

HOME ALARM SYSTEM USING DETECTOR SENSOR

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA
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Special dedication to my beloved parents

Md Zain B Mohammad & Mek Yah Bt Daud

*Their encouragement and guidance has always be an inspiration to me along this
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ABSTRACT

The purpose of this project is to develop an independent security system that able recognize human with activate system alarm that possess linkage CCTV and buzzer at home during lack the owner. This requirement has become a demanded as nowadays system are too dependent to the community. Although the system is in 'on' condition, some communities are not alert to this situation. Different with an ordinary system, this project will be able to inform visitor or thief with signal alarm and buzzer when an unwanted visitor enters the range of the sensor. Even though this system is based on range, it has been modified to detect only human body. So there is no possibility that system will be triggered 'on' by an animal. If the system has been triggered, it will record photo visitor or thief with CCTV for owner come to know at home during lack owner. The main objective of this project is to develop a security system for trace presence visitor and thief with using sensor and buzzer. Therefore, this system will be independent and a reliable device compared to common system.

ABSTRAK

Tujuan utama projek ini adalah untuk membangunkan satu sistem keselamatan yang berkeupayaan untuk merakam kehadiran manusia dengan mengaktifkan sistem keselamatan yang mempunyai rangkaian CCTV dan siren di rumah semasa ketiadaan pemilik rumah. Kebolehan ini telah menjadi satu keperluan yang penting dimana sistem yang terdapat di pasaran kini terlalu bergantung kepada komuniti sesebuah kawasan. Ini dapat dilihat dimana apabila sistem sekuriti yang ada berfungsi, sesetengah komuniti tidak mengambil berat akan keadaan ini. Berlainan dengan projek ini, dimana sistem ini berkeupayaan memberi amaran kepada pelawat atau pencuri dengan amaran keselamatan dan siren apabila melepasi kawasan yang di pasang alat keselamatan. Walaupun sistem ini berdasarkan kepada aplikasi pengesan sesuatu kawasan, pengesan ini telah di ubahsuai supaya hanya mengesan kehadiran manusia. Oleh itu, kebarangkalian sistem ini diaktifkan oleh haiwan amat kecil dan berkemungkinan tidak akan berlaku. Apabila sistem ini diaktifkan, sistem ini akan merekodkan gambar pengunjung atau pencuri dengan sistem CCTV bertujuan pemilik mengetahui gambaran kehadiran pengunjung semasa ketiadaan pemilik. Aplikasi ini akan memenuhi objektif utama projek ini iaitu untuk mencapai operasi sistem keselamatan untuk mengesan kehadiran pelawat atau pencuri dengan menggunakan pengesan dan siren. Akibatnya, sistem ini berkeupayaan membangunkan satu alat keselamatan yang berdikari dan lebih dipercayai.

CONTENT

CHAPTER	DESCRIPTION	PAGE
	PROJECT TITLE	i
	DECLARATION OF REPORT STATUS	ii
	DECLARATION	iii
	SUPERVISOR APPROVAL	iv
	DEDICATION	v
	ACKNOWLEDGEMENT	vi
	ABSTRACT	vii
	ABSTRAK	viii
	CONTENTS	ix
	LIST OF TABLE	xiii
	LIST OF FIGURE	xiv
1	INTRODUCTION	
	1.1 Background	1
	1.2 Objective	2
	1.3 Scope of work	3
	1.4 Problem Statement	3
	1.5 Project Overview	4

1.6	Thesis Structure	6
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2 LITERATURE REVIEW

2.1	Introduction	7
2.2	Theory	8
2.2.1	Motion Detector	8
2.2.2	Ultrasonic Motion Detectors	9
2.2.3	Passive Infrared (PIR) Motion Detector	11
2.2.4	Active Infrared Motion Detector	13
2.3	Components Description	
2.3.1	Pyroelectric Sensors	14
2.3.2	Fresnel Lens	17
2.3.3	LM 324 (Quad Operational Amplifier)	17
2.3.4	CD4013BC (Dual D-Type Flip-Flop)	20
2.4	Microcontroller	21
2.4.1	Other Microcontroller Features	22
2.4.2	Microcontroller –PIC16F876A	23
2.5	CCTV System	30
2.5.1	Product description	30
2.5.2	CCTV System Function & Technical terminology	32
2.6	Digital Video Recorder Card(DVR Card)	36
2.6.1	Components	36
2.7	Software	
2.7.1	Proteus VSM	41

2.7.2	Visual Basic	43
2.7.3	PCB Wizard 3 Printed Circuit Board Design	44
2.7.4	SourceBoost IDE	46
3	METHODOLOGY	
3.1	Introduction	47
3.2	Flow Chart Methodology	48
3.3	General Flow Chart	50
3.4	PCB Fabrication	52
3.5	Hardware the Motion Detector	54
3.5.1	Interface PIC16F876A with PIR Sensor	54
3.5.2	Interface PIC16F876A with Siren	54
3.5.3	Power Supply for Circuit	55
3.5.4	ICSP for Programming PIC Microcontroller	56
3.5.5	Push Button as Input for PIC microcontroller	57
3.6	16/8/4CH MPEG-4 DVR	
3.6.1	Real Panel	58
3.6.2	Getting Started	60
3.6.3	Operation Recording	62
3.6.4	Detailed Menu Configuration	63
3.7	Software	
3.7.1	Software for Circuit Motion Detector	70

