International Research Journal of Engineering and Management Studies (IRJEMS)
Volume: 03 Issue: 05 | May -2019 ISSN: 2395-0126

VOICE ENABLED DEVICES SWITCHING FOR VISUALLY IMPAIRED

Jitendra Rahul[1], Arvind Choudhary[2], Chandrakant Singh[3], Amit Kumar[4], Anish Nehra[5]

[1]*Assistant Professor,* [2,3,4,5] *B.Tech (EE), Swami Keshvanand Institute of Technology Management & Gramothan, Ramnagaria, Jagatpura, Jaipur(Raj.)*

ABSTRACT

Voice Enabled Devices Switching for Visually Impaired the Project Voice Controlled home automation project helps to control the electrical loads based on Bluetooth input signal. The Bluetooth device this input signal from android device. This system is especially beneficial in case of handicapped or aged people who find it difficult to walk and operate the electrical switches to turn on or off the loads. This system solves this issue as now the user just has to give voice commands to turn on or off the loads. Here 4 loads are used to demonstrate light, fan, heater and AC. All these loads can be individually turned ON/OFF or all loads at the same time. This system solves the issue by interfacing a unit with home appliances that switches these loads based on the input receives from android device. The Android app also provides as effective GUI for providing this functionality. This system makes use of 8051 microcontroller. The Bluetooth receiver is interfaced with microcontroller in order to accept the commands and then react accordingly. It operates the loads through a set of relays using a relay driven IC. Relays are used between loads and the control unit.

I. INTRODUCTION

The world is moving as more and more process are being automated. Basically there are two main reasons for automating a process. First, humans tend to get bored repeating a process again and again. Second, as human beings they are prone to making errors. Automation solves both the problems. Home Automation is a Contrary to popular benefits home automation systems are very costly, by spending a small

but reasonable fraction of the total cost of a newly constructed home; the home can be fully automated for the convenience of the user. In a world where electronic gadgets and gizmos are the order of the day and have made life easy, home automation has become a necessity. The proposed system has two set of modules, control unit and the relay unit. Both the units are connected wirelessly with each having separate microprocessors so that work of each microprocessor is defined separately. Also in this module there is a voice feedback as an acknowledgement for module both vice controlled automation and automation through mobile. This will be of great help for the visually impaired user to ascertain the status of the device on issue of the command signal or the command word. Visually impaired people mainly rely on voice commands, voice menu or voice feedbacks for any control operation. Here we integrate voice features into home automation system. Home automation is achieved by the use of voice control and mobile in this project, voice-control is used, if in case the user is within the premises of the home where the appliances are to be controlled. When voice control is used, the user should be able to select a particular device and should be able to disable it. There should be a voice feedback against the particular task has been accomplished as per the user's wish. When the mobile control is used, the user should be able to control remotely the specific devices and enable or disable them using the mobile. Since the devices are controlled remotely, a voice feedback must be given as an acknowledgement for the completion of the specific task. This will be of great help for the visually impaired user to ascertain the status of the device on issue of the command signal or command word.

II. AUTOMATION THROUGHVOICE

Automation through voice Voice command is the preferred mode of operation for the visually impaired and also for the physically challenged people. In voice controlled automation, the voice commands to control specific devices are first stored in a memory device. When the user intends to control a device, the user speaks the control word into the microphone, which acts as the input to the hardwarecircuitry.

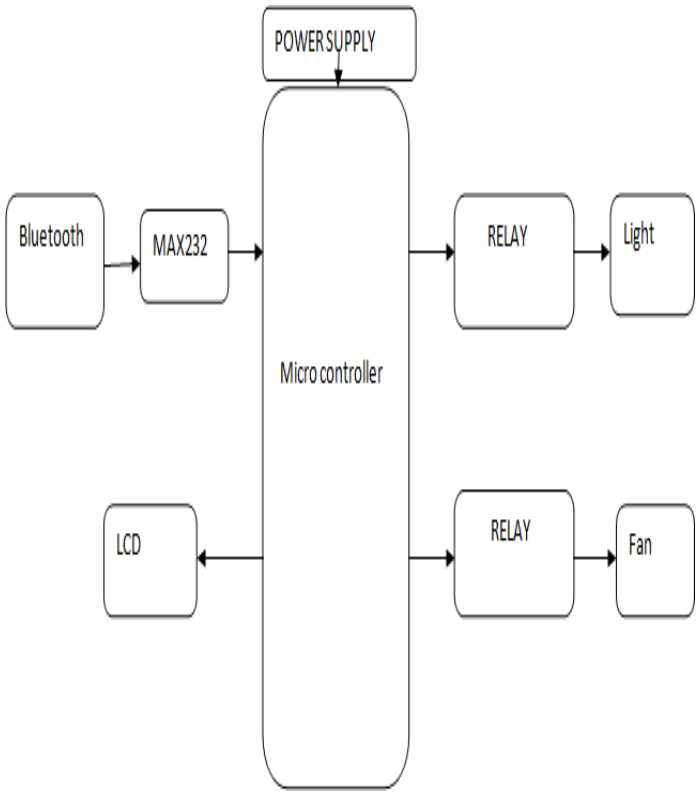
The voice recognition chip (HM2007) gets the input command word and checks whether it is already stored in the memory. If the command word is already stored, then the command word is recognized and the voice is converted in to its corresponding

