

MARA INSTITUTE OF TECHNOLOGY  
SCHOOL OF ENGINEERING

REPORT ON  
CENTRE-TAP SINGLE-PHASE  
INVERTER

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**PREFACE:-**

A study of a single-phase centre-tapped inverter using two power transistors has been made. In this work, the biasing circuit is derived from a 50Hz supply. Various different waveforms were photographed and analysed.

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## 1.0 INVERTER

### 1.1 Introduction

Inverters are widely used in industrial scene, for example variable-speed ac motor drives, standby power supplies, uninterruptible power supplies, induction heating and etc.

In this project, a single-phase inverters was designed and constructed. The single-phase output of the inverter is ranged between or to 230V at 50Hz.

There are four categories of inverters commonly used;

- i. pulse width modulation (PWM) inverter
- ii. centre-tapped inverter
- iii. auxiliary commutated inverter
- iv. complementary commutated inverter

Inverters are known as DC-to-AC converters. The function of an inverter is to change a dc input voltage to a symmetrical ac output voltage could be fixed or variable at a fixed frequency (50Hz). When varying the input dc voltage and maintaining the gain of the inverter constant, it can obtain a variable of output voltage.