

Home Automation Using Arduino

Mihir Tanksale , Surekha Dixit

^{1,2}Desh department , Viswakarma Institute of Technology

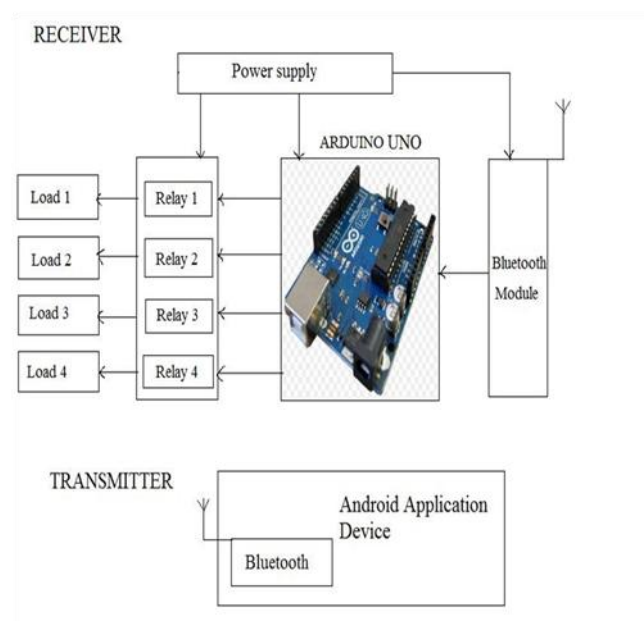
ABSTRACT

Controlling devices using Bluetooth on the mobile.

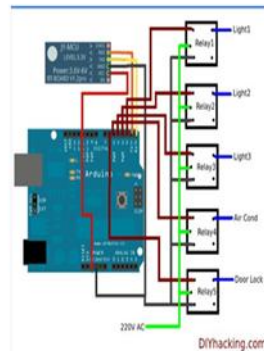
I.INTRODUCTION

To develop a Bluetooth based home automation system with Arduino UNO Board and an Android application. Remote controlled home automation system provides a simpler solution with Android application technology. Remote operation is achieved by any smartphone/Tablet etc., with Android OS, upon a GUI(Graphical User Interface) based touch screen operation.

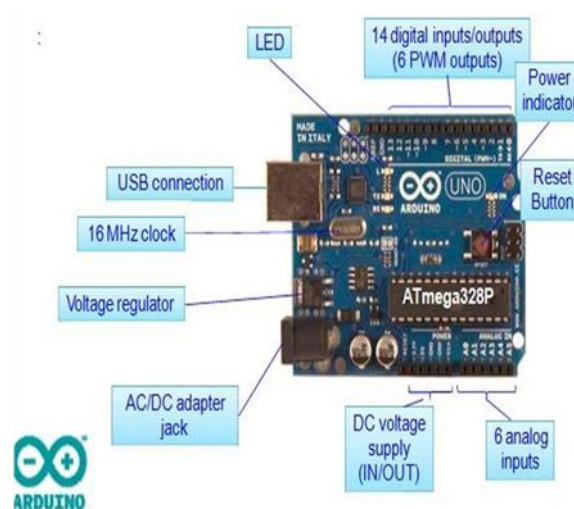
Block Diagram



Circuit Diagram



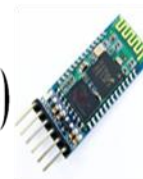
The board...



Arduino UNO

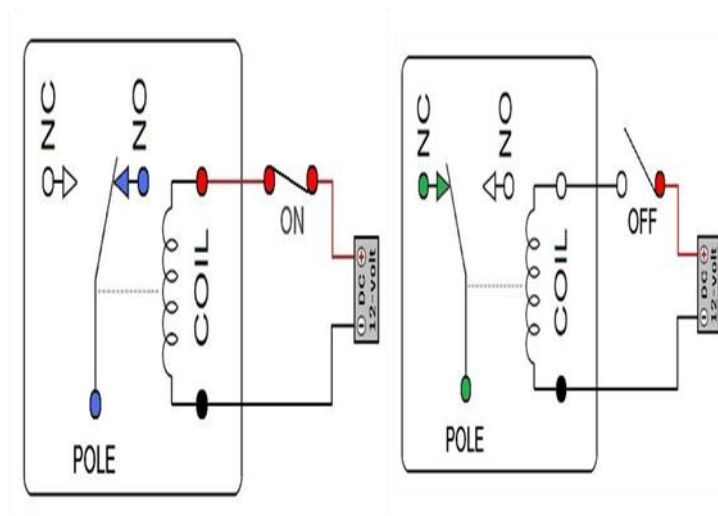
- The Arduino Uno is a microcontroller board based on the ATmega328P.
- It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button.
- Simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

Bluetooth Module (HC-05)



- For the communication between mobile phone and microcontroller Bluetooth module(HC-05) is used.
- HC-05 is low power 1.8V operation and is easy to use with Bluetooth SPP (serial port protocol).
- Serial port Bluetooth module have a Bluetooth 2.0+EDR (enhanced data rate), 3Mbps modulation with complete 2.4GHZ radio transceiver and baseband.
- Using Bluetooth profile and android platform architecture different type of Bluetooth applications can be developed.

How Relay Works?



Relay

- Relay is basically an electromagnetic switch which can be turn on and off by an applying the voltage across its contacts.

Android

- Android is an open-source operating system which means that any manufacturer can use it in their phones free of charge.
- It was built to be truly open.
- Android is built on the open Linux Kernel. Furthermore, it utilizes a custom JAVA virtual machine that was designed to optimize memory and hardware resources in a mobile environment.

Android Application on Mobile Phones

- An android app is meant for phones with an android based operating systems. They can be downloaded from the android app Market which is pre-loaded on every android phone.
- Blue control APP and Bluetooth Spp APP are some examples.

Advantages

- It is a robust and easy to use system.
- There is no need for extra training of that person who is using it.
- All the control would be in your hands by using this home automation system.
- This project can provide the facility of monitoring all the appliances with in the communication range through Bluetooth.
- The schematic of Arduino is open source, for the future enhancement of the project board can be extended to add more hardware features.

Software Used..

- Arduino IDE

Programming Languages Used..

- Embedded C/C++

Hardware requirements

- Arduino UNO
- Bluetooth Module - HC-05
- Relay driver
- Power Supply

Acknowledgements

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References

- www.arduino.org
- www.beyondlogic.org
- www.wikipedia.org
- www.elementzonline.com
- www.elementztechblog.wordpress.com