IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 4, May 2023

Home Automation for Controlling Home Appliances Using Bluetooth

Ankita Dhanshetti, Megha Bidave, Pradnya Kumri, Pranali Deshmukh, Rohini Kupnoor, Sonal Namkar
Diploma (Appearing), Department of Electronic and Telecommunication
Shree Siddheshwar Women's Polytechnic College of Diploma Solapur, Maharashtra, India

Abstract: This paper reviews home automation using bluetooth. Home automation becomes very popular among researcher. Past two decades researchers are working with home automation. Home automation using wireless device becomes popular. Several wireless devices are available like bluetooth, zigbee and gsm. Researchers are targeting bluetooth based home automation because of its cost. Many mobile phones have an in build bluetooth. This paper discussed about various techniques involved to control the home appliances, controller used and number of devices controlled.

Keywords: Home automation, Android, Wireless communication, Bluetooth

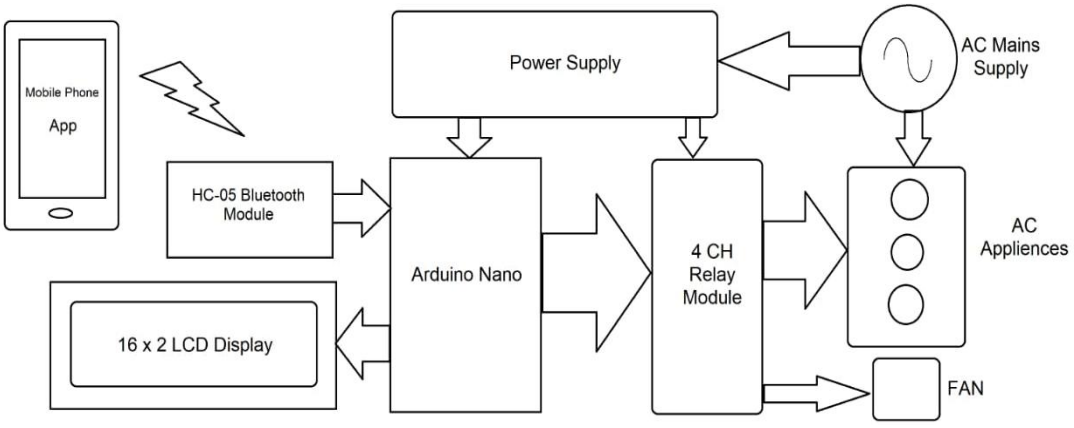
I. INTRODUCTION

There is an increasing demand for smart homes, where appliances reactautomatically to changing environmental conditions and can be easily controlled through one common device. This project presents apossible solution whereby the user controls devices by using their existing mobile phone,where control is communicated to the microcontroller from a mobile phone through its bluetooth interface. The aim of this project is to design a circuit such that one control home or industrial appliances using the help of bluetooth. Using bluetooth to control appliances reduces human effortswithout compromising on efficiency. It also saves time. This circuit can be operated upto a distance of 5-10 metresdepending upon the bluetooth which we use.

II. TECHNOLOGY USED

- Bluetooth
- Dtmf(dual tone multiple frequency)
- Microcontroller
- Flip-flop(latch)

Block diagram



DOI: 10.48175/IJARSCT-9886

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 4, May 2023

III. WORKING

In this device there are five main parts Arduino, Bluetooth module, Relay drivers, android application and step-down transformer.

Firstly, we provide power to the step-down transformer, it step down the input voltage and given to the arduino with VIN pin.

The Bluetooth module is also connected with arduino to Rx and Tx pin that provides the information to the microcontroller.There are four pins are joined to power supply.

It receives command and passes it onto the Arduino microcontroller.then Microcontroller campares the command from the android phone to the code written on the arduino uno.

If it maches the command the corresponding output pin goes high.

The relay driver receives the signal from microcontroller and actives the corresponding apliances.

In this block diagram all the appliances are work on 5 volts supply,and only the fan is operated in 12volts.

IV. HARDWARE COMPONENTS USED

1.Arduino nano

Arduino is a tool for making computers that can sense and control more of the physical world than your desktop computer. It's an open-source physical computing platform based on a simple microcontroller board. Arduino can be used to develop interactive objects, taking inputs from a variety of switches or sensors, and controlling a variety of lights, motors, and other physical outputs. Arduino projects can be download. The Arduino nano a board the open-source IDE can be is microcontroller based on the ATmega328P. It has 14 digital input/output pins, 6 analog inputs, a USB connection, a power jack, an ICSP header,reset button.Clock speed of arduino nano is 16MHZ.The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1.

2.Bluetooth module HC 05

Bluetooth module HC-05 is for communication Arduino Uno between and smartphone. HC-05 is a slave device and it can operates at power 3.6 to 6 volts. It has 6 pins: State, RXD, TXD, GND, VCC and EN. For communication serial connect TXD pin of Blue tooth module HC-06 with RX (pin 0) of Arduino Uno and RXD pin with TX (pin 1) of Arduino Uno. Connection diagram of Adriano and Bluetooth (BT) module is illustrated.

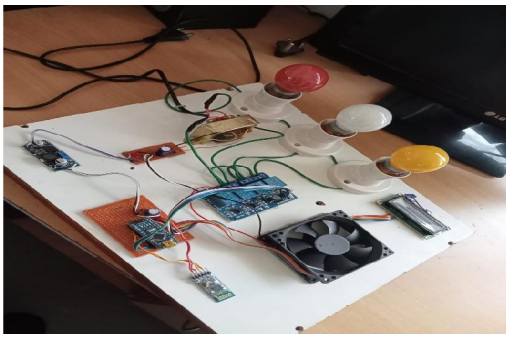
3.4-channel relay module

This is a 5V 4-channel relay interface board, and each channel needs a 15-20mA driver current. It can be used to control various appliances and equipment with large current. It is equiped with high-current relays that work under AC250V 10A or DC30V 10A. It has a standard interface that can be controlled directly by microcontrolle

ADVANTAGES

1.Everything is automated so it is easy to use.
2.It saves our time.
3.It consume low power and energy.
4.It can easy to install.

V. RESULT



IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 4, May 2023

VI. CONCLUSION

Appliances can be controlled by Bluetooth via relay. The need of this research paper is to create a device which saves the electricity and improve human life style.

REFERENCES

[1]. https://www.elprocus.com/lcd-16x2-pin-configuration-and-its-working/
[2]. https://circuitdigest.com/article/16x2-lcd-display-module-pinout-datasheet
[3]. https://lastminuteengineers.com/arduino-1602-character-lcd-tutorial/
[4]. https://byjus.com/physics/full-wave-rectifier/
[5]. https://www.electronics-tutorials.ws/diode/diode_6.html
[6]. https://how2electronics.com/full-wave-rectifier-basics-circuit-working-applications/