

Lab - Serial controlled Mood lamp (Project 3)

Code :

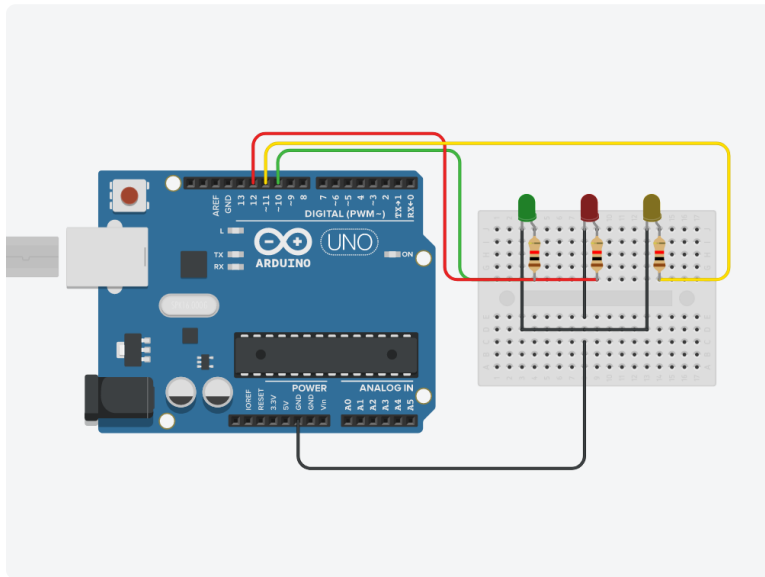
```
char buffer[10];
int red, green, Yellow;
int RedPin = 11;
int GreenPin = 10;
int YellowPin = 9;
void setup() {
    Serial.begin(9600);
    Serial.flush();
    pinMode(RedPin, OUTPUT);
    pinMode(GreenPin, OUTPUT);
    pinMode(YellowPin, OUTPUT);
}

void loop() {
    if (Serial.available() > 0) {
        int index = 0;
        delay(100);
        int numChar = Serial.available();
        if ( numChar > 15 ) {
            numChar = 15;
        }
        while (numChar--){
            buffer[index++] = Serial.read();
        }
        splitString(buffer);
    }
}

void splitString(char* data){
    Serial.print("Data entered: ");
    Serial.println(data);
    char* parameter;
    parameter = strtok (data, " ,");
    while (parameter != NULL) {
        setLED(parameter);
        parameter = strtok (NULL, " ,");
    }
    for( int x=0 ; x<16 ; x++ ){
        buffer[x]='\0';
    }
    Serial.flush();
}

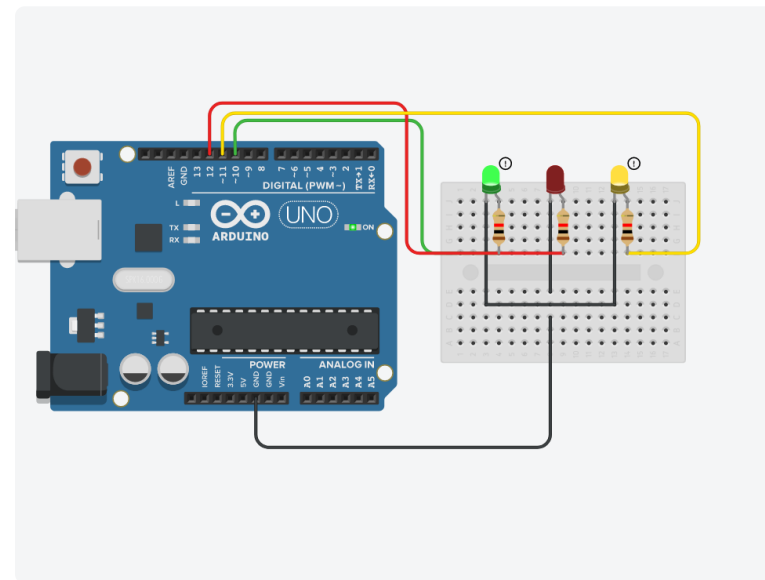
void setLED(char* data ){
    if ((data[0] == 'r') || (data[0] == 'R')) {
        int Ans = strtol(data+1, NULL, 10);
        Ans = constrain(Ans,0,255);
        analogWrite(RedPin, Ans);
        Serial.print("Red is set to: ");
        Serial.println(Ans);
    }
    if ((data[0] == 'g') || (data[0] == 'G')) {
        int Ans = strtol(data+1, NULL, 10);
        Ans = constrain(Ans,0,255);
        analogWrite(GreenPin, Ans);
        Serial.print("Green is set to: ");
        Serial.println(Ans);
    }
    if ((data[0] == 'y') || (data[0] == 'Y')) {
        int Ans = strtol(data+1, NULL, 10);
        Ans = constrain(Ans,0,255);
        analogWrite(YellowPin, Ans);
        Serial.print("Yellow is set to: ");
        Serial.println(Ans);
    }
}
```

