Home Appliance Control Using Android Application

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ABSTRACT

The main objective of the project is to design Home Appliances Controlling using Bluetooth technology.
The user can control Home appliances using Android mobile. An Android application should be installed on his/her Android mobile handset to control various home appliances

INTRODUCTION

- Home Appliances Controlling using Bluetooth project is a fine combination of Android mobile technology and embedded system.
- The user can control Home appliances using Android mobile. An Android application should be installed on his/her Android mobile handset to control various home appliances.
- The user can send commands using that application.
- This project consists of a Bluetooth receiver.
- This Bluetooth device is connected to the circuit which has a decoder.
- This decoder sends a code for the respective command sent by the user. Then the respective device connected to the circuit will be turned on or off depending on the command given.
- At the output side of Home Appliances Controlling using Android Mobile via Bluetooth, we have connected 4 relays.

MODULES AND METHODS

1. Firstly, Arduino is powered through a 5V supply(or a laptop).
2. Arduino is programmed via ARDUINANO IDE software on the laptop.
3. HC-05 bluetooth module is connected to Arduino board via jumper wires.
4. Further, arduino is connected to the relay board via jumper wires.
5. Now, one of the wire of the home appliance(LED Bulb) is connected to the relay board whereas the other wire is connected to power supply.
6. A single piece of wire is connected from relay board to the power supply.

RESULTS

The control system for home electrical appliances using Bluetooth technology and an Android phone is builtsuch that a java code written as a mobile application on the phone is been interfaced with a circuit consist ingof several units.
The mobile application is used to send signals to a Bluetooth module connected to aprogrammed Atmel 8052 microcontroller which interpret the signals to control electrical loads connected toit via resistors, transistors and relays.
The system uses a power supply with a 5V dc output. The powersupply unit consists of a transformer that was used to step down a 220V ac to 12V ac supply, a bridgerectifier to convert the ac to pulsating dc supply, a filter capacitor to remove the ripples in the supply andthen a voltage regulator to hold the dc output voltage constant at 5V.
Three light emitting diodes (LEDs)were used as indicators for power and two electrical loads engagement.
All units in the design were testedand with a touch on the Phone, the electrical load, in this case electric bulbs, was engaged or disengaged

Figure 1. BLITOOTH MODULE

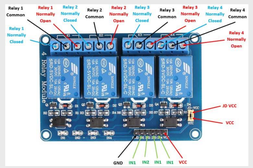

Figure 2. RELAY.

Chart 1.AURDINO.

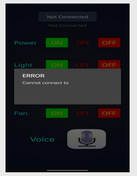

Table 1.ASNDROID A[PPLICATION I.

DISCUSSION

This project is one of the main android based projects for ece. Also, it is an important project among various Wireless Communication Project Ideas.The wireless controlling technique used in this project is Bluetooth technology. And it mainly consists of following blocks:
1) Android mobile with android app installed
2) Bluetooth receiver unit – User has to connect the device to the android mobile using Bluetooth.
3) Microcontroller – We have used 89s51 microcontroller in this project. However, this project can be implemented using 89c51, 89s52, 89v51RD2, PIC18F4550, AVR ATmega32 and using Arduino Uno.
4) LCD Display – It shows various informative messages like Project Title, Device 1 turned on/off.

CONCLUSIONS

- **The system consists of mainly three components is a BLUETOOTH module, Arduino microcontroller and relay circuits.**
- **This proposes a low cost, secure, easily accessible, auto-configurable, remotely controlled solution.**
- **Hence we can conclude that the required goals and objectives of home automation system have been achieved.**

REFERENCES

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