**Table of Contents**

Abstract………………………………………………..………………………………….……...IV

Acknowledgement…………………………………….……………………………………….....V

List of Figures………………………………………………………………………………….VIII

List of Tables………………………………………….…………………………………………IX

**Chapter 1 Introduction…………………………………………………………………….........1**

1.1 Project Summary…………….…………………….……………………………………....1

1.2 Purpose……………………….…………………….………………………………….......3

1.3 Objective……………………….…………………….……………………………………3

1.4 Scope…………………………….…………………….…………………………………..3

1.5 Tools & Technology…………….………………………………………………………...3

**Chapter 2 Project Management………………………………………………………………...4**

2.1 Project Planning….………………………………………………………………………..4

2.1.1 Project Development Approach & Justification……………………………………4

2.1.2 Project time & effort, cost estimation…………………………………………........5

2.1.3 Roles & Responsibilities…………………………………………………………....6

2.2 Project Scheduling…………………………………………………………………….…..7

**Chapter 3 System Requirement Study………………………………………………………...10**

3.1 User Characteristics……………………………………………………………………..10

3.2 Hardware & Software Requirements…………………………………………………....10

3.3 Assumptions & Dependencies…………………………………………………………..10

**Chapter 4 System Analysis……………………………………………………………………..11**

4.1 Study of Current System…………………………………………………………………11

4.2 Problems and Weaknesses of Current System…………………………………………...11

4.3 Requirements of New System……………………………………………………………12

4.3.1 Functional Requirements…………………………………………………………..12

4.3.1.1 LCD Display……………………………………………………………..12

4.3.1.2 Zigbee Module…………………………………………………………...12

4.3.1.3 Arduino Uno Development Board………………………………………13

4.3.1.4 GUI Application………………………………………………………….14

4.3.1.4.1 Faculty End…………………………………………………….14

4.3.1.4.2 Administrator End……………………………………………...14

4.3.2 Non Functional Requirements……………………………………………………..15

4.3.2.1 Performance Requirements………………………………………………15

4.3.2.2 Portability………………………………………………………………...15

4.3.2.3 Usability…………………………………………………………………15

4.3.2.4 Maintainability...…………………………………………………………15

4.4 Feasibility Study…………………………………………………………………………16

4.5 Activity Diagram………………………………………………………………………...17

4.6 Features of New System…………………………………………………………………19

4.7 Use Case Diagram………………………………………………………………………..20

4.8 Class Diagram……………………………………………………………………………21

**Chapter 5 System Design……………………………………………………………………….22**

5.1 System Application Design………………………………………………………………22

5.2 Database Design………………………………………………………………………….25

**Chapter 6 Implementation Planning…………………………………………………………..26**

6.1 Implementation Environment……………………………………………………………26

6.2 Modules Specification…………………………………………………………………..26

6.3 Security Features…………………………………………………………………………26

**Chapter 7 Testing……………………………………………………………………………….27**

**Chapter 8 Conclusion…………………………………………………………………………..44**

**Chapter 9 Limitation & Future Enhancement……………………………………………….45**

**Chapter 10 References...………………………………………………………………………..46**

**List of Figures**

Figure 1.1 Block Diagram of the System……………………………………………………..2

Figure 2.1 Iterative Waterfall Model…………………………………………………………4

Figure 2.2 Gantt Chart....……………………………………………………………………...7

Figure 2.3 Work Breakdown Structure (1)…………………………………………………...7

Figure 2.4 Work Breakdown Structure (2)……………………………………………………8

Figure 2.5 Network Chart (1)…………………………………………………………………8

Figure 2.6 Network Chart (1)…………………………………………………………………9

Figure 4.1 Activity Diagram for Administrator……………………………………………..17

Figure 4.2 Activity Diagram for Administrator……………………………………………..18

Figure 4.3 Usecase Diagram….……………………………………………………………..20

Figure 4.4 Class Diagram……………………………………………………………………21

Figure 5.1 Login Page for Faculty…………………………………………………………...22

Figure 5.2 Login Page for Administrator…….……………………………………………...22

Figure 5.3 Add Faculty Window…………………………………………………………….23

Figure 5.4 Remove Faculty Window………….…………………………………………….23

Figure 5.5 Faculty Window………………………………………………………………….24

Figure 5.6 Administrator Window…………….…………………………………………….24

Figure 5.7 Database Design………………………………………………………………….25

**List of Tables**

Table 2.1 Cost Estimation Model……………………………………………………………6

Table 7.1 Test Cases………………………………………………………………………..43