

DEDICATION

To my father's soul,

To my mother,

To my husband and my kids,

To all my sisters and my brothers,

I present this effort

Acknowledgment

I would like to thank very much
Dr. Abdalrasoul G. Al-zibaidi the
supervisor of this study for his
constant help during the research
writing.

Abstract

Recently there is rapidly development in communication methods that make the world as a small village.

The important sight of these progresses is using a mobile phone every way in the life.

The objective of this research is to design a hardware circuit by which it can be able to use a mobile phone set controlling heavy current devices, such as lamps generators, TVs ... etc.

Heavy current devices control using a mobile phone is a method by which available system would be used instead of building separate transmitter and receiver.

تجريد

في الآونة الأخيرة تطورت وسائل الاتصال وأصبح العالم قرية صغيرة. ومن أهم مظاهر هذا التطور تعدد الاستخدامات لأجهزة الجوال التي تزداد تطوراً كل يوم.

الغرض من هذا البحث هو تصميم دائرة ربط يمكن عن طريقها استخدام الهاتف الجوال للتحكم في الأجهزة الالكترونية والكهربائية سواء كانت لمبات، تلفزيون، الخ.

إن هذه الدائرة تمكنا من استخدام نظام موجود أصلاً ، وهو الاستفادة من تقنية النغمة الثنائية متعددة الترددات المتاحة في جهاز الهاتف بدلاً من بناء مرسل ومستقبل منفصلين.

Contents

Dedication	I
Acknowledgment	II
Abstract	III
Arabic abstract	IV
Content	V-VII
List of figures	VIII
List of tables	IX
Abbreviations	X

Chapter one

Introduction

1.1. General overview	1
1.2 Background of the remote control	2
1.3. Problem statement	4
1.4. Advantages and disadvantages	4
1.5. Objectives	5
1.6. Methodology	6
1.7. Research outline	7

Chapter two

Remote control technologies

2.1. Ultrasonic control	8
2.2. Laser control	9
2.3. Mechanical control	12
2.4. Infrared controls	13

2.5. Television control	16
2.6. Radio Control	18
2.7. Other remote controls	22

Chapter three

Dual tone multi- frequency

3.1. Overview.....	24
3.2. DTMF usage	25
3.3. Touch tone frequencies	26
3.4. DTMF concept	28
3.5. DTMF transmission	32
3.6. Decoding DTMF	32
3.7. DTMF generator / decoder	33

Chapter four

Hardware design

4.1. Overview	40
4.2. Hardware description	40
4.3. The Hardware circuit diagram connections	42
4.4. General circuit construction	42
4.5. Working of designed control circuit	43

Chapter five

Results and discussion

5.1 results	47
5.2 Discussion	48

Chapter six

Conclusion and Recommendation

6.1 Conclusion	49
6.2 Recommendation	50
6.3 Future work	50
6.4 Applications	51
References	52
Appendix	

List of figures

Chapter one

- Fig.1.1: the infrared diode modulates at a speed corresponding to a particular function
- Fig.1.2: the emission spectrum of a typical sound system remote control is in the near infrared.
- Fig.1.3: circuit diagram

Chapter two

- Fig.2.1. Trajectory for vehicle using computer
- Fig.2.2: the vehicle using sensor
- Fig.2.3: Remote control sends commands to a television set.
- Fig.2.4: The "master" and "slave" parts of mechanical manipulator, and how they work
- Fig.2.5: Pulse-coded signal
- Fig.2.6: space-coded signal
- Fig.2.7: shift-coded signal
- Fig. 2.8: 11 various remote control for TV- VHS, and DVD-devices
- Fig.2.9: the radio control is carrying a scale model of x-33and is taking part in NASA research.

Chapter three

- Fig. 3.1. Tone Frequency for 1 Key
- Fig.3.2. DTMF Generator/Decoder Pair
- Fig. 3.3 tone generator schematics diagram
- Fig. 3.4 tone Decoder schematics diagram
- Fig. 3.5. Tone Generator
- Fig. 3.6. Tone Decoder

Chapter four

- Fig.4.1. design control circuit diagram

Chapter five

- Fig. 5.1 Designed circuit photo

List of tables

Chapter three

Table 3.1.	DTMF tone power
Table 3.2.	DTMF Row/Column Frequencies
Table 3.3	DTMF frequency with the extension Touch Tone Keys
Table 3.4.	Part list of DTMF Generator.
Table 3.5.	Part list of DTMF Decoder
Table 3.6	DIP Switch Position

Abbreviations

IR	Infrared
DVD	Digital Video Display
TV	Television
VCR	Video Cassette Recorder
BBC	British Broad Cast
ITT	International telephone and Telegraph Company
US	United of subhead
CB	Code Binary
RC	Radio control
IC	Integrated circuit
PIC	Programmable integrated circuit
DIP	Dual in – line package
LED	Light emitting diode
PC	Personal computer
BCD	Binary coded decimal
PBEX	Personally branched telephone exchange