Experiment 9

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Semester: 6 **Subject Code: 20CSP-358**
Subject Name: Internet of Things Lab **Date of Performance: 05-05-2023**

Aim: Real Time application of controlling actuators through bluetooth application using Arduino.

Objective:

- Learn about interfacing.
- Learn about IoT programming

Components Required: 8 Male/Female Jumper Wires, 1 HC-05 Bluetooth Module, 1 Arduino Uno3

Apps and platforms: 1 Arduino IDE**,** 1 MIT App Inventor

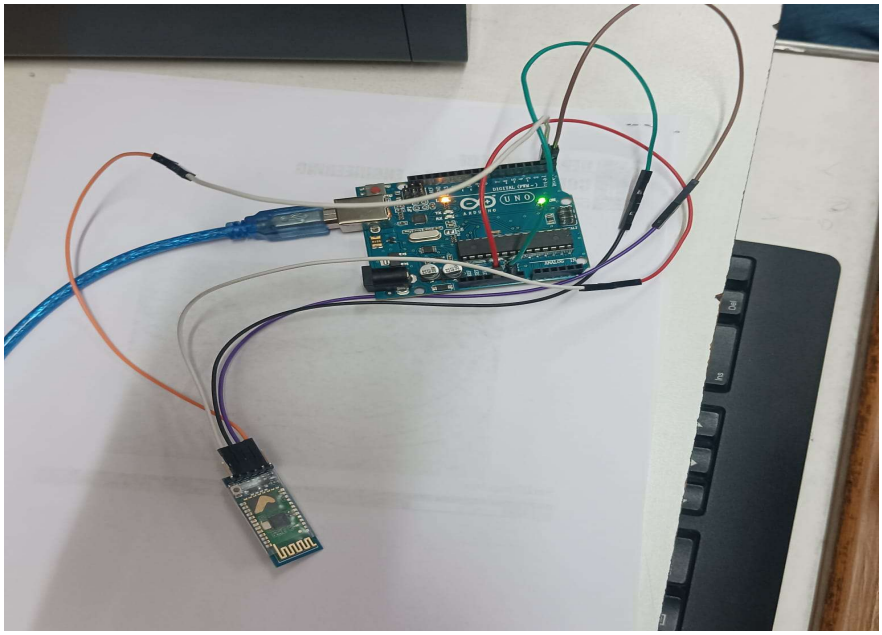
About HC-05 Bluetooth Module:
HC-05 is a Bluetooth module which is designed for wireless communication. This module can be used in a master or slave configuration. It has 6 pins:

1. **Key/EN:** It is used to bring Bluetooth module in AT commands mode.
2. **VCC:** Connect 5 V or 3.3 V to this Pin.
3. **GND:** Ground Pin of module.
4. **TXD:** Transmit Serial data (wirelessly received data by Bluetooth module transmitted out serially on TXD pin)
5. **RXD:** Receive data serially (received data will be transmitted wirelessly by Bluetooth module).
6. **State:** It tells whether module is connected or not.

Procedure:
Step 1: Connect the GND of the HC-05 Bluetooth Module to ground and vcc to pin 5V of the Arduino using connecting wire.
Step 2: Insert wires in TXD and RXD pin of module..

Step 3: Now write a code in your Arduino IDE.
Step 4: Now connect your Arduino board to your laptop via USB jack and in your Arduino IDE, select your board and click on upload.
Step 5: Now. Connect TXD and RXD pin of Bluetooth module to RXD and TXD pin of Arduino respectively using wires.
Step 6: Now. Pair your device with Bluetooth module and Open BT Arduino LED app on your phone and select HC-05.
Step 7: Observe blinking using the app.

Circuit:



Code:

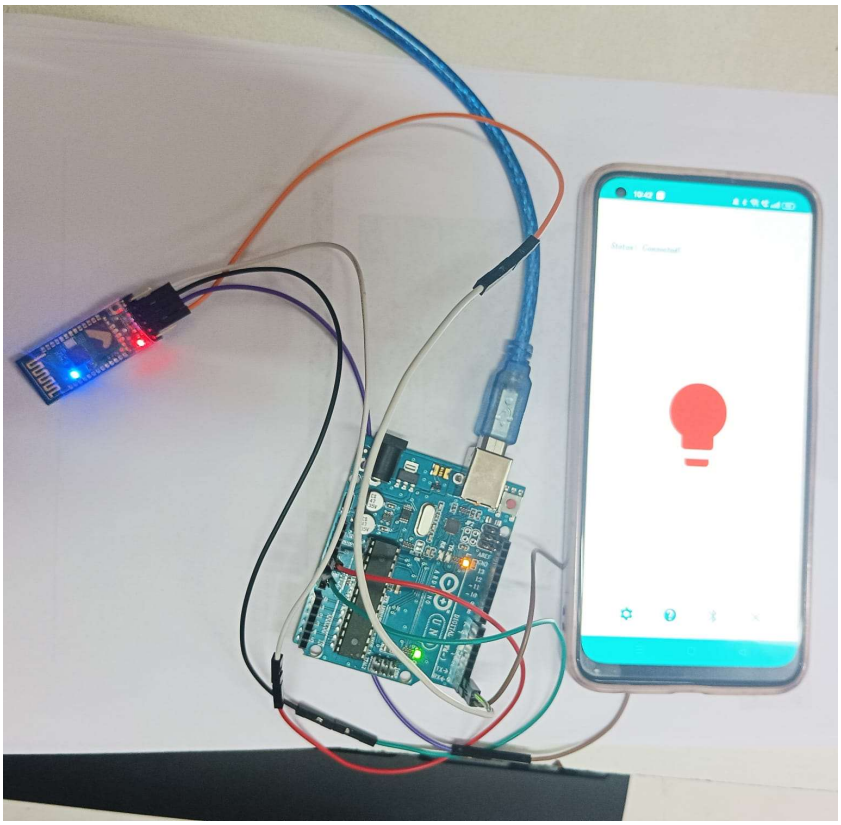
```
char data=0;
void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  pinMode(13,OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
  if(Serial.available()>0){
```

```
    data=Serial.read();
    Serial.print(data);
    if(data=='1'){
      digitalWrite(13,HIGH);
    } else if(data=='0'){
      digitalWrite(13,LOW);
    }
  }
}
```

Result:

Circuit:



App:


10:42
Status: Connected!