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**MULTIPURPOSE DISPLAY BOARD**

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**This report is submitted in partial fulfillment of requirements for the award of  
Bachelor of Electronic Engineering (Industrial Electronics) with honours**

**Fakulti Kejuruteraan Elektronik dan Kejuruteraan Komputer  
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**Dedicated To My Beloved Father And Mother:**

**Mr. Ng Kok Soo And Mrs. Pua Yok Wah**

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## ABSTRACT

Messages display board has found wide acceptance as an effective and economical means of data distribution to the masses. Contents or graphics can easily convey to public at certain places at certain times. This module control by a microcontroller PIC16F877 which is consists of 40 pins. C language is used to develop for the desired animations, contents or graphics and then translate the source code into HEX file with HITECHC. HEX file then will program to PIC microcontroller with the multichip programmer. EEPROM read the character symbol data in EEPROM and then send them to NOKIA LCD. The advantages of using this display are high visibility, low power consumption, relatively low hardware requirements and low cost.



## ABSTRAK

Paparan mesej modul adalah satu alat penghantaran maklumat kepada orang ramai dan diterima di kalangan rakyat. Paparan mesej modul merupakan satu alat yang ekonomi dan berharga berpatutan sebagai satu alat untuk menghantar maklumat kepada rakyat. Maklumat, gambarajah, pergerakan gambar boleh ditunjukkan kepada orang ramai sepanjang hari dan di tempat yang sesuai. Prototaip ini adalah dikawal oleh PIC16F877 kawalan dengan bahasa C. Bahasa C akan ditulis dalam HiTech C dan ditukar menjadi HEX fail dan fail itu akan dimuatturun kepada PIC16F877 melalui satu pengaturcara. Kelebihan prototaip ini adalah harga yang rendah, memerlukan kuasa yang minima, jarak penglihatan yang tinggi, perkakas yang diperlukan adalah minima.

## CONTENTS

CHAPTER	ITEM	PAGE
	TITLE	i
	REPORT STATUS VERIFICATION	ii
	DECLARATION	iii
	SUPERVISOR VERIFICATION	iv
	DEDICATION	v
	ACKNOWLEDGEMENT	vi
	ABSTRACT (ENGLISH)	vii
	ABSTRACT (MALAY)	viii
	CONTENTS	ix
	LIST OF TABLES	xiii
	LIST OF FIGURES	xiv
<b>I</b>	<b>INTRODUCTION</b>	
	1.1 Introduction	1
	1.2 Purpose of Study	2
	1.3 Scope of Work	2
	1.4 Problem Statements	3
	1.5 Research Methodology	3
	1.6 Organization of Thesis	4
<b>II</b>	<b>REVIEW OF LITERATURE</b>	
	2.1 Introduction	5

## CONTENTS

<b>CHAPTER</b>	<b>ITEM</b>	<b>PAGE</b>
	TITLE	i
	REPORT STATUS VERIFICATION	ii
	DECLARATION	iii
	SUPERVISOR VERIFICATION	iv
	DEDICATION	v
	ACKNOWLEDGEMENT	vi
	ABSTRACT (ENGLISH)	vii
	ABSTRACT (MALAY)	viii
	CONTENTS	ix
	LIST OF TABLES	xiii
	LIST OF FIGURES	xiv
<b>I</b>	<b>INTRODUCTION</b>	
	1.1 Introduction	1
	1.2 Purpose of Study	2
	1.3 Scope of Work	2
	1.4 Problem Statements	3
	1.5 Research Methodology	3
	1.6 Organization of Thesis	4
<b>II</b>	<b>REVIEW OF LITERATURE</b>	
	2.1 Introduction	5

