

IOT BASED HOME APPLIANCES CONTROL

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Abstract

Now a days, the technology has in a grown at high speed. This paper proposes the design of IOT based home automation system using Wi-Fi. This research work presents the design and implementation of arduino based IOT based system. This is Wi-Fi based system and uses wireless technology (Wi-Fi). The system has three components: An arduino, a Wi-Fi module for signal transfer and smart phone for controlling web page server. The design is based on standalone arduino Wi-Fi board and appliances are connected to this board using relays, the smart phone interact with the arduino via Wi-Fi. The aim of project is controlling the home appliances when the user is away from the place.

Keywords :- *Arduino system, Wi-Fi module, Automation, Home, Relay, Webpage server.*

1. INTRODUCTION

In home automation is one of the most important thing to automatically ON and OFF the home appliances without inclusion of human. In present days most of the automation system utilize the combination of hardware and wireless system for controlling appliances. In this project we design and development of controlling of home automation system via the Wi-Fi module or Webpage server using arduino. This project is concern with programmed control of light or whatever other home appliances. The user will communicate to Arduino through internet via Wi-Fi network. This system is less costly, allowing additional home appliances. Its more Secure for us. IOT or Internet of Things is an upcoming technology that allows us to control hardware devices through the internet. Here we proposed to use IOT in order to control Home Appliances, thus automating modern home through the internet. Three Loads are used in this system to demonstrate as home lighting and fan. A smart home is one that equipped with lighting, heating, and electronic devices that can be controlled by a smart phone or via the internet. Home electronic devices controlling by internet based Home automation system whether you are inside or outside your home. Using a Wi-Fi shield to act as a application for the arduino eliminates the need for wired conection between the arduino board and internet. In this Project, we discuss design and development of activation and controlling of home automation system via Android application using arduino. In this project the programmed using a wiring based language similar to C++. Internet of Things is interlinked through these networks because of the popularity of the home automation is improved by the quality of service provided by the devices.

2. LITERATURE SURVEY

Home automation system using android and Wi-Fi:- The idea of automation can be dated to October 2014, When Kunal Khivensara, Gulam Hussain, Nitish Bansal, Vikas Kumar developed the idea of having a remote control. It is Wi-Fi based system. This project proposed which is very different than existing system. They were going to implement it with the help of directly Wi-Fi which fits the bill of WLAN 802.11 standards. The main advantage of this system was that it can be implemented with a wider range of not more than 200 meters. It allows communicating with a brief and small setup without zap wired connection. This system could be extended for a proper HVAC.

Design exploration of Microcontroller using RF remote control:- This Project was developed by Aru, Okereke Eze, Ihekweaba Gozie, Opara, F.K. In this project, Home electronic devices whether we are inside or outside our room is control by the RF remote control wall socket. An individual the ability to remotely or automatically control things around the home without moving from place to place gives by RF remote control wall socket. A home appliances is a device or instrument design to perform a specific function. This project was design to control electrical devices that were connected to an AC power supply through the RF remote wall socket ON/OFF using RF remote control whosw operation is independent of the direction/position unlike the infrared remote control which was line of sight. This project was uses the 89c52 microcontroller.

Android based Home Automation system using Bluetooth and Vice command:- This project was developed by Bhavik Pandya, Mihir Mehta, Nilesh Jain. In this project the arduino microcontroller for connecting the appliances a Bluetooth module for signal transfer and a smart phone running the android application. This project proposed was primarily concerned with the home automation system which uses bluetooth for interaction between the android mobile application and the appliances under the control of the system.

3. SYSTEM ARCHITECTURE

Home automation is needed to be without new wiring and to be very easy installation. The proposed system architecture generally incorporates a arduino computer for the proposed of network management and provision of web page access. It can be configure according to our home system. The user will communicated to arduino through internet via Wi-Fi network.

