IOT BASED HOME AUTOMATION

Shweta T.Patil[1], Gayatri S. Salokhe[2], Anuja A. Mane[3]

[1,2,3]*U.G. Student, Department of Electronics and Telecommunication Engineering,*

Bharati Vidyapeeth's CollegeOf Engineering, Kolhapur, (India)

ABSTRACT

Today we are living in 21st century. It is necessary to control the home from desire location. Home automation is the control of any electrically and electronics device in our home and office, whether we are there or away. There are hundreds of products available that allowus tocontrol over the devices automatically by using microcontroller. This home automation systemprovides theusers with remote control of various lights and appliances within their home. This system is designed to be low cost and expandable allowing a variety of devices o be controlled. Home automation and benefits will be focus on how this can be achieved through the use of microcontroller.

KEYWORDS :GSM module, microcontroller, WIFI module.

I.INTRODUCTION

Home automation is the control of any or all electrical devices in our home or office. There are many different types of home automation system available. These systems are typically designed and purchased for different purposes. In fact, one of the major problems in the area is that these different systems are neither interoperable nor interconnected. There. It should also provide a user friendly home interface on the host side, so that the devices can be easily setup, monitored and controlled. In can be use in several places like banks, hospital, labs other sophisticated automated system, which dramatically reduced the hazards of unauthorized entry.The main reason to develop this system is to save time and man power along with maintaining security and convenience. In our project we use GSM to control the appliances. Through GSM, the user can effectively control and monitor the appliances from remote places by sending SMS. The concept behind this is to receiving the sent SMS and processing it further as required to perform several operations. This type of the operation to be performed depends on the nature of the SMS sent.

II. DESIGN CONSIDERATIONS

- **Hardware Concept Design :**

The proposed home control system consists of three main modules: the hardware interface module and the software module (Smart phone app). To demonstrate the effectiveness of this system, devices such as light switches, temperature sensor and smoke sensor have been integrated with the proposed home control system.
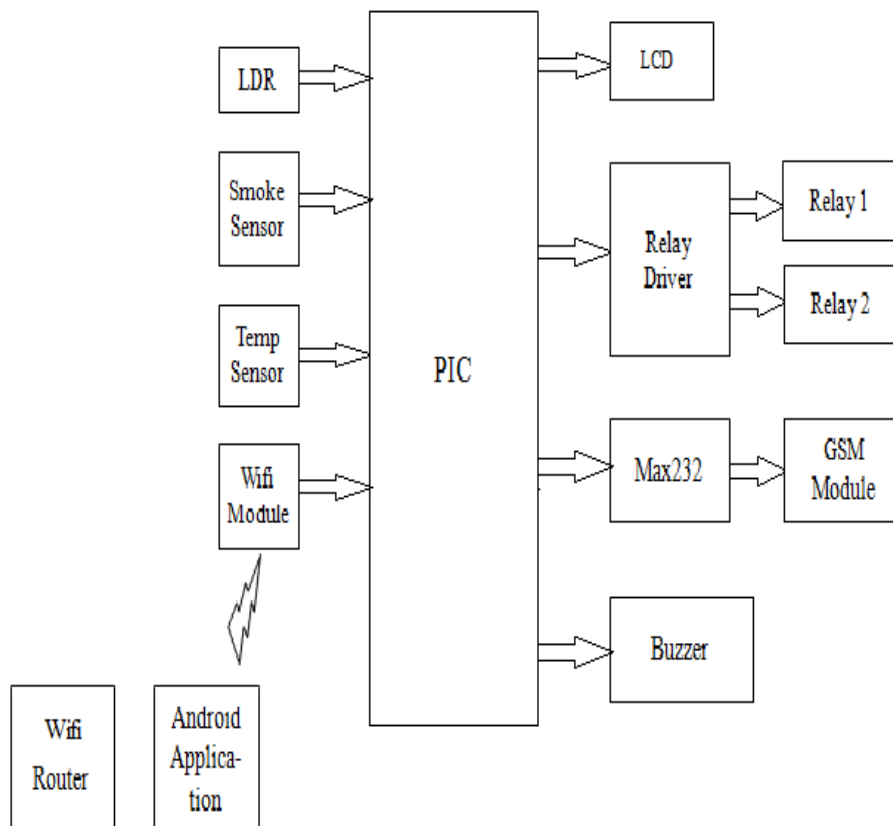
Fig 1: Block Diagram Of Hardware Part Of System

1.PowerSupply: Design requirement is 5 VDC for the microcontroller and motor controller. Additionally, 12V is necessary for the motor. Current requirements will be dictated mainly by the motor controller design; while the current requirement for the microcontroller is in the range of 100mA. Also, the power supply may require battery backup to avoid loss of user input selections and time keeping functions.

