**Table of Contents**

|  |  |  |
| --- | --- | --- |
|  | **Abstract** | **iii** |
|  | **Declaration** | **v** |
|  | **List of Figures** | **vii** |
| **Chapter 1** | **Introduction** | **1** |
|  | 1.1 Motivation and Problem Statement | 2 |
|  | 1.3 Objectives | 2 |
|  | 1.4 Scope | 2 |
| **Chapter 2** | **Review of Literature** | **3** |
|  | 2.1Face Recognition Techniques to Differentiate Similar Faces and Twin Faces | 4 |
|  | 2.2 Secure Authentication for Mobile Banking Using Facial Recognition | 5 |
|  | 2.3 Biometric Face Recognition Payment System | 7 |
| **Chapter 3** | **Requirement Analysis** | **8** |
|  | 3.1 Performance Requirements | 8 |
|  | 3.2 Hardware Requirement | 9 |
|  | 3.3 Software Requirement | 9 |
| **Chapter 4** | **Design (Relevant UML Diagram, Use Case Diagrams)** | **10** |
|  | 4.1 Use Case Diagram | 10 |
|  | 4.2 Data Flow Diagram | 11 |
|  | 4.3 Sequence Diagram | 12 |
|  | 4.4 Activity Diagram | 13 |
| **Chapter 5** | **Report on the Present Investigation** | **14** |
|  | 5.1 Proposed System | 14 |
|  | 5.1.1 System Architecture | 15 |
|  | 5.2 Implementation | 16 |
|  | 5.2.1 Eigen faces face recognizer | 16 |
|  | 5.2.2 Fisherface face recognizer | 17 |
|  | 5.2.3 Local binary patterns histograms (LBPH) Face Recognizer | 18 |
|  | 5.2.4 Required Modules | 20 |
|  | 5.2.5 Prepare training data | 20 |
|  | 5.3 Data Preparation for Face Recognition | 21 |
| **Chapter 6** | **Conclusion** | **23** |
|  | **References** | **24** |