ATM FRAUD DETECTION SYSTEM



A Project report presented to the National University in partial fulfilment of the requirement for the degree of B.Sc. (Hon’s) in Computer Science & Engineering

Submitted By

Md. Ikramul Murad

Exam Roll: 6000261

Registration Number: 1112628

Session: 2011-2012

Department of Computer Science and Engineering

Institute of Science and Technology

National University, Bangladesh

**DECLARATION**

I hereby declare that I have completed partial work of this project under the supervision of Ditee Yasmeen, Assistant Professor, Department of Computer Science and Engineering (CSE), Institute of Science and Technology (IST), affiliated with the National University of Bangladesh. I also declare that neither this project nor any part of this has been submitted elsewhere for the award of any degree.

**Signature Counter signature**

Md. Ikramul MuradDitee Yasmeen

(Supervisor)

Assistant Professor

Institute of Science and Technology (IST)

**APPROVAL**

The project “ATM Fraud Detection System” submitted by Ashraf Hossain, Roll No: 6000243 and Registration No: 1112605 to the Department of Computer Science and Engineering, Institute of Science and Technology (IST), Dhaka, Bangladesh has been accepted as satisfactory for the partial fulfillment of the requirements for the Degree of Bachelor of Science in Computer Science and Engineering under National University and approved as to its style and contents.

**Signature of Internal Examiner Signature of External Examiner**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ditee Yasmeen

(Supervisor)

Assistant Professor

Institute of Science and Technology (IST)

**ACKNOWLEDGMENTS**

This is my humble attempt to present gratitude in preparing this report. I have truly drawn upon my own experience as a student of computer science. This project would not have been possible without the dedications and contributions of a number of individuals.

First and foremost, I would like to express my gratitude to Allah for always help me, Then I would like to thanks, Ditee Yasmeen, Assistant Professor, Department of Computer Science and Engineering (CSE) for agreeing to supervise me during the project. Her eagerness helped me in every step of the way and encouraged me to propel myself higher.

Abstract

This paper gives the intersection between the cash cards standards followed in the banks and the financial frauds. It undertakes two primary tasks; namely understanding of the traditional standard cash card provided by the banks and a proposed methodology to make them more secure to reduce the cash card frauds. The methodology uses the face detection procedure and online based account activation procedure which plays a prominent role to authenticate the user. This authentication mechanism is useful while transaction to secure cash card from being cloned via skimming device, card trapping. This paper provides a generalized solution for financial fraud by the cash card cloning or trapping that is being done in the field of E-banking.

Table of Contents

**Chapter 1: Introduction** Page No.

|  |  |  |
| --- | --- | --- |
| 1.1 | Introduction……………………………………………………………….. |  |
| 1.2 | Motivation……………………………………………………...................... |  |
| 1.3 | Objective of the Project……………………………………………………... |  |
| 1.4 | Scope of the Work……………………………………………………........ |  |
| 1.5 | Organization of the Project………………………………………………………. |  |
| 1.6 | Summary……………………………………………………...................... |  |

**Chapter 2: ATM**

|  |  |  |
| --- | --- | --- |
| 2.1 | What is ATM? ……………………………………………………............... |  |
| 2.2 | How it Works? …………………………………………………….............. |  |
| 2.3 | What is ATM Fraud? …………………………………………………….... |  |
| 2.4 | Types of ATM Fraud or Attack…………………………………………… |  |
|  | 2.4.1 Card Skimming……………………………………………………… |  |
|  | 2.4.2 Salisi Gang……………………………………………………........... |  |
|  | 2.4.2.1 How the Salisi Gang Works.………………………………. |  |
|  | 2.4.2.2 Another Version of This……………………………………. |  |
|  | 2.4.3 Cash Trapping……………………………………………………...... |  |
|  | 2.4.3.1 How Cash Trapping Works…………………………………. |  |
|  | 2.4.4 Card Trapping……………………………………………………….. |  |
|  | 2.4.5 Fake PIN Pad Overlay……………………………………………….. |  |
|  | 2.4.6 Shoulder Surfing…………………………………………………….. |  |
|  | 2.4.7 Fake Assistance.…………………………………………………….. |  |
|  | 2.4.8 Physical Attack……………………………………………………… |  |
| 2.5 | Summary……………………………………………………....................... |  |

