



HOME APPLIANCES AUTOMATION SYSTEM USING BLUETOOTH AND VOICE OPERATED TECHNOLOGY

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Abstract— Now-a-days we are expected to achieve a lot more in a limited amount of time. Thus, our project aims to help by using Home Automation System which can be controlled via human voice. We will be using android software for the voice recognition. The software will recognize the voice command given at the microphone and will generate according data.

Keywords— Liquid Crystal Display (LCD), Operating System (OS), User Interface (UI), Personal Computer (PC), Gesture Human Machine Interface (GHMI), Electro-Oculography Signal (EOG)

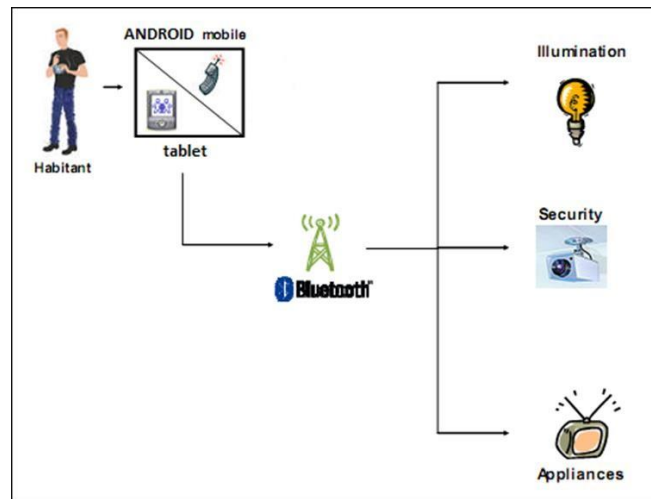
I. INTRODUCTION

This project is designed to control home appliances using a voice-controlled Android application. The concept of controlling home appliances using human voice is an interesting. A Bluetooth device is interfaced to the control unit for sensing signals transmitted by the Android application. This data is conveyed to the control unit which switches on loads ON/OFF as desired. An 8051 series microcontroller 89s51 is used in this project as a controlling device. Remote operation is achieved by any smart-phone or Tablet with Android OS, upon an App voice operation. The transmitting end uses an Android application for the voice commands that are transmitted to digital bits. At the receiver end, these commands are used for controlling the home appliances on and off. At the receiving end, the appliances are driven by Relay that are interfaced to the microcontroller. Serial communication data sent from the Android application is received by a Bluetooth receiver interfaced to the microcontroller. The program on the microcontroller refers to the serial data to generate respective output based on the input data to operate the Relay.

This project has integration of Android mobile technology and embedded system. Android mobile user has to install an application on his mobile handset to control the devices. Then

he/she can give command using the voice on that application. For this you have to turn on the Bluetooth on mobile, so the main wireless controlling technique used in this project is Bluetooth technology. Bluetooth receiver will be connected to the project. This Bluetooth device is connected to the circuit which has a decoder. It sends out a code for respective command sent by user. Then the respective device connected to the circuit will be turned on or off depending on the command given. For example: Turn on motor, Turn off motor. Turn on buzzer etc. Such that by giving commands from mobile you can control home appliances.

Fig. 1 Visual Idea of Our Project



II. LITERATURE REVIEW

A. Home Automation System using android application

In this system user send signal to Arduino board by using an android application and a Wireless module connected to that Arduino board receives these signals and further sent to Arduino for controlling of smart appliances using relay board. Arduino device is used as the controlling hub for this system. To perform the operations “ON” and “OFF” we use the relays. This system is useful for the who could not move frequently from one place to another for controlling home appliances.

B. Home Automation system based on Gesture Human Machine Interface

This system focuses on the hand gesture recognition algorithm and its corresponding UI. Hand gestures are determined by accelerometer and flex-sensor. The GHMI machine will act like a remote control for operating all the smart home appliances installed. These all activities are done using hand gestures instead of pushing buttons. This project mainly focuses on detection of various types of gestures made by hand using a number of sensors, to implement face recognition for authorization and unlocking of doors, by using wi-fi as transmission module update the end user by sending an email message.

III. RESEARCH METHODOLOGY

C. Home Automation System Using Voice Recognition Module HM200

The main feature of this system is that the peoples with hands disability can use this system by voice recognition this feature makes this a totally hands-free home automation system. This is mainly used system by handicaps and elders who are suffering from hands disability or those who cannot move their limbs frequently. This is an affordable, easy to use system. Initially the system takes input as voice signals and stores these voice signals in the systems memory. Then the user wants to control a specific device then system again take a voice input and compare the input with the already saved directory and if matches then pir sensor activated for checking the presence of any human if human presence test passes, then it activates the relay that is responsible for to perform user intended operation.

