Internet of Things for Home Automation

Omkar Khamkar[1] Prakash Chowdhary[2] Punit Mishra[3] Prof. Abhijit Somnathe[4]
[1,2,3]Student [4]Head of Department
[1,2,3,4]Department of Electronics Engineering
[1,2,3,4]Shree L.R. Tiwari College of Engineering, Thane, Maharashtra, India

Abstract— In today's world idea of connecting home appliances to Internet has been seen as the future for making smart home environment. And for experiencing smart home environment we have to make our appliances smart. Nowadays there is rapid increase in number of users of Internet and now it has become part of life and IOT is the latest an emerging Internet technology. IOT is a network of everyday objects from industrial machine to consumer goods that can share information perform tasks and work together. In this paper we are presenting home automation system HAS using IOT that provides user with remote control of various appliances at home which will automatically change on the basis of sensors data and also can be controlled by user and also this system is designed to be at low cost.

Keywords: Home automation system (HAS), Internet of Things (IOT)

I. INTRODUCTION

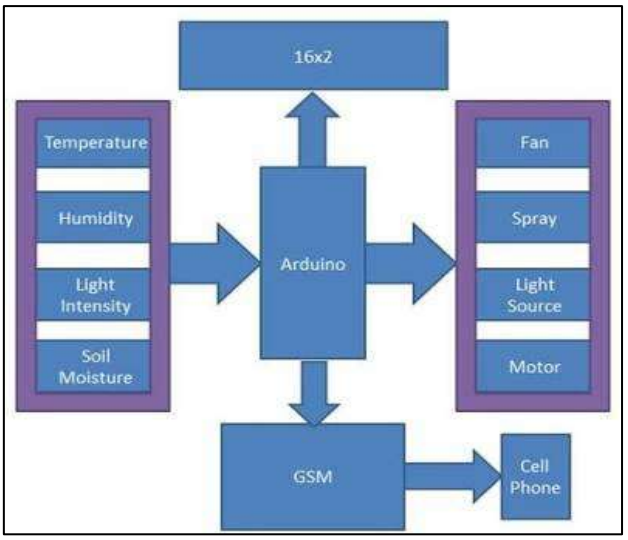
This era of modern technology is becoming more and more self-control and automated because it provides comfortable style of living. The home automation system allows user to control all the electrical appliances by using Internet of Things by reducing human efforts. Most of the home automation systems which are presently available in market are based on wired communication but they are too expensive to afford and also very time consuming for setting the system up.

That's why we have introduced Internet of Things for making it more reliable and making it user friendly without any effort. By using Internet of Things a consumer can access this system through his smartphone without going to the actual location of appliance. For interfacing of electrical appliances to Internet or Wi-Fi module we're using Arduino Uno which is microprocessor based system. It can be programmed as per the user requirements that is the main advantage of using it in this system.

II. HARDWARE AND SOFTWARE REQUIREMENTS:

Arduino Uno, GSM , Relay, DC motor, LDR(Light Dependent Resistor), Wi-Fi module, flame sensor, Accelerometer, Arduino IDE(software).

III. BLOCK DIAGRAM



IV. CIRCUIT CONFIGURATION FOR HOME AUTOMATION

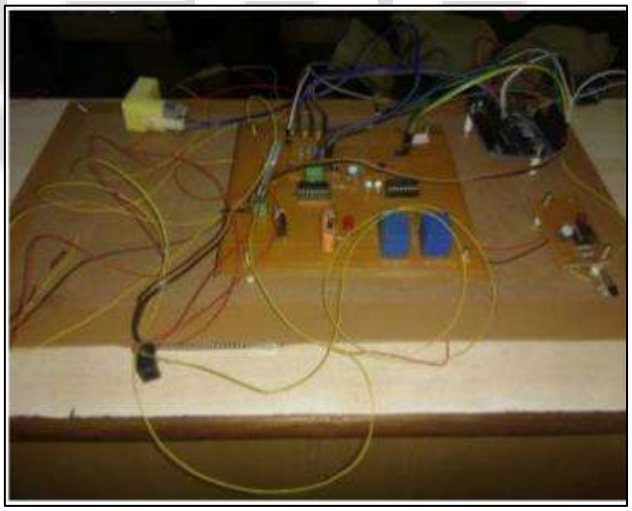


Fig. 1: Setup for Home automation using IOT

This paper is based on sensing monitoring hand controlling system. These are the three important functions of this system. the same thing in this setup is done by flex sensor, LDR, accelerometer, etc. Then comes the monitoring task which is done by using wireless devices which is basically operated using GSM, through our smartphone or mobile devices and the main part which is controlling unit is done by microcontroller either it is Arduino Uno, which is programmed as for the user needs.

All the sensors and appliances are interfaced with Arduino Uno and then it shares further information to Wi-Fi module or GSM. The status of any appliance changes according to the values of sensors. The accelerometer controls the opening and closing which deals with velocity

and moving habits. The relay which is also a electromagnetic sensor alert us if the system connection is braked. The flame sensor senses if there is fire in the surrounding or in house. All the appliances has their status uploaded on GSM which is sent by Arduino Uno. From that user can see that through his smartphone laptop and computer devices. The Arduino Uno controls the appliances based on values given to sensor which are defined by user.

V. RESULT

After all the connections according to the setup shown above we have observed that, the data of sensors are sent to the Wi-Fi model, which a user can see through freeboard dot IO online application on his smartphone or computer devices. By using freebord dot IO which provides various dashboard for sensors, it gives all the information of status of all the appliances which are connected to Arduino. It gives information about what is the temperature at home, is there any fire in this around him and which can be observed by the user through his smartphone even if he is away from home

VI. CONCLUSION

As a final note, we conclude that by using IoT for home automation system over routine life can become quite easy. The time which we spend for managing all the appliances at our home like television, refrigerators, light, fans, air conditioner, ETC can be reduced. Our design also shows the low expensive model for sensing, monitoring and controlling unit which is more preferable by the majority of users. And further research can be done for making it more reliable and ease of functionality for this system, which will be beneficial for the user.

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