# Electronics Workshop Report - 6

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## Activity 1:

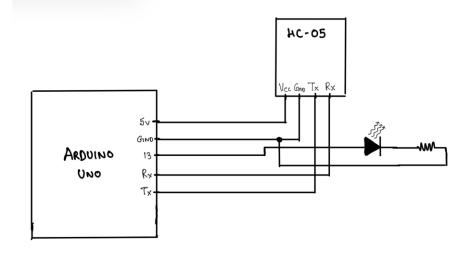
### • Objective:

To control an LED with Arduino Uno using an Android app through Bluetooth.

## • Components Required:

- o Arduino Uno
- o Jumper Cables
- o LED
- o HC-05 Bluetooth Module
- o Smartphone

## • Circuit Diagram:



#### • Procedure:

- 1. Set up the circuit as per the above circuit diagram.
- 2. Upload the provided aia file to MIT app inventor and connect it to the smartphone using the Companion app.
- 3. Program the Arduino to light up the LED whenever we get the corresponding input from the Bluetooth module.
- 4. Observe the working of the circuit.

#### • Arduino Code:

```
#include <SoftwareSerial.h>
 SoftwareSerial myserial(1, 0);
 int data;
 #define ledpin 13
 void setup() {
     myserial.begin(9600);
     pinMode(ledpin, OUTPUT);
 void loop() {
     if (myserial.available()) {
          data = myserial.read();
          if (data == 1) {
                digitalWrite(ledpin, HIGH);
                myserial.println("LED ON");
          else if (data == 0) {
                digitalWrite(ledpin, LOW);
                myserial.println("LED OFF");
          }
     }
     delay(100);
 }
```

#### • Observation:

Working of the circuit:

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my.sharepoint.com/:v:/g/personal/sricharan\_v\_research\_iiit\_ac\_in/EVbUnSNSYnZOrca8AyNmJpcBfXV1pVmzBTo0IRIVF9apPA?nav=eyJyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBcHAiOiJPbmVEcml2ZUZvckJ1c2luZXNzIiwicmVmZXJyYWxBcHB

QbGF0Zm9ybSI6IIdlYiIsInJlZmVycmFsTW9kZSI6InZpZXciLCJyZWZlcnJhbFZpZ XciOiJNeUZpbGVzTGlua0NvcHkifX0&e=sAdQyj

### • Conclusion:

An LED has been successfully controlled using Bluetooth.

## Activity 2:

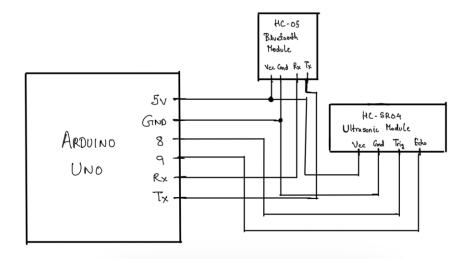
### • Objective:

To display sensor values on Android using MIT App Inventor through Bluetooth.

### • Component Required:

- Arduino Uno
- O HC-05 Bluetooth Module
- O HC-SR04 Ultrasonic Sensor
- Jumper Cables
- o Smartphone

### • Circuit Diagram:



#### • Procedure:

- 1. Set up the circuit as per the above given circuit diagram.
- 2. Upload the same .aia file as in the previous activity.
- 3. Program the Arduino to read the sensor data from the ultrasonic sensor.
- 4. Send the data to the app using the Software Serial module and the Bluetooth module.
- 5. Observe the working of the circuit.

#### • Arduino Code:

```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(1, 0); // 10 - Rx, 11 - Tx
int ledpin = 13; // LED connected to pin 13
int Data;
#include "NewPing.h"
#define TRIGGER_PIN 9
#define ECHO_PIN 10
#define MAX_DISTANCE 400
NewPing sonar(TRIGGER_PIN, ECHO_PIN, MAX_DISTANCE);
void setup() {
 mySerial.begin(9600);
 pinMode(ledpin, OUTPUT);
 void loop() {
    int distance = sonar.ping_cm();
       mySerial.print("Distance = ");
       mySerial.print(distance);
       mySerial.println(" cm");
}
```

### • Observation:

Working of the Circuit:

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## • Conclusion:

Sensor data has been successfully read and transmitted using Bluetooth.