

Wireless Smart Switch using Android

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Abstract— The smart home technology is increasing day by day with an advanced technology in wireless communication. The user can control appliances easily by his smartphone via bluetooth. The designing of smart switch with low cost becomes essential for smart home automation. This system is designed to assist and to provide support in order to fulfill the needs of elderly and disabled in home. This concept of smart home can improve the standard of living at home. This system uses bluetooth technology to provide for remote access from smart home. This technology can be used to provide a more safety control on the switches and they can be operated on low voltage. The advantage of this system is low cost, user friendly interface and easy installation. The low voltage switch eliminates the risk of dangerous electrical shock by wet hand.

Key words: Home automation, Smart home, home appliances, Blue-tooth, Android

I. INTRODUCTION

In Home Automation system represent a great research opportunity in creating new ideas in engineering architecture and computing. However end users especially the disabled and elderly due to their complexity and cost. Due to advancement of wireless technology are several different of connections are introduced such as GSM, WIFI, ZIGBEE meter at speed up to 3 Mbps depending on bluetooth device class(1).and bluetooth. Each has its own specification. The bluetooth globally available frequencies of 2400 Hz are able to provide connectivity upto 100 m[1].

The Capability of Bluetooth such as smartphone, lap-top/notebook more than enough to be implemented on the de-sign[2].

Smart home is the form commonly used to define for residence that integrate technology and service through home networking to enhance power efficiency and improve that quality of living. The smart house technology is one realization of Home automation ideals using a specific set of technology its house that has highly advanced automation system for lighting temperature control, security application and many other function coded signal are sent through homes wiring to switches and outlets that are programmed to operate appliances and electronics device in every part of the house. It receive data from house sensors process information and update data transmit controlling signals to house system and switching output devices[3].

II. LITERATURE SURVEY

In this proposed paper, following papers were studied as part of literature survey. Smart home is not a new term for science society however, it is still far more away from people's vision and audition.[5].

Smart Home System for Disabled People Via Wireless Bluetooth gives moneywise concept by using GPRS as the medium to control and monitor home appliances.

Bluetooth capabilities are good and most of current laptop/notebook, tablets and cell phones have built-in adaptor that will indirectly reduce the cost of the system. A user logs into the smart phone interface, and clicks the buttons gently to send message commands which will be transmitted to home information Centre through the GSM network. Home automation and security are becoming increasingly prominent features on mobile devices the mobile device and security system communicates via Bluetooth because a short-range-only communication system was desired.

This system provides graphical user interface (GUI) using Microsoft Visual Basic software hosted by a PC, and uses Microsoft Speech Recognition engine. The literature review is continuous part that should be done until this project is successfully developed. Identifying the features, system architecture and the weaknesses from the existing system will enable the improvement on smart switch could be done in this project to produce a better system to the current market.[4].

With the help of android mobile we can control task such as locking the doors, turning on/off lights remotely. According to kaue, home automation can be useful to those who need to access home appliances while away from their home and can improve the lives of the disabled.

III. METHODOLOGY

A. Block Diagram Description:

The wireless smart switch using Android is as shown in below fig3.1. The smart phone means is a mobile phone based on mobile operating system which has advanced system for computing and connectivity. Android has many different types of handsets. Android is mainly based on Linux Operating system which uses java like languages for running application. Android gives environment for creating new apps then its looks great and more advantageous on each device.

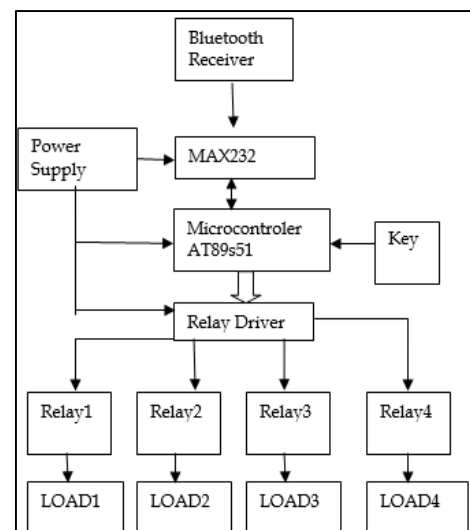


Fig. 3.1: Wireless Smart Switch Using Android

The android mobile send the control signal through bluetooth. We have used HC05 bluetooth device. The features of this Bluetooth device are: This design uses Bluetooth chips, V2.0 protocol standards and its Industry-standard : 28mm x 15 mm x 2.35mm. Advantages of the volume size is compact, self-efficient on-board antenna, transparent serial port with a variety of Blue-tooth adapter, paired Bluetooth mobile phone use, but also the use of a pair of master and slave. The main properties of Blue-tooth are Band: 2.40 GHz—.48GHz, ISM Band, 1 Bluetooth protocol: Bluetooth V2.0 protocol standard, 1 Power Level: +6dB, 1 Receiver sensitivity: -85dB 1 Operating Voltage: 3.3V~5V and 1 Temperature: -40°C ~+105°C. bluetooth was selected a one way communication with mobile. It supports local wireless net-work. Bluetooth technology was created by Ericsson in 1994. It has 2.4 GHz bandwidth and is used for short distance communi-cation. It can be used for controlling the home automation but it has 100 meter range. Then bluetooth module can access the signal then bluetooth has RS232 can be connected. then RS232 con-necter through interface with microcontroller.

It is a low-power, high-performance 8-bit microcontrol-ler with 8K bytes of in-system programmable Flash memory. It is high-density nonvolatile memory technology and is compatible with the industry-standard 80C51 instruction set and pinout. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, It is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

The input to the connect pin P3.0 (RXDPin). This micro-controller can use 5v supply. The microcontroller output pin P3.1(TXD Pin) connect to the Relay driver IC. The Relay driver consist of Transister and Resiser. The Relay driver is also known as single pole double throw switch.

Then output of the Relay driver IC to connect the four Relay with load. The Relay function can be ON/OFF switch. Then load as such type of bulb, Fan , T.V., Charger etc.

IV. RESULT

This chapter shows the final output scenario of the project. The working of the project is shown in this section.



Fig. 4.1: ADT

In above image shows the software of android development tools (ADT). This software can be used for smart switch home appliances in android mobile application

installed in smart phone and then connected to the bluetooth terminal. In this project we have taken one bulb, one fan, T.V., charger.

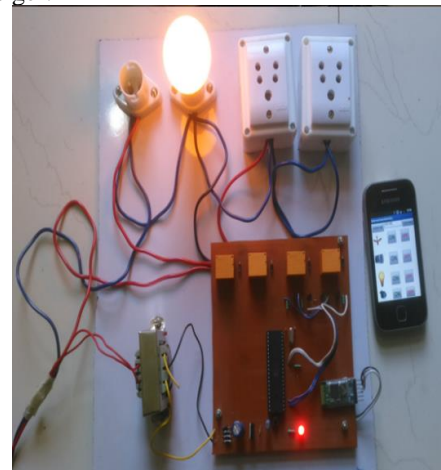


Fig. 4.2: System Block Diagram

V. CONCLUSION

In this system, the device can be controlled by manual operation. The smart switch can developed then easy to inter-face. Although many wireless protocols exist they fail to provide compactness and user friendly interfaces to the users. this can advantage to person time can saved. Android phone have ad-vantages such as humane interface, customizable and extendible applications and android phone is easy to carry so on. By con-stantly improving the control function, android phone allows us anytime, anywhere to control any device, and finally realizes the highly intelligent home.

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