

REGENERATION OF ENERGY USING ROTATING ACTION

¹KADAM VENKATESH, ²MOHITE VARSHA, ³TARLEKAR RASIKA, ⁴Dr. DOSHI NITA

SVPM College of Engineering
Malegaon (Bk.), Baramati, Pune; 413115

ABSTRACT- Now a day generates energy from solar energy and it is not affordable to all peoples. As well as it is very costly when we used for domestic use or small scale industries. Generating energy from rotating action like fan, bicycle, different types of motor etc this method is we used in this paper. A concept has been developing to extract electrical power from the friction on the any rotating action, when rotating action is in motion. The frictional power is converted into electrical power by using AC dynamo. The generating power can be used directly or store for powering some other device. In this measurement system for rotating action it has been designed to realize with the purpose to analyze operating time range and performance. Generally energy or light is not needed during day time, this time motion can charge the battery. During night time battery supports the load if we want. So the primary target is to provide light. The device can also used to charge the cell phone batteries and other small applications.

Keyword:-dynamo, rotating action, electromagnetism, conversion principle.

1. INTRODUCTION

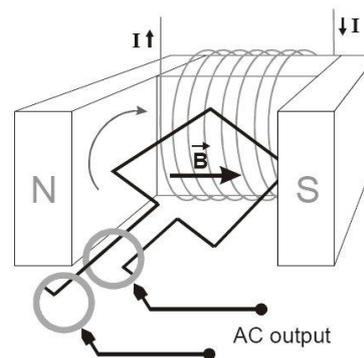
Global energy requirements are increases day by day. By making efficient use of energy we can easily reduce requirement of energy. To find new alternatives for establish energy sources [1].

Cosmos is a storehouse of energy. According to energy conversion law, energy can neither be created nor be destroyed. But it can be transfer one form into another form. We are wastage of that resource which can produces energy [3]. For example, human are able to create approximately 150W of power while riding bicycle, we waste this power without any use [4]. When we making this energy in usable state then we overcome the problem of deficiency of energy and we use this energy for powered some devices.

Friction energy is an ancient energy source. By using friction from the fan kinetic energy is converted into electrical energy to generate electricity. To develop and use of frictional energy as auxiliary energy supply has important for economic value in recent year generation of energy for very small load using rotating action and advantageous solution is the evaluation of means of transport powered by electrical energy obtained from renewable source.

In present work, generate electricity instead of using dynamo for medium load [12W], generated energy stored in battery which is 12V,2A and also uses battery management system[BMS], to continuous read the current status of battery and display on the liquid crystal display[LCD]. LCD also display power consumed by battery and timing of battery backup. In this system be uses light emitting Diode [LED] for indication. It indicates battery is fully charged as well as battery is going to below specified level.

2. ACTUAL CONCEPT



Rotating action is used to generate electricity. Dynamo works on the Faradays law of induction. Dynamo is one magnet rotating while inside the influence of another magnets magnetic field. We cannot see a magnetic field but it often illustrated using lines of flux. The lines created by the iron filings.

The generated Dynamo is made up of stationary magnet [stator] which create a powerful magnetic field, and a rotating magnet [rotor] which distorts and cuts through the magnetic lines of flux of the stator. When the rotor cuts through lines of magnetic flux it make electricity.

3. DESCRIPTION

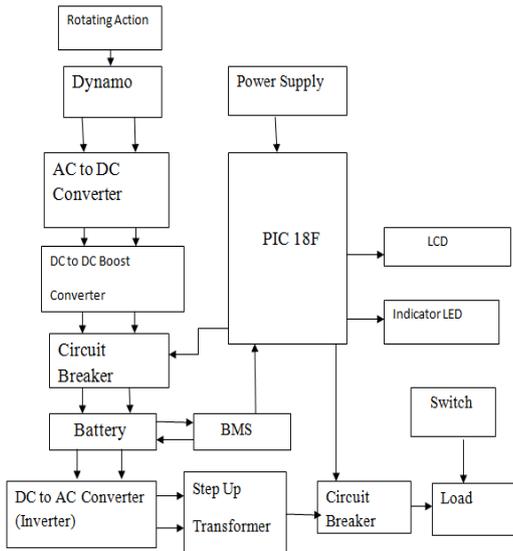


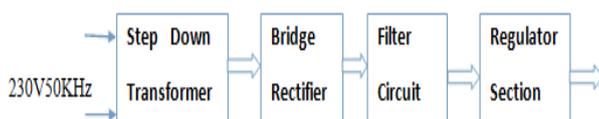
Fig.1 Block Diagram of regeneration system

