



Voice & Commands Controller Lab Automation

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ABSTRACT

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Fig . Circuit Diagram

INTRODUCTION

Lab automation, also known as smart Lab technology, refers to the use of automated systems to control and Fan and Bulb various aspects

Lab automation is a technology that can help normal, elderly, or even disabled users in controlling electrical appliances in a house by utilizing his/her voice. Lab automation could facilitate

Their life especially if they need caregivers and continuous attention. This research designs an entirely useful system that has the ability to recognize the human voice and differentiate between his/her commands.

MATERIAL AND METHOD

- ❖ Hardware
- ❖ Software
- ❖ Circuit Connection

Connect the Bluetooth module HC-05 to the Arduino Uno:

- VCC to 5V
- GND to GND
- TXD to Arduino RX (Pin 0)
- RXD to Arduino TX (Pin 1)

2. Connect the relay modules to the Arduino Uno:

- Relay 1: VCC to 5V, GND to GND, IN to Arduino Digital Pin 2
- Relay 2: VCC to 5V, GND to GND, IN to Arduino Digital Pin 3

3. Connect the lights/fans to the relay modules:

OBJECTIVE

- Design an interface for a Bluetooth medium and a microcontroller board (Arduino board).
- Activate communication between an android device and the Bluetooth enabled microcontroller board wirelessly via Bluetooth communication.
- Detect and transfer speech data via Bluetooth to the microcontroller board.
- Prepare a software to run on the microcontroller that will perform the necessary control. Optimization of Cavitation Conditions
- Enhancement of Metal Ion Removal Efficiency

EXPERIMENTAL SETUP

How to Connect the Bluetooth HC-05 to the Arduino

- 1) Connect the Arduino's +5V and GND pins to the bus strips on the breadboard, as shown in the above circuit diagram
- 2) Power the HC-05 module by connecting the 5V and GND pins to the bus strips on the breadboard.
- 3) Connect the TXD pin on the HC-05 module with the RXD pin (Pin 0) on the Arduino. This connection allows the HC-05 to send data to the Arduino.
4. Now we need to connect the TXD pin on the Arduino to the RXD pin on the HC05.
5. Transceiver, while the RXD pin is used to receive data on the Arduino.
6. This connection will form the second half of the two-way communication and is how the Arduino sends information to the HC-05.

Flow of Connections



CONCLUSION

In this project we have successfully implemented voice-controlled home automation system controlling relays using Arduino with Bluetooth module HC-05. This project can be used for controlling '4' number of input controls by extending number of relays. Our implemented module is more reliable and flexible in order to control any loads and the coverage area for wireless

GUIDED BY

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