

ABSTRACT

The Direct Current (DC) power supply are electronic devices that were used as a resource for other devices in the form of electrical power that has a flow of electrons from a point of high potential energy to another point of lower potential energy.

In designing an efficient converter circuit, it is important to use the Maximum Power Point Tracking (MPPT) system. MPPT is an electronic controller that makes the converter circuit could operate at maximum power. By using a search algorithm Perturb and Observe (P & O), conducting a search of the optimum power converter circuit would be impossible to obtain.

Perturb and Observe will modify the voltage or current operations to get the maximum power at the output, the system will increase the power when the input power from the power supply begins to decline, this process can take up to gain maximum power point, thus the value of the power output will oscillate around power maximum until stable. Buck boost converter will support the maximum power search system because the converter is an electronic circuit that is used to raise and lower the voltage or current on the system.

This study resulted in a buck boost converter circuit that can operate with input voltage range of 6 volts to 20 volts. The use of P & O algorithm generates maximum power efficiency in the range of 60% to 90%.

Keywords: Buck boost converter, MPPT, Perturb and Observe, power efficiency.