

ABSTRACT

The need of electricity in every sector has constantly increasing from time to time. However, the arising utilization of electricity has not balanced yet with the availability of natural resources. Hence, several researches of saving energy is continue to do. One of those researches is the research about photovoltaic which can convert solar energy to electrical energy. The research about photovoltaic is kept being evolved, until the system which can elevate the power efficiency of photovoltaic has been found, named Maximum Power Point Tracking (MPPT).

MPPT is an electronic system which searches the point of photovoltaic's maximum work in obtaining its power. One of the MPPT methods is Perturb and Observe (P&O). P&O method controls voltage reference based on the P&O algorithm. The design of this MPPT system P&O method uses photovoltaic as the source, buck converter as the voltage converter and the 12 volt battery as the output.

The result of this research is the power efficiency gained from the MPPT system P&O method which the magnitude is 38.02%, and the implementation of P&O algorithm.

Keywords: Photovoltaic, Maximum Power Point Tracking, Perturb and Observe