



Andhra Pradesh State Skill Development Corporation



INTERNET OF THINGS (IoT)

**LED STATUS, CONTROLLING LED WITH
SERIAL MONITOR AND RGB LED**

Serial monitor LED status

Aim: Our goal in this project is to print the status of the led in serial monitor.

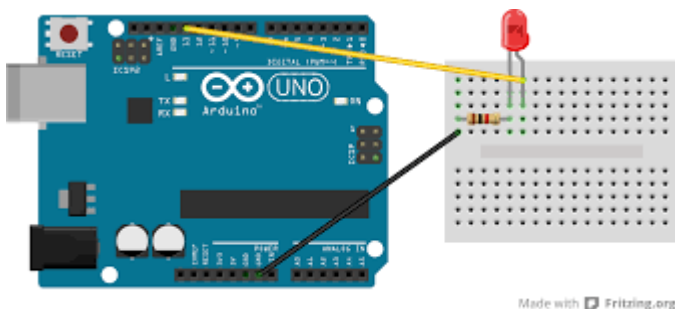
Software: Arduino IDE

Components Required:

1. System -1
2. Arduino Uno Board -1
3. Arduino dumping cable -1
4. LED -1
5. Resistor 330 ohms-1
6. Breadboard-1
7. Connecting Wires -Required

Theory:

Serial Monitor displays serial data being sent from the Arduino or Genuino board (USB or serial board). To send data to the board, enter text and click on the "send" button or press enter. Choose the baud rate from the drop-down