TABLE OF CONTENTS

Acknowledgement	
Abstract	ii
Chapter 1 Introduction	1
1.1 Voting System in India	1
1.2 Biometric Authentication	2
1.2.1 Fingerprint Authentication	3
1.2.2 Face Recognition	5
1.2.2.1 Face Recognition using PCA	5
1.2.2.2 Eigen values and Eigen vectors	7
1.3 Aadhar Card	9
Chapter 2 Literature survey	12
2.1 Aadhaar Based Electoral System	12
2.2 Rigging Free Electoral System Linked With AADHAR	12
2.3 Antirigging Voting System Using Biometrics Based On Aadhar	12
2.4 Biometrics using Electronic Voting System with Embedded Security	13
2.5 Aadhaar based Electoral System providing Security	13
2.6 Wireless Embedded System based Electoral System	14
2.7 IRIS Detection in Voting System	14
2.8 Fingerprint Based e-Voting System using Aadhar Database	15
2.9 Aadhar based Electronic Voting Machine using Arduino	15
Chapter 3 System Analysis	18
3.1 Existing System	18
3.1.1 Limitations	19

3.1.2 Sec	urity Issues	20
3.2 Problem State	ement	21
3.3 Proposed sys	tem	22
3.3.1 Adv	vantages of proposed system	22
Chapter 4 System Desi	gn	24
4.1 Fingerprint A	Authentication Design	24
4.2 Face Recogni	ition Design	25
4.3 Voter Module	e	27
Chapter 5 Implementa	tion	29
5.1 Fingerprint m	nodule	29
5.2 Face Recogni	ition module	44
5.3 Voter Module	e	52
5.3.1 Spri	ing Web MVC framework	52
5.3.2 Disp	patcher Servlet	52
5.3.3 Sou	rce Code Implementation	54
5	.3.3.1 Java Model and User View	54
5	.3.3.2 Dispatcher Servlet Configuration Module	56
5	.3.3.3 The Dispatcher Servlet Module	56
5	.3.3.3 Status View	57
5	.3.3.3 JSP Module	60
5	.3.3.3 The Result Module	61
Chapter 6 Testing		63
6.1 Types of Tes	ts	63
6.2 Unit Testing		65
6.3 Acceptance T	Testing	66

6.4 Integration Testing	67
6.5 System Testing	67
Chapter 7 Snapshots	69
Chapter 8 Conclusion and Future Enhancement	74
References	75

LIST OF FIGURES

Fig No.	Page No.
Fig 1.1 Ridge Ending	04
Fig 1.2 Ridge Bifurcation	04
Fig 1.3 Short Ridge (Dot)	05
Fig 1.4 Eigen Faces	09
Fig 1.5 Digitally generated Aadhar card	10
Fig 4.1 ER Diagram of proposed system	24
Fig 4.2 Flow diagram of proposed system	25
Fig 4.3 Dataflow diagram for fingerprint authentication	26
Fig 4.4 Dataflow diagram for face recognition	27
Fig 4.5 Dataflow diagram for voter module	28
Fig 5.1 Request processing workflow in Spring Web MVC (high level)	53
Fig 5.2 Programming Implementation of MVC	53
Fig 5.3 Implementation Structure of MVC	54
Fig 7.1 Asking the Voter to Place their Finger	69
Fig 7.2 Displays Valid User ID after Successful Fingerprint Authentication	70
Fig 7.3 Requesting facial Authentication response	70
Fig 7.4 Stored Images in the Database	71
Fig 7.5 Successful Face Recognition of a Voter	71
Fig 7.6 Voting Portal opens up for the Voter id 4 with status to caste his/her vote	73

LIST OF TABLES

Table No.	Page No.
Table 2.1 Literature Survey	17
Table 6.1 Test Cases	68