Home Monitoring System using Wireless Network

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Abstract— This paper mainly focuses on the controlling of home appliances remotely and providing security when the user is already available in home. The system is mobile application based and uses wireless technology to revolutionize the standards of living. In this paper we can control by two wireless methods one is by Bluetooth and another is by internet. Graphical user interface (GUI) systems were reflected as barriers for the visually reduced users since it trusted too much on graphic channel. This system provides best solution to the problems played by home owners in daily life. The system uses wireless technology thus providing everywhere access to the system for security and automated appliance control.

Key words: component; Automation, wireless modules, microcontroller, LDR, ADC, Relays, LCD display, Sensors, Servo motor

I. INTRODUCTION

Automation systems are becoming more and more intelligent as technology advances in the areas of embedded system such as controller, memories, sensors etc. With the innovations in Internet technologies and Wireless Sensor Networks, the automation system is becoming popular in the home security and many Industries due to the reliability in maintenance certain area. Huge increase in users of Internet and advance technology, it requires adaptations the new technology with enable networking of things.As is estimated to offer advanced connectivity of devices,systems, and services that goes beyond machine-to-machine communications and covers a variety of protocols, domains, and applications. The interconnection of these embedded devices, is expected to user in automation in nearly all fields, while also enabling advanced applications like a Smart Grid.

Elements of home environment can control by advance automation systems. Home automation focuses more on relaxation of users. There are many different types of home automation systems available which are mainly designed for different purposes, in such type of system many problems are existed and this system can be controlled from a centralized control unit. Humans usually inside their home network with the environment settings like television sets, electronic doors, security cameras, etc. and control consequently. Moreover these systems normally come with a patented, dedicated device which acts as the control center. From multiple locations, user can control the system and additional control devices can be added, such type of complex systems usually integrated at the time of the building is constructed. The Smart home automation is mainly used for people with disabilities; it is necessary to spend efforts in the research, development of accessible network and focusing on physical aspects and is extended to the digital world computer networks and communication systems. In this paper, system consist sensors, controller, wireless media, parallel ports etc. Home automation system is control various elements through wireless media. On other side Sensors do the task of sensing and data send to the controller for further action

II. RELATED WORK

The Home appliance control system is controlled not only by cell but also by PC They are connected either through wireless media such as application protocol , the Internet, or intranet. It controls various appliances such as a security system, TV etc. The HACS system receives commandsfrom center devices that are operated by user. The system in turn report commands to particular appliances that will complete the actions[2]. HACS is responsible for keeping track of the positions of the devices. If something goes wrong, it will alert the user by sending messages back to the remote devices as well as extra department if necessary.

The main concern in systems progress is the advancement of technologies to growth customer fulfillment. Research presented in this paper focuses on various things first to realize the speech or voice of user second is to control the home appliances through voice call and third is to finds interference in the house[3]. The user can make a voice call in order to achieve certain activities such as switching lights on/off, getting the position of any appliance etc. And when system finds interference it sends an attentive voice message to preconfigured cell when the user is left from the place. The proposed system is executed using voice Global System for Mobile Communications (GSM) and wireless technology based on .NET framework and concentrate on (AT) commands. Microsoft speech reorganization engine, speech SDK 5.1 is used to realize the voice command of user. This system is cost effective and easy to use. The GSM technology used in system offer the universally access of the system for security. Experimental results show that the system is more secure and price effective as compared to current systems[5]. The final conclusion of this system is to provides solution for the problems handled by home owner in daily life and make their life relaxed and comfortable by suggesting cost effective and reliable solution.

In recent days, we needed to use various high-tech machineries and equipment's to get our jobsdone and make the life easier. The homeowner can controlled these machineries from any location.These machineries should be controlled by the homeowner from any location as the homeowner might be away from home at workplace or traveling in a changed place in every month. Thus a system of remote monitoring and controlling are much essential. For controlling smartly from remote area we prepared system is one of Smart home with home appliances. Some products are commercially present which agree remote home appliance controlling over internet which is indeed developed. But it absences the true sense of real rigidity and

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safety, making the remote home appliance controlling a limited term than it is made-up to be. In search of effectively protected solution to be really effective and achievable, mobile telephony is best solutions. Mobile phones have become almost an attached part of civil lives nowadays [4]. In this paper we announce a new appliance so that the familiar services of the mobile phones can be leveraged to connect with and control the home appliances and make our homes a surely smart one.

