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BONAFIDE CERTIFICATE

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ABSTRACT

Every year our Indian soldiers have lost their lives due to sudden terrorist ingress and natural calamities. It should be a great lose to our nation. In order to save the life of our soldier, an autonomous guarding system is to be developed which should save the lives of the soldiers. In this project, a versatile gun holder and automatic aiming sentinel gun is designed with the assistance of image processing technology. Web Camera is used along with the gun holder to capture the live videos. This video is then further analyzed for face detection and tracking. Precise coding is made for face detection and tracking algorithms using OpenCV, Spyder software. The output of face detection and tracking of the captured image sequences is then fed to Arduino microcontroller. In Arduino, the face tracking is coupled with the servo motors which directly controls the Gun for tilting, rotation and triggering. Thus, it could fire the enemies automatically when they come into the range of the camera. This work will be useful for our country in Defense Sectors.

KEYWORDS: Image Processing, OpenCV, Face Detection, Sentinel Gun, Face Tracking.

TABLE OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
	ABSTRACT	**iii**
	LIST OF FIGURES	**ix**
	LIST OF TABLES	**xi**
	ABBREVIATION	**xii**
1	**INTRODUCTON**	**1**
	1.1 GENERAL	1
	1.2 OBJECTIVE	5
	1.3 PROBLEM IDENTIFICATION	6
	1.4 TYPES OF GUNS USED BY INDIAN ARMY	6
2	**LITERATURE REVIEW**	**8**
3	**METHODOLOGY**	**18**
	3.1 OVERVIEW	18
	3.2 SCHEMATIC DIAGRAM	18
	3.2.1 Input Video Capturing	19
	3.2.2 Face Recognition	19
	3.2.3 Face Detection and Coding	19
	3.2.4 Output of Spyder-Detected Face	19
	3.2.5 Arduino Controlling	20
	3.2.6 Servo Motor Control	20

CHAPTER NO	TITLE	PAGE NO
	3.2.7 Uzi Gun Movement	20
	3.2.8 Battle Field	21
	3.3 UTILIZATION	21
4	**CODING FOR IMAGE PROCESSING**	**22**
	4.1 IMAGE PROCESSING	22
	4.1.1 Purpose of Image Processing	22
	4.1.2 Applications Of Digital Image Processing	23
	4.2 SOFTWARE DESCRIPTION	23
	4.2.1 About OpenCV	24
	4.2.1.1 Python	25
	4.2.1.2 Python Packages	25
	4.2.1.3 NumPy	26
	4.2.1.4 Pyserial	26
	4.2.2 Anaconda	26
	4.2.2.1 Using Python Anaconda	27
	4.2.2.2 Miniconda	27
	4.2.2.3 Anaconda Add-Ons	28
	4.2.3 Spyder	28
	4.2.4 Arduino	28
	4.2.4.1 Types of Arduino	29
	4.2.4.2 Arduino UNO	29

CHAPTER NO	TITLE	PAGE NO
	4.3 PROGRAMMING	30
	4.3.1 Original Image Program	30
	4.3.2 Gray Image Program	31
	4.3.3 Actual Color Video Display	32
	4.3.4 Gray Color Video Display Program	32
	4.4 TYPES OF ALGORITHM ADOPTED	33
	4.4.1 Background Subtraction Algorithm	33
	4.4.1.1 Types of Background Subtraction	34
	4.4.1.2 Background Subtractor MOG	34
	4.4.1.3 Background Subtractor MOG2	35
	4.4.1.4 Background Subtractor GMG	36
	4.4.1.5 Background Subtraction Program	37
	4.4.2 Face and Eye Detection Algorithm	38
	4.4.2.1 Face and Eye Detection Program	40
	4.4.3 Face Detection Algorithm	41
	4.4.3.1 Face Detection Program	41
	4.5 ARDUINO PROGRAM FOR FACE DETECTION AND TRACKING	43

