

Table of Contents

S. No.	Title	Page No.
1	List of Figures	I – II
2	List of Tables	III
3	Abbreviations	IV
4	List of Symbols	V-IX
5	Chapter 1 : Introduction 1.1 Activity Recognition 1.2 Types of Activity Recognition 1.2.1 Sensor-Based, Single-User Activity Recognition 1.2.2 Sensor-Based, Multi-User Activity Recognition 1.2.3 Sensor-Based Cluster Activity Recognition 1.2.4 Vision-Based Activity Recognition 1.2.4.1 Levels of Vision-Based Activity Recognition 1.2.4.2 Automatic Gait Recognition 1.3 Approaches of Activity Recognition 1.3.1 Activity Recognition Through Logic and Reasoning 1.3.2 Activity Recognition Through Probabilistic Reasoning 1.3.3 Wi-Fi-Based Activity Recognition 1.3.4 Data Mining Based Mostly Approach to Activity Recognition 1.4 Image Processing 1.5 Images Modeling Using HMM 1.6 Human Action and Activity Recognition 1.6.1 Human Activity Recognition Problem Description 1.6.2 Expandable Data-Driven Graphical Modeling of Human Actions Based on Salient Postures 1.6.3 Action Recognition Based on a Bag of 3D Points 1.6.4 Activity Recognition Using a Combination of Category Components and Local Models for Video Surveillance 1.6.5 Group Event Detection With a Varying Number of Group Members for Video Surveillance 1.7 Problem Definition	1-23

S. No.	Title	Page No.
6	Chapter 2 : Review of Literature 2.1 Human Activity Recognition 2.2.1 General Structure of HAR Systems 2.2 Design Issues 2.3 Review of Literature	24-59
7	Chapter 3 : Methodology 3.1 Introduction to the Problem 3.2 Problem Definition and Proposed Solution 3.3 Proposed Solution 3.4 System Design 3.5 Filter Bank Construction 3.6 Image Processing 3.7 Advantage of DRT 3.7.1 Simulated Time-Evolution 3.7.2 Rotation Invariance 3.7.3 Shift invariance 3.7.4 Noise 3.7.5 Scale Invariance 3.8 Background Subtraction 3.9 Images Modeling using HMM 3.9.1 HMM Topology 3.9.2 Initial Estimates 3.9.3 Training 3.9.4 Verification 3.10 Tools Used: MATLAB	60-85
8	Chapter 4: Results and Discussion 4.1 Gabor Filter 4.1.1 Feature Extraction 4.1.2 Wavelet Space 4.1.3 Comparison Gabor Filter with Other Methods of Human Activity Recognition 4.2 Hidden Markov Model 4.3 Viterbi Algorithm 4.3.1 Algorithm 4.4 Results & Discussion	86-108

S. No.	Title	Page No.
	4.4.1 Screen Shots 4.4.2 KTH Dataset 4.4.3 Effect of Grid Size and Orientation in Recognition Accuracy 4.4.4 Recognition Accuracy Calculation in KTH Dataset	
9	Chapter 5: Summary and Conclusion	109-110
10	References	111-128
11	Appendix I: Discrete Radon Transform	
12	Appendix II: Hidden Markov Models	
13	Paper Published	