

الآية

قال عز وجل :

بسم الله الرحمن الرحيم

ءَاٰمَنَ الرَّسُوْلُ بِمَا اُنْزِلَ اِلَيْهِ مِنْ رَّبِّهِ ۚ وَالْمُؤْمِنُوْنَ كُلُّ ءَاٰمَنَ بِاللّٰهِ وَمَلٰٓئِكَتِهِ ۚ وَكُتُبِهِ ۚ وَرُسُلِهِ ۚ لَا نُفَرِّقُ
بَيْنَ اَحَدٍ مِنْ رُسُلِهِ ۚ وَقَالُوْا سَمِعْنَا وَاَطَعْنَا ۚ غُفِرَ لَكَ رَبَّنَا وَاِلَيْكَ الْمَصِيْرُ ﴿٢٨٦﴾ لَا يُكَلِّفُ اللّٰهُ نَفْسًا اِلَّا وُسْعَهَا ۚ
مَا كَسَبَتْ وَعَلَيْهَا مَا اكْتَسَبَتْ ۚ رَبَّنَا لَا تُؤَاخِذْنَا اِنْ نَسِْنَا اَوْ اٰخَطَاْنَا رَبَّنَا وَلَا تَحْمِلْ عَلَيْنَا اِصْرًا كَمَا حَمَلْتَهُ
عَلَى الَّذِيْنَ مِنْ قَبْلِنَا رَبَّنَا وَلَا تُحَمِّلْنَا مَا لَا طَاقَةَ لَنَا بِهِ ۚ وَاعْفُ عَنَّا وَارْحَمْنَا ۚ اَنْتَ مَوْلَانَا فَانصُرْنَا
عَلَى الْقَوْمِ الْكَافِرِيْنَ ﴿٢٨٦﴾

(صدق الله العظيم)

سورة البقرة (278-286)

DEDICATION

To our beloved parents for their endless support and kindness, to our all Doctors and professors, to our all brothers, friends, and colleagues who stand behind us in our study journey.

ACKNOWLEDEMENT

Give thanks to **ALLAH**, the almighty who graciously favored us to get over this work and enable us to accomplish this achievement. We are most grateful to our dedicated supervisor, MR: **Galal Abdalrhman Mohamed**, for his guidance and a tremendous amount of support throughout our research studies.

ABSTRACT

The aim of this project is to design and build a prototype of an automated parking system which will automatically park and retrieve the vehicle without the driver. After the driver selects his desired parking space on the control Panel by entering his password, the vehicle will be transported to that parking space .In order to retrieve the vehicle, the driver will select the location of his vehicle on the control panel by reentering his password. The system will retrieve the vehicle from the parking space and send it back to the original position. Microcontroller will be used in the design of the prototype of the automated parking system. The microcontroller is used to control the movement needed to transport and retrieve the vehicle to and from the desired parking space based on the signal from the driver.

مستخلص

الهدف من هذا المشروع هو تصميم وبناء نموذج اولي لنظام موقف للسيارات يمكن من تخزين واسترجاع السيارة دون الحاجة للسائق، بعد اختيار السائق لمكان تخزين سيارته المحدد عن طريق ادخال كلمة السر الخاصة به، يتم نقل السيارة الى المكان المحدد لها . ولإسترداد السيارة يقوم السائق بادخال كلمة السر الخاصة به، حيث يقوم النظام باسترداد السيارة ووضعها في المكان المخصص لها حتى يتمكن السائق من قيادتها . تم استخدام متحكم دقيق للتحكم في تخزين واسترجاع السيارة عن طريق التحكم في حركة الموتور والبوابه.

TABLE OF CONTENTS

TOPIC	Page
الآية	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
مستخلص	v
TABLE OF CONTENT	Vi
LIST OF FIGUERS	Viii
LIST OF ABBEVIATIONS	ix
CHPAPTER ONE INTROUDUTION	
1.1 Introduction	1
1.2 Problem Statement	1
1.3Objectives	2
1.4Methodolog	2
1.5 Research Layout	2
CHPATER TWO LITERATURE REVIEW	
2.1 Introduction	4
2.2 Types Of Car Parking	4
2.2.1 On street parking	5
2.2.2 Off street parking	5
2.2.3 parallel parking	5
2.2.4 Angle parking	6
2.2.5 Smart car parking	7
2.3 Control System	8
2.4 Microcontroller	10
2.4.1Microcontroller basics structure	11
2.4.2Types of microcontroller	13
2.4.3MicrocontrollerApplications	13
2.5 Motor	13
2.6 Inputs Devices	14
2.7 Outputs Devices	14
2.8 Power Supply	14
CHPATER THREE	

CIRCUIT DESIGN	
3.1 Introduction	15
3.2 Circuit Components	15
3.2.1 Microcontroller AT mega 16L	15
3.3.2 Liquid crystal display (LCD)	18
3. 3.3The driver type (ULN2003)	20
3.3.4 Stepper motor	22
3.3.5 Pushbutton	25
3.3.6 Keypad 4*4	25
CHPATER FOUR SEMULATION AND SOFTWARE	
4.1 Introduction	26
4.2 Simulation	26
4.3 Soft word Description	27
4.4 Operation Of The System	28
CHPATER FIVE CONCLUSION AND RECOMMENDATIONS	
5.1 Conclusion	29
5.2 Recommendations	29
References	30
Appendix	31

LIST OF FIGURES

Figures	Title	Page
2.1	On street	5
2.2	Off street	5
2.3	Parallel street	6
2.4	Angle street	7
2.5	Multi level car barking	7
2.6	PIC microcontroller	11
2.7	Block diagram	11
3.1	Pins configuration microcontroller	17
3.2	LCD 16*2	18
3.3	Pins Configuration Of LCD	19
3.4	LCD Connecting With Microcontroller	20
3.5	Schematic diagram of each Darlington pair – ULN2003	20
3.6	Logic diagram of ULN2003	21
3.7	Wiring diagram of stepper motor	22
3.8	The enhanced on-on/off-off four-step sequence of a unipolar stepper motor.	23
4.1	Main Window Of PROTU	26
4.2	Circuit Design By PROTUES	27

LIST OF ABBREVIATION

ARM	Advanced RISC Machines
AVR	Advanced Virtual RISC
A/D	Analog to digital
PIC	Peripheral interface controller
IC	Integrated Circuit
μC, MCU	Micro Controller
I/O	Input output
RAM	Random access memory
CPU	Central process unit
DSP	Digital signal processing
LCD	Liquid crystal display
LED	Light emitting diode
DC	Direct current
AC	Alternating current
ADC	Analog to digital converter