

Dedication

I dedicate this research to my parents. And my wife and son and
all my friends.

ACKNOWLEDGEMENT

First of all, I would like to thank our almighty God for shedding on me good health and keeping my brain working to the extent completing .this research

Next, to the Center of Engineering And Technical Studies (CETS) and many thanks to my supervisor Dr. Abd Elrasoul Gabar Alzubaidi , especially, I would like to sincerely thank him for his valuable advice and .the continuous effort that exerted while I was carrying out this study

Sincere appreciation goes to my parents, wife,son, brothers, sisters and .all my friends

ABSTRACT

This project is focus on developing an enhancement of the vehicle Alarm security system via SMS, Cars are often exposed to theft, which makes the car owners in constant and continuous worry, and car owners think about different ways to .protect their vehicles

The car alarms that are available in stores had very short range coverage also they have limited control on the car to open and closing doors. The alarm is attached to the car and makes a loud voice when the car is being stolen, but the alarm cannot be heard if the owner is far away from the vehicle. But the question that; what is the means, by which the owner is aware about that, is the car will be protected and secure? And what is the .method that should be used to track stolen vehicles

And therefore to protect the car from theft, a car alarm or anti-theft device is required to create a warning system, and that will be a solution for this problem. The alarm system in this project consists of two parts; a GSM modem (transceiver) is the part that supports the GSM technology. The modem is placed in the car and must have its own SIM card, it is used to send information's about the car status, receive the message from the car .owner in case of theft, and control the car when stolen

The second part is the owner's mobile phone, it is used to send message to the GSM modem to control the vehicle (to close or to open the doors, disconnect the cars pump) that is when the GSM modem sends an alert .message to the owner in case of theft

The GSM modem attached with a microcontroller that is used to control the input and output of the device. The receiving unit of the modem receives signals from the sensor that is connected to the vehicle.

تجريد

المشروع يركز على تطوير وتعزيز أمن نظام الإنذار للمركبات عبر الرسائل القصيرة عن طريق الموبايل. كثير من الأحيان تتعرض المركبات إلى السرقة مما يجعل أصحاب المركبات في قلق دائم و مستمر و الكثير منهم يفكر في حماية السيارة عن طريق أجهزة الإنذار التي تكون محدودة التحكم مثل اغلاق الابواب او فتح الابواب او تامين السيارة عن طريق ريموت تحكم محدود المدى يكون و صافرة مع جهاز الإنذار تصدر صوت عالي عند حدوث سرقة للسيارة , ومن عيوب هذا النظام انه اذا كان صاحب السيارة في مكان بعيد من السيارة لا يستطيع سماع الإنذار , و لكن السؤال ما هي الوسيلة الافضل التي يدرك بها صاحب المركبة بأن المركبة في حماية و أمان ؟ و ما هي الطريقة التي يمكن عن طريقها معرفة حالة السرقة و منع حدوثها , و لذلك حماية المركبة من السرقة يتطلب جهاز إنذار للمركبة أو جهاز ضد السرقة.

يتكون نظام الإنذار للمركبة في هذا المشروع من وحدتين , وحدة إرسال واستقبال وهو عبارة عن جهاز يدعم نظام [الاتصالات](#) الرقمية الخليوية , يحتاج الجهاز الى رقم خاص منفصل أي شريحة خاصة له , حيث يوضع في المركبة لإرسال معلومات عن حالة المركبة واستقبال الرسائل من صاحب المركبة و التحكم بالمركبة , و الثاني وهو عبارة عن جهاز موبايل محمول يكون عند صاحب المركبة يستقبل الرسائل المرسله من الجهاز الموجود داخل السيارة , وذلك عندما يشرع اللص في سرقة السيارة, حينها يستكشفه الجهاز الموجود داخل السيارة و يرسل رسالة إلى صاحب المركبة حيث يقوم صاحب المركبة بإرسال رسالة الى الجهاز الموجود داخل المركبة ويتم التحكم بمضخة البنزين حتى لا يتمكن اللص من تحريك المركبة من مكانها لحين وصل صاحب المركبة.

يتكون الجهاز داخل المركبة من وحدة تحكم (ميكروكنترولير) تستخدم

فى التحكم فى مداخل ومخارج النظام ,وحدة استقبال تستخدم
لاستقبال الموجة المرسله من الحساسات الموصلة مع النظام

Content

Pag e	Contents
I	.....Dedication
II	.....Acknowledgement
III	.....Abstract in English
IV	.....Abstract in Arabic
V	.....Contents
VIII	.....List of figures
IX	.....List of tables
X	.....Abbreviations

	Chapter one : Introduction
1	.....Background 1.
3	.....problem 1.
3	.....Statements 2
3	.....Objective 1.
	..... 3

4	.....Methodology	1.
	.....	4
6	.....Research	1.
	.....Outline	5
Chapter two : GSM Technology and short messaging service		
7	.....GSM	2.1
	.....Technology	
8	.....GSM	2.1.1
	.....Architecture	
9	.....(Mobile Station (MS	2.1.1
	.....	.1
10	.....(Base Station Subsystem (BSS	2.1.1
	.....	.2
11	.....(Network Switching Subsystem (NSS	2.1.1
	.....	.3
12	.....GSM Services	2.1.2
13	.....SHORT MESSAGE SERVICE	2.2
	
