

VOICE CONTROL SYSTEM FOR HOME AUTOMATION

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1.ABSTRACT

The world is moving fast towards automation. People have less time to handle any work. Automation is a simple way to handle any device or machine work to our desire. Our project aim is to develop and design a Home automation using Arduino with Bluetooth module. Home automation system is a simple and reliable technology with Android applications. Home appliances like Fan, Light, AC, are controlled by Home automation system using Arduino Uno with Bluetooth module.

KEYWORDS

Arduino, Bluetooth, Mobile

2.INTRODUCTION

In our houses we have switches for Electrical devices such as light, fan and television. An individual has to manually switch these Appliances either on or off. An automated home automation system makes it easy to switch the Appliances just by a click through our mobiles. This system uses wireless technology to control home appliances. The Android app designed by us uses the voice commands to control the home appliances over bluetooth.

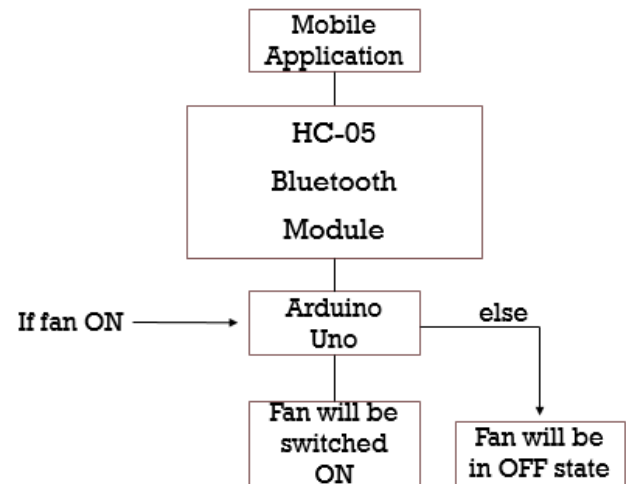


Figure 1: System Design

3.SYSTEM DESIGN

Our system uses an Android application designed by MIT App Inventor. voice input is given through a mobile application which transmits to arduino through bluetooth hc-05 module. Relay used here acts as a switch to control the on/off state of the appliances. Pins 4,5,6 and 7 are connected to the appliances.

4.HARDWARE

Arduino Uno



Figure 2:Arduino Uno

Arduino Uno transmits the input voice commands from mobile applications using bluetooth to relays which switches the appliances.The Arduino Uno is based on ATmega328P Microcontroller.It has input and output pins that can be interfaced to various other devices or circuits.It has 14 digital pins and 6 analog pins.Arduino is programmable with the Arduino IDE.

Bluetooth HC-05



Figure 3:Bluetooth HC-05 module

Bluetooth HC-05 is a Bluetooth Serial port Pication between the mobile application and Arduino Uno.

Relays

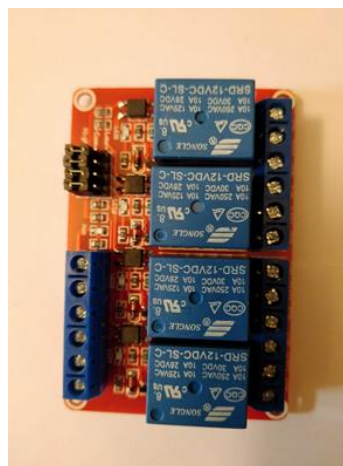


Figure 4:5V Relay board

This is a 5v relay board which acts as a switch.It takes the input from the Arduino and switches the devices on or off based on the commands.

5.Mobile Application

The Android app is designed using the MIT App Inventor. This application controls the appliances through Voice commands.MIT App Inventor is an open source web application.It has two parts to create an android application.The first part is designing part(Fig 4) where we design the app based on graphical user interface and Second part is the blocks part(Fig 5) where we use different blocks to program the designer components of GUI based on the functionalities required for the app to run.

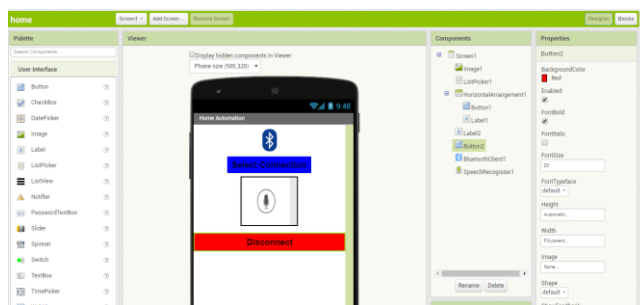


Figure 4:MIT App Inventor Designer window

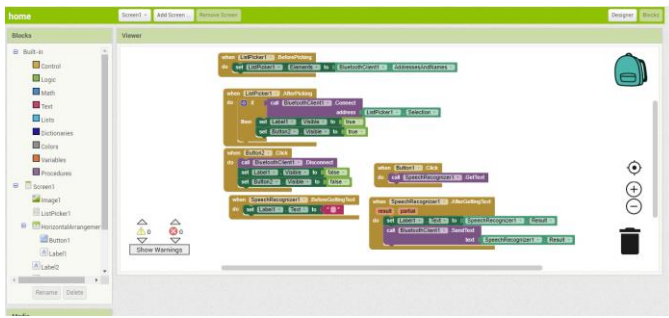


Figure 5:MIT App Inventor Designer window

6.WORKING

we have to switch on the power supply to the circuit. Now, we need to pair the Phone's Bluetooth to the HC – 05 Bluetooth Module.After successful connection, the gadgets are prepared to transmit information.The voice commands given in the App are transferred to arduino and as a result it will set the mentioned pin high for that command.After the mentioned pin is triggered the relay coil switch from normally open to normally closed and turns on the device and vice versa.

7.LIMITATIONS

The limitations of the system is missing out voice input sometimes due to background noises. Another concern is since bluetooth only works for fixed distance we can only operate from a particular distance.

8.FUTURE ENHANCEMENTS

In future we can implement the system in such a way that the appliances could be controlled from the user's workspace etc. Also voice modulation can be used to enhance security.

9. CONCLUSION

Home automation system can be controlled remotely through the Android application which assists the elderly people with disabilities.This system is a low cost, lower power consumption

module and can also be scalable easily so that we can add more appliances.

10. REFERENCES

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