**Chapter 3: Requirement Analysis** Page No.

|  |  |  |
| --- | --- | --- |
| 3.1 | Requirement Analysis……………………………………………………... |  |
| 3.2 | Process Specification……………………………………………………..... |  |
| 3.3 | Functional Requirements…………………………………………………... |  |
| 3.4 | Non-functional Requirements……………………………………………... |  |
| 3.5 | Feasibility Study.……………………………………………....................... |  |
|  | 3.5.1 Technical Feasibility…………………………………………………. |  |
|  | 3.5.2 Economic Feasibility………………………………………………… |  |
|  | 3.5.3 Operational Feasibility……………………………………………….. |  |
| 3.6 | Summary…………………………………………………………………… |  |

**Chapter 4: Process Modeling**

|  |  |  |
| --- | --- | --- |
| 4.1 | Proposed System Overview……………………………………………….. |  |
| 4.2 | Waterfall Model……………………………………………………............ |  |
| 4.3 | Workflow in Waterfall Model……………………………………….......... |  |
| 4.4 | System Flowchart………………………………………............................. |  |
| 4.5 | Summary………………………………………............…………............... |  |

**Chapter 5: System Design**

|  |  |  |
| --- | --- | --- |
| 5.1 | E-R Diagram…………............………………………………............……. |  |
| 5.2 | Data Flow Diagram……………………………............…………............... |  |
|  | 5.2.1 DFD Level 0……………………………............…………................. |  |
|  | 5.2.2 DFD Level 1……………………………............…………................. |  |
|  | 5.2.3 DFD Level 2……………………………............…………................. |  |

Page No.

|  |  |  |
| --- | --- | --- |
| 5.3 | UML Design……………………………............………….......................... |  |
|  | 5.3.1 Use Case Diagram……………………………............…………........ |  |
| 5.4 | Summary……………………………............…………............................... |  |

**Chapter 6: Development Process**

|  |  |  |
| --- | --- | --- |
| 6.1 | Development Strategy……………………………............…………........... |  |
| 6.2 | System Model……………………………............…………........................ |  |
| 6.3 | System Interface……………………………............………….................... |  |
|  | 6.3.1 Admin……………………………............…………........................... |  |
|  | 6.3.2 Client……………………………............…………............................ |  |
|  | 6.3.3 ATM Machine……………………………............………….............. |  |
| 6.4 | Summary……………………………............…………............................... |  |

**Chapter 7: Development Environment and Testing**

|  |  |  |
| --- | --- | --- |
| 7.1 | Development Environment and Tools............…………............................... |  |
|  | 7.1.1 Platform…………………………............…………............................ |  |
|  | 7.1.2 Editor and Productivity Management Tools…………........................ |  |
|  | 7.1.3 Required tools and Modules………............…………......................... |  |
|  | 7.1.4 Technology………............…………................................................... |  |
| 7.2 | System Introduce and Testing.....………….................................................. |  |
| 7.3 | Comparison with Existing System.....…………........................................... |  |
| 7.4 | Summary.....………….................................................................................. |  |

**Chapter 8:** **Conclusion and Future Works** Page No.

|  |  |  |
| --- | --- | --- |
| 8.1 | Conclusion………......................................................................................... | 39 |
| 8.2 | Future Works………..................................................................................... | 39 |

List of Figures

Page No.

|  |  |
| --- | --- |
| Fig 2.1: ATM Machine | 6 |
| Fig 2.2: ATM system | 7 |
| Fig 2.3: ATM Fraud | 8 |
| Fig 2.4: Card Skimming | 9 |
| Fig 2.5: Salisi Gang | 9 |
| Fig 2.6: Cash Trapping | 11 |
| Fig 2.7: Card Trapping | 11 |
| Fig 2.8: Fake PIN Pad Overlay | 12 |
| Fig 2.9:  Shoulder Surfing | 12 |
| Fig 4.1: Waterfall Model | 19 |
| Fig 4.2: System Flowchart | 19 |
| Fig 5.1: E-R Diagram for ATM Transaction | 22 |
| Fig 5.2: DFD Level 0 | 23 |
| Fig 5.3: DFD Level 1 | 23 |
| Fig 5.4: DFD Level 2 | 24 |
| Fig 5.5: Use Case Diagram | 25 |
| Fig 6.1: Client-Server Model | 28 |
| Fig 7.1: Admin Panel | 32 |
| Fig 7.2: Client Interface | 33 |
| Fig 7.3: Card Entry and Choosing Authentication Method | 34 |
| Fig 7.4: Authentication Methods | 35 |
| Fig 7.5: Transaction Process | 36 |