

A SINGLE-PHASE BRIDGE INVERTER FOR GRID-CONNECTED PHOTOVOLTAIC (PV) APPLICATION

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ABSTRACT

This paper proposed a grid-connected photovoltaic (PV) power conversion system based on a Single-Phase Bridge Inverter that converts DC to AC power. The topology is based on a Single-Phase full-Bridge DC-AC IGBT Inverter. The output voltage source from boost converter was to be used in the system for the input voltage source of PV inverter. The boost converter must maintain its voltage output that comes from the PV array solar power for the inverter able to generate 240V, 50Hz, 36kW. For this project a voltage source inverter with fixed DC link will be operated with DC voltage held constant. The Sinusoidal Pulse Width Modulation (SPWM) technique was used to synchronize the output voltage and frequency to the grid. A Microcontroller 16F877A was used to generate the required pulses to control the output of the inverter. MATLAB SIMULINK and PSIM simulations were used to compare with the experimental hardware result.

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