الآيـــــــــــــــــــــــة

قال تعالي:

﴿اللّهُ لاَ إِلَهَ إِلاَّ هُوَ الْحَيُّ الْقَيُّومُ لاَ تَأْخُذُهُ سِنَةٌ وَلاَ نَوْمٌ لَّهُ مَا فِي السَّمَاوَاتِ وَمَا فِي الأَرْضِ مَن ذَا الَّذِي يَشْفَعُ عِنْدَهُ إِلاَّ بِإِذْنِهِ يَعْلَمُ مَا بَيْنَ أَيْدِيهِمْ وَمَا خَلْفَهُمْ وَلاَ يُحِيطُونَ بِشَيْءٍ مِّنْ عِلْمِهِ إِلاَ بِمَا شَاء وَسِعَ كُرْسِيُّهُ السَّمَاوَاتِ وَالأَرْضَ وَلاَ يَؤُودُهُ حِفْظُهُمَا وَهُوَ الْعَلِيُّ الْعَظِيم﴾

سورة البقرة-الآية 255

Dedication

This work is dedicated to

My family …for their help and support through the life journey

My friends…for being always there ,giving without remembering ,receiving without forgetting.

For those who come across our life at times when our own light goes out ..all the deep gratitude for them for lightening the flame back within us.

Acknowledgement

"Coming together is a beginning; keeping together is progress and working together is success." As I look back over the last few months, certainly there was a beginning, and thankfully there was also progress and yes - undeniably I have been successful!

I am grateful to my supervisor Dr. Awadalla Taiyfour who helped me with all hands and passed his knowledge with smile.

A special word of thanks I have to say to all those who helped me to, Make this success ,Eng. Gaily Elsanosi, and Eng. Ricardo Cruz

I am thankful too to all the temporary failures For being my stepping stones to greater experience.

Abstract

Over the last decade radio frequency identification (RFID) technology has grown at a formidable rate, thereby creating new and improved service at lower cost. This is resulted in an increase in number of users and different applications such as an auto parking. This approach provides a nice comfortable, cost economical, well secured, totally unmanned and fully controlled parking space .

The simulation environment of this study based on using MATLAB code for forward link and return link. The simulation is focused on reader side. A simple wireless channel and a simple reflection model of tag are used for evaluating the performance of reader and tag with respect to distance and transmit power.

For a simple analysis, a single reader and a single tag bi-directional communication is investigated to obtain the physical parameters. The communication link is half duplex, reader to tag and then tag to reader.

The system model is developed and a simulation results are presented to show the relation of received power with respect to the operating frequency, transmitter gain, transponder gain and transmit power.

In this study, a detail calculations are performed for designing the sliding gate control circuit .

□□□□□□□

في العقد الماضي انتشرت تقنية التعريف بذبذبات الراديو بشكل واسع، من أجل خلق و تقديم خدمة جديدة بتكلفة أقل .نتج عن ذلك زيادة في عدد المستخدمين لمختلف التطبيقات مثل **موقف السيارات** التلقائي. هذه التقنية تقدم خدمات مريحة، تكلفة اقتصادية أقل، أمن أكبر، كاملة الآلية و منطقة ذات تحكم كامل.

بيئة محاكاة هذه الدراسة تعتمد على استخدام برنامج MATLAB من اجل الإرسال الأمامي و العكسي للإشارة. المحاكاة تركز على جانب قارئ الإشارات. قناة بسيطة لاسلكية ونموذج انعكاسي بسيط للبطاقة تم استخدامهما لتقييم أداء قارئ الإشارات بالنسبة للمسافة و القدرة المرسلة.

من أجل تحليل مبسط قارئ إشارة أحادي، بطاقة ذات اتصال ثنائي الاتجاه تم دراستهما للحصول على ثوابت فيزيائية. وسط الاتصال المستخدم ثنائي الاتجاه، من قارئ الإشارة إلى البطاقة ومن البطاقة لقارئ الإشارة.

نموذج النظام تم بناؤه و نتائج المحاكاة عرضت من اجل توضيح علاقة القدرة المستقبلة بالنسبة للتردد العامل، كسب المرسل، كسب المستقبل و القدرة المرسلة.

في هذه الدراسة، تم عمل حسابات تفصيلية من اجل تصميم دائرة التحكم في البوابة المنزلقة.

LIST OF ABBRIVIATIONS

AVI	**A**utomatic **V**ehicle **I**dentification
CONUS	**C**ontinental **U**nited **S**tates
CRC	**C**yclic **R**edundancy **C**heck **A**lgorithm
DLA	**D**efense **L**ogistics **A**gency
EHF	**E**xtremely **H**igh **F**requency
FDA	Food and Drug Administration
FSK	**F**requency **S**hift **K**eying
HDB	**H**ousing & **D**evelopment **B**oard
HF	**H**igh **F**requency
LAN	**L**ocal **A**rea **N**et work
LF	**L**ow **F**requency
MF	**M**edium **F**requency
RFID	**R**adio **F**requency **I**dentification
ROM	**R**ead **O**nly **M**emory
SHF	**S**uper **H**igh **F**requency
SOI	**S**ilicon **O**n **I**nsulator
SPT	**S**eason **P**arking **T**icket
TIRIS	**T**exas **I**nstruments **R**egistration & **I**dentification **S**ystem
UHF	**U**ltra **H**igh **F**requency
VHF	**V**ery **H**igh **F**requency
VLF	**V**ery **L**ow **F**requency
IFF	**I**dentification **F**riend or **F**oe
SD	**S**torage **D**evice

LIST OF SYMBOLS

P_t	Transmit power
W_0	Isotropic power density.
R	Distance
e_t	Reflection efficiency of transmitting antenna
e_r	Reflection efficiency of receiving antenna
G_t	Transmitter gain
G_r	Receiver gain
D_t	directivity of the transmitting antenna
D_r	directivity of the receiving antenna
e_{cdt}	Radiation efficiency of transmitting antenna
e_{cdr}	Radiation efficiency of receiving antenna
Γ_t	Reflection coefficient of transmitting antenna.
Γ_r	Reflection coefficient of receiving antenna
A_r	Effective area of the receiving antenna.
	Polarization of the transmitting antenna.
	Polarization of the receiving antenna
L	The inductance in μH
I	The length of the wire in cm.
D	The length of the wire in cm.

LIST OF FIGURES

LIST OF TABLES