used. With the help of a voltage regulator, we get 12V stable output. The output of the voltage regulator is AC in nature. So, establishment of a rectifier is done. This converts the AC voltage to DC voltage. This 12V DC voltage will be given to the DC device.

Further for AC voltage, a step-up circuitry is used. The 12V AC voltage from the voltage regulator will be applied to the step-up circuit.

This will convert the 12V to 220 V.

This 220V supply can be provided to the AC device.

Here, if necessary to store the charges, a battery can be placed after the rectifier circuit as it stores DC voltage. To use this stored DC charge, it can be provided to DC devices or an inverter circuit can be used to invert DC charges into AC charges and further given to any AC device.

IV. Conclusion

Rotational source of energy is the free available source which can be utilized to produce electricity without any external or excess energy. This will help to reduce consumption of natural resources and one can produce it from a small household level to large industrial level.

References

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