Ahsanullah University of Science & Technology

Department of Computer Science & Engineering Semester
Spring 2021

CSE 3216

Microcontroller Based System Design Lab

Project Proposal

Project Name: Voice Activated Home Automation System

Submitted To

Farzad Ahmed

Lecturer, CSE , AUST

Ashna Nawar Ahmed

Lecturer, CSE, AUST

Submitted By

Ishtiaque Islam Khan 18.02.04.121

Sadia Mohiuddin 18.02.04.131

Modina Sharif Raisa 18.02.04.139

Table of Contents

Objectives:

The concept of Home Automation is gaining popularity as it helps in reducing human effort and errors and thus increasing efficiency. With the help of a Home Automation system, we can control different appliances like lights, fans, TV, AC etc. There are many types of Home Automation Systems like Bluetooth Controlled, Internet Controlled, RF Controlled, Remote Controlled (IR Remote) etc. Each type has its own advantages and disadvantages. In this project, we have designed a Voice Activated Home Automation system, where different appliances are controlled by sending a Voice Command.The Voice Activated Home Automation project is implemented using Arduino UNO, Bluetooth , a smartphone and other required components.

Social Values:

- The Voice Activated Home Automation system will help us control different loads (electrical appliances) with simple voice commands.So that one can control the connected appliances easily without even facing many hassle.

- This kind of system is very useful for people with disabilities.People who are blind and also who can not walk can easily operate necessary appliances with just a single voice command.

- With the growth of technology we all know that the usage of electricity has increased as well as the waste of electricity has also increased. Often that happens in our home we forget to switch off the appliances whenever we leave the room. In that case we can control those appliances using our voice command within the range of the bluetooth connection which is approximately 30 feet.

Required Components:

- Arduino UNO – 1
- HC – 05 Bluetooth Module – 1
- Smartphone or Tablet – 1
- 2N2222 NPN Transistor – 4
- 12V Relay – 4
- 1 KΩ Resistor – 4
- 1N4007 PN Junction Diode – 4
- Power Supply
- Connecting Wires
- Breadboard (Prototyping Board)
- App for transmitting voice to Bluetooth

Working Procedure:

After making the necessary connections with the required components :

- ➢ We have to switch on the power supply to the circuit and we need to pair the Phone's Bluetooth to the HC – 05 Bluetooth Module.
- ➢ After installing the mobile application "AMR_Voice" we need to connect the phone with the Bluetooth module.
- ➢ After successful connection, the devices are ready to transmit data. For that,we need to press the "press microphone" icon on the app and start giving voice commands.We have to make sure that the voice recognition feature is enabled on the phone.
- ➢ If we press the microphone icon and say "turn on light", the app will recognise the command and then transfer it to the Bluetooth Module. Also,

the command gets displayed on the screen for our reference.When the string “turn on light” is detected by the app,the light will turn on.

- We will use the following commands: “turn on AC”, “turn off AC”, “turn on light”, “turn off light”, “turn on TV”, “turn off TV”, “turn on fan”, “turn off fan”, “turn on all” and “turn off all”.

Estimated Budget:

Equipment	Quantity	Budget (tk)
Arduino UNO	1	630
HC – 05 Bluetooth Module	1	350
2N2222 NPN Transistor	4	8
12V Relay	4	360
1 KΩ Resistor	4	12
1N4007 PN Junction Diode	4	8
12V Power Supply	1	80
Connecting Wires	As Required	100
Breadboard (Prototyping Board)	2	200
		Total: 1748

Conclusion:

We have tried to create a microcontroller Arduino based system which will be able to reduce human effort . It will save a lot of time in the moment of emergencies. Moreover, it will help to reduce the wastage of power. In Fact it will be a helpful device to those people who are unable to watch or walk. In conclusion it can be said that this device will make our life easier along with save the power resources of our country.