DC CHOPPER CONTROLLER USING PERSONAL COMPUTER

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

In this project, a simple PC controlled chopper circuit was developed to generate variable dc output voltages that can used for many industrial drive and process applications.Variable output voltages are generate by controlling the switching time of the chopper switching device controlled by the software written in Turbo C programming language. The hardware developed include a parallel interface system, digital analog convertor and chopper converter system. The developed software is designed to provide reliable and flexibility in its operation so that any modification and alteration to the system operation can be done easily and coveniently.

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CHAPTER 1

1.0 INTRODUCTION

In many industrial application, it is required to convert a fixed voltage dc source into a variable voltage dc source. A dc chopper converts directly a fixed dc input supply to variable dc output supply i.e dc-dc converter. A chopper can be considered as dc equivalent to an ac transformer with a continously variable turn ratio. Like a transformer, it could be used to step-down or step-up a dc voltage source. Chopper are widely used for traction motor control in electric automobiles, trolley cars, marine hoists, forklift trucks and mine haulers [1] . Chopper can be used in regenerative braking of dc motors to return energy back into the supply and this feature results in energy saving for transportation system with frequent stops. Chopper are also used in dc voltage regulators.

The basic function of the control system in a variable speed dc motor is to take the input controls on and off switching monitoring to converted them to signal that the converter can use. The system developed comprises of parallel interface card, digital to analog converter and dc chopper unit. The block diagram of the drive system is as shown in figure 1.0.