DOMESTIC PROTECTION AND INDUSTRY SAFTY RECOGNITION USING GSM THROUGH ANDROID SMART PHONE

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Abstract—Android based smart phones are primary choice of people because these devices are inherited with huge compatibility and mobility, although they are low cost devices this helps in interfacing this device with other electronics system such as industrial safety equipment and household security equipment. Android application is easy to develop and it is open source, so no cost is incorporated in developing android application. For example when a person is away from his house and any fire accident happened at the time such system can alert the person and autonomously contact fire brigade.

Keywords— Security, Android application, Saftey

1. INTRODUCTION

IoT allows many physical devices to capture transmit data, through the internet, providing more data interoperability methods. Nowadays IoT plays an important role not only in communication, but also in monitoring, recording, storage and display. Hence the latest trend using IoT is adapted.

Monitored on a continual basis, aggregated and effectively analyzed - such information can bring about a massive positive transformation in the field of Safety. Our matter of concern in this project is to focus on the development and implementation of an effective security in house and industry based on IoT. The proposed system monitors the vital security and transmits the data through a wireless communication, which is further transferred to a network via a GSM module.

The data can be accessed anytime promoting the reception of the current status of the house and industry. In case any abnormal behavior or any vital signs are noticed in industry or house the owners are notified immediately through a message service or an audio signaling device (buzzer). In order to design an efficient remote monitoring system, security plays an important part. Cloud computing and password protected. This paper is a review of security in industry and house using GSM.

2. OBJECTIVE

Security is a big challenge everywhere because thefts are increasing day by day owing to the unsafe and insecure security systems in homes, commercial complexes and industries.

Several conventional technologies are available to keep home properties safe from intruders, but most security work on wireless GSM communication.

Such systems provide security from natural, incidental, intended, unintended, accidental and human made problems by common smart home continuously monitoring homes with different sensory systems like motion, smoke, gas, temperature, glass break or door break detectors and fire alarm systems. Home security or home automation can be achieved by adopting central controllers to control home devices or appliances that sense different variables using appropriate sensors.

The main aspect of such a system is a sensory system that collects the parameter information like temperature, fire, human presence, gas, etc., and sends the corresponding data to the microcontroller or any other processor. This controller is programmed such that when these parameters cross their prescribed limits, it sends the command signals to various final controlling devices like relays, motors and buzzer devices.

3. PROPOSED SYSTEM

Nowadays IoT plays an important role not only in communication, but also in monitoring, recording, storage and display. Hence the latest trend in security and safety method using IoT is adapted. Monitored on a continual basis, aggregated and effectively analyzed - such information can bring about a massive positive transformation in the field of security.

Our matter of concern in this project is to focus on the development and implementation of an effective healthcare monitoring system based on IoT.

The proposed system monitors the vital security and safety in industry and house and transmits the data through a wireless communication, which is further transferred to a network via a GSM module. I

n case any abnormal behavior or any vital signs are recognized, the owners are notified immediately through a message service or an audio signaling device

(buzzer). In order to design an efficient remote monitoring system, security plays an important part.

Cloud computing and password protected Wi-Fi module handles authentication, privacy and security of patient details by allowing restricted access to the database.

ADVANTAGES OF PROPOSED SYSTEM

Here comes the world of IOT. IOT is nothing but connecting devices to the internet using sensors and a suitable platform. These microchips can be placed on health monitoring equipments. The information collected by these microchips is then sent to any remote destinations as M2M, standing for machine to machine, machine to man, man to machine or machine to mobile.

This is a fast, energy efficient, far more intelligent, flexible and interoperable method for monitoring any security issue and improves safety and responsiveness

4. LITERATURE REVIEW

The major components which are used to complete this project are PIC MICEOCONTROLLER FIRE SENSOR, GAS SENSOR, PIR SENSOR, GSM MODULE

A. PIC Microcontroller

The microcontroller that has been used for this project is from PIC series. PIC microcontroller is the first RISC based microcontroller fabricated in CMOS (complimentary metal oxide semiconductor) that uses separate bus for instruction and data allowing simultaneous access of program and data memory.

Various microcontrollers offer different kinds of memories. EEPROM, EPROM, FLASH etc. are some of the memories of which FLASH is the most recently developed.

Technology that is used in pic16F877 is flash technology, so that data is retained even when the power is switched off. Easy Programming and Erasing are other features of PIC 16F877.

