Self Powered Fan

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Abstract— this project is based on energy recycle process and power generation. The main motto of this project is to reduce the utilization of electrical energy by the method of energy recycle process which is being generated from a very common electrical appliance i.e. a ceiling fan present in our houses, offices.
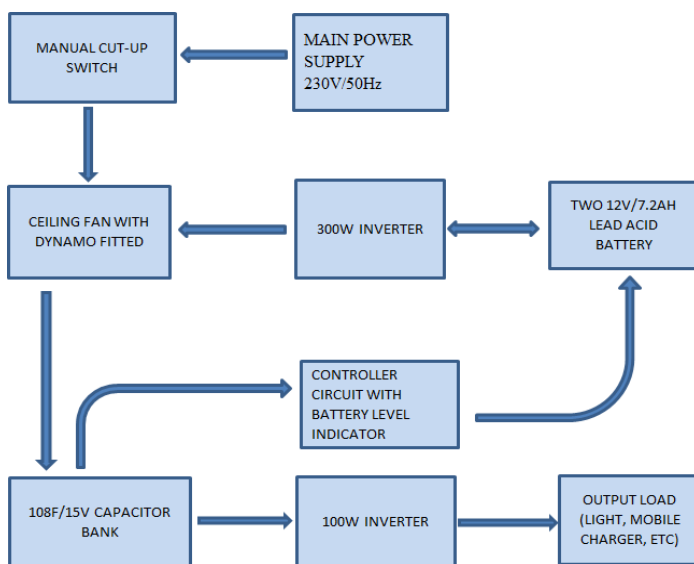
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1 INTRODUCTION

This project is based on energy recycle process. The main motto of this project is to reduce the utilization of electrical energy by recycling the electricity supplied to our houses.

The electricity supplied to various towns, cities and villages are provided by various different power stations. The power stations generates these electricity through various different natural sources like hydro energy through water, geothermal energy through the heat of the earth core, tidal energy through tides occurring on our earth's surface, wind energy through wind, nuclear energy, etc.

The energy resources of earth will not last forever and someday these resources will be finished. So there is a need for energy conservation by using some other alternatives of these resources and also there is a need to utilize this energy in a proper manner and not to waste them. So keeping these points in mind we the Nouvel group has decided to develop a project which will help not from getting these energy resources wasted by recycling the energy resources and also generating an additional energy. With the implementation of this device at home one will be able to operate their different electrical devices without utilizing earth's resources. This project is also developed keeping in mind the problems of common people and their expenditure which they have to face while paying their high electric bill.

2 BLOCK DIAGRAM:

3 WORKING:

The working method of this project is based on the concept of energy recycle.The main motto of this project is to reduce the utilization of electrical energy by recycling the electricity supplied to our houses. In this project a bottle dynamo of 12v/6w is fitted on the top of the ceiling fan. The ceiling fan is of 50w/50Hz in rating. The clamping of bottle dynamo on the top of the fan is done with the help of the aluminum angles as shown in the figure. This aluminum angle is adjusted at an angle of 90 degree. Special steel gears are used in the structure which consists of ring gear and a pinion. The ring gear is greater in diameter in comparison to the pinion i.e. the diameter of ring gear is of 4500mm.The ratio of ring gear and the pinion is of 1:10.That means if the ring gear rotates once then the pinion will rotate 10 times.

The ceiling fan has a speed of 310 rpm which on other hand rotates the pinion fitted on the bottle dynamo. The output of the bottle dynamo is 12v ac and it is converted into dc current with the help of rectifier module named WL02 -A58.The output of rectifier module is 9v and it varies with the speed of the fan controlled with the help of regulator. The capacitor bank is made with 72 super capacitors connected in parallel with each other. There are all total three banks and each bank contains 24 capacitors in it. All the three capacitor banks are connected in series with each other. There are two openings in the bank.one is for input and other is for output. The banks in the input side is connected in series similarly the banks on the output side is connected in series.

The total output of the banks has become 15v and due to the connection of the capacitors in parallel the capacity of bank has become 102farad.The output of the fans dynamo is directly feed in to the capacitor bank. The output of the bank is connected to 100w inverter circuit which gives ac output and a bypass is given to the controller circuit. The controller circuit is programmed to allow the flow of current alternatively from two outputs. The alternate flow is controlled with the help of two relays. There are two outputs from the relay circuits which help in the charging of the two batteries alternately.The input to the relay is taken from the capacitor bank and thus this input is provided to the two outputs of the relay in equal time interval as programmed. Here in this project two lead acid battery is used which is seal proof and can be recharged. Each battery is of 12v/7.2 AH in rating. The output of this battery is given to the 200VA inverter which is giving output as 230v/50Hz ac. which in turn is used for the operation of the fan. And thus in this manner the recycle of energy is completed.

4   ADVANTAGES

The most important advantage is that, electric bill which we have to pay for running ceiling fan is reduced to almost greater than 50%.

Other low power appliances can run free of cost i.e. we don't have to pay bill for whose appliances.

Because of supper capacitor the charging time of battery as well as pack up is increased.

Noise due to gear assembly can be reduced by using nylon gear with helical shape.

5   APPLICATIONS

It can use in houses, shops, industries, etc. for running the different appliances or different machines.

It can be used in schools, colleges, etc. for operating laptops or projectors and any other electronic devices that are required.

It can be used in villages where the electricity problems are occurs in their day to day lives.

It is also used in power stations for further generation of power.

6   FIGURE

Fig. ceiling fan assembly, supper capacitor bank, invertor, and microcontroller relay circuit.

CONCLUSION

Battery can be of high AH, so it can run the other devices for a longer time. Battery charging through capacitor bank should be fast as compared to the discharging of battery.

More no. of devices can be operated by power generated by fan itself. For ease of customer/ people the switching should be fully automated.

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