

A PC BASED CONTROLLER SYSTEM FOR SEPARATELY EXCITED DC MOTORS

**Thesis presented in partial fulfilment for the award of the
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ABSTRACT

This project is regarding the development of PC based controller system for DC drive application. This system used a personal computer (PC) in conjunction with analog and digital, I/O board, a signal sensing and conditioning, subsystem for the acquisition and subsequent processing of current, voltage, and speed signals and a power amplifier module for driving the dc motor. The system improves reliability and performance of dc motor and provides such features as speed control, overload identification and protection. The software subsystem is written in the Turbo C and is able to perform the tasks associated with the measurement and control of a dc motor.

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CHAPTER 1

1.0 INTRODUCTION

Much emphasis has been laid to impart computer aided courses to electrical engineering students. This led to a growing trend of developing computer controlled laboratory models in machinery laboratories [1]. Availability of this equipment in the laboratory facilitate the testing and research works to be done on the related subjects.

Separately excited dc motor are often used in applications requiring precise control of speed and torque over a wide range. These algorithms has been implemented using dedicated 8 bit. It is generally agreed that using microprocessor to handle real-time dc motor control problems can offer such advantages as fewer components, lower cost, flexibility, and improved reliability. The PC based experimental station provides facilities for testing dc machine and performing data acquisition, measurement, calculations, interactives system operation, and graphics report generation.

It maximise the efficiency of testing jobs and therefore ultimately improves the user's productivity. The experimental station has a capability of handling real time dc motor control problem [2]. This is possible by incorporating adaptive control scheme into the operating software, thus enabling the computer to perform very fast computation. This