

ABSTRACT

Utilization of renewable energy has becoming one of the solution in lowering the energy crisis. In addition of the cost increasing, the energy source is getting more and more depleted. One of the example of utilization of renewable energy is the use of sunlight as the energy source. The energy resulted by the sunlight can be used as the energy source. By using the photovoltaic technology,

the sunlight can be transform into electrical energy by using the solar cell as applied in the solar power plant. Eventough, the solar power plant has many issues especially in the current control and voltage problem which lack efficiency in utilizing the solar energy.

This research is to do "Designing and Implementing pulse width modulation based battery control unit in solar panel". is designed to flow current and voltage when charging and discharging the battery using Pulse Width Modulation (PWM).

The results obtained in this final project are a battery charging voltage of 14VDC and a charging current of 1.2A where the charging current is 10% of the battery current. The Battery Control Unit (BCU) implemented has an efficiency of 92%.

Keywords : solar cell, PWM, charge, discharge, buck converter, boost converter