CHAPTER NO	TITLE	PAGE NO
5	**CAD MODELLING**	**45**
	5.1 SOLID WORKS SOFTWARE	45
	5.2 DESIGN PROCESS	45
	5.3 PART DIAGRAM	45
	5.3.1 Base Table	46
	5.3.2 Lower Base Plate	46
	5.3.3 Upper Base Plate	47
	5.3.4 Flange	47
	5.3.5 Left and Right Leg	48
	5.3.6 Servo Motor	49
	5.3.6.1 Calculation for Selection Of Stepper Motor	49
	5.3.7 Nylon Rod	50
	5.3.8 Gun Holder	51
	5.3.9 Final Assembly	51
6	**SIMULATION AND OUTPUT**	**53**
	6.1 FACE DETECTION OPENCV PROGRAM	53
	6.1.1 Program Embedded	53
	6.2 ARDUINO PROGRAM TO RUN HARDWARE	54
	6.3 OUTPUT	56
	6.3.1 Intial Setup	56

CHAPTER NO	TITLE	PAGE NO
	6.3.2 Detected Face	56
	6.3.3 Data Passage	57
	6.3.4 Rotation	57
	6.3.5 Tilting	58
7	**FABRICATION OF PROTOTYPE**	**59**
	7.1 LIST OF COMPONENTS	59
	7.1.1 Acrylic Sheet	59
	7.1.2 Nylon Rod	60
	7.1.3 Servo Motor	61
	7.1.4 Arduino Uno	62
	7.1.5 Jumper Wires	63
	7.1.6 Webcam	64
	7.1.7 Data Cable	65
	7.1.8 Uzi Gun	67
	7.2 PROCESS FLOW	68
	7.2.1 Selection of Materials	69
	7.2.2 Measuring and Marking	70
	7.2.3 Cutting Process	71
	7.2.4 Punching	71
	7.2.5 Drilling Process	72
	7.2.6 Filing	72
	7.2.7 Fastening	73
	7.2.8 Assembly of All Parts	**74**
8	**ADVANTAGES & APPLICATIONS**	74
	8.1 ADVANTAGES	

CHAPTER NO	TITLE	PAGE NO
	8.2 APPLICATION	74
9	**CONCLUSION**	75
10	**FUTURE WORK**	76
11	**OUTCOMES OF THE PROJECT**	77
	REFERENCES	82

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
3.1	Schematic Diagram	18
4.1	Arduino UNO	30
4.2(a)	Baby.Jpg (Input)	31
4.2(b)	Baby Original (Output)	31
4.3(a)	Baby.Jpg (Input)	32
4.3(b)	Babygray.Png (Output)	32
4.5	Face and Eye Detection	40
5.1	Base Table	46
5.2	Lower Base Plate	46
5.3	Upper Base Plate	47
5.4	Flange	47
5.5	Left Leg	48
5.6	Right Leg	48
5.7	Servo Motor	49
5.8	Nylon Rod	50
5.9	Gun Holder	51
5.10	Final Assembly	51
6.1	Initial Setup	56
6.2	Detected Face	56
6.3	Data Passage	57
6.4	Rotation	57
6.5	Tilting	58
7.1	Acrylic Sheet	59
7.2	Nylon Rod	60

FIGURE NO	TITLE	PAGE NO
7.3	Servo Motor	61
7.4	Arduino Uno	62
7.5	Jumper Fires	63
7.6	Webcam	64
7.7	Data Cable	65
7.8	Uzi Gun	66
7.9	Acrylic Sheet	68
7.10	Nylon Rod	69
7.11	Measuring	69
7.12	Marking	70
7.13	Cutting Process	70
7.14	Drilling Process	71
7.15	Filing	72
7.16	Fastening	72
7.17	Final Product	73

LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1.1	History of Terrorist Attack Incidents	1
1.2	Guns Used by Our Indian Army	6
7.1	List of Components Used for Fabrication	59

ABBREVIATIONS

CPU	Central Processing Unit
MATLAB	Matrix Laboratory
OpenCV	Open Source Computer Vision Library
2D	Two Dimensional
WPA	Wi-Fi Protected Access
RGB	Red Green Blue
KNN	K-Nearest Neighbor
PAN	Pan Tilt Zoom
GPU	Graphics Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
HTML	Hypertext Markup Language
BAM	Bluetooth Access Module
CNNs	Conventional Neural Networks
PIR	Passive Infra-Red
DOF	Degree of Freedom