

CONSTRUCTION OF A 2KVA MODIFIED SINE WAVE INVERTER WITH AN IN-BUILT CHARGE CONTROLLER

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ABSTRACT

The purpose of this project is to design and construct a 1600W (2kVA), 220V inverter at a frequency of 50Hz. This device is constructed with locally sourced materials of regulated standards. The basic principle of its operation is a simple conversion of 12V Direct Current (DC) from a battery using semiconductors at a frequency of 50Hz, to a 220V Alternating Current (AC) across the windings of a transformer. An additional power supply to the public power supply having the same power output is thus provided at an affordable price. This project is based on the design of 2kVA (1.6 kW) inverter system and incorporate the use of switching scheme automatic voltage regulator. The inverter is set to shut-down if the threshold voltage of 11.5V (Min.) is reached and more 13.5V (Max.) during the charging. The switch mode of a modified wave-switching scheme uses an astablemultivibrator to switch on the semiconductor switches-Metal Oxide Semiconductor Field Effect Transistor (MOSFET).