SINGLE PHASE INVERTER CONTROLED USING XILINX FPGA TO PRODUCE SINUSOIDAL PWM

This thesis is presented in partial fulfillment for the award of the Bachelor of Electrical Engineering (Honors)

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ABSTRACT

The aim of this project is to study how to generate Sinusoidal Pulse Width Modulation (SPWM) controlled by XILINX chip XC4005XL field programmable gate array (FPGA) and how inverter coverts DC to AC voltage process. The XILINX FPGA send pulse width variation signal that sets the gate voltage of the inverter, which in turn provides the required voltage for desired output. XILINX FPGA software has been used to control the input voltage of a fully controlled single-phase isolated gate bipolar transistor (IGBT) bridge inverter. Sinusoidal PWM technique has been employed in this inverter to supply the single phase loads (R load and RL load) and single phase induction motor with ac voltage. In this project also determined the output load result in different load value. This project is simulated using Matlab/simulink and PSIM. The simulation results produced are compared with the experimental result.

TABLE OF CONTENTS