

TABLE OF CONTENTS

Synopsis	1
Chapter 1 Introduction	5
1.1 Background	5
1.2 Objectives	5
1.3 Scope Purpose and Applicability	5
1.3.1 Purpose	5
1.3.2 Scope	6
1.3.3 Applicability	6
1.4 Achievements	6
Chapter 2 Survey of Technologies	7
Chapter 3 Requirements and its Analysis	15
3.1 Problem Definition	15
3.1.1 Sub-Systems	15
3.2 Requirement Specification	16
3.2.1 Requirement Gathering	16
3.2.2 Requirement Analysis	23
3.2.2.1 Functional Requirements	25
3.2.2.2 Non-Functional requirements	27
3.2.2.3 System requirements	28
3.3 Planning and Scheduling	39
Chapter 4 System Design	43
4.1 Business Rules	43
4.2 Module Diagram	43
4.3 Entity Relationship Diagram	45
4.3.1 Entity Sets	47
4.3.2 Relationship Sets	54
4.3.3 ER diagram	58
4.4 Schema Diagram	59

4.5	Data Flow Diagram	61
4.5.1	Context Level.....	62
4.5.2	First Level DFD	63
4.5.3	Second Level DFD.....	68
4.6	Class Diagram	73
4.7	Use Case Diagram.....	75
4.7.1	Diagram.....	75
4.7.2	Use Case Description.....	78
4.8	Scenario	91
4.9	Sequence Diagram.....	102
4.10	Activity Diagram.....	121
4.11	State Chart Diagram	125
4.12	User Interface Design.....	127
4.13	Test Case Design	143
Chapter 5 Implementation and Testing		153
5.1	Implementation Approaches.....	153
5.2	Coding details and Code Efficiency	154
5.2.1	Coding details	154
5.2.2	Coding Efficiency	200
5.3	Testing approaches	202
5.3.1	Unit testing	202
5.3.2	Modifications and Improvements	214
Chapter 6 Results and Discussions		217
6.1	Test Report	217
6.2	User Documentation.....	219
Chapter 7 Conclusion and Future Work.....		235
7.1	Conclusion.....	235
7.2	Limitations of the system	236
7.3	Future Scope.....	237
References.....		239

List of Tables

Table 3.1 Task Table.....	41
Table 4.1 Entity Relationship Diagram Symbols.....	47
Table 4.2 Schema Diagram Notations	59
Table 4.3 Data Flow Diagram notations	61
Table 4.4 Class diagram notations	74
Table 4.5 Use Case Diagram Notations	75
Table 4.6 Sequence Diagram Notations.....	102
Table 4.7 Activity Diagram notations	122
Table 4.8 State Diagram notations	125
Table 4.9 Test Cases.....	152
Table 5.1 Test cases.....	213
Table 5.2 Updated Test Case 19.....	214
Table 5.3 Updated Test Case 24.....	215
Table 5.4 Updated Test Case 40 and 42	215

List of Figures

Figure 0.1 Iterative development methodology	2
Figure 0.2 Client server 2 tier architecture	2
Figure 3.1 Requirement Gathering through Google forms	22
Figure 3.2 Gantt Chart	42
Figure 4.1 Module Diagram-1	44
Figure 4.2 Module Diagram-2	44
Figure 4.3 Module Diagram-3	45
Figure 4.4 Users entity set	48
Figure 4.5 admin_users entity set	49
Figure 4.6 user_device_details entity set	50
Figure 4.7 FAQ entity set	50
Figure 4.8 reported_items entity set	52
Figure 4.9 security_QA entity set	52
Figure 4.10 category entity set	53
Figure 4.11 messages entity set	53
Figure 4.12 have relationship set	54
Figure 4.13 reports relationship set	54
Figure 4.14 answers relationship set	55
Figure 4.15 sends relationship set	55
Figure 4.16 receives relationship set	55
Figure 4.17 have relationship set	56
Figure 4.18 reports relationship set	56
Figure 4.19 sends relationship set	57
Figure 4.20 receives relationship set	57
Figure 4.21 have identifying-relationship set	57
Figure 4.22 belongs_to relationship set	58
Figure 4.23 ER Diagram	58

Figure 4.24 Schema Diagram	60
Figure 4.25 DFD Level 0 (context level).....	62
Figure 4.26 DFD Level 1-1.....	63
Figure 4.27 DFD Level 1-2.....	64
Figure 4.28 DFD Level 1-3.....	65
Figure 4.29 DFD Level 1-4.....	66
Figure 4.30 DFD Level 1-5.....	67
Figure 4.31 DFD Level 1-6.....	68
Figure 4.32 DFD Level 2 (Profile Management).....	68
Figure 4.33 DFD Level 2 (Reported Item Management)	69
Figure 4.34 DFD Level 2 (User Assistance).....	70
Figure 4.35 DFD Level 2 (Category Management).....	70
Figure 4.36 DFD Level 2 (User Account Management).....	71
Figure 4.37 DFD Level 2 (All Reported Item Management)	72
Figure 4.38 Class Diagram	74
Figure 4.39 Use Case Diagram-1	76
Figure 4.40 Use Case Diagram-2.....	77
Figure 4.41 Sequence Diagram – Registration	103
Figure 4.42 Sequence Diagram – Login	103
Figure 4.43 Sequence Diagram – Forgot Password.....	104
Figure 4.44 Sequence Diagram – View FAQ.....	104
Figure 4.45 Sequence Diagram – Logout	105
Figure 4.46 Sequence Diagram – View Lost and found items.....	105
Figure 4.47 Sequence Diagram – search, sort, filter.....	106
Figure 4.48 Sequence Diagram – View Specific reported item details	106
Figure 4.49 Sequence Diagram – Answering verification questions.....	107
Figure 4.50 Sequence Diagram – View Messages	107
Figure 4.51 Sequence Diagram – Messaging	108
Figure 4.52 Sequence Diagram – Make a call	108