D. Home automation system using Electro-Oculography (EOG) Signal

HCI (human computer interface) based on EOG so far has been developed using various techniques and methodology which accounts for a variety of applications such as controlling a wheelchair and robotics, development of GUI for playing games on screen using eyeball movement, cursor movement through color pointers, etc. In color pointers the tracking system has been used to recognize the eye movements by introducing the use of web camera through MATLAB and then analyzing the movements using image processing techniques in the same environment itself. U

In this project we have used the micro controller 89s51 which is the major part or we can say heart of this whole project.

A. The micro controller programmer transfers hex programmed to the microcontroller unit

B. Programmer software shows progress in the status bar. Up till now people were using an outdated technology in which we had to stand to the same place or near the switch for turning ON\OFF any home appliance, but now with this project any people who is having android mobile device and app installed in it can send voice command to turn ON\OFF the appliance.

C. This project can be used at various places by just installing android app.

D. For the implementation of this Project, we have collected various data, read some books and tried to put those steps and knowledge

E. Also, we have taken lots of help of our project guide and HOD mam and some working strategies which are available on internet.

IV. BLOCK DIAGRAM

The processing mainly involves the detection of colors in order to control the position of the cursor and develop a HCI without any physical contact with the system. But the web camera required for the image processing needs to be placed closer to the eye making it less compact and, in some cases, least user friendly.

On the other hand, a different technique for controlling cursor movement along with a click has been designed using EEG signal with the help of a web camera. In such method the mouse movement depends on the number of eyes detected for determining the coordinates of the specific region and mouse click depends only when a specific number of eyes is detected on web camera such that only the left eye has to be kept closed keeping the right eye open in need of clicking that makes the system not very user friendly

E. Home Automation System Using Voice Recognition Module HM2007

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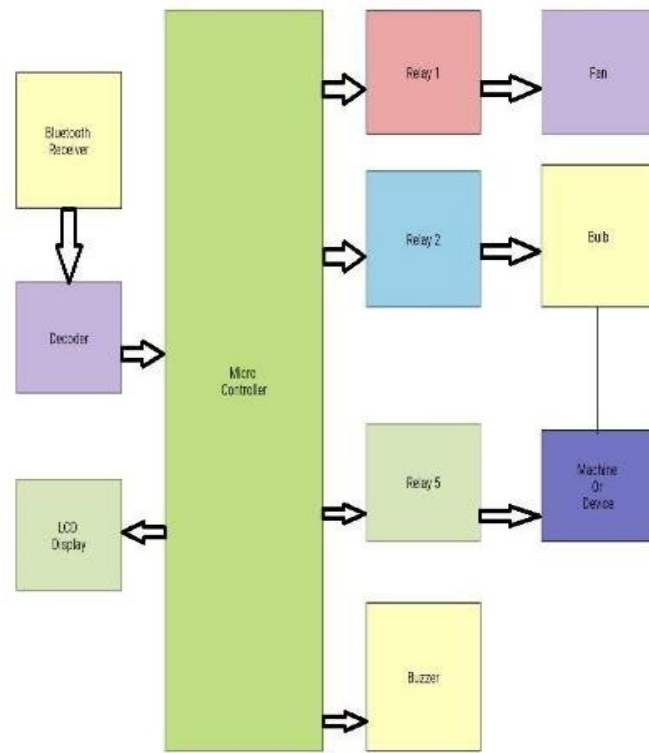


Fig. Block Diagram of Our project

V.RESULT

Home automation makes life more convenient and can even save you money on heating, cooling and electricity bills. Home automation can also lead to greater safety with Internet of Things devices like security cameras and systems.

Smart homes allow you to have greater control of your energy use, all while automating things like adjusting temperature, turning on and off lights, opening and closing window treatments, and adjusting irrigation based on the weather. Advantages commonly attributed to automation include higher production rates and increased productivity, more efficient use of materials, better product quality, improved safety, shorter workweeks for labor, and reduced factory lead times.

Following are some benefits of home automation system,

- A. Improved accuracy.
- B. Reduced costs.
- C. Reduced time and resources.
- D. Data storage and management.
- E. Data insights and more informed decisions.
- F. Business process improvement.

V. CONCLUSION

Simulated home automation therefore is a faster, secure, economic way to remotely control your electronic gadgets at home through human voice using android application, home automation allows us to control household electrical appliances like light, door, fan, AC etc. It also provides home security and emergency system to be activated. Home automation not only refers to reduce human efforts but also energy efficiency and time saving.

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