Controlling appliances is a heart of any automation. The main thing of Home automation is to afford a wireless communication connection of home appliances to the remote user. And this work is to make such a system which controls the home appliances remotely over wireless media. This paper discusses two procedures of controlling home appliances one is via voice to text SMS and other is to use the mobile as a remote control, this system will offer a benefit to the senior and disable people and also to those who are unaware of typing an SMS

III. SYSTEM OVERVIEW

The wireless media is used in Controlling home appliances can help and improve standard of living of all user groups mainly to the disabled and elderly people in term of care and safety and allowing home automation by using the television set and its regular remote control as a wireless network. The implementation of system is combination of sensors and wireless systems would be of most practical in designing a smart home system.The diagram shows a model from where user with an android OS based smart phone giving various command, the mobile application convert the command into text using android intent API 2.01

A. Transmitter Side

The remote measurement and controlling of internal devices over the Internet can be mechanized by following certain network architectural project strategies and applying Bluetooth communication standards.The interface was implemented on android based smart phone which is nearly about 7-inch display, memory and a 1GHz processor. The interface design is of one screen with number of devices and lighting being controlled. At transmitter side touchscreen has inbuilt board which sends the data over wireless media within its range.

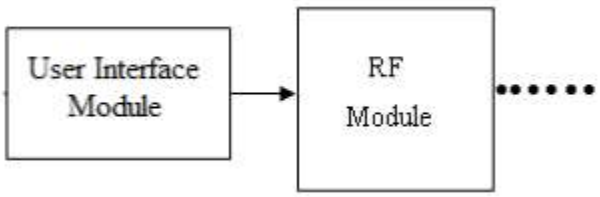

Fig. 1: Block diagram of Transmission side

B. Receiver Side

Initially, the RF module receives signal, according that it sends logic1/0 to controller. Normally all the switches are in the off state. When we click on the ON button the software interfaceto turn on the chosen device, the software converts this ON command into hex code then sends the value to port address. When we want to turn on device it sends logic 1 (below 5V) to thecontrollerthrough wireless network. Then thecontroller sends a 1 to the transistor to activatethe corresponding relay.

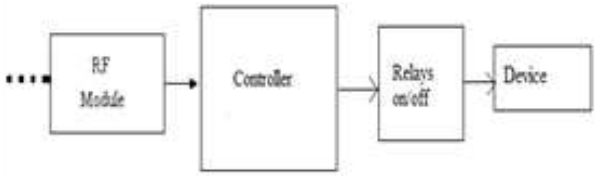

Fig. 2: Block diagram of Receiver side.

IV. GUI

The project is designed for people with manual skills and mobility enhancements, but it could be widelyused. The idea is to have a movable touchscreen device with thesuggested interface..The design policy used to improve performance andaccessibility of the home automation interface on the tough screen was to use few with large graphical icons,

To create buttons, text labels and other components on the program window, we should know about JPanel. The layout is a kind of container for modules. It is a kind of container for components, which occupies the rectangular piece on the screen and shows the components set in some simple way. How exactly the components are arranged depends on which layout have you set to that panel. For the manual programming you will likely need to know at least the MarginLayout which places four components at the sides and one large component into the middle, then the FlowLayout which usually organizes them side by side into horizontal row and finally the GridLayout which arranges components into random n * m table. There are more of them, but others seem too complex for learners. The key idea here is that a "component" can be not just a button or check box - it can also be another JPanel. You can get a complex user interface by just putting panels one inside another and selecting the layouts for them.

V. CONCLUSION

An impotent roll in home automation is the communication link between the appliances and remote user. In this project, a system that control appliance via wireless network either Bluetooth or internet, when the user is in remote area and also it controls the appliances through home mobile.Home automation technologies are noticed as integral additions to the Smooth and the ability to controllighting, appliances, as well as Smart applications

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