

ABSTRACT

Solar powered systems generate the electrical energy by converting sunlight into electricity using either Photovoltaic (direct conversion of the energy from the sun to electricity by photovoltaic cells) or Concentrated Solar Power (CSP). Depending on weather conditions we are not sure of always having enough sun rays to generate the required amount of electricity, therefore rechargeable batteries are used as a backup source of power. When power from the solar panel is not sufficient the battery backup provide power to the loads. But the life span and performance of the battery directly depends to the extent they are charged and discharged. When they are overcharged or over discharged, they can get damaged. By this reason the idea of smart charge controller comes forward.

This system was designed to protect the batteries from overcharging and over discharging so as to eliminate the consequences associated with this problem. To achieve this goal, different literature related to this project was reviewed, and data correlated to this project was collected and analyzed.

Then the system was designed, simulated using Proteus software. In the simulation result, the system did disconnect the load when the battery was low, and connected the panel when the battery needed to be charged.