

**PULSE WIDTH MODULATION INVERTER  
FOR THREE-PHASE  
INDUCTION MOTOR DRIVES**

**This is presented in partial fulfilment for the award of the  
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## **ABSTRACT**

**This project describes the development of a simple and low cost computer controlled pulse width modulation (PWM) inverter for AC variable speed drives. A fully digital EPROM-based pulse width modulation contains a different frequency of PWM waveform capable driving of the transistorised inverter to generate variable frequency output. This modulator is simple and dynamically better in comparison with one built using a microcomputer. A high-1 resolution (one in 256) is obtained, and up to eight different PWM switching strategies can be easily implemented. The computer is linked to the various sub-system through a serial interfacing unit via R232 output port. The software developed is flexible and can be further modified to accommodate any variation in operating procedures.**

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# CHAPTER 1

## 1.0 INTRODUCTION

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The pulse width modulation technique is presently the most popular and economical method of voltage and frequency control for variable ac drives[1]. For industrial applications, the PWM drive obtains its dc input through simple uncontrolled rectification of the commercial ac line and generate a good power factor, better efficiency and nearly sinusoidal current waveform outputs.

The recent development in soft commutation-enable PWM inverter for driving induction motors is that they have very high switching frequencies [2]. The operational advantages of PWM inverter over the converter techniques are gained at the expense of more complex control circuit. However, using high speed microprocessors, where in most of the control functions are implemented by software, resulted in considerable reduction in complex hardware circuits, thereby increasing the reliability of the system.

The proposed circuit in this project is capable of solving the large memory requirement problem outlined in and combined the advantages of fast response of the analogue technique and simplicity of the microcomputer technique.