Exp:01

LED CONTROL USING ARDUINO BOARD

Aim: To control LED Using Arduino Uno board

Apparatus:

S. No.	Apparatus	Range/Rating	Quantity
1	Universal Board		1
2	Arduino board		1
3	Led		1
4	12V Adaptor		1
5	Power jack		1
6	USB Cable		1
7	Jumper Wires	Required	

Hardware Procedure:

- LED pin is Connected to Arduino Uno pin of 2.
- Power jack is connected to the Arduino Uno.
- USB connector is connected to Arduino Uno to monitor.
- Connect the 12V power supply to development board.
- Check the output from the development board.

Software Procedure:

1. Click on Arduino IDE
2. Click on file
3. Click on New
4. Write a Program as per circuit Pin connections
5. Click on Save
6. Click on Verify
7. Click on Upload the code into Arduino Uno by using USB cable.

Program:

```
const int led = 2;


void setup() {


   pinMode(led, OUTPUT);



}
```

```
void loop() {
    digitalWrite(led, HIGH);
    delay(1000);
    digitalWrite(led, LOW);
    delay(1000);
    digitalWrite(led, HIGH);
    delay(1000);
    digitalWrite(led, LOW);
    delay(1000);
}
```

Precautions:

- Take care about given power supply (12V).
- Jumper wires given carefully whenever given circuit connection.

RESULT: LED is successfully controlled by Arduino microcontroller Board.

Exp: 09

ACTUATOR CONTROLLINGBY MOBILE USING ARDUINO

Aim: To Interface RGB LED Using Arduino Uno board

Apparatus:

S. No.	APPARATUS RANGE/RATING	QUANTITY
1	Universal Board	1
2	Arduino board	1
3	RGB LED	1
4	12V Adaptor	1
5	Power jack	1
7	USB Cable	1
8	Jumper Wires	Required

Hardware Procedure:

- Actuator pin is connected to Arduino Uno pin 9.
- Power jack is connected to the Arduino.
- Insert Bluetooth Module in Bluetooth Jack.
- USB connector is connected to Arduino Uno to monitor.
- Connect the 12V power supply to development board.
- Check the output from the development board.

Software Procedure:

1. Click on Arduino IDE
2. Click on file
3 .Click on New
4. Write a Program as per circuit Pin connections
5. Click on Save
6. Click on Verify
7 Click on Upload the code into Arduino Uno by using USB cable.

Program:

```
const int Actuator = 9;
void setup() {
    Serial.begin(9600);
    pinMode(Actuator, OUTPUT);
}

void loop() {
    byte brightness;
    if (Serial.available()) {
        brightness = Serial.read();
        Serial.println(brightness);
    }
```

```
    if (brightness == 'a')
        digitalWrite(Actuator, HIGH);
    else if (brightness == 'b')
        digitalWrite(Actuator, LOW);
}
```

Precautions:

- Take care about given power supply (12V).
- Jumper wires given carefully whenever given circuit connection.

RESULT: Actuator is controlled by smart phone using Bluetooth module.