3.7.2	Programming Visual Basic CCTV for Display to Computer	71
4	RESULT AND DISCUSSION	
4.1	Introduction	79
4.2	Overall Project Operation	80
4.3	Result and Analysis	81
4.3.1	Programming to PIC16F876A	87
4.3.2	Result Programming CCTV to Display to Computer	94
4.4	Discussion	97
5	CONCLUSION AND SUGGESTION	
5.1	Conclusion	98
5.2	Suggestion	99
	REFERENCES	100
	APPENDIX LIST	101

LIST OF TABLE

No	Description	Page
2.1	PIC16F876A Register File Map	26
3.1	Main DVR Camera	66
3.2	Menu Detection	67
3.3	Menu Display	68

LIST OF FIGURES

No	Description	
1.1	Overall Project Block Diagram	5
2.1	Ultrasonic Motion Detectors	9
2.2	Active Infrared Motion Detectors	13
2.3	Pyroelectric Infrared Sensors	14
2.4	Typical Configuration of motion detector circuit	15
2.5	PIR RE200B Detection Specifications	15
2.6	RE200B Electrical Specifications	16
2.7	Fresnel Lens	17
2.8	LM324 Internal Block Diagram	18
2.9	CD4013BC Internal Block Diagram	20
2.10	PIC16F876A program memory map and stack	24
2.11	PIC16F876A	25
2.12	Block Writes to Flash Program Memory	27

2.13	A development board for low pin-count MCU, from Microchip	29
2.14	Transfer sensor CCTV	30
2.15	Detect insect protection	31
2.16	Day/Night Function	32
2.17	The Wide Dynamic Range function	33
2.18	The sensitivity motion detection	34
2.19	The Noise Reduction	34
2.20	The mosaic privacy zone	35
2.21	Image zoom	35
2.22	VGA Connector	39
2.23	Keypad DVR Card	39
2.24	9-pin VIVO for S-Video (TV-out), DVI for HDTV and DB-15 for VGA outputs	40
2.25	Proteus 7 Professional Simulation	41
2.26	Example programming Visual Basic	42
2.27	Circuit Designed	44
2.28	PCB Designer Circuit	45
2.29	The Real World	45
2.30	SourceBoost IDE to create the C Language	46
3.1	Flow Chart	49
3.2	Etching Process	52
3.3	Single-sided PCB Process Flow Chart	53
3.4	Circuit power supply	55

3.5	Circuit ICSP	56
3.6	Circuit Push Button	57
3.7	Digital Video Record	58
3.8	Real Panel	58
3.9	Connected Input DVR Card	61
3.10	Setting Display	61
3.11	Under Record	62
3.12	Flow Chat DVR	63
3.13	Menu Option Record	64
3.14	Setting Area	67
3.15	The Flow chat Operation Circuit	70
4.1	Overall Project Block Diagram	80
4.2	Circuit Motion Detector	82
4.3	Push Button	84
4.4	LED as Output for PIC microcontroller	84
4.5	ICSP for Programming PIC Microcontroller	85
4.6	The Pin Definitions and Ratings motion detector	86
4.7	Jumper Setting	86
4.8	Programming for Motion Detector Circuit	87
4.9	Change Programming Sensor Detector	88
4.10	Scanning Mode Programming	89

4.11	Mean Detected Mode	89
4.12	Flow chat Programming	90
4.13	Complete Circuit	91
4.14	Final Product	93
4.15	The Programming Visual Basic before Run	94
4.16	The programming Visual Basic After Run	95
4.17	Display Image using Visual Basic after Connect with CCTV	96

CHAPTER I

INTRODUCTION

1.1 BACKGROUND

This project introduces a security system with recording system which consists two sections such as development of movement detection and CCTV system. The project implemented the CCTV and combination of other handful electronic component in developing the system. By adding a few sensors at door and window, including siren and timer 555 to the security system, it can become a multi-function security system.

Basically, the sensors will put at side door and window. The CCTV system will focus to the sites of sensor. If the system detects some movement, it will ON alarm circuit by secrete a sound by follow the time that is fixed.

The requirements of home-based surveillance CCTV system are different between office-based system and commercial system like monitoring traffic. Home safety is more important thing that must have a strong guarding and as an individual user, they can monitor a large garden, garage or similar external points from the interiors.

1.2 OBJECTIVE

The objectives of this project are:

- a. Continuous process to alarm system without any supervisor
- b. To understand the different motion detectors operated
- c. To provide hands on skills in hardware and software designing
- d. To using the PIC programming as a program to control system.
- e. Design the circuit using combination CCTV and circuit alarm system

1.3 SCOPE OF WORK

The scope of work for this project will cover the development of home alarm system. This project will be focused on two features which are motion detection system and recording system. The motion detection system used the motion detector sensor. Then the signal will trigger to system timer and siren, where siren will take out sound and timer will set time for sound stop. The CCTV system will record photo visitor or thief during system alarm 'ON' and siren to hide.

