

الآية

قال تعالى:

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{ اِقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ (١) خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ (٢) اِقْرَأْ وَرَبُّكَ الْأَكْرَمُ (٣) الَّذِي عَلَّمَ بِالْقَلَمِ (٤)
عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ (٥) }

[سورة العلق: الآيات ١-٥]

DEDICATIONS

This study is lovingly dedicated to our parents for their emotional and financial support, our brothers, our sisters and our friends whose has been constant source of inspiration for us. They have given us the drive and discipline to tackle any task with enthusiasm and determination. Without their love and support this project would not have been made possible.

ACKNOWLEDGEMENT

We wish to express our profound gratitude to our supervisor assistant Ust. **Jafer babiker** for his valuable guidance, continues encouragement, worthwhile suggestions and constructive ideas throughout this project. His support, pragmatic analysis and understanding made this study a success and knowledgeable experience for us.

ABSTRACT

In classical guard system may need to have more than one person to guard important places in order to increase the scope of the guard, and Keeper could not continuous monitoring all the time for the important places which were guarded endure some effects such as drowsiness and fatigue which affect the accuracy of gun shooting. So the objective of this project to build an automatic guard system through a control of pistol so that the camera performs by tracking depending that servo motors move and oriented the gun towards the person using Arduino controller.

مستخلص

في نظام الحماية المتعارف عليها تحتاج الى اكثر من شخص لحماية مكان مهم هذا العدد لزيادة نطاق تاحماية وتوسيعه في هذا النظام لا يستطيع الشخص الحامي مواصلة المراقبه طول الوقت هنالك بعض المؤثرات تقلل من فعالية هذا النظام كالنعاس او المرض هذا يتسبب في تقليل حدة مراقبة هذا الشخص للمكان وكذلك ادائه باستخدام السلاح لهذا فان موضوع هذا المشروع هو صنع نظام حماية ذاتي التحكم عن طريق التحكم بمسدس من خلال كامرة تزوده بمكان الهدف وتتبعه اذا تحرك بالاعتماد على محركات سيرفو لتحريكه يتم التحكم فيها عن طريق لوحة اردوينو.

TABLE OF CONTENTS

	Page No.
الآية	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
مستخلص	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	viii
LIST OF TABLES	ix
CHAPTER ONE	
INTRODUCTION	
1.1 General Concepts	1
1.2 Problem Statement	2
1.3 Objective	2
1.4 Methodology	2
1.5 Project layout	3
CHAPTER TWO	
GUN FIGHTERS	
2.1 Introduction	4
2.2 Remote Touchscreen-Controlled Defense Turret during fall 2011	4
2.3 Autonomous Targeting Sentry	5
2.4 Automated Targeting Proximity Turret	5
2.5 Real Life Existents	6
2.5.1 Samsung SGR-A1	6
2.5.2 Super aEgis II	6

CHAPTER THREE	
HARDWARE AND SOFTWARE	
3.1 Hardware Design	8
3.2 The System Flowchart	8
3.3 Arduino	8
3.3.1 Hardware	9
3.3.2 Hardware structure of Arduino uno	9
3.3.3 Schematics	10
3.3.4 Inputs and Outputs	12
3.3.5 Power	13
3.3.6 Memory	14
3.3.7 Communication	14
3.3.8 Basic features of Arduino	14
3.4 Servo Motor	16
3.4.1 Servo Motor Features	16
3.5 Webcam	17
3.6 Weapon	17
3.7 Power source	18
3.8 Circuit Connection	19
3.9 Software system	19
3.9.1 User Interface	19
3.9.2 Arduino IDE	21
3.9.2.1 Programming	21
3.9.3 Processing IDE	22
CHAPTER FOUR	
PROTOTYPE DESIGN AND RESULTS	
4.1 Main Housing	23
4.2 Turret Design	23

4.3 Targeting Control	24
4.4 Image Capture	25
4.5 Tracking System	26
5.6 Results	26
CHAPTER FIVE	
CONCLUSION AND RECOMMENDATIONS	
5.1 Conclusion	27
5.2 Recommendations	27
REFERENCES	28

LIST OF FIGURES

Figure	Title	Page
2.1	Super aEgis II	7
2.2	Samsung SGR-A1	7
3.1	main system block diagram	8
3.2	system flowchart	15
3.3	Hardware structure of Arduino uno	10
3.4	Arduino uno scheme	11
3.5	Atmega 168 pin mapping	12
3.6	Tower pro Servos MG996R	17
3.7	laptop webcam	17
3.8	n-strike elite Nerf gun	18
3.9	6V four aa battery pack	18
3.10	Circuit connection	19
3.11	Tablet Based User Interface Design	20
3.12	Arduino IDE	21

4.1	main hosing	23
4.2	Main Housing Overview	24
4.3	Servo Armature Mount	24
4.4	Software Sequence of Events block	26

LIST OF TABLES

Table	Title	Page
3.1	Servo Motor Features	16
3.2	Graphical User Interface Function	20
4.1	Arduino Servo Library Attach	25
4.2	Arduino Servo Library Detach	25