2.2	Display Board	5
2.3	Features	6
2.4	Purposes of Display Board	7

### **III THEORY**

3.1	Introduction	9
3.2	PIC Microcontroller Family 16 Device 877A	10
	3.2.1 Features	10
	3.2.2 Device Overview	10
	3.2.3 Memory Organization	15
	3.2.4 I/O Ports	16
	3.2.5 EEPROM	17
3.3	Nokia 3310LCD LPH 7779 (PCD 8544)	19
	3.3.1 Characteristic of Nokia 3310 LCD	19
	3.3.2 Features	20
	3.3.3 Mechanical Specification	21
	3.3.4 Electrical Interface Specification	22
	3.3.5 Types of connection of Nokia 3310 LCD	24
3.4	PCD 8544: 48x84 pixels matrix LCD Controller	25
	3.4.1 General Description	25
	3.4.2 Features	25
	3.4.3 Application	26
	3.4.4 Block diagram	26
	3.4.5 Functional description	27
3.5	DS 1307 64x8 Serial Real Time Clock	30
	3.5.1 Features	30
	3.5.2 Operation	30
	3.5.3 Signal Descriptions	31
	3.5.4 DS 1307 Address Map	32

## IV PROJECT DEVELOPMENT

4.1	Introduction	34
4.2	Flow Chart Of Project Development	34
4.2.1	Research	36
4.2.2	Circuit Drawing	36
4.2.3	Source Code	38
4.2.3.1	Control Directives in the C Language	38
4.2.3.3	HITECH C Configure with MPLAB	40
4.2.3.4	Files Created as Result of Translation	40
4.2.4	Simulation	41
4.2.5	Burning PIC Microcontroller	41
4.2.6	Trial Result	43
4.2.7	PCB Layout Design	43
4.2.8	Procedure for Standard PCB Fabrication Process	46
4.2.9	Soldering and Desoldering	47

## V RESULT AND DISCUSSION

5.0	Results and Discussion	48
5.1	Display Board with Messages and Animation	49
5.2	Display Board with Additional Real Time Clock	50
5.2.1	The photos sequence illustrates the basic steps for changing time and calendar of Real Time Clock	51
5.4	PROTEUS	54

**VI CONCLUSION**

6.0	Overview	55
6.1	Conclusion	55
6.2	Recommendations	56

<b>REFERENCES</b>	<b>57</b>
-------------------	-----------

**LIST OF TABLES**

<b>TABLES</b>	<b>TITLE</b>	<b>PAGE</b>
3.1	Pin out description	13
3.2	Pin functions	18
3.3	Characteristics of Nokia 3310 LCD	19
3.4	Electrical interface specification	23

## LIST OF FIGURES

FIGURE	TITLE	PAGE
3.1	Block diagram of PIC16F877A	12
3.2	Port configuration of PIC16F877A	17
3.3	Pin diagram	18
3.4	Block diagram	18
3.5	Mechanical dimension	21
3.6	Electrical contents with driver	22
3.7	Connections of NOKIA 3310 LCD	24
3.8	Block diagram	26
3.9	Waveforms	28
3.10	DDRAM to display mapping	29
3.11	DS 1307 block diagram	31
3.12	DS 1307 address map	33
4.1	Development of project	35
4.2	Messages with animation	36
4.3	Messages with Real Time Clock	37
4.4	Programming development cycle	39
4.5	PIC programmer	41
4.6	Setting of IC-PROG	42
4.7	Drawing schematic	43
4.8	Conversion of schematic to board	44
4.9	Arrangement of components	44
4.10	Auto router setup	45
4.11	PCB layout	45



4.12	Process of PCB fabrication	46
5.1	Messages and animation display	49
5.2	Real time clock with messages	50
5.3	Basic step for changing real time clock	54

## CONTENTS

### 1.1 Introduction

Notice the layout of the book. It is organized into five main parts and covers the design, development, and testing of a real-time system. The main part of the book is divided into three main sections: the first part covers the design and development of the system, the second part covers the testing and evaluation of the system, and the third part covers the implementation of the system. The book is written for students and researchers in the field of real-time systems and is intended to provide a comprehensive overview of the subject.

