

Home Automation Using Bluetooth

Abstract

Bluetooth module is interfaced to Microcontroller. This Bluetooth Module receives the commands from the Android application that is installed on the Android device, using wireless communication (Bluetooth Technology). The program which is written to microcontroller communicates with Bluetooth module serially to receive the commands. Microcontroller switches the electrical loads automatically based on the commands received from the Bluetooth.

Introduction

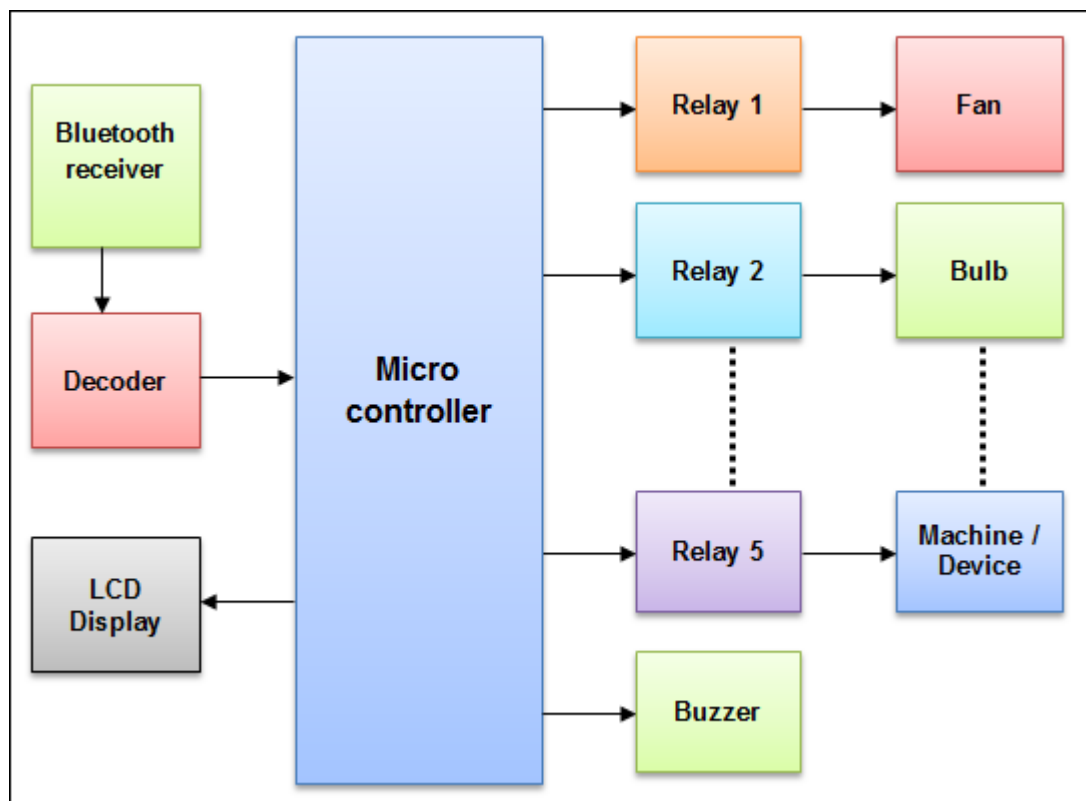
Bluetooth Controlled Electronic Home Appliances is a simple project, where we can control different electrical appliances and electronic devices using an Android device with the help of Bluetooth Technology.

We have already seen how a DTMF controlled home appliances system works in the earlier post. 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 on a device (Android smart phone or Tablet).

The 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 "Bluetooth

Controlled Electronic Home Appliances” or “Android based Home Automation System” or “Remote Password Operated Electronic Home Appliances Control System”.

Block Diagram



Component

Hardware Requirements

- Microcontroller

A microcontroller is embedded inside of a system to control a singular function in a device. It does this by interpreting data it receives from its I/O peripherals using its central processor. The temporary information that the microcontroller receives is stored in its data memory, where the processor accesses it and uses instructions stored in its program memory to decipher and apply the incoming data. It then uses its I/O peripherals to communicate and enact the appropriate action.

- LCD Display

We have used 16×2 alphanumeric Liquid Crystal Display (LCD) which means it can display alphabets along with numbers on 2 lines each containing 16 characters.

- Bluetooth Module

Bluetooth module which is designed for wireless communication. This module can be used in a master or slave configuration.

- Relay Module

The relay module is an electrically operated switch that allows you to turn on or off a circuit using voltage and/or current much higher than a microcontroller could handle. There is no connection between the low voltage circuit operated by the microcontroller and the high power circuit. The relay protects each circuit from each other.

Software Requirements

- Keil μ Vision IDE

- Proteus (for Circuit Diagram and Simulation)
- Android Application installed on Android Device

Application

- This project is used to control the various electrical appliances from the remote area.
- Using this project we can control all the loads using a single remote and a control unit.