B. Fire sensor

Disclosed herein is a fire alarm system for connecting a plurality of fire sensors to sensor lines, and giving an alarm in response to fire information output from the fire sensor in a line unit. The fire alarm system includes a current modulation section and an address specification section.

The current modulation section is used for maintaining a current flowing in the sensor line at a predetermined value for a predetermined time at the time of a fire, and modulating the current in accordance with the inherent address information of the fire sensor.

The address specification section is used for sensing fire information by judging whether or not the current has been maintained at the predetermined value for the predetermined time, and also for specifying the inherent

address of the fire sensor that issued the fire information, from the modulated state of the current.

C. Gas sensor

Electrochemical gas are gas detectors that measure the concentration of a target gas by oxidizing or reducing the target gas at an electrode and measuring the resulting current. The sensors contain two or three electrodes, occasionally four, in contact with an electrolyte.

The electrodes are typically fabricated by fixing a high surface area precious metal on to the porous hydrophobic membrane. The working electrode contacts both the electrolyte and the ambient air to be monitored usually via a porous membrane.

The electrolyte most commonly used is a mineral acid, but organic electrolytes are also used for some sensors.

The electrodes and housing are usually in a plastic housing which contains a gas entry hole for the gas and electrical contacts.

D. PIR sensor

The main purpose of PIR sensor is to sense an burglar and send an alert to your control panel, which alerts your monitoring centre. Sensors work when you are not home, or when you tell the system you are not there.

Some security systems can be programmed to record events via a security camera when motion is detected.
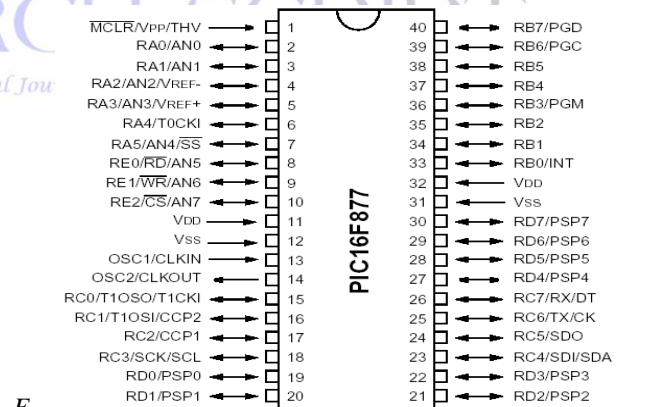
E.

GSM module

GSM (Global System for Mobile Communications: originally from Group Special Mobile) is the most popular standard for mobile telephony systems in the world.

The GSM Association, its promoting industry trade organization of mobile phone carriers and manufacturers, estimates that 80% of the global mobile market uses the standard. GSM is used by over 1.5 billion people across more than 212 countries and territories.

Its ubiquity enables international roaming arrangements between mobile network operators, providing subscribers the use of their phones in many parts of the world. GSM differs from its predecessor technologies in that both signaling and speech channels are digital, and

Figure 1 : PIN CONFIGURATION

thus GSM is considered a second generation (2G) mobile phone system.

This also facilitates the wide-spread implementation of data communication applications into the system

The ubiquity of implementation of the GSM (Global System Market) standard has been an advantage to both consumers, who may benefit from the ability to roam and switch carriers without replacing phones, and also to network operators, who can choose equipment from many GSM equipment vendors.

5. BLOCK DIAGRAM
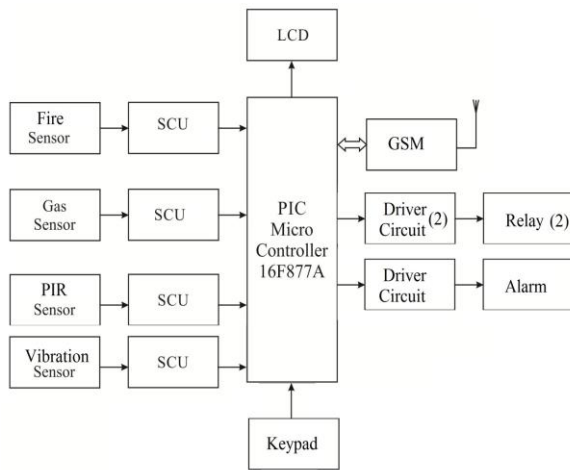
A. Block diagram description

The designed house hold security and safety system uses PIC 16F877Amicrocontroller, GSM Modem, LCD display, Alarmed also uses following sensors fire sensor , gas sensor, vibration sensor, PIR sensor. Sensor circuits interfacing with microcontroller.

