

DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG

FINAL REPORT OF DIPLOMA PROJECT

4-1 BURGLAR ALARM SYSTEM

FEBRUARY 2005

MOHD YUSRI B. OTHMAN
2002416166

LECTURER
P.M RUSNANI ARIFFIN

ACKNOWLEDGEMENT

During my time to finish this project, there were lot of people that give me advise and support. Without them it's entirely impossible for me to finish this report and project.

First of all, I would like to thank my supervisor, Prof. Madya Rusnani for guide, kindness, support and not to mention her concern to my project. She is very consistent for giving her ideas and suggestion to me in order to finish this project.

Not to forget, my solely partner, Mohd Syazwan. Although he left UiTM this last semester, but he still giving me ideas, and not to mention some bucks. Thanks lot to him for his spirit and support.

I would like to express my gratitude to all off my friends especially Sharo for the reports, the cutting expert Sazali for giving me ideas and helping me to cut "prospect" for the PCB casing. And the most helping hand, my lady, Nur Lida for giving me the most moral support, lot of advised and lot of her time.

Lastly, I would like to thank all off UiTM staff for giving me support and some of their time on the Electrical Lab. Sorry for buying your golden time during mid semester break. Thanks.

ABSTRACT

The whole idea about my project is to build a security system for smart house. The system is supposedly to sense and detect any incoming person or moving object through a specific location in the house. Its main objectives are to give warning signal and alarm situation for the owners if their house has been broken by a burglar or an uninvited person.

There will be a laser acting as a bypass detector, then a sensitive probe attached to door to detect any contact with human body. The third is a micro switch that easily fits to windows. Lastly a sensitive probe to pick up any suspicious light on the backyard of the smart house. If any of these probes is triggered, it would sound an alarm that would keep the owner alert.

This device could best be placed inside a smart house. As for its probe, only a simple wiring to a strategic place is needed. It is essential that this system will provide a safe environment and be cost-effective for the users.

TABLE OF CONTENT	PAGE
1.0 Introduction	
1.1 Background	4
1.2 Objective of the project	5
1.3 Scope of work and Methodology	6
2.0 Project description	
2.1 Component of 4 in 1 burglar alarm system	8
2.2 Circuit diagram & operation	
2.2.1 Circuit diagram	
2.2.2 Circuit operation	9
2.3 Part details	
2.3.1 USM 7806	13
2.3.2 NE 556 (timer)	14
2.3.3 Diode (IN 4001)	15
2.3.4 LDR	16
2.3.5 Capacitor	18
2.3.6 Transistor	19
2.3.7 Relay	20
3.0 Hardware Construction	
3.1 PCB design	21
3.2 PCB making	22
3.3 Etching	24
3.4 Component soldering	25
4.0 Circuit testing	
4.1 Trouble shooting	26
4.2 Circuit testing results	27
5.0 Discussion & recommendation	
5.1 Discussion	28
5.2 Recommendation	29
6.0 Conclusion	30
7.0 Reference	31
8.0 Appendice	
8.1 Appendix A	33
8.2 Appendix B	34
7.3 Appendix C	37

CHAPTER 1

Introduction

1.1 BACKGROUND

The main objective of this project is to construct an electronic circuit to be use as an alarm system in a smart house. The system must include the latest and most effective alarm circuit.

The circuit will be completed with all possible combination of electronic components to achieve the purpose of the project. This system will be constructed by combining four different alarm systems into one complex circuit that uses IC for triggering the output.

These four different alarm systems can be placed at any area that is in need of security attention. It also can be controlled from one switch to activate and deactivate them.