As the Fig 1. Shows that regeneration of energy by using rotating action. We use this system where any kind of rotating action is present. In this system AC dynamo (240V, 2A) is used to generate energy. Dynamo is placed on rotating surface. When rotating action is turned ON, kinetic energy is converted into electricity by using dynamo. Output of dynamo is AC it is firstly converted into DC using AC to DC converter because battery requires DC to store. DC to DC boost converter is used to boosting of current level. The output of boost converter is stored in battery (12V, 2A).

In this system we use BMS system to measure current status of battery and give reading to PIC 18F4520. When the battery is fully charged then PIC controller automatically break connection between boost converter and battery through circuit breaker. LCD display the current status of battery, power consumed by battery and timing of battery backup. Here we use LED is for indication purpose, when battery is fully charged and battery goes to below specified level.

To operate load (12W) on stored voltage in battery, it is necessary to convert output of DC voltage in battery to AC using inverter. Then we use step up transformer to increase the voltage level of inverter. Our load is operating on this output voltage. Manual switch is used to ON/OFF load as per our requirement. When battery is going to below specified level then PIC makes load is automatically off through circuit breaker.

3.1. A C to DC Converter



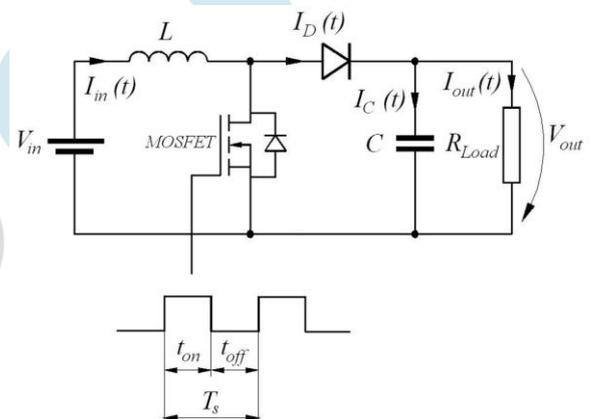
AC to DC converter is basically power supply. In AC to DC converter converts ac signal into dc signal. By using ac to dc converter we convert 230V ac signal into 12V dc signal. For that first we use step up transformer to convert voltage level. Transformer convert 230V ac level into 15Vac. Bridge rectifier is used to convert ac into pulsating dc. Filter circuit is used to pulsating dc into pure dc form.

Generated voltage by filter is in variable form so we use voltage regulator to generate constant dc voltage.

3.2. DC To AC Converter (Inverter)

Basically DC to AC Converter is inverter. It is exactly opposites to AC to DC converter. Inverter convert dc signal into ac signal.

3.3 Boost Converter



Boost converter is used to increase current level.

3.4. Circuit Breaker



In circuit breaker circuit basically we use relay. Relay act as switch. Here we use simply NO/NC type relay.

3.5 Battery Management System (BMS)

In BMS circuit, we use variable resistor . It is used to set to appropriate set point. By using this point display current status of battery.

4. APPLICATION

1. In order to charge cell phone we need mobile charging circuit which would give the appropriate voltage and current required for charging the mobile and will be helpful to middleclass people to save energy and money.
2. Colleges, hospitals, hostels are equipped with at least 50 fans rotates where this energy generating mechanism may

be used to light up the tube lights or charge a battery and power up other devices like computer, laptops etc.

5. MERITS

1. Low initial cost- cost of electric motor is less than solar panels.

2. No emissions of Carbon Dioxide (Co₂), Mercury (Ag), Nitrogen Oxide (N₂), Sulphur Dioxide (SiO₂) or particulate matter into the air, water or soil and helps preserve and protect the environment for future generation.

3. Minimum maintenance cost once generators are constructed, they can operate efficiently without any problem for long period of time.

6. CONCLUSION

The regenerated energy from Dynamo can use to operate small powered devices. Because of displaying status of battery we know about remaining charging of battery.

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