Assignment 4

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Components Used:

Arduino UNO x1

Bread Board x1

LED Lights x3

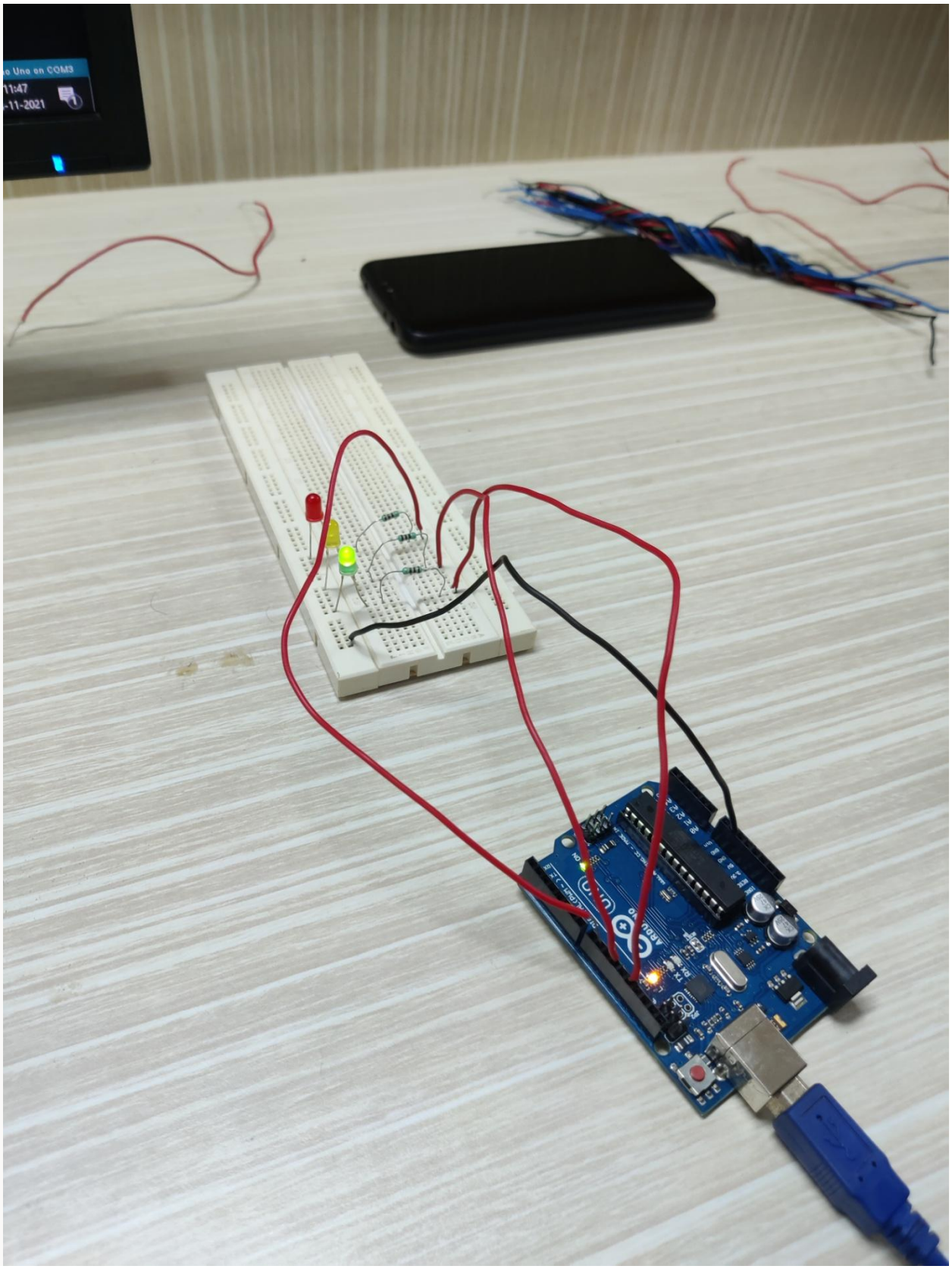
Temperature Sensor x1

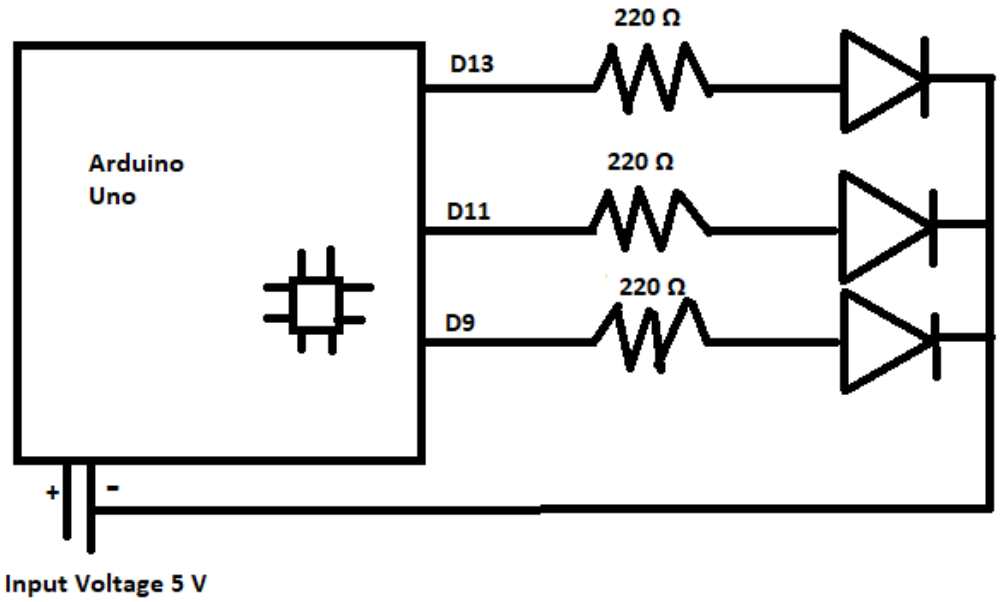
Potentiometer x1

Resistors x3

Wires x4

Circuit:




220 Ω
D13
Arduino
Uno
220 Ω
D11
220 Ω
D9
+
-
Input Voltage 5 V

Task 1: Create a sketch that fades the LED by using different ways and demonstrate. Also, observe the difference by varying the rate of fade in and fade out.

Aim: To Create a sketch that fades the LED by using different ways and demonstrate. Also, observe the difference by varying the rate of fade in and fade out.

```
int fade=100;
int rate=10;
int ledpin=1;
void setup()
{
pinMode(ledpin, OUTPUT);
Serial.begin(9600);
 }
 void loop()
{
analogWrite(ledpin,fade);
 Serial.println(fade);
 if(fade>240)
rate=-rate;
if(fade<10)
rate=-rate;
fade+=rate;
delay(100);
}
```

Result:

The Output For Given Tasks Were Obtained Successfully.

Task 2: Modify the Task 1 code in such a way that one fades in and other one fades out by using two or more LEDs.

Aim:

To Modify the Task 1 code in such a way that one fades in and other one fades out by using two or more LEDs.

```
int fade=10;
int fade2=255;
int rate=10;
int ledpin=5;
int ledpin2=7;
void setup()
{
Serial.begin(9600);
pinMode(ledpin, OUTPUT);
}
void loop()
{
analogWrite(ledpin,fade);
analogWrite(ledpin2,fade2);
Serial.println(fade);
Serial.println(fade2);
if(fade>245)
rate=-rate;
if(fade<10)
rate=-rate;
fade+=rate;
fade2=255-fade;
delay(500);
}
```

Result:

The Output For Given Task Was Obtained Successfully.

Task 3: Modify the Task 1 program to control the intensity of theLED based on the keyboard input.

Aim:

To Modify the Task 1 program to control the intensity of theLED based on the keyboard

```
 input.int pin=3,bright=10;
void setup() {
pinMode(pin,OUTPUT);
Serial.begin(9600);
}
void loop() {
if(Serial.available()>1)
{
bright=Serial.parseInt();
Serial.println(bright);
analogWrite(pin,bright);
}
delay(1000);
}
```

Result:

The Output For Given Task Was Obtained Successfully.

