

SECURITY SYSTEM VIA SMS

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This report submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor's Degree in Electronics Engineering Technology (Industrial Electronics) with Honour.

by

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DECLARATION

I hereby, declared this report entitled “Security System via SMS” is the results of my own research except as cited in references.

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APPROVAL

This report is submitted to the Faculty of Engineering Technology of UTeM as a partial fulfillment of the requirements for the Bachelor's Degree in Electronics Engineering Technology (Industrial Electronics) with Honour. The member of the supervisory is as follow:

.....

(Project Supervisor)

ABSTRAK

“Security System via SMS” adalah satu sistem keselamatan yang mengandungi beberapa gabungan penderia untuk mengesan penceroboh di rumah mahupun di tempat kerja. Pada zaman hari ini teknologi digital dan sistem pintar, automasi rumah telah menjadi salah satu yang paling cepat membangun teknologi berasaskan aplikasi di dunia. Idea hidup selesa di rumah sejak berubah untuk dekad yang lalu sebagai digital, penglihatan dan teknologi tanpa wayar yang bersepadu ke dalamnya. Rumah pintar, dalam bahasa yang mudah, boleh digambarkan sebagai rumah-rumah yang automatik sepenuhnya dari segi menjalankan tugas yang telah ditetapkan, memberikan maklum balas kepada pengguna, dan bertindak balas dengan sewajarnya kepada situasi. Dalam erti kata lain, ia hanya membolehkan pelbagai aspek sistem rumah seperti suhu dan kawalan lampu, rangkaian dan komunikasi, sistem hiburan, kecemasan dan sistem pemantauan keselamatan yang perlu automatik dan dikawal, kedua-dua dekat dan pada satu jarak.

ABSTRACT

" Security System via SMS " is a security system that consists of some combination of sensors to detect intruders in the home and workplace. In today's age of digital technology and intelligent systems, home automation has become one of the fastest developing application-based technologies in the world. The idea of comfortable living in home has since changed for the past decade as digital, vision and wireless technologies are integrate into it. Intelligent homes, in simple terms, can be describe as homes that are fully automated in terms of carrying out a predetermined task, providing feedback to the users, and responding accordingly to situations. In other words, it simply allows many aspects of the home system such as temperature and lighting control, network and communications, entertainment system, emergency response and security monitoring systems to be automatic and controlled, both near and at a distance.

DEDICATION

I dedicate my thesis work to my family and many friends. A special feeling of gratitude I would like to give to my loving parents, Encik Hamidan Bin Ishak and Puan Norliah Binti Mohamed Rasli, whose words of encouragement and push for tenacity ring in my ears.

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LIST OF ABBREVIATIONS, SYMBOLS AND NOMENCLATURE

A/D	-	Analog to Digital
ASM	-	Assembly Language
AT	-	Attention
EEPROM	-	Electrically Erasable Programmable Read-Only Memory
EPROM	-	Erasable Programmable Read-Only Memory
CPU	-	Central Processing Input
DC	-	Direct Current
FDD	-	Frequency Division Duplex
GSM	-	Global System Mobile
GPRS	-	General Packet Radio Service
IC	-	Integrated Circuit
I/O	-	Input/Output
LCD	-	Liquid Crystal Display
LED	-	Light Emitting Diodes
NC	-	Normally Closed
NO	-	Normally Open
PC	-	Personal Computer
PCB	-	Printed Circuit Board Assembly
PIC	-	Programmable Interface Controller
RAM	-	Random Access Memory
RF	-	Radio Frequency
RISC	-	Reduce Instruction Set Computer
ROM	-	Read Only Memory
Rx	-	Receiver
SIM	-	Subscriber Identity Module
SMS	-	Short Messaging Service
TDMA	-	Time Division Multiple Access

Tx	-	Transmitter
UART	-	Universal Asynchronous Receiver Transmitter
UC	-	Unicode
UV	-	Ultra Violet

CHAPTER 1

INTRODUCTION

This chapter is the first chapter that introduce about this project. This chapter covered project's background, objectives, problem statement, scope of the project, general flowchart and project result. Overview of methodology used was stated. The organization of this report also explained in this chapter.

1.1 Project Background

This project is about providing security system for a place such as home that can be monitor through the SMS for security system. This system is combining security system technology and GSM technology. The function of SMS is to inform user for any contraction or intrusion in the absence of owner in real time. The system covered one type of sensor as the basic of security system for home. The sensor is magnetic switch sensor.



