

**UNIVERSITI TEKNOLOGI MARA  
CAWANGAN PULAU PINANG**

**MODULE INTEGRATED MPPT  
CONVERTER FOR PHOTOVOLTAIC**

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## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

This project is aim to study of PV by observing performance power output current and voltage with and without MPPT. To apply perturb and observe algorithm of MPPT using MATLAB/Simulink. Develop the module integrated MPPT. To implement module integrated perturb and observe MPPT algorithm into photovoltaic system to solve PV mismatch losses application. MPPT is an algorithm to help converter extract MPP where the maximum power output of PV in given irradiance and temperature is located. This project will utilize MATLAB/Simulink to PV power system to monitor the PV V-I curve and PV P-V curve regarding irradiance and temperature. This project simulate perturb and observe maximum power point tracking algorithm by MATLAB/Simulink mathematical block. This project use boost converter because efficient. This project study the 2 MPPT converter architecture namely centralize MPPT and modulated integrated MPPT using MATLAB/Simulink. This project study the effect of MPPT algorithm. MPPT results output is MPP voltage. MPPT are implement into microcontroller to help converter extracting power at MPP proven help reduce mismatch losses as PV power extraction is varied as power extract depend on temperature and irradiance of sunlight. The irradiance determine the output voltage and the temperature determine the output current To run PV with MPPT converter, the system must be develop with one system attach to solver configuration and another as intended system Module integrate is more reliable as the system less susceptible to over voltage and short circuit if same PV rating utilise in the system. PV system with module integrated MPPT give higher power output than PV system with centralize MPPT converter. Module integrated MPPT can experience short circuit if the first PV give higher voltage than the second. MATLAB/Simulink cannot run Simulink base component to simulate 2 PV with different specification as error occur in the solver configuration.

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