Virtual Environment (Circuit & Tests):



```
1 //Project LAB 3
2
3 char buffer[18];
4 int red, green, Yellow;
5 int RedPin = 12;
6 int GreenPin = 10;
7 int YellowPin = 11;
8 void setup() {
9   Serial.begin(9600);
10  Serial.flush();
11  pinMode(RedPin, OUTPUT);
12  pinMode(GreenPin, OUTPUT);
13  pinMode(YellowPin, OUTPUT);
14 }
15
16 void loop() {
17   if (Serial.available() > 0 ) {
18     int index = 0 ;
19     delay(100);
20     int numChar = Serial.available();
21     if ( numChar > 15 ) {
22       numChar = 15 ;
23     }
24     while (numChar--){
25       buffer[index++] = Serial.read();
26     }
27     splitString(buffer);
28   }
29 }
30
31 void splitString(char* data){
32   Serial.print("Data entered: ");
33   Serial.println(data);
34   char* parameter;
35   parameter = strtok (data, " ,");
```

Test 1 : r127 g127 y127



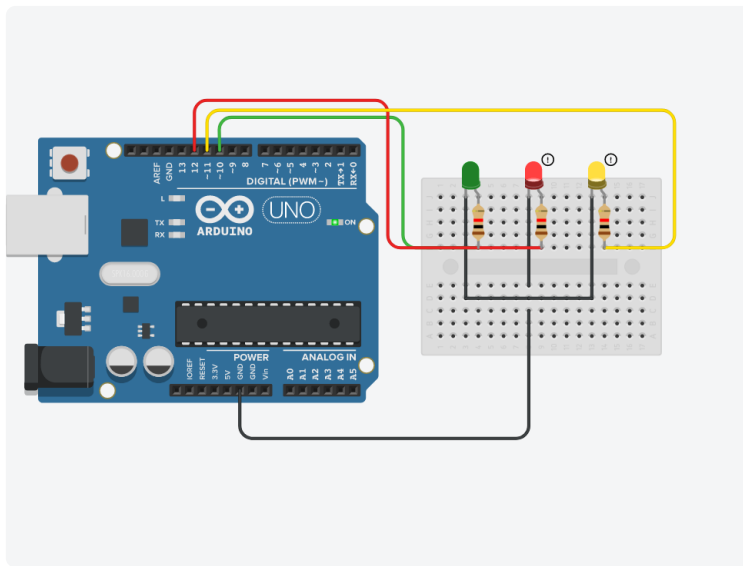
```
1 //Project LAB 3
2
3 char buffer[18];
4 int red, green, Yellow;
5 int RedPin = 12;
6 int GreenPin = 10;
7 int YellowPin = 11;
8 void setup() {
9   Serial.begin(9600);
10  Serial.flush();
11  pinMode(RedPin, OUTPUT);
12  pinMode(GreenPin, OUTPUT);
13  pinMode(YellowPin, OUTPUT);
14 }
15
16 void loop() {
17   if (Serial.available() > 0 ) {
18     int index = 0 ;
19     delay(100);
20     int numChar = Serial.available();
21     if ( numChar > 15 ) {
22       numChar = 15 ;
23     }
24     while (numChar--){
```

Serial Monitor

Data entered: r127 g127 y127
Red is set to: 127
Green is set to: 127
Yellow is set to: 127

Send Clear

Test 2 : r255 y255 g0



```
1 //Project LAB 3
2
3 char buffer[10];
4 int red, green, Yellow;
5 int RedPin = 12;
6 int GreenPin = 10;
7 int YellowPin = 11;
8 void setup() {
9   Serial.begin(9600);
10  Serial.flush();
11  pinMode(RedPin, OUTPUT);
12  pinMode(GreenPin, OUTPUT);
13  pinMode(YellowPin, OUTPUT);
14 }
15
16 void loop() {
17   if (Serial.available() > 0){
18     int index = 0 ;
19     delay(100);
20     int numChar = Serial.available();
21     if ( numChar > 15 ){
22       numChar = 15 ;
23     }
24     while (numChar--){
25       buffer[index++] = Serial.read();
26     }
27     buffer[index] = '\0';
28     red = atoi(buffer);
29     green = atoi(buffer);
30     Yellow = atoi(buffer);
31     digitalWrite(RedPin, red);
32     digitalWrite(GreenPin, green);
33     digitalWrite(YellowPin, Yellow);
34   }
35 }
```

Serial Monitor

Data entered: r127 g127 y127
Red is set to: 127
Green is set to: 127
Yellow is set to: 127
Data entered: r255 y255 g0
Red is set to: 255
Yellow is set to: 255
Green is set to: 0

Send Clear

Hardware Test :