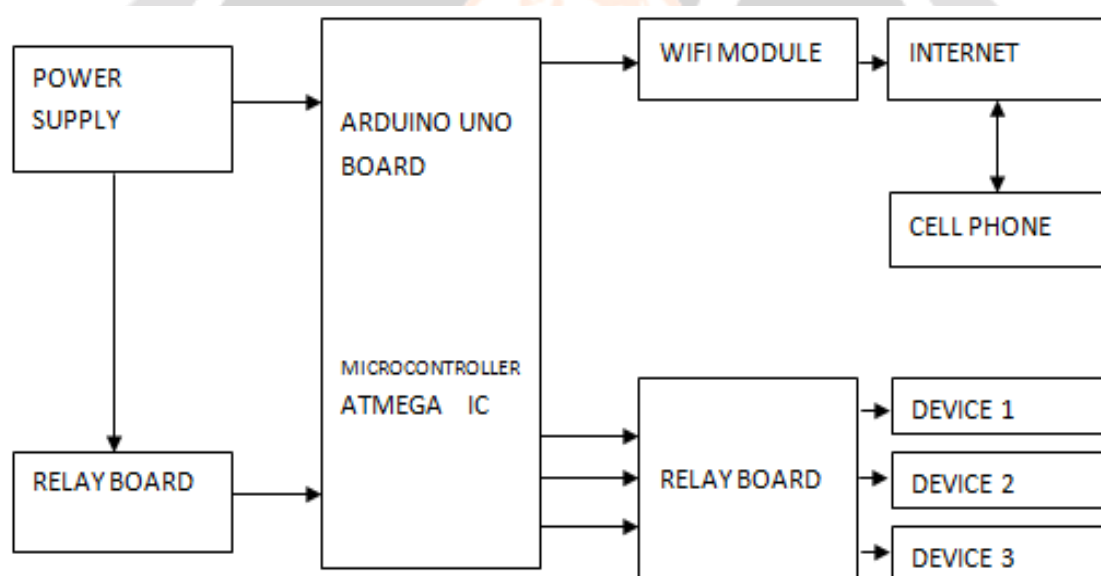


Fig -1: Block Diagram of System Architecture

Explanation of Block Diagram:-

The block diagram of proposed system is shown in figure. Wi-Fi module is connected with the arduino which interface is the mobile phone with the arduino. The arduino controller is program such that the fan and light are control based on the data send by the mobile phone to the arduino through the Wi-Fi interfacing model. Wi-Fi protocols provides more security for secure connection and an Android application has two methods to create a link. The first one is using Web page server of the Wi-Fi module directly coded into the initial testing. The second one is, it allow user to search for the device, which becomes a Final Decision. Then user can select the device from the list, for making connection. Arduino is an open source platform used for building electronic projects. It consists of both the Programmable circuit board and the piece of the software or IDE that runs on the computer used to write and upload computer code to the physical board. The household electronic or electrical appliances to connect the PC by using Relay interface circuit. To drive the relay energizing Input and connector to Interface parallel port through freewheeling diode and transistor. For testing suppose we are using one FAN

and and LED. The device which is use in project. The Fan are using a 12 V cooling fan for which adaptor is used for power supply.

4. APPLICATIONS

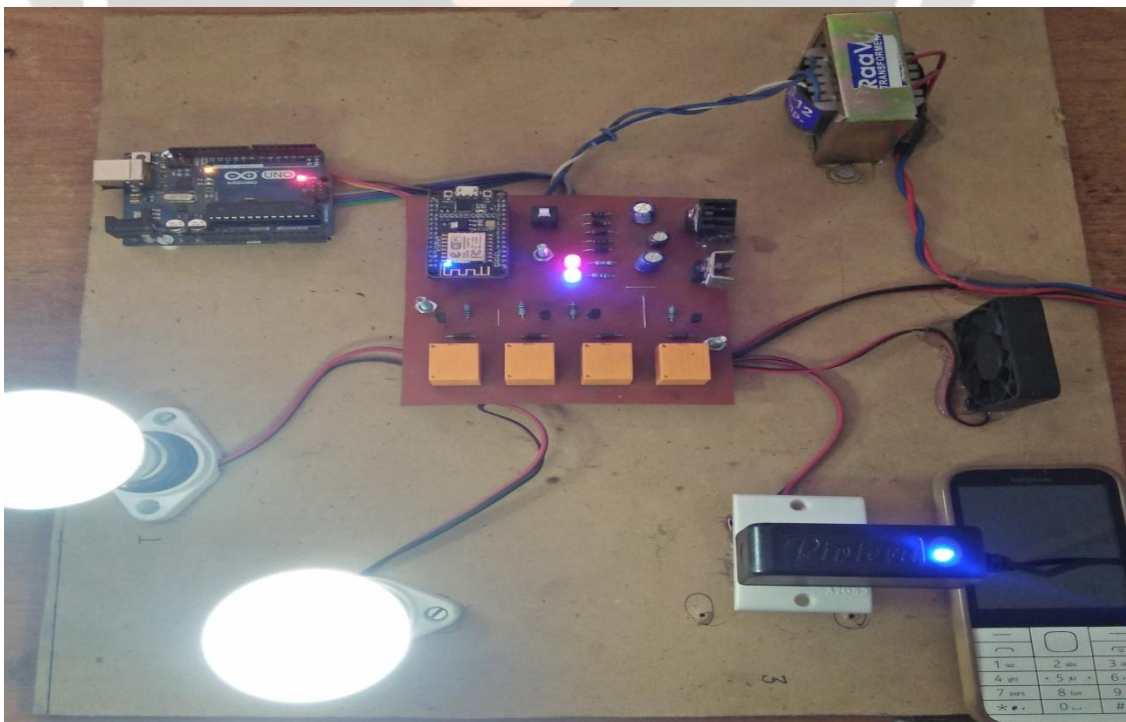
- In Industry, for controlling various operation equipments, machinery, factory operations, etc. Automatically using control system. In industry automation system we use to control automated mining system, automated waste management system.
- For Military, The IOT system used in War field to know about the status of enemies around the area.
- In Home, We use this project to controlling home appliances, for eg. TV, Fan or any type of electrical appliances.

5. CONCLUSION

- The goal of the paper was to design a system, which should be easy to implement, and long ranged. The project is implemented onboard WiFi, which is inbuilt in the mobile phones having an android as its system.
- Thus it will increase the accuracy and control of electronics appliances as oppose to the use of the other system. It is WiFi based, hence wireless and can be flexible in terms of cost.

6. RESULT

- This project has functioned satisfactorily in the laboratory condition. It may require slight modification to make suitable for working in the outdoor conditions.
- The results obtained are well below the level of experimental errors.



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