PIR sensors allow you to sense motion, almost always used to direct whether a human has moved in or out of the sensors range.

They are small, inexpensive, low power, easy to use and don't wear out. A16x2 LCD display is used as a basic electronic display. The microcontroller reads the input character and performs the corresponding function.

6. PIC SIMULATOR

PIC Simulator IDE is powerful application that supplies micro chip microcontroller users with user-friendly graphical development environment for Windows with integrated simulator (emulator), pic basic compiler, assembler, disassembler and debugger.

PIC Simulator IDE supports the extensive number of microcontrollers (MCUs) from the Microchip 8-bit PIC Mid-Range architecture product line (selected PIC16F, PIC12F, PIC10F models)

7. SOFTWARE DESCRIPTION

Code-Vision-AVR software has been used to program the AVR MCU. It is the ideal IDE (Integrated Development Environment) for the 8-bit Atmel AVR and XMEGA microcontrollers for the programming of Atmel AVR family of microcontrollers.

It is a C cross – compiler and has an Automatic program generator. It allows easy access to EEPROM and Flash memory without the need for special functions like in other compilers for AVR. It offers a very efficient use of RAM. The program is written in C language. It is then build and the .C file is converted into .hex file before transferring the Program to microcontroller's Flash memory.
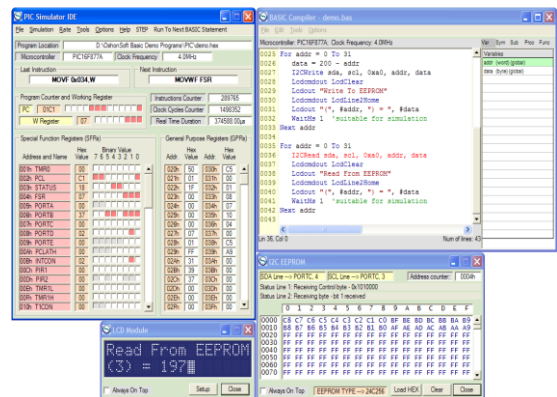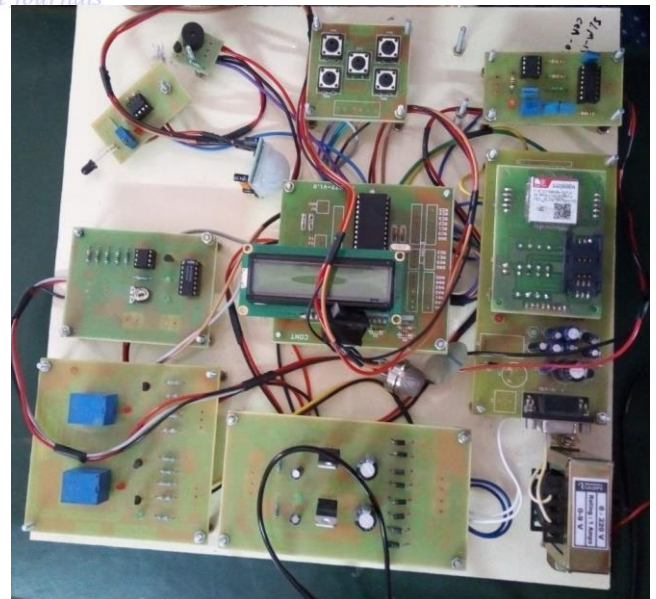

8. HARDWARE IMPLEMENTATION

Figure 2 : Hardware implementation

9. RESULT AND DISCUSSION

The ac voltage, typically 220V rms, is connected to a transformer, which steps that ac voltage down to the level of the desired dc output. A diode rectifier then provides a full-wave rectified voltage that is initially

filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation.

10. CONCLUSION

This paper presents mobile controlled user friendly and low cost home and industrial automation and security systems. After a thorough study of literatures of all the topics that include home automation design and wireless networks. A simple system to improve the standards is developed. It is a real-time monitorable and remote controlled system developed with simple hardware which simplifies the possibility of error free security system.

This system can be easily implemented with maximum reliability and the high security with low cost is a special enhancement from the existing systems for Home security. This program enables the interaction between all hardware connected in microcontroller and sends appropriate signal to the User through GSM.

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