14	What makes SMS messaging so successful	2.2.1
	.....worldwide	
14	.....SMS Service Providers	2.2.2
	
15	.....(Short Message Service Center (SMSC	2.2.3
	

Chapter Three:Vehicle Security System,GSM Alarm

		System
17	.....Vehicle Security System	3.1
18	Type Of Vehicle	3.1.
	.....Security	1
21	.....GSM Alarm System	3.2

23	.....Advantages of GSM Alarm System	3.2.
	.....	1

Chapter Four GSM System Plus II and Components

24	.....GSM System PlusII	4.1
25	System Description.....	4.1.
	.....	1
25	System Specifications.....	4.1.
	.....	2
26	System Function and Features.....	4.1.
	.....	3
28	Hardware Division.....	4.2
33	.....Wireless Passive Infrared (PIR) Sensor	4.2.
	.....	1
36	.....Wireless Door Sensor	4.2.
	.....	2
37	Vibration Sensor Alarm.....	4.2.
	.....	3
39	Base Configuration of the GSM system.....	4.3
40	Setup the Alarm Phone Number and SMS.....	4.3.
	.....	1
41	Test the Base Alarm Out.....	4.3.
	.....	2
43	Base Control the GSM system	4.3.
	.....	3
46	Add More Detectors.....	4.3.
	.....	4
46	Some Note about Lamp.....	4.3.
	.....	5

Chapter Five: Installation and Configuration the GSM system

48	.....Installation GSM system component	5-1
50	Principle of work GSM system Plus	5.1.
53	Start The Base Configuration of the GSM system	5.2
53	.....ALGORITHM	5.2.
54	.....Flowchart	5.2.
55	Setup the Alarm Phone Number and	5.2.
	.....SMS	3

Chapter six: Results and Discussion

56	.....Results	6.
57	.....DESCUTION	6.
		2

Chapter seven: Conclusion And Recommendations

59	Conclusion	7.
60	Recommendations	7.
61	.....References	2

List of figures

4	.....	Figure 1.1 Block Diagram
5	.....	Figure 1.2 System Operation Flow Diagrams
8	.....	Figure 2.1 GSM Architecture
9		Figure 2.2 Structure of a GSM network key
		.....elements
19		Figure 3.1 Wheel Lock Clamp and Steering
		.....Lock
20		Figure 3.2 Door
		.....Lock
21		Figure 3.3 Car
		.....alarms
25		Figure 4.1 GSM system Plus II component
	
30		Figure 4.2 Relay Switch
		.....Connections
32		Figure 4.3 (a) ULN2003 Logic
		.....Diagram
32		Figure 4.3 (b) - Schematic Diagram (Each Darlington

33	Figure 4.4 Remote Control	.....(Pair
34	Figure 4.5 Wireless Passive Infrared (PIR)	.....Units
35	Figure 4.6 Passive Infrared Sensor	.....Sensors
37	Figure 4.7 Wireless Door Sensor	.....Installations
38	Figure 4.8 Vibration Sensor Alarm	
39	Figure 4.9 GSM point connector	
47	Figure 4.10 Monitor lamp	
48	Figure 5.1 GSM alarm system	
49	Figure 5.2 pump car pushing the gasoline	
50	Figure 5.3 power lock system	
51	Figure 5.4a GSM system element connector to the car	
52	Figure 5.4b GSM system element connector to senses and pump	
54	Figure 5.5 flowchart	

List of Tables

Page	List of tables
26	Table 4.1 special features for GSM system Plus II
27	Table 4.2 GSM system plus II functions.
43	Table 4.3 base control function

Abbreviations

.GSM : Global System for Mobile Communication

SMS: short message service

.SIM: Subscriber Identity Module

.ETSI: European Standard Telecommunication Standard

.MS: Mobile Station

.ME: Mobile Equipment

.BSS: Base Station Subsystem

.BTS: Base Transceiver Station

.BSC: Base Station Controller

.NSS: Network Switching Subsystem

.MSC: Mobile Switching Center

.HLR: Home Location Register

.VLR: Visitor Location Register

.AUC: Authentication Center

.EIR: Equipment Identity Register

.IMEI: International Mobile Equipment Identity
.IMSI: International Mobile Subscriber Identity
.TRX: Transceivers
ISDN: Integrated Services Digital Network
TMSI: Temporary Mobile Subscriber Identity
MSISDN: Mobile Station Integrated Services Digital
Network
MSRN: Mobile Station Roaming Number
PLMN: Public Land Mobile Network
OSI: Open Systems Interconnection
CDMA: Code Division Multiple Access
TDMA: Time Division Multiple Access
3GPP: Third Generation Partnership Project
SMSC: Short Message Service Center
PIR: Wireless Passive Infrared
RAM: Random Access Memory
ROM: Read Only Memory
CMOS: Complementary Metal Oxide Semiconductor
AVR: Automatic Voltage Regulator
RISC: Reduce Instruction Set Computer
LED: Light Emitting Diode
RF: Radio Frequency