Burglary is the unlawful entry of a structure to commit a felony or a theft. A person can be convict of burglary even if nothing is actually stole. This problem faced by all countries of the world. The authorities are not able to curb this crime because criminals burglary transparent very cunning. They good to choose the time and took the opportunity to commit the crime. About 30 percent of all burglaries are classify as

"unlawful entry," meaning the burglar was able to gain entry without using force. This mean the burglar often through an unlocked door, window and ceiling. A system was invent to assist the authorities to overcome of crime burglary. Name of the system is Automation Home Security System. This system is create not to trace criminals but to arrest the burglary at the scene. Now a days, not have system is design to catch criminals in the burglary scene. This system is design to communicate with human either residence or police station. About 30 percent of private homes have security systems. Homes without security systems are two to three times more likely to be broken into. Therefore, this system are helpful to combating criminals and curb crime burglary.

According to the crime statistics in Malaysia, issued by the Malaysian police departments in 2007-2011 indicate that the number of burglary cases in each year is worrying. According to statistics, the 33,599 cases reported in 2007 of burglary increased 4,727 cases from 28,872 cases in 2006. Evident, criminals now particularly involving foreign criminals are the most ruthless, greedy and very brave act wildly unexpected police and the victim, which is not the same as criminals first. The trend of criminals including of burglary case now is tie, wallop and then killing the victim, but some are willing to chop and burn the victims to eliminate the evidence.[3] At the same time, these criminals want to earn profit and reward in a simple manner and lucrative even have to sacrifice the lives of the victims. The criminals of burglary regardless of whether their actions are right or not, as long as get a lot of money and use the easily ways.

Automation Home Security System is a protection system from crime home burglaries. As the first defence line from crime home burglaries, the system was apply for all doors, windows and roof at home. Security systems of a modern home are important features. [1] In this project, a way to control home security is develop by using Global System Mobile (GSM) to send any home burglary activities. Microcontroller is the one of the main part on this project. Microcontroller is the brain to be an input from the sensor and process the input to send as an output to GSM module. GSM is a way to make communication between human and system. Use GSM network ca with low cost, large alarm scope; strong verify approximate positioning in

a certain scope that n work out an anti-theft system. [3] This system offers a complete, low cost, powerful and user-friendly way of 24 hours of real-time monitoring and remote control of a home and industrial security. The system works as a remote sensing for the security system at home to avoid residential robbery at the same time the user can control the security system at home by sending Short Messaging Service (SMS) to the system.

Police are actively enhancing patrols approximately residential areas throughout the country to reduce the criminal cases of burglary. While the authorities are no guarantees in order to reduce the crime rate burglary to zero, but they are confident with the frequency of patrols can certainly help control the spread of these crimes. For these reasons, the creation of this project, at least people will be working close with the police by providing information to enable efforts to reduce criminal activities more effectively.

1.2 Objective of Project

The main objective of the home security system is to introduce the system to the user to monitor the safety of their homes from burglary. In addition, to introduce the system using PIC Microcontroller to control and monitor all of the houses. Other than that, to created simple and secure system, ubiquitously accessible, and auto configurable.

The objective of this project is to create and developed a low cost home security system and effective while using it. Other than that, the objective of this project is to design home security system by using PIC Microcontroller and Global System Mobile (GSM). The third objective is to manipulate or find the suitable circuit and electronic component to build this system. The last objective of this project is easy installation and easy maintenance of the security system.

1.3 Problem Statement

Crime of burglary is an action, either individually or in a group entering a house without permission for the purpose of robbery. A burglary can be done by using a screwdriver or sharp objects to pry the door or window. In addition, criminals also often climb the roof intended to break into the house through the ceiling. There are some criminals who cut the padlock with a hacksaw or use a jack to open the iron bars of the window. There are also the criminals who use tactics to open water pipes outside the home in order to divert the attention of the host and entered through an unlocked or windows open. Problems or crimes occur because of home security systems that have weak security system.



Figure 1.1 Burglary through the windows

The causes of crime of burglary is due to the location or position of houses located in remote areas. These factors make it easier for criminals to commit the crime of burglary. In addition, the doors and windows are not locked encourage criminals to commit the crime of burglary. Most police simply patrolling the main roads only and not along the route in each housing.



Figure 1.2: Burglary through the roof

Table 1.1 shows the statistic by Royal Malaysia Police, according to the number house break-ins and theft in Malaysia from 2007 to 2011. This statistic shows the increasing number of this crime from 2007 to 2009 and the number of case decrease on 2010 and 2011. In 2007, the number of recorded in crimes of burglary was 33,590 and increase to 35,588 in 2008. Crime continues to suffer a rapid increase in the next year of 2009 with total 37,641 was register. Crime began to undergo reduction in 2010 to the amount of 32,603 that released by the Royal Malaysia Police. Burglary crime continued to decrease in 2011 with total 28,020. Total burglary crimes recorded from 2007 to 2011 is 28,020. Even though the total of number house break-ins between 2010 and 2011 is decreasing but the total number of recorded very worrying.