THREE PHASE BRIDGE
PULSE WIDTH MODULATED INVERTER

A project report presented in partial fulfilment

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ABSTRACT

This project is an attempt at designing a Three-Phase Bridge PWM Inverter by using microprocessor controlled technique.The microprocessor in used in an 8-bit MEK6802D5.The relevent PWM waveforms are generated by using a suitable assembly language programming.

This type of inverter employed power transistors as the main component along with their drive circuitry and protection circuit.

This inverter is designed to operate at a fixed frequency of 50 Hz and a variable d.c source.The variable d.c source is obtained by utilizing a single-phase auto-transformer.This auto-transformer is monitored manually to produce a variable single-phase a.c supply which is then rectified through a bridge rectifier.

The inverter output obtained from the laboratory work is found to be in aggrement with the theoritical results.

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CHAPTER 1

1. INTRODUCTION

1.1 GENERAL

The most popular method to control the output power of an inverter is by using a pulse width modulation (PWM) technique.In this way the transistors switches the d.c link voltage for a short time interval across the load.The set of rules determining the sequence and timing of the switch activation is term the modulation policy.

The use of the PWM technique in motor drive application is considered advantageous in many ways.For traction a.c drives fed by a d.c input power source,the PWM inverter is a practical solution which only involves a single power conversion.Meanwhile,for industrial application the PWM drive obtains its d.c input through simple uncontrolled rectification of commercial a.c line. Besides that,this technique is favoured for its good power factor,good efficiency and mainly for its ability to operate the motor with nearly sinusoidal current waveform.

So,due to this reasons,the three-phase bridge PWM inverter driven by a microprocessor is chosen for this project.For that purpose,the assembly language programming is used to generate several pulses of square waveform. These pulses are then interfaced to the inverter circuit where the inversion of power is