SOFTWARE SWITCH FOR DC MOTOR CONTROLLER

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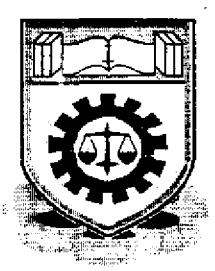

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ABSTRACT

A software switch is realized to achieve motion control using DC motors. The controller, utililizing interrupt driven software switch scheme, is capable of implementing several control strategies such as the continuously variable or discrete pulse width control and phase control of pulse width modulation (PWM) converters. The control methodology is adaptable to diverse industrial application settings. Switching scheme is implemented using C++ language environment. Implementation in software, provides the capability of executing complex control schemes and supervisory functions which are easy to implement, update and adapt to different applications without much overhead.

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CHAPTER 1

1.0 INTRODUCTION

Motion controller of today, resonant switched or PWM, have low switching losses and low component stresses [1]. Switching waveforms for driving these converters can be realized by using special purpose integrated circuits or by software implementation in a general purpose microcontroller based system. Software implementation of switching enables the incorporation of simple control schemes and supervisory functions which are easy to implement, update and adapt to different applications without much problems. In software implementation, the power is controlled in real time. Software switches, however, are slower in comparison to the hardware type. This disadvantage is offset by smaller turn around time required in custom-designing and modifications. Furthermore, the software can be implemented in a Personal Computer environment which is fast acquiring the universal acceptability in industrial and commercial setups [2]. In this paper, a dc motor controller utilizing software switches, is realized to achieve several control schemes such as the phase controlled switching, variable