pre-determined digital output. The microcontroller receives the output from the voice recognition chip, which is a digital control word and then acts according to the pore-described functionality for the specific input, which is to accurate a specific relay. The relay thus actuates the device attached to it, thereby fulfilling our intention to control a device.

Voice feedbacks to indicate whether a specific task has been performed as instructed are already stored in a memory chip. So when the corresponding operation is performed, as per the user's wish, the specific voice feedback is given out through a speaker, which is an acknowledgement for the execution of the specific task to the user.

For situations where the user gives commands, for actions which have already taken place, a unique voice message mentioning "Task already done" is played. Initially the microphone which is used to give voice command input is wired to the control module. To increase the flexibility of the model, wireless mikes are used hence, the hand held unit has a transmitter and receiver, which transmits the digital output of the HM2007 chip to the microcontroller attached to the relay circuitry. The microcontroller actuates the relays connected to it based on the digital input. The relay used here is a double pole throw relay. One set of contacts is used to actuate the device and the other set of the contacts is used to determine in which state the relay is hence the state of the device too isknown.

III. Block Diagram of Android Based Home Automation System



3.1 Bluetooth Controlled Electronic Home Appliances

This article explains you how to control the electrical appliances using an Android device. Operating conventional wall

switches is difficult for physically handicapped or elder people. This project provides the solution to this problem by integrating all the electrical appliances to a control unit that can be operated by an Android application device (Android smart phone or Tablet). Proposed system controls the electrical loads based on the data transmitted by the Android device. An android application should be installed in user's mobile or tablet to control the electrical loads. Using this android application user can send the commands to the Bluetooth module to control the electrical loads. Wireless technology used in this project is Bluetooth. It can also be called as "Android based Home Automation System" or "Remote Password Operated Electronic Home Appliances Control System".

3.2 Remote Password Operated Electronic Home Appliances Control Circuit Principle:

In this project Bluetooth module is interfaced to 8051 microcontroller. This Bluetooth receives the commands from the Android application device using wireless communication. The program which is written to the 8051 microcontroller communicates with Bluetooth module serially to receive the commands. Microcontroller switches the electrical loads automatically based on the commands received from the Bluetooth.

3.1.2 Android Based Home Automation System Circuit Design:

This project consists of a microcontroller, two 12V relays, 2 lamps and Bluetooth module. Here AT89S52microcontroller is used. It is an 8 bit microcontroller and it requires supply voltage of 5V DC. Use 7805 power supply circuit to provide 5V DC to the microcontroller. We can use 9V DC battery or 12V, 1A adapter to provide the supply to the circuit. For the above circuit additionally you need to connect reset circuit and crystal circuit to the controller to work properly.

Bluetooth module TX and RX pins are connected to the RXD and TXD pins of controller. Vcc pin is connected to the 5V and GND pin is connected to ground. Controller communicates with Bluetooth module using serial communication (UART protocol). Use a baud rate of 9600 to communicate with Bluetooth. If you want to change the Bluetooth name and password, then you need to use Bluetooth AT commands.

IV. Results

Here the result as shown command words to control specific devices are first stored using the voice recognition kit with the help of Bluetooth. on successful recognition of the command word to control a specific device, the corresponding digital signal is set to microcontroller from which signal set to relay driver ic to relay and finally device will switch on or off.

V. Referance

(1) S.Ghojawad Beltijeh, H.Singhad, M.Iwan Selithin, "Voice enabled device switching for physically chalanged" APRN JOURNAL, ISSN 1819-6608, vol. 10, No. 20, Nov. 2014.

(2) Mukesh Kumar, Shimi Sl, "Voice recognition based home automation system" IJES JOURNAL, ISSN 3456-6578,VOL. 2, NO. 12, AUG.2015

(3) B.RamanaRreddy, Jv Verma, "Movement based voice enabled device switching for basic needs" IJSR JOURNAL, ISSN 3456-6756,vol. 3,no8,jun2016