MICROPROCESSOR CONTROLLED DISPLAY

Thesis is presented to fulfill the
requirement of Advanced Diploma in Electrical
Engineering of MARA Institute of Technology

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MAY 1995

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ACKNOWLEDGEMENT

In the name of **ALLAH**, the Beneficent and the Merciful. It is with the deepest sense of gratitute to the Al-Mighty **ALLAH** who gives strength and ability to complete this project and report as it today.

I would like to thank my project advisor, Mr. Md. Mahfudz B. Md Zan for his suggestions, brilliant ideas and advise in guiding towards the completion of the project and report.

I take this opportunity to express my sincere gratitute and appreciation to Mr. Mohd. Uzir and the technician of Microprocessor Lab especially Mr. Shukri Seman for their assistance in this project. I also appreciate the support of my friends.

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ABSTRACT

Today, display systems are widely used in many applications such as in information display services and advertising. There are many types of display systems which are constructed according to the specific needs and applications. One of the common types of display system uses light emitting diodes (LEDs) for displaying specific information and permanent displays.

The overall objective of this project is to design and build a prototype display system which is versatile and expandable. The system will be able to communicate with a personal computer for updating the information displayed and commands for controlling the display. The display is to be modular in nature so that it could be easily expanded to increase the amount of information displayed.

The display would be able to display information moving from left to right or vice versa, blinking or static. The report will however focus on the basic design of the display section. Specifically, the design of a display controller hardware and firmware for controlling a light emitting diode matrix display is undertaken.

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1.0 INTRODUCTION

Several types of electronic displays are available in the market which are constructed for information display. Some are dedicated displays employing simple control circuits while others are multi-purpose displays with sophisticated control circuitry. The display elements used also come in different formats and types. Some example of the display elements available are neon lights, incandescent bulbs, liquid crystal displays (LCDs) and light emitting diodes (LEDs). Seven segment displays and dot matrix displays are the commonly available formats used for the display elements.

There are not many display systems which are general purpose in nature and reasonably priced. Displays available are usually used for displaying the same information repetitively and modifying the displayed information is seldom allowed. The display area is also difficult to change should more information need to be displayed. These are some of the shortcomings of a low - cost display systems.

A general purpose display system is proposed which have the following features:

(i) Information displayed could be changed easily.

(ii) Modular design for ease of expansion.

(iii) Able to display information either static, blinking or moving (left to right or vice-versa).

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