Most of the book is devoted to the design and development of the system. The design part of the book is divided into three main sections: the first part covers the design of the hardware, the second part covers the design of the software, and the third part covers the design of the system. The development part of the book is divided into three main sections: the first part covers the development of the hardware, the second part covers the development of the software, and the third part covers the development of the system. The testing and evaluation part of the book is divided into three main sections: the first part covers the testing of the hardware, the second part covers the testing of the software, and the third part covers the testing of the system. The implementation part of the book is divided into three main sections: the first part covers the implementation of the hardware, the second part covers the implementation of the software, and the third part covers the implementation of the system.

Advantages of using electronic devices are discussed in detail. It is shown that something as simple as messages can be sent in a fraction of a second.

## CHAPTER I

### INTRODUCTION

#### 1.1 Introduction

Media (the plural of medium) is a truncation of the term media of communication, referring to those organized means of dissemination of fact, opinion, entertainment, and other information, such as newspapers, magazines, cinema films, radio, television, the World Wide Web, billboards, books, CDs, DVDs, videocassettes, computer games and other forms of publishing (Wikipedia Organization/ Mass Media).

Mass media act a type of communication between each others in order to understand each well and always related to even they are from different places. For the few years ago, mass media are more into banner, poster type, etc, which is hard to conveyer. However, due to the development of electronics mass media nowadays, the signboard become one of the familiar as an effective and economical means of data distribution to the masses. Electronics signboard can be used for various purposes. It can function for business and social concerns which are include advertising, marketing, propaganda, and public relation. Electronics signboard also various used in journalism, educational and public service announcements.

Advantage of using electronic signboard is easily to handle after promote something or deliver messages to audience. Besides, the effective of distribution

information is higher than other mass media since electronics signboard can produce attractive image with message together. On the other hand, the contents or messages inside the electronics signboard can reprogram in order to deliver different things to audience based on the current situation. The function of reprogram can save cost in terms of the spending for the deliver message or advertising for certain company and government.

This prototype use PIC 16F877A type microcontroller which is use to program the chip to create a quite amazing effect on the display.

## **1.2 Purpose of the Study**

The purposes of this study were to produce effects on display board by using a microcontroller and to implement PIC microcontroller on display board to display information to people at several places. The performances of the signboard are analyzed in term of testing failure and analysis results. Different programming code is program into microcontroller for the objective to implement effective of signboard.

## **1.3 Scope of Work**

This study was focused on the PIC microcontroller and the source code, which is important to design a signboard that can implement difference tasks that is limited by the previous of mass media. The language of programming used implement the project is language C.

Besides, creation, reading, and understanding of the design circuit also consider one part of the development of this project. The final layout of this project will be drawn by using Eagle PCB design software.

Soldering of electronics components onto PCB board also need a technique, which was produced a final good product and the product can function as well as normal.

## **1.4 Problem Statement**

Mass media is a term used to denote, as a class, that section of the media specifically conceived and designed to reach a very large audience. The mass-media audience has been viewed by some commentators as forming a mass society with special characteristics, notably atomization or lack of social connections, which render it especially susceptible to the influence of modern mass-media techniques such as advertising and propaganda. (Wikipedia Organization / Mass Media)

Mass media play a major role to deliver messages to public and communicate between government and folk. Communication between two parties is important for the understanding between each others. Signboard is one of the effective and economical means of data distribution to the masses.

## **1.5 Research Methodology**

They are several approaches taken in order to achieve the purposes of this study, which are

1. Literature review of display board for understanding the concept and consume of display board among several mass media.
2. Understanding the basic theory of PIC microcontroller and the source code development.
3. Designing several effects produced by microcontroller with C language.
4. Designing an electronic circuit based on the theoretical review and practical technique.
5. Analysis the results to fulfill the project requirement.
6. Field testing.
7. Thesis and report writing.

## 1.6 Organization of Thesis

This thesis is divided into six chapters. The first chapter contains an overview of this project. Some explanations about the literature and recent development in signboard were covered in chapter 2. Chapter 3 describes the theory in PIC microcontroller. The system design and development were described in chapter 4. Chapter 5 presents the analysis of results. This thesis ends with the conclusion and suggestions for further research.

