Regeneration of Energy for Small Load Using Rotating Action

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ABSTRACT-Now a day we generate energy from solar energy, but it is costly. When we used for domestic use or small scale industries. In this paper represents the method for generating energy from rotating action like fan, bicycle, different types of motor etc. 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. We use this concept to develop electrical power from any type of rotating action, when rotating action is in process. The rotating energy is converted into electrical energy by using AC dynamo. 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 our main aim is to provide light. This application can also use to charge the batteries and other small applications.

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

I. 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.

II. 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.

III. DESCRIPTION

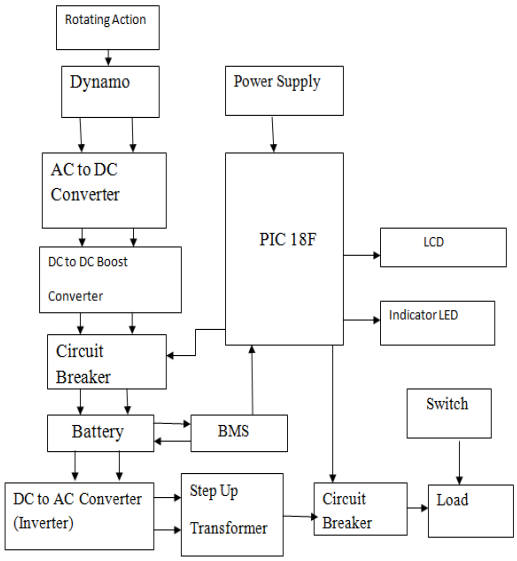

Fig.1 Block Diagram of regeneration system

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.

IV. APPLICATION

1. 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.

2. To charge cell phones.

3. To operate small powered devices.

V. MERITS

1. Low cost because less hardware requirements.

2. Easy to operate because all operations performs automatically.

3. Minimum maintenance.

4. Home appliances.

VI. 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.

REFERENCES

[1] P. Mulhall, S. M. Lukic, S. G. Wirasingha, Y.-J. Lee and A. Emadi, "Solar-Assisted Electric Auto Rickshaw Three-Wheeler", IEEE Trans. on Vehicular Technology, vol. 59, no. 5, pp. 2298-2307, June 2010.

[2] R Prathapanayaka, N Vinodkumar, K Mohan Kumar, N Hari Krishna, NLoganathan, S J Krishnamurthy, “Design and development of propellers for NAL – Micro Air vehicle – Part 2 – Performance evaluation of indigenous propellers”, Project Document PR 1004, NAL, April 2010.4 2014.

[3] Tom Gibson, “These Exercise Machines Turn Sweat into Electricity”, IEEE Spectrum, July 2011.

[4] Rajesh Kannan, Meggalingam, Pranav Sreedharan Vrliyara, Raghavengra Murli Prabhu, Rocky Katoch,“Pedal Power Genetaion” Internationals Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 7 No. 11,2012.