**CONTENTS**

**TITLE PAGE No**

Abstract v

List Of Figures x

List Of Tables xiii

Abbreviations xiv

**CHAPTER 1**

1. WSN BASED MOBILE AND PC CONTROL ROOM ENVIRONMENT FOR

INDUSTRIAL APPLICATIONS

1.1 Introduction 01

1.1.1 Existing System 02

1.1.2 Proposed System 02

1.2 Objective of the Project 03

1.3 Literature Survey 03

1.3.1 Hardware Components 03

1.3.2 Software Tools 06

1.4 Organization of the project 07

**CHAPTER 2**

2. GENERAL THEORY

2.1 Embedded systems 09

2.1.1 Block Diagram of Embedded System 10

2.1.2 Design of Embedded System 10

2.1.3 Classification of Embedded System 11

2.1.4 Embedded systems often share the following attributes 11

2.1.5 Categories of Embedded System 12

2.1.6 Requirement of Embedded Systems 13

### 2.1.7 Microcontroller Selection 14

2.1.8 CISC Vs RISC 15

2.1.9 RISC Technology 17

2.2 Microcontroller (LPC 2148) 19

2.3 Power Supply 20

**CHAPTER 3**

3. HARDWARE DESCRIPTION

3.1BLOCK OF THE PROPOSED SYSTEM WITH IMPLEMENTATION 22

3.2 HARDWARE COMPONENTS 23

3.2.1 LPC2148 ARM Microcontroller 24

3.2.2 GSM Module 35

3.2.3 ZigBee Module 37

3.2.4 Fire Sensor 38

3.2.5 Gas Sensor 39

3.2.6 Level Sensor 39

3.2.7 PIR Sensor 40

3.2.8 IR Sensor 41

3.2.9 LCD Display 42

3.2.10 ULN2003 Relay Driver 42

3.2.11 Cooling Fan 43

3.2.12 Personal Computer 44

3.2.13 L293D Motor Driver 44

3.2.14 DC Motor 46

3.2.15 Voltage Regulator (7805) 47

3.2.16 Buzzer 48

**CHAPTER 4**

4. SOFTWARE TOOLS

4.1 Keiluv4 IDE Tool 49

4.1.1 Significance of Keil Software 49

4.2 Proteus\_v7.8i 58

4.3 HyperTerminal 61

4.4 FlashMagic 64

4.5 Embedded C Language 67

4.6 PROGRAM (Keil Code) 68

**CHAPTER 5**

5. RESULTS

5.1 Specifications of WSN based mobile and pc control room environment for

industrial applications 79

5.2 Results 79

5.3 ADVANTAGES 86

5.4 UTILITIES AND APPLICATIONS 86

**CONCLUSION** 87

**FUTURE SCOPE** 88

**BIBLIOGRAPHY** 89