

Application Of Wireless Sensor Network In Home Automation

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Abstract— This paper is based on wireless sensor network for home automation using Wi-Fi automate the home .In order to use low power and low cost for the solution of automating the home using Wi-Fi technology. A prototype automation system for monitoring and controlling in home with sensor nodes and controlling nodes has been developed and tested in home. The system consists of sensor nodes, actuators nodes, router nodes, and one coordinator node. WSN is very helpful to implement the home automation system. Inside the home we have lot of electronic equipment to make our job easy. Here in this paper we implement the home automation system to advance the manual monitoring.

Index Terms— Wireless fidelity, IoT, Graphical User Interface, Android, Wireless Sensor Network.

I. INTRODUCTION

Today worldwide multitude of internet connections are devices used directly by human like computers and mobile handsets, in other words we can say human to human communication. In not a distance future, it's possible that we can have not only human to human communication but also device to device to communication which is called "Internet Of Things" Where thing refers to various electronics devices. With IoT not only we can access the information from any place, at any time, by any person, but we can also control and monitor various devices from any place, at any any time, on any network, by any authenticated person, this technology is Internet Of Things(IoT)[1].

WiFi is a technology that uses radio waves to provide network connectivity. A WiFi connection is established using a wireless adapter to creat hotspot-areas in the vicinity of a wireless router that are connected to the network and allows users to access internet services. Once configured, WiFi provides wireless connectivity to your devices by emmiting frequencies between 2.4GHz – 5GHz, based on the amount of data on the network.[4]

with intelligent monitoring and actionable information that can be situation specific it allows for improvements in the way we live or work, and improved energy efficiencies. The smart Home is specially relevant for the elderly because the intelligent sensing system would allow for remote monitoring and possibly control of health and environmental parameters according to

Home automation system is becoming more and more popular people want to live in intelligent living spaces equipped with home automation systems, this system not only provide them

convenience, comfort, security but also reduce their daily living cost by energy saving solutions. The demand for home automation product has been increased rapidly, which proms potential market trend in near future.

This paper has six chapters beginning with a brief introduction. Section 2 describes the literature survey in detail. section 3 gives the information about system overview. section 4 present the implementation of system. Finally in section 5 and in section 6 describe the result and conclusion of our project.

II. LITERATURE SURVEY

In this busy and comfortable lifestyle of people, communication technology has evolved in such a way that any information will be accessed from anywhere, at any time, by any one. In today's communication technology, communication is not only constrained between two computer, but it is complete network called internet. With advance internet technology today not only we can access the information from anyplace, at any time, by any person, but we can also control and monitor various devices from any place, at any time, by any authenticated person, this technology is called internet of things (IoT).this report represent the application of IoT for smart Homes Automation system which include Temperature sensing system, Automatic light system, Cooling system, Gas detection system, Water level sensing system.

This paper is based on wireless sensor network for home automation using Wi-Fi and Zigbee to automate the home. In order to use low power and low cost for the solution of automating the home. A prototype automation system for monitoring and controlling in home with sensor nodes and controlling nodes has been developed and tested in home. Here in this paper we implement the home automation system to advance the manual monitoring.[1]

A Smart Home (SH) is a house or an apartment equipped with advanced automation technologies to provide the occupants their health status and living needs android platform. We have proposed a model for the elderly using wireless sensor network implemented as an android application. Our smart home research potentially allows the elderly to continue to live in their own home while being a monitored non-

invasively, seamlessly and economically according to their healthcare needs and status .[2]

This paper describe the design and development of a phone-based remote controller for home and office automation. The circuit is designed based on the Turkish telephone standards and connected to the telephone network just like any normal telephone sets. Any tone dialing dual tone multiple frequency telephone set or hand- held tone dialer may be used to send commands to the control unit, and remotely control, a wide range of mains appliances in home and offices. The designed circuit can also detect user identification number for prevent non-authorized use of control unit. The feedback signal informs to the user about results of commands.[3]

III. SYSTEM OVERVIEW

Home automation is the process of controlling home appliances automatically using various control system techniques. The electrical and electronic appliances in the home such as fan, lights, outdoor lights, fire alarm, kitchen timer, etc., can be controlled using Wifi.