2.LCDDisplay:A Liquid crystal display is used to indicate the present status of parameters and the respective AC devises (simulated using bulbs). The information is displayed in two modes which can be selected using a push button switch which toggles between the modes. Any display can be interfaced to the system with respective changes in driver circuitry and code.Also 16 char are divided to indicate speed output. The LCD Display used here is 16 character by 2 line display. The 16 characters in both lines are equally divided to indicate commands and speed.

3.Sensor: This part of the system consists of various sensors, namely soil moisture, humidity, temperature and light. These sensors sense various parameters- temperature, humidity, soil moisture and light intensity and are then sent to the Analog to Digital Converter.
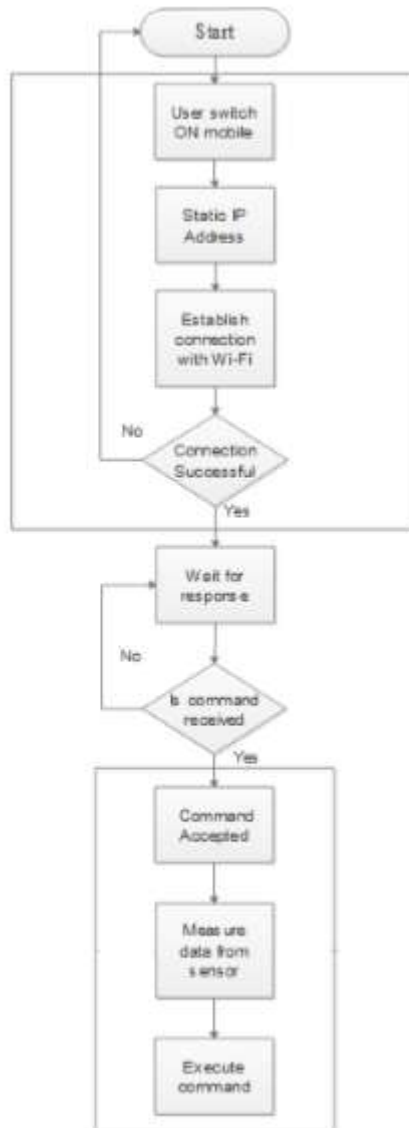
4. PIC Microcontroller :PIC usually pronounced as "pick" is a family of microcontrollers made by Microchip Technology. The first part were available in 1976, by 2013 the company has shipped more than 12 billion individual parts used in a wide vanity of embedded systems. Early model of PIC has only read only memory(ROM) or field programmable EPROM for field storage ,some with provision for erasing memory. All current models use flash memory for program storage, and newer models allow the PIC to reprogram itself. Program memory and data memory are separated. Data memory is 8-bit,16-bit and in latest models 32-bit wide. The microcontroller is the heart of the proposed embedded system. It constantly monitors the digitized parameters of the various sensors and verifies them with the predefined threshold values and checks if any corrective action is to be taken for the condition at that instant of time. In case such a situation arises, it activates the actuators to perform a controlled operation.

5.GSMModule: The GSM modem provides the communication mechanism between the user and the microcontroller system by means of SMS messages. It is capable of receiving a set of command instructions in the form of Short message service and performs the necessary actions. We will be using a dedicated modem at the receiver module i.e. and send the commands using SMS service as per the required actions.

6.Relay:A relay is an electrically operated switch. Many relays use an electromagnet to operate a switching mechanism, but other operating principles are also used. Re- lays find applications where it is necessary to control a circuit by a low-power signal, or where several circuits must be controlled by one signal. A type of relay that can handle the high power required to directly drive an electric motor is called a contactor. Solid-state relays control power circuits with no moving parts, instead using a semiconductor device triggered by light to perform switching.

7.Temperature Sensor: In this project we use temperature sensors. Here in this project we use LM 35 as a temperature sensors. LM35 is very accurate and very good sensor to show the temperature in Celsius. For body temperature measurement we use IC LM34 sensor. LM35 is a linear temperature sensor. Commonly available temperature sensors are LM35,DS1621,thermistor.Thermistor gives resistance proportional to the temperature. LM35 have 3 terminal Vcc, ground, Vout LM35 works on a 5V supply. The LM35 is an integrated circuit sensor that can be used to measure temperature with an electrical output proportional to the temperature (*C)

- **Complete Design Concept:**

III. CONCLUSION

Thus we have proposed that various parameters like temperature, smoke , light are controlled by using the internet of things . This provides us lot of saftey and is a user friendly system.

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Hussein AbdulRazzaqLafta University of Baghdad College of Engineering Computer Engineering Department.

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