

EXPERIMENT NO: 4

Roll No: _____ **Class: BE** **Division: A** **Date:** / / 2024

TITLE: Interfacing Arduino to Bluetooth Module

AIM: Interfacing of Bluetooth module with Arduino and sending commands wirelessly.

Task 1: Write a program for the following and also print status of LED on serial monitor:

- Turn on four LEDs using Character '1'
- Turn off four LEDs using Character '0'

Source Code:

```
# include <SoftwareSerial.h>

#define LED1 2
#define LED2 3
#define LED3 4
#define LED4 5
SoftwareSerial bt(8,9);

void setup() {
    bt.begin(9600);
    Serial.begin(9600);
    Serial.println("Bluetooth Interfacing");
    pinMode(LED1, OUTPUT);
    pinMode(LED2, OUTPUT);
    pinMode(LED3, OUTPUT);
    pinMode(LED4, OUTPUT);
}

void loop() {
    char input;
    if(bt.available()){
        input = bt.read();
        Serial.println(input);
    }

    if(input == '1'){
        digitalWrite(LED1, LOW);
        digitalWrite(LED2, LOW);
        digitalWrite(LED3, LOW);
        digitalWrite(LED4, LOW);
    }
}
```

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```

    bt.print("All LED are ON");
    Serial.println("All LED are ON");
}

if(input == '0'){
    digitalWrite(LED1, HIGH);
    digitalWrite(LED2, HIGH);
    digitalWrite(LED3, HIGH);
    digitalWrite(LED4, HIGH);
    bt.print("All LED are OFF");
    Serial.println("All LED are OFF");
}
}

```

Output:

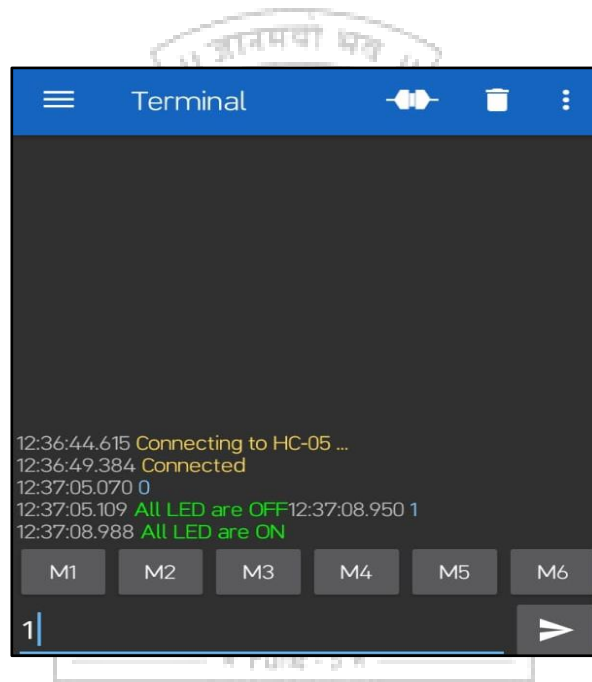


Fig 1 Giving Input from Smartphone

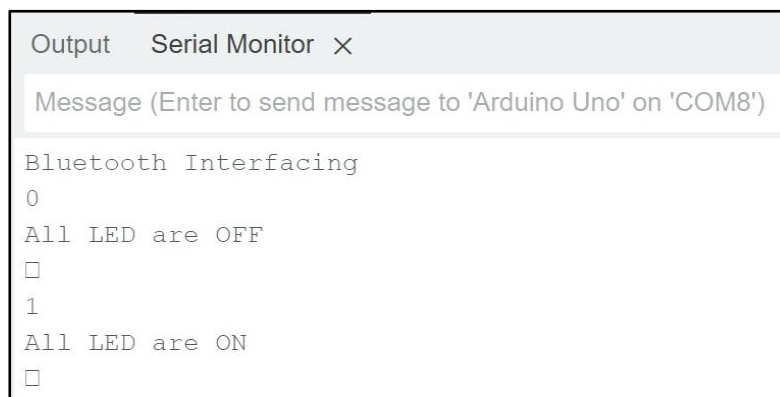


Fig 2 Serial Monitor Output

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Observations:

Task 2: Write a program for the following and also print status of LED on serial monitor:

- Turn on four LEDs using Character 'A', 'B', 'C', 'D' respectively.
- Turn off four LEDs using Character 'a', 'b', 'c', 'd' respectively.

Source Code:

```
# include <SoftwareSerial.h>

#define LED1 2
#define LED2 3
#define LED3 4
#define LED4 5
SoftwareSerial bt(8,9);

void setup() {
  bt.begin(9600);
  Serial.begin(9600);
  Serial.println("Bluetooth Interfacing");
  pinMode(LED1, OUTPUT);
  pinMode(LED2, OUTPUT);
  pinMode(LED3, OUTPUT);
  pinMode(LED4, OUTPUT);
}

void loop() {
  char input;
  if(bt.available()){
    input = bt.read();
    Serial.println(input);

    if (input == 'A'){
      digitalWrite(LED1, LOW);
      bt.print("LED1 ON");
```

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```
    Serial.println("LED1 ON");
}

if (input == 'B'){
    digitalWrite(LED2, LOW);
    bt.print("LED2 ON");
    Serial.println("LED2 ON");
}

if (input == 'C'){
    digitalWrite(LED3, LOW);
    bt.print("LED3 ON");
    Serial.println("LED3 ON");
}

if (input == 'D'){
    digitalWrite(LED4, LOW);
    bt.print("LED4 ON");
    Serial.println("LED4 ON");
}

if (input == 'a'){
    digitalWrite(LED1, HIGH);
    bt.print("LED1 OFF");
    Serial.println("LED1 OFF");
}

if (input == 'b'){
    digitalWrite(LED2, HIGH);
    bt.print("LED2 OFF");
    Serial.println("LED2 OFF");
}

if (input == 'c'){
    digitalWrite(LED3, HIGH);
    bt.print("LED3 OFF");
    Serial.println("LED3 OFF");
}

if (input == 'd'){
    digitalWrite(LED4, HIGH);
    bt.print("LED4 OFF");
    Serial.println("LED4 OFF");
}
}
}
```

Output:

```
12:23:22.737 Connecting to HC-05 ...
12:23:25.259 Connected
12:23:28.362 a
12:23:28.400 LED1 OFF12:23:34.428 b
12:23:34.703 LED2 OFF12:23:39.109 c
12:23:39.146 LED3 OFF12:23:42.592 d
12:23:42.631 LED4 OFF12:23:49.174 A
12:23:49.562 LED1 ON12:23:52.856 B
12:23:52.893 LED2 ON12:24:03.419 C
12:24:03.956 LED3 ON12:24:07.285 D
12:24:07.323 LED4 ON
```

[illegible]

Fig 4 Serial Monitor Output