A. System design

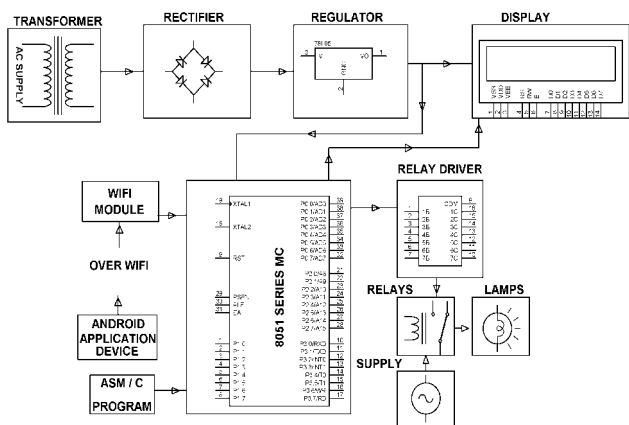


Fig1.Block Diagram Of System

IV. IMPLEMENTED SYSTEM

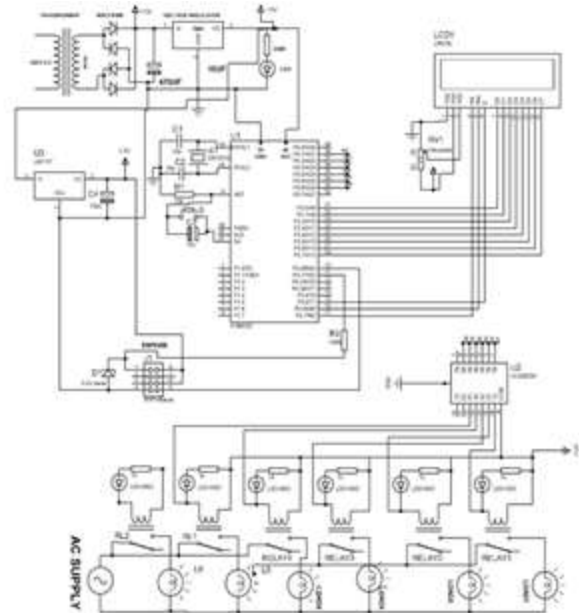


Fig2.Interfacing Diagram Of The System

A. Working

The main aim of the project is to control multiple electrical loads remotely over internet falling under the basic principles of Internet of Things-IOT. For this real-time scenario we use an Android app on any smart cell phone with user configurable front end (GUI). The data sent from the cell phone upon touch commands are sent through allotted IP fed to it, to any nearby wireless modem which is then received by a Wi-Fi module interfaced to a microcontroller of 8051 series, under TCP IP via networked wireless modem environment. Relays are then driven as per the command received at the controller end to handle electrical loads. The real time data is also seen at the sending end upon a LCD display interfaced to the microcontroller that displays the status of the loads too.

The power supply consists of a step down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier and it is then regulated to +5V using a voltage regulator 7805 which is required for the operation of the microcontroller , 3.3 volt for the Wi-Fi unit and other components.

V. RESULT

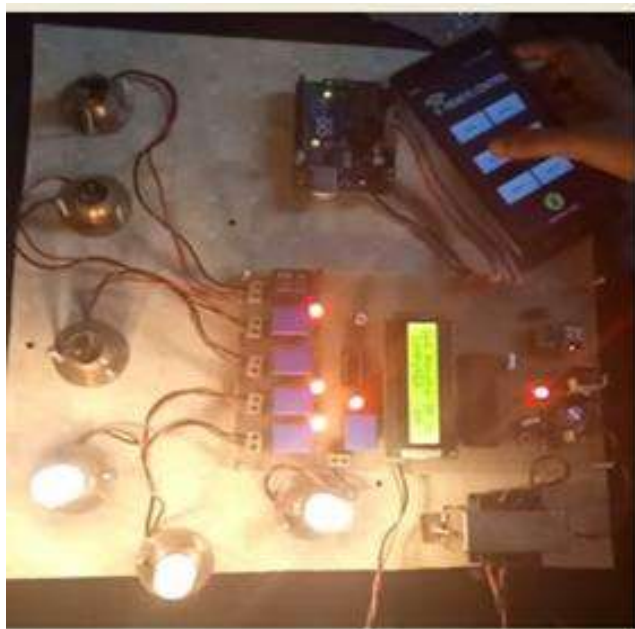


Fig3. Showing system hardware implementation.

Fig. shows the interfacing of microcontroller with WiFi module. Microcontroller 8051 is 8bit microcontroller. programming code is written in microcontroller. WiFi module is paired with android application which name is S Remote. As shown in fig on android mobile phone, there is six buttons shows. this six buttons assign for the six load. after the touch button, loads are operated.

VI. CONCLUSION

Smart home automation system which is the most commercial application of internet of things has experimently verified satisfactorily we have connected the small appliance to it and we were able to control them remotely through the internet using the wifi. This will help the users of any age to control and monitor their home from in the home at any time.

VII. REFERENCES

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