Home Automation System

Project ID- A5
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List of Major Components

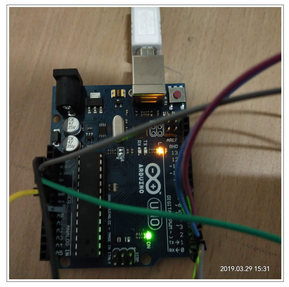


Figure 1: Arduino UNO

Figure 2: Relay Module

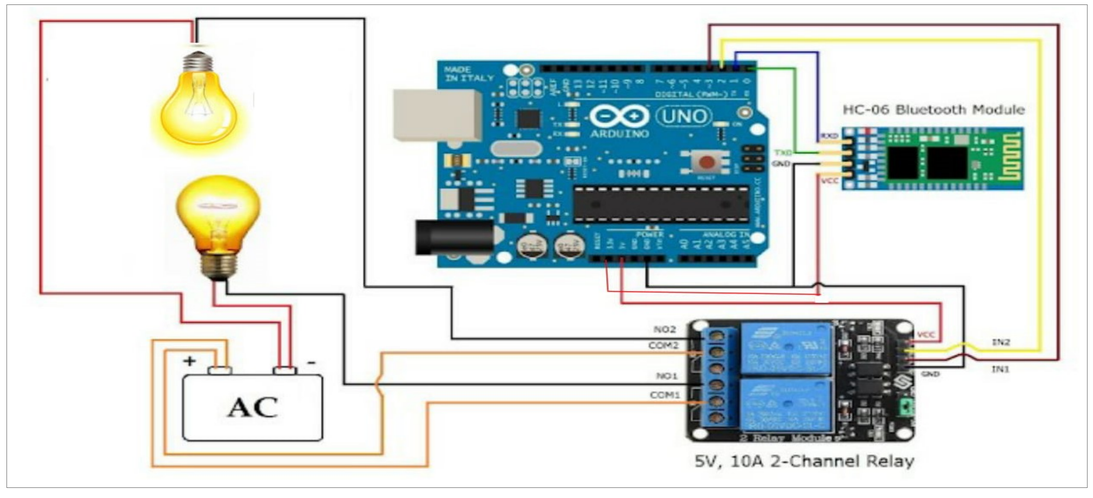
Figure 3: Bulbs

Figure 4: HC-05 Bluetooth Module

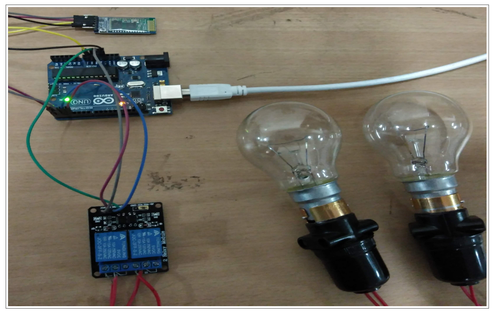
Description

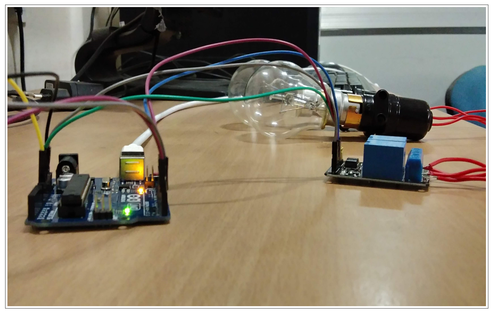
This project is based on Arduino UNO micro-controller. In this project we are creating a simple home automated system. We are switching on and off bulbs using a mobile device. This project has real life applications. It can help us to control the electrical appliances through remote devices. The arduino UNO is connected with the Bluetooth(HC-05) and the relay board. The relay board acts as a switch which will control the switching of the desired appliances i.e., bulbs in this project. For using this setup, we need to pair the bluetooth of our mobile with the HC-05 module. After pairing, we need to connect the HC-05 module with our mobile device. We used an app named 'Arduino Bluetooth Controller', in which we mapped the buttons with the commands that will switch the bulbs on and off. The commands are transmitted to the bluetooth which are then sent to the arduino UNO. The microcontroller then runs the received data and then passes the signal to the relay board. Accordingly, the relay board will switch the bulbs on and off.

Block Diagram of the Design



Photographs of the Developed System





Demo Video Link

https://www.youtube.com/watch?v=rj8_laG01Uc&t=3s

Problems Faced

While we were pairing the HC-05 bluetooth module with the android app, it got disconnected quite a number of times. The problem was with the HC-05 module. It got resolved by replacing the module. Another problem which we faced was when we powered our arduino with a 9V battery. There was a delay between functioning of the relay and clicking the button.

Conclusion

The project helped us to get some insight about embedded systems. This was our first experience in handling hardware systems. This idea can be used to manage our home appliances very easily, but the short range of bluetooth is a drawback. It could also help the specially-abled.

References

1. https://www.pantechsolutions.net/arduino-based-home-automation
2. http://electronicsprojects3.blogspot.com/2018/02/home-automation-system-by-electronics.html?m=1

Acknowledgement: Course Code CSN-252, BTech II Year (CSE), Dept. of CSE Contact for Details: ajaiswal@cs.iitr.ac.in, ashakya1@cs.iitr.ac.in, arathod@cs.iitr.ac.in, gbabu@cs.iitr.ac.in, avishwakarma@cs.iitr.ac.in