A Project Report

On

Target Detection & Tracking

Submitted for the partial fulfillment of the requirement for the award of the Degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE & ENGINEERING

by

Ritam Ghosh (160111046)

Dhiraj Kumar Saini (160110084)

Rachit Goyal (160112002)

Under the Guidance of

Rohit Kamboj IBM Trainer



DIT UNIVERSITY, DEHRADUN Uttarakhand 248009, India.

April 2019



DECLARATION

This is to certify that the Project entitled "Target Detection & Tracking" in partial fulfillment of the requirement for the award of the Degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE & ENGINEERING submitted to DIT University, Dehradun, Uttarakhand, India, is an authentic record of bonafide work carried out by me, under the guidance of Rohit Kamboj (IBM Trainer).

The matter embodied in this Project/Thesis/Dissertation has not been submitted for the award of any other degree or diploma to any University/Institution.

Students Name & Signature:	Supervisor Name, Designation & Signature:
Dhiraj Kumar Saini Ritam Ghosh	Mr. Rohit Kamboj IBM Trainer
Rachit Goyal	
Dr. Vishal Bharti Head of Department CSE Signature	Mr. Gagandeep Singh Controller of Examination Signature
Date:	Place: Dehradun



CERTIFICATE

This is to certify that the Project entitled "Target Detection & Tracking" in partial fulfillment of the requirement for the award of the Degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE & ENGINEERING submitted to DIT University, Dehradun, Uttarakhand, India, is an authentic record of bonafide research work carried out by

Mr. Ritam Ghosh Roll No 160111046 Mr. Dhiraj Kumar Saini Roll No 160110084 Mr. Rachit Goyal Roll No 160112002

under my supervision/ guidance.

Rohit Kamboj IBM Trainer Supervisor/Guide

ACKNOWLEDGEMENT

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our project. All that we have done is only due to such supervision and assistance and we would not forget to thank them.

We respect and thank **Dr Vishal Bharti, HOD CSE Department**, DIT University, Dehradun, for providing us an opportunity to do the project work and giving us all support and guidance, which made us complete the project duly. We are extremely thankful to him for providing support and guidance.

We owe our deep gratitude to our project guide & mentor **Rohit Kamboj, IBM Trainer**, who took keen interest on our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

We heartily thank our internal project guide **Mr. Soumen Kanrar, Assistant Professor**, DIT University for his ideology, guidance and suggestions during this project work by providing resources & teaching to work with real time data & information.

We are also grateful to **Rochak Sharma**, **IBM Trainer**, who took interest on our work and help use solving real time errors and guide us how to proceed further step by step.

We are thankful to and fortunate enough to get constant encouragement, support and guidance from all Teaching staffs of CSE Department which helped us in successfully completing our project work. Also, we would like to extend our sincere esteems to all staff in laboratory for their timely support.

Ritam Ghosh Dhiraj Kumar Saini Rachit Goyal

ABSTRACT

This project is to recognize and identify the moving objects for (specific) interest, and to track those moving objects throughout their life spans. This project aims for the existing challenging issue in the area of unsupervised surveillance and security. This project also aims to solve the issue that video feeds can't be processes in real time and we cannot track the object in real time with accuracy. In this project deep neural network have been implemented to provide accuracy and we divided its functionalities into modules to make up for the speed. This project can be implemented to process video feed of the drones or sniffers and help the controller to identify the target and trace it path in real time view. This project was implemented in 3 months & it involves going through research work on object tracking & trying to develop the best out of it. The results are included in this report and we would be working on its future expansion to increase speed and accuracy & make it more effective for ease of use in standard system.

TABLE OF CONTENTS

Title	2	Page No.
DEC	CLARATION	ii
CERTIFICATE		iii
ACKNOWLEDGEMENT		iv
ABSTRACT		v
TABLE OF CONTENTS		vi
LIST OF FIGURES		viii
	APTER 1	
INT	RODUCTION	
1.1	Purpose	01
1.2	Objective.	01
1.3	Motivation	02
1.4	Definition	02
1.5	Model overview	03

CHAPTER 2

OVE	RALL DESCRIPTION	
2.1	Project Perspective	07
2.2	Project Functions	07
2.3	DFD Diagrams	08
2.4	Use Case Diagram	10
CHAPTER 3 EXTERNAL INTERFACE REQUIREMENTS		
3.1	Hardware Interfaces	11
3.2	Software Interfaces	11

CHAPTER 4

SYSTEM FEATURES

4.1 System Basic Feature 12

CHAPTER 5

OTHER NON-FUNCTIONAL RE	EQUIREMENTS
--------------------------------	-------------

5.1	Performance Requirements	13
5.2	Software Quality Attributes	13
5.3	Testing Requirements	14
СНА	APTER 6	
CON	NCLUSION AND FUTURE WORK	
6.1	Conclusions	17
6.2	Scope for Future Work	17
REF	ERENCES	18

LIST OF FIGURES

Figure	e No. Title	Page No.
1.1 S	chema Diagram	03
1.2 S	tem cell	04
1.3 N	Module A	04
1.4 R	Reduction A layer	05
1.5 N	Module B	06
1.6 R	Reduction layer	07
1.7 N	Module C	07
2.1 L	evel 0	08
2.2 L	evel 1	08
2.3 L	evel 0	09
2.4 L	evel 1	09
2.5 L	Jse case	10
3.1 O	ver Fitting	
3.1.1	Training Accuracy vs Validation Accuracy	15
3.1.2	Training Loss vs Validation Loss	15
3.2 Ti	rue Graph	
3.2.1	Training Accuracy vs Validation Accuracy	16
3.2.2	Training Loss vs Validation Loss	16
4 D	FD Diagram	08
5 U	se Case Model	10