A DIGITAL MOTION CONTROL FOR

THE AXIS MOVEMENT

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> SUHAILI B. YUSOF @ ARIFIN Faculty of Electrical Engineering UNIVERSITI TEKNOLOGI MARA 40450 SHAH ALAM, SELANGOR

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ABSTRACT

The aim of this work is to control the position of motor rotation that used for the axis movement. Position control performs position moves with no velocity profiling where the user specifies a 24-bit position command from the computer. The controller will remain position locked at a destination that specifies by the user. The system consisting of a Z80 microprocessor unit as the host processor that write a digital information includes address registration and data transfer to the general purpose motion control integrates circuit (IC), HCTL1100. The Z80 assembly language is the software interface loaded in personal computer (PC), which generate the control code and program protocol for control purposes.

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CHAPTER 1

INTRODUCTION

1.1 Background

Motion control system using digital technology began to be developed after the birth of computer. The system is continuo demands for the smaller size, high performance devices and the most important is easy handling. There are lots of applications of digital motion control that have been implemented. There include printers, medical instruments, material handling machines and industrial automation.

The generations of the digital motor controller must have higher performance parameters such as better efficiency and reduced electromagnetic interference. System flexibility must be high to facilitate market modifications and reduce development time. All these improvements must be achieved while at the same time, decreasing system cost. Motor drives are traditionally designed with relatively inexpensive analogue components. The weaknesses of analogue systems are their susceptibility to temperature variations and component aging. Another drawback is the difficulty in upgrading these systems. Digital control structures eliminate drifts and, by using a programmable processor, the upgrades can be easily accomplished by software manipulation.

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