CERTIFICATE

This is to certify that the work contained in the major project report entitled, **"Multiple Object Tracking employing Optimal Parametric Estimation"** Submitted by **Ajay Kumar (Roll No. 2K11/SPD/02)** of Delhi Technological University in the partial fulfillment of the requirement for the degree of Master of Technology in Electronics & Communication Department with specialization in 'Signal Processing and Digital Design', is a bonafide work carried out under my guidance and supervision in the academic year 2011-2013.

The work embodied in this dissertation has not been submitted for the award of any other degree to the best of my knowledge.

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ABSTRACT

The area of Object Tracking is of immense interest due to its application in automated surveillance, motion based recognition, pedestrian monitoring, human computer interaction. Visual tracking is the process of repeated estimation of the state of an object in the next frame, given states in previous frames. Object identification is one of the initial, but paramount steps in object tracking. It is basically, determination of video statistics, object classification, determination of inconsistencies, and then finally human identification. Every object has its unique features in a video scene. These unique features help us to determine whether the object is same in the next frame of a video as we need to track or not. In our project we have first extracted those features using communication theory, or radar theory to be precise. This enriches us with the crucial estimated features of the objects. After this parametric estimation, we have calculated the optimum detection probabilities for the target object using Neyman Pearson Theory. Considering the decision probabilities, the miss probability, the false probability, the detection probability and the minimized cost function, determined using Neyman Pearson Theory, we identify the target object.

List of Figures

1.1	Basic Steps in Kalman Filter……..	4
1.2	Algorithm for Kalman Filter…….	5
1.3	Algorithm for Particle Filter…….	6
2.1	Object Detection Flow Chart…….....	14
2.2	Foreground Detection……	16
2.3	A MATLAB Example of Gaussian filtered image…….....	20
2.4	Flowchart of the complete approach……	26
2.5	Objects represented by the centroids in the frames……..	28
2.6	Formation of Markov Chain from Tensor of each frame…….	29
2.7	Detection Regions with Conditional Probabilites, False Alarm Probability, Probability of Miss and Threshold value of the parameter…….	35
3.1	Sample Frame……...	40
3.2	Tracked Frames…….	42
3.3	Plot to show the variation of Estimated Size with Actual Size with each successive frames for Object 1……	43
3.4	Plot to show the variation of Estimated Displacement with Actual Displacement with each successive frames for Object 1……	44
3.5	Plot to show the variation of Estimated Velocity with Actual Velocity with each successive frames for Object 1……	44
3.6	Plot to show the variation of Estimated Size with Actual Size with each successive frames for Object 2……	45

3.7 Plot to show the variation of Estimated Displacement with Actual Displacement with each successive frames for Object 2…… 45

3.8 Plot to show the variation of Estimated Velocity with Actual Velocity with each successive frames for Object 2…… 46

3.9 Plot to show the variation of Estimated Size with Actual Size with each successive frames for Object 3…… 46

3.10 Plot to show the variation of Estimated Displacement with Actual Displacement with each successive frames for Object 3…… 47

3.11 Plot to show the variation of Estimated Velocity with Actual Velocity with each successive frames for Object 3…… 47

List of Tables

2.1 A 5*5 Gaussian Filter Example…….. 21

3.1 Results of application of Neyman Pearson Criterion on Object 1……. 48

3.2 Results of application of Neyman Pearson Criterion on Object 2……. 49

3.3 Results of application of Neyman Pearson Criterion on Object 3……. 50

CONTENTS

Page No.

Abstract……...iii

List of Figures……iv

List of Tables……..vi

1. Introduction…….. 1

1.1 Introduction…… 2

1.2 Overview…….…… 3

1.3 Outline of the thesis……..... 11

2. The Proposed Method……. 12

2.1 Introduction…...……..... 13

2.2 Object Detection……..…….. 14

2.2.1 Video Frames and Background Model……. 15

2.2.2 Foreground Detection…… 15

2.2.3 Pixel Level Operations…….. 19

2.2.3.1 Gaussian Filter Smoothing……. 20

2.2.3.2 Morphological Filtering Techniques…… 21

2.2.4 Detecting Connected Regions……... 23

2.2.5 Region Level Processing……... 23

2.3 Object Tracking……... 25

2.4 Methodology…… 26

2.4.1 Video Frames……. 27

2.4.2 Frame Differencing…… 27

2.4.3 Feature Extraction…….. 29

2.4.4 Tensor Formation……... 29

2.4.5 Optimal Parametric Estimation……. 30

2.4.6 Application of Neyman Pearson Theory…….. 34

3. Results……. 39

3.1 Results…….. 40

3.2 Tracked Frames…… 41

3.3 Figures……. 43

3.4 Tables…….…….. 48

4. Conclusion…… 51

4.1 Quantitative Measures……. 52

4.2 Comparison…….. 53

4.3 Conclusion…… 54

References……. 55