## CHAPTER II

### REVIEW OF LITERATURE

#### 2.1 Introduction

This chapter is described the display board, the features, the purposes of using this kind of media.

#### 2.2 Display Board

An overview of the industry, with numerous tables and graphs supplementing textual discussion of the growth, marketing potential and economic benefits of this form of advertising. The effectiveness of on-premise signing is discussed in relation to trade area, business and tourist traffic, and specialized markets. [Claus, R. J. And Claus, K. E.,1974].

Display boards are computerized programmable electronic visual communications devices capable of visual presentation of images with text acquired stored, transmitted in various forms. Similar to an old-fashioned reader-board, they allow their owners to display contents and messages to specific locations at specific times. It also allows changing copy frequently, but without the cost of replacing missing or broken letters and without the physical labor involved with changing copy.

The electronic message display rapidly offer a valuable public service to the entire community by displaying public service information, civic events, personal and holiday greetings, the current time and temperature, journalism, entertainment and any specific advertising message put forth by the display's owner.

### 2.3 Features

Graphical display utilized high-resolutions graphic and video to transmit the information [Paula Jones, 2004]. Technology has advanced sufficiently for electronics board to provide dynamic and realistic views much like color television. Display board capable to present high resolution color images, complex visual arrangement, rich variation in color, and a vast amount of images.

Computer controlled display signs available today can be controlled by the operator [Paula Jones,2004]. The contents of display board can be updated due to the current market demand. The operational characteristics include electric power and remote control through a computer terminal.

Indoor display signs to promote the audience, staff, customers, and other people that are most widely used [Paula Jones,2004]. A programmable display board has the capability to present a large amount of text or symbolic imagery to people at certain times at certain places.

Indoor display signs are most suited in internal controlling of financial trading company as well as the manufacturing firm [Paula Jones, 2004]. Besides, this equipment also employed at areas like banks, sports control room, transport divisions for the purpose to deliver messages to audience in order to provide the latest news. Large numbers of employee in production department of certain company also can know the latest news of company through the indoor signs board.

Moving message displays become more and more popular in all kinds of lighting fixtures [Paula Jones, 2004]. They offered bright displays multiple views and objects that have realistic motion that can be eye catching in the night environment.

## 2.4 Purposes of Display Board

Moving messages board are used in the areas where continuous announcements, or other information are need to be displayed in to either indoor or outdoor [Paula Jones,2004]. Public service announcements (PSA or CSA) are a non-commercial advertising, broadcast for the public good. The main concept is to modify public attitudes by raising awareness about specific issues. The most common topics of PSAs are health and safety, although any message considered to be "helpful" to the public can be a PSA. A typical PSA will be part of a public awareness campaign to inform or educate the public against smoking, taking drugs, compulsive gambling, vandalism, etc.

Moving message displays are designed to be installed into environment where vast amounts of information need to be conveyed to large audiences both quickly and efficiently, also in the world indoor or outdoor displays [Paula Jones, 2004]. Moving messages board is becoming very popular in the areas such as advertising, marketing, propaganda, public relations which are for business and social concerns. Advertising is drawing public attention to goods and services by promoting businesses, and is performed through a variety of media. It is an important part of an overall promotional strategy. Marketing is a social and managerial function that attempts to create, expand and maintain a collection of customers. It attempts to deliver demand satisfying output through profitable exchanges. Propaganda is a specific type of message presentation directly aimed at influencing the opinions or behavior of people, rather than impartially providing information. Culturally it works within religions, politics, and economic entities like those that both favors and oppose globalization. Public relations (PR) are the art of managing communication between an organization and its key publics to build, manage and sustain an accurate image.

Display board, in which messages on continuous tapes are shown on display panels and may be controlled remotely to change the styles and colors of a message, and produce a repeated series of constantly changing messages and contents. Therefore these nowadays are widely accepted all over the world. Journalism is a discipline of collecting, analyzing, verifying, and presenting news regarding current