SOLAR POWER GENERATION BY USING SUPER CAPACITOR BANK

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ABSTRACT

This paper is on solar online power generation; we are using a solar energy as a source of energy in our paper. Nowadays, we are experiencing an electricity scarcity; we are also experiencing a hike in fuel prices considerably, is bound to go on as time pass by as soon we will be shortage of fuel too. But we are at least taking the consideration of it and with this we are trying to put a novel concept in the market. Government is also promoting the use of renewable energy in each of every operation. The other problem associated with the solar power source is the battery charging takes the maximum time, the total use time of the source is very less that means the battery discharge time is very less .So it needs to be improved because it directly affects the performance of the solar power and it also nonconventional energy source.

INTRODUCTION

Government is promoting the use of renewable energy in each of every operation. The biggest option to replace the conventional theory of fuel operation, can be replaced by the battery based theory, is environment friendly too. , As in our power source we are using the solar energy for operation as we are blessed with at least 300 days a total sunlight. And we are using the Capacitor as a source of storage of charge rather than the battery, this in effect will reduce the dead charging time of the power source and improves the of the power source considerably and improve the performance but we are not using the battery so we are using the solar panel to power the load used in the power source and the capacitor bank as a source of temporary storage. We will have a system which will continuously scan the capacitor bank and charging the capacitor bank and the charge is discharged into the load directly.

MAIN CIRCUIT
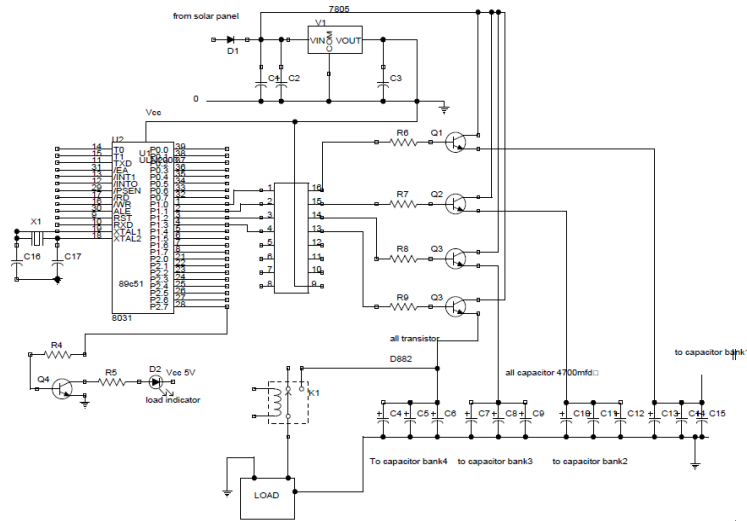
OPERATION

When the system starts to operate it energies the relay coil due to this the contacts gets operated and the circuit connection is created with the high frequency switching circuit. High frequency circuit is built around the transistor circuit configured using BD548 and IC CD4050.here in this circuit the output of the microcontroller is connected to the input lines of the IC CD4050.this IC is hex buffer . Also the output of the IC -CD 4050 is also connected to the Transistor BC548. When high to low signal from the microcontroller is generated the output of the buffer is high to low and it switches the transistor as transistor is connected in CE configuration. The collector voltage rises to Vcc and switches the first capacitor to the solar panel power it gets charged and it is disconnected and connected to the load, at the same time the second capacitor bank is connected to the solar panel and it is getting charged and so forth. In this manner all four capacitor banks are switched to solar panel and load sequentially.

➢ **Solar Panel:-**
This block has array of photovoltaic cells arranged in this manner to deliver 12 vdc, where each cell has voltage of 1.5v each, the parallel connection of the cells is done to meet the current capacity.

➢ **High Frequency switching circuit:-**
It switching network, which switches in the particular capacitor bank one by one into circuit for charging purpose. Here two sets of the block is used one switches the capacitor bank.

12

➢ **Capacitor Bank:-**

This block contains the three capacitor banks the capacitor bank consists of the parallel connected capacitor of high value such as 8500 µf.

➢ **Microcontroller:-**

Microcontroller makes the switching of the banks possible; here three outputs are taken at the port terminal. Microcontroller switches the banks for charging purpose as well as for discharging purpose.

➢ **Load buffer Driver:-**

This stage provides the needed isolation from the main driver stage as well as current boost of the microcontroller signal.

CONCLUSION

In this way conclude that we can generate electric energy by using solar source and its store in capacitor bank and use it in different applications.

REFERENCES

[1] Mark Daugherty President & CEO SolRayo LLC mark.daugherty@solrayo.com

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