1.4 PROBLEM STATEMENT

This project is an alternative way to overcome and extend the application of existing security system. Generally, a security system consist an alarm which producing either sound or light obviously. Besides, the existing alarm system is a dependent system which depends on the neighbours to inform the authority or to the owner about any incident regarding the house. The importance to design security alarm with CCTV system is to be more independent device which when it detect any movement especially human movement, then the alarm condition occurs, it will sends signal to the buzzer and timer will set time for siren produce sound. Here, the motion detection system with recording capability is proposed.

1.5 PROJECT OVERVIEW

The figure 1.1 explains the overall block diagram of the basic project flow. The methodology of this project is divided into two sections which are the motion detection section and the CCTV system. In the motion detection section, the approach will be around the motion detection sensor. This project is intended to demonstrate how motion detector sensor can be applied in the detection of moving object. The detector is termed "passive" because it does not in itself emit any IR rays. The detector is triggered solely by the IR ray that comes from the moving objects which must be either *warm* (human body) or *hot* (a cup of hot coffee) and should be sufficiently large to ensure the amount of IR light is strong enough to trigger the detector. Note that a cold object does not radiate much infrared light and the detector may not respond to its motion. While the CCTV system, there will record photo visitor or thief during system alarm 'ON' and buzzer to hide. The switch was use for 'ON' and 'OFF' alarm system.

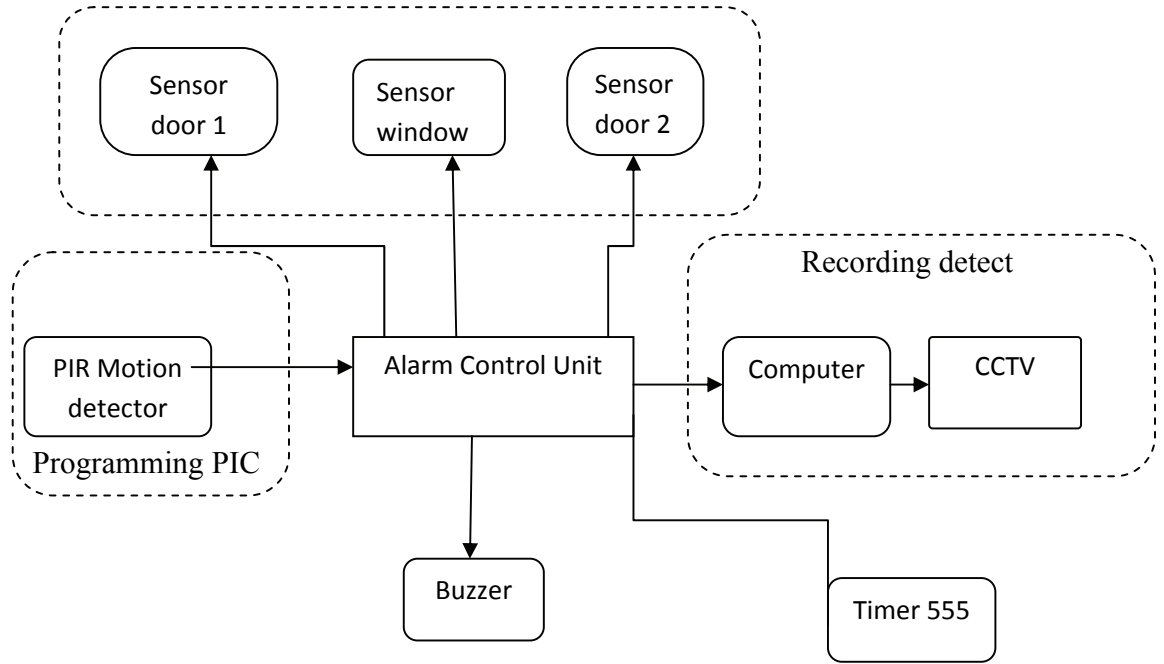


Figure 1.1: Overall Project Block Diagram

1.6 THESIS STRUCTURE

This thesis is consists of five chapters. In the chapter I, the project overview which the objective, scope of work, problem statement and project methodology are briefly discussed which purposely to provide the reader an understanding of the project introduction.

Chapter II, embracing the literature review of the project which includes the concept, theory, perspective, and the method of the project that is used in order to solve the problem occurs and any hypothesis that related with the research of methodology.

Chapter III is about the research methodology of the project. This chapter will discuss the method or approach that used in project development including in hardware aspect.

Chapter IV discusses briefly on the observation, result and the analysis of the project that the gain during the development of project. This chapter also consists of the recorded data analysis and the result of the project.

Chapter V covers the discussion of whole contents of the thesis and project and the suggestion for improvement process in the future research and overall conclusion of the project.

CHAPTER II

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter embracing the literature review of the project which includes the concept, theory, perspective and the method of the project that is used in order to solve the problem occurs and any hypothesis that related with the research of methodology.