WIRELESS HOME SECURITY SYSTEM

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BACHELOR OF ENGINEERING (Hons.) ELECTRONICS (COMMUNICATION)
FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA

MOHAMMAD FIRDAUS BIN AZIZAN

FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITI TEKNOLOGI MARA

40450 SHAH ALAM

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ABSTRACT

In Malaysia burglary cases are increasing dramatically. Therefore this project is designed to reduce this crime since this wireless security system is low in cost and able to be owned by everyone. Wireless Home Security System (WHSS) which is intended to be implemented in a double storey house with approximately 22 feet x 70 feet.

The proposed system is developed to support seven different zones and at each zone, an Infrared Light Emitting Diode (IR LED) motion sensor is placed to sense any movement in the house. This system consists of two main modules namely transmitter and receiver module. Both receiver module and transmitter module is developed using PIC16F877A microcontroller as a main controller unit.

MicroC Compiler and MPLAB IDE® version 8.7 are used to write the program of the system. Both of the software's are very compatible for writing and designing a program for Peripheral Interface Connection (PIC) microcontrollers. In the transmitter module, a remote control consists of a 16x2 Liquid Crystal Display (LCD) and a 4x4 matrix keypad is developed to control the entire system. In addition, this cost-effective system also has capability to arm and disarm the selected zones remotely.

In this system, only house owner having the right password can operate this remote control. If the sensor detects any movement at particular zones, the transmitter will transmit this information to the receiver module. As a result, the respective LED at the receiver will light on initiating the alert system to the house owner

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 Background of the study

In Malaysia, robbery cases have been reported increasing dramatically from year 2000 to year 2006. These cases increased from 12 000 cases to 18 000 cases which is approximately 1000 cases increased per year [1]. This statistic indicates the importance of implementing home security system in residential area. Furthermore, it is crucial to has advanced security system which could secure the premises.

As a result of this situation, a home security system, which is suited to Malaysian requirements, has to be produced. Today, there are many kinds of home security systems being offered in the market. Most of the security systems are very expensive with the price range from RM350 to RM7000 depends on how advance the system is. In order to provide the public with a cost effective wireless security system, it is important to design a low cost system with advanced feature that ease the residents' life and benefits the public and also will decrease the crime rate of Malaysia.

Nowadays, home security system is in wireless form rather than wired form. The reasons are wireless can save cost of wiring, easy to install, occupy lesser space, easy for maintenance and more reliable. There are three types of wireless communications system namely infrared, Bluetooth and radio frequency (RF). Radio frequency normally is chosen for the wireless home security system because its connectivity range is further and it is more reliable [2].

The necessary of wireless home security system consists of sensors, transmitters, receiver, remote control and LED. The quality of wireless home security system can be determined by the design of the transmitter-receiver part. Transmitter- receiver part is the important component in wireless home security system because the motion can be trigged by sensor that sends the signal through transmitter-receiver part.