Figure 4.53 Sequence Diagram – View Items posted by user	109
Figure 4.54 Sequence Diagram – Update reported item details	110
Figure 4.55 Sequence Diagram – Delete reported item.....	110
Figure 4.56 Sequence Diagram – Report an Item.....	111
Figure 4.57 Sequence Diagram – Item matching and sending notification.....	111
Figure 4.58 Sequence Diagram – View Profile.....	112
Figure 4.59 Sequence Diagram – Update Email.....	112
Figure 4.60 Sequence Diagram – Update password and phone.....	113
Figure 4.61 Sequence Diagram – Delete profile.....	113
Figure 4.62 Sequence Diagram – View all users	114
Figure 4.63 Sequence Diagram – Delete users	114
Figure 4.64 Sequence Diagram – Suspend/Unsuspend users	115
Figure 4.65 Sequence Diagram – Add user	115
Figure 4.66 Sequence Diagram – Update progress of item	116
Figure 4.67 Sequence Diagram – Delete items.....	116
Figure 4.68 Sequence Diagram – View Specific user details	117
Figure 4.69 Sequence Diagram – View all categories	117
Figure 4.70 Sequence Diagram – Update category details	118
Figure 4.71 Sequence Diagram – Delete categories	118
Figure 4.72 Sequence Diagram – Add category	119
Figure 4.73 Sequence Diagram – View All FAQ.....	119
Figure 4.74 Sequence Diagram – Update FAQ.....	120
Figure 4.75 Sequence Diagram – Delete FAQ.....	120
Figure 4.76 Sequence Diagram – Add FAQ	121
Figure 4.77 Activity Diagram -1	122
Figure 4.78 Activity Diagram -2.....	123
Figure 4.79 Activity Diagram -3	124
Figure 4.80 State Diagram	126
Figure 4.81-UI 1.....	127

Figure 4.82 - UI 2.....	127
Figure 4.83 - UI 3.....	128
Figure 4.84 - UI 4.....	128
Figure 4.85 - UI 5.....	129
Figure 4.86 – UI 6.....	129
Figure 4.87 - UI 7.....	130
Figure 4.88 - UI 8.....	130
Figure 4.89 - UI 9.....	131
Figure 4.90 - UI 10.....	131
Figure 4.91 - UI 11.....	132
Figure 4.92 - UI 12.....	132
Figure 4.93 - UI 13.....	133
Figure 4.94 - UI 14.....	133
Figure 4.95 - UI 15.....	134
Figure 4.96 - UI 16.....	134
Figure 4.97 - UI 17.....	135
Figure 4.98 - UI 18.....	135
Figure 4.99 - UI 19.....	136
Figure 4.100 - UI 20.....	136
Figure 4.101 - UI 21.....	137
Figure 4.102 - UI 22.....	137
Figure 4.103 - UI 23.....	138
Figure 4.104 - UI 24.....	138
Figure 4.105 - UI 25.....	139
Figure 4.106 - UI 26.....	139
Figure 4.107 - UI 27.....	140
Figure 4.108 - UI 28.....	140
Figure 4.109 - UI 29.....	141
Figure 4.110 - UI 30.....	141

Figure 4.111 - UI 31.....	142
Figure 4.112 - UI 32.....	142
Figure 6.1 Splash Screen.....	219
Figure 6.2 Landing page	219
Figure 6.3 Sign up dialog box.....	220
Figure 6.4 Student Registration Page.....	220
Figure 6.5 Faculty registration page	221
Figure 6.6 Enter OTP page	221
Figure 6.7 Set password page	222
Figure 6.8 Registration successful	222
Figure 6.9 Login Dialog Box.....	223
Figure 6.10 Student/ Faculty Login	223
Figure 6.11 Forgot Password page.....	224
Figure 6.12 Reset password page.....	224
Figure 6.13 Password reset successfully.....	225
Figure 6.14 FAQ page.....	225
Figure 6.15 User home page	226
Figure 6.16 Sort option	226
Figure 6.17 Filter option	227
Figure 6.18 Specific reported item.....	227
Figure 6.19 All chats page	228
Figure 6.20 Specific chat page.....	228
Figure 6.21 Report item page 1.....	229
Figure 6.22 Report item page 2.....	229
Figure 6.23 Report item page 3.....	230
Figure 6.24 My reported items.....	230
Figure 6.25 Delete my reported items.....	231
Figure 6.26 My specific reported items details.....	231
Figure 6.27 Profile page.....	232

Figure 6.28 Update email page	232
Figure 6.29 Update phone page	233
Figure 6.30 Update password page	233
Figure 6.31 Delete profile page	234
Figure 6.32 Log out.....	234