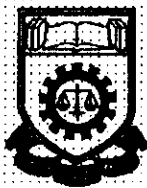


DC MOTOR DRIVE AND DATA ACQUISITION SYSTEM

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In the name of ALLAH, the Beneficent and the Merciful. It is with the deepest sense of gratitude to the God who gives me the strength and ability to complete this project

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ABSTRACT

This paper discusses the development of a simple dc motor drive system for laboratory experiments. The system is capable of driving the dc motor coupled to a load over a wide range of speed, from zero to base speed. This is achieved by feeding the armature with variable voltage supply generated by the single phase thyristor fully-controlled rectifier. All the experimental parameters, voltage, current and speed, are measured by the respective transducers and converted into its digital equivalent by the analog-to-digital converted. The digital signals are then transmitted in sequentially into the computer via interface unit . The operation of the system is controlled by the computer software.

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1.0 INTRODUCTION

The rapid growth in the computer and semiconductor technology have led their wide use of DC adjustable-speed drive in industrial field. Smaller and faster microcomputers available at reduced costs led to their wide spread use DC adjustable-speed drive industry [1]. Furthermore, the regulating system of the motors which are used in industrial applications are also required to be more compact so that the usage of microcomputer in the drive system controller is justified.

High starting torque, extended speed range, and ease of control in dc machines have ensured their constant use in particular industrial applications, such as traction and steel plants [3]. The speed control are simpler and less expensive than that of ac drives therefore separately excited dc motors are normally used in variable speed drives. The development of dc machines being widely used in dc drives by using power semiconductor actuators under computer control. For a lightweight drives purpose a bridge of thyristors (SCR) could be used as a controlled rectifier. A controlled rectifier will provide a variable dc output voltage from a fixed ac voltage.