Development of Photovoltaic Inverter for AC Load

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***Abstract*—This project presents the development of Photovoltaic (PV) push-pull inverter for alternating current (AC) application. There are two main systems in this project which is the PV system and the inverter system. The photovoltaic system consists of the PV panel which is used to seep sunshine to recharge the battery and the solar charger controller circuit that prevent battery from surpluses voltage is connected between solar PV and battery. While the push-pull inverter play a pivotal role in switching from direct current (DC) voltage to AC voltage for the inverter system. Then the AC voltage rose to 230 V by using transformer. The push-pull inverter switching is controlled by a multi-vibrator driver circuit. This project used two light emitting diode (LED) light bulb as an AC load and Metal Oxide Semiconductor Field Effect Transistor (MOSFETs) as the power switches. This project had been analysed through software and hardware prototype for comparison purposed. The efficiency of ideal system that obtains from software simulation is 94.9% while for the hardware prototype is nearly to 95%. While the total harmonic distortion (THD) for both voltage and current is 48.32% from software simulation and 47.9% from hardware prototype analysis. The results have been found in good agreement with the analysis presented in this paper.**

***Index Terms*—Push-pull inverter, Photovoltaic, AC load, Total harmonic distortion, PV lamp.**

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