IOT Based Home Automation

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Abstract- *Home automation has become more and more popular in recent years. It aims at helping people manage the home appliances freely and build an autonomous environment in home. The aim of this project is the home automation with full security and controlling the home appliances using wireless communication as Wi-Fi. We design this smart home system with the implementation of related software and hardware. To assure security the PIR and vibration sensors are used to detect the motion and vibration to prevent from theft. It alerts the people by buzzer and starts to record it through HD spy camera. The temperature and humidity of the each room is monitored and maintained at room temperature using temperature and humidity sensors which activates the exhaust fan to maintain the temperature. For these control purposes Arduino is used because the Arduino has the advantages of ease understandability and easily modifiable.*

I. INTRODUCTION

Devices included in home automation consume less power. Besides, it saves energy. Thus home automation technology is so far environmentally suitable. Moreover, the technology keeps mind in peace.

In home automation system internet access is used to control from far away. For years, internet is used only for surfing pages, searching information and downloading software and other things. Advancement of technology is forcing to make interaction internet with machineries and devices. In home automation system comfort and security of houses have been enhanced. Besides, people are concerning over costs. In offices, a division of people are employed only to make supervision of some manual means typed work. Home automation is replacing those arrangements. For this, cost is highly reduced. Besides, for manual labour engaged to control appliances waste energy in cases. It is seen that appliances continue to run though people are not present in their respective places. For this energy cannot stop consuming. If this happens for a long time then there have possibility to misuse energy in a huge amount. To overcome this obstacle home automation is encouraged to apply. Home automation does that challenging work. That‘s why; home automation is presented as energy efficient. In recent years home automation is gaining much popularity. The trend is also in favour of using home automation technology. If we look around residences, malls, offices, use of home automation systems will draw attention.

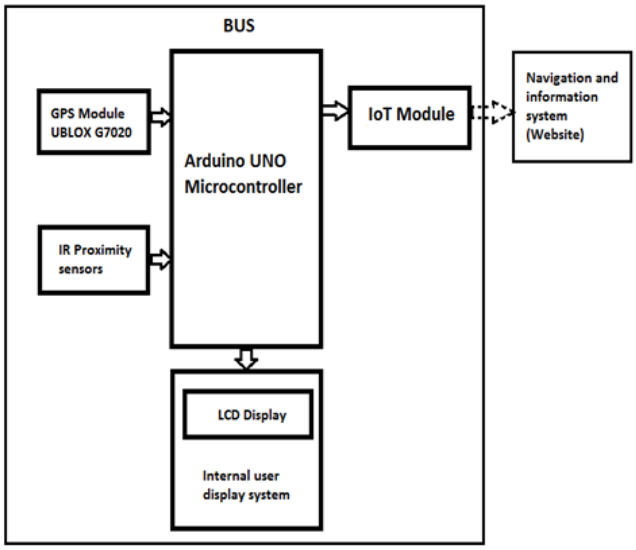
II. PROPOSED SYSTEM

The aim of the proposed system is automation of home also controlling the appliances. Temperature and humidity of the each room is monitored. Water level controller also implemented by the use of Ultrasonic sensor. By using PIR and Vibration Sensor Motion detectionare obtained. Room temperature is maintained by using exhaust fan. There is an increase in such kind of Automation all over the world. Intimates about the Vibration and motion detection by Buzzer. Temperature and humidity is detected and maintained at room temperature.

Block diagram

A block diagram is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. They are heavily used in engineering in hardware design, electronic design, software design, and process flow diagrams. A diagram showing in schematic form the general arrangement of the parts or components of a complex system or process, such as an industrial apparatus or an electronic circuit.

The proposed block diagram is shown in figure 3. The main block of our prosject is the arduino module which falls next in line. There are two relays to serve the purpose of on and off. The power supply provided for arduino is 5V.It is given through an adapter. The power supply given to the relays is 12V and it is given from a step down transformer. The LCD display is used in future extension of the project. The relays used act as Main Switches. The relays are programmed to operate without delay. The signals for the relay are given from arduino board.



III. ADVANTAGES

- Adding convenience to your daily life.
- Energy efficient
- Customization
- Ease of use
- Save money and the environment
- Security

IV. DISADVANTAGES

- Equipment and installation costs
- System crashes due to any damage in the interconnection
- Reliability
- Difficult to control different sensors simultaneously.

V. APPLICATIONS

- Precise and safe blind control
- The control of appliances can be achieved
- User can observe and control the activities.

VI. CONCLUSION

This paper gives basic idea about the controlling of home appliances. It can be extended for security purpose also. The purpose of the system is to use mobile phone's in built Bluetooth facility for automation. Different hardware and software unit of the system has been implemented. The complete application has been designed using Android, using c language. The Home automation system furnishes a good paradigm for any automation system based on Android mobile phone's and Bluetooth.

VII. FUTURE SCOPE

In real time web based home automation system this project can be extended in future to ensure the high security, the motion and vibration can be monitored through online

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