Task 4: Create a sketch that makes a "3-waylamp" using the LED and button to let the user turn on the light at 100/50/25/off.

Aim:

To Create a sketch that makes a "3-waylamp" using the LED and button to let the user turn on the light at 100/50/25/off.

```
int ledPin = 10;
int inPin = 11;
int stage = 0;
void setup() {
pinMode(ledPin, OUTPUT);
pinMode(inPin, INPUT);
}
void loop(){
int val = 0;
val = digitalRead(inPin);
if (val == HIGH) {
stage++;
// analogWrite(ledPin, 200);
}
if (stage == 0)
{
analogWrite(ledPin, 0);
}
```

```
else if (stage == 1)
{
analogWrite(ledPin, 75);
}
else if (stage == 2)
{
analogWrite(ledPin, 150);
}
else if (stage == 3)
{
analogWrite(ledPin, 255);
}
else
{
stage = 0;
}
}
```

Result:

The Output For Given Task Was Obtained Successfully.

Task 5: Create a sketch that makes a LED flash at a rate relative to the potentiometer position(resistance) and try to include a serial output of the potentiometer value and flash rate.

Aim:

To Create a sketch that makes a LED flash at a rate relative to the potentiometer position(resistance) and try to include a serial output of the potentiometer value and flash rate.

```
int potpin=A0;

int ledpin=11;

void setup() {

Serial.begin(9600);

pinMode(potpin, INPUT);

pinMode(ledpin, OUTPUT);

}

void loop() {

int value=analogRead(potpin);

int result=map(value,0,1023,0,255);

Serial.println(result-50);

analogWrite(ledpin,result-50);

delay(100);

}
```

Result:

The Output For Given Task Was Obtained Successfully.

Task 6: Create a sketch to measure the humidity and temperature using Temp46/DHT11 and display the same in the serial monitor.

Aim:

Create a sketch to measure the humidity and temperature using Temp46/DHT11 and display the same in the serial monitor.

```
#include <dht.h>

int temppin=A0;

int value=0;

dht DHT;

void setup() {

Serial.begin(9600);

pinMode(temppin,INPUT);

}

void loop() {

DHT.read12(temppin);

Serial.println("Temperature");

Serial.println(DHT.temperature);

Serial.println("Humidity");

Serial.println(DHT.humidity);

delay(4000);

}
```

Result:
The Output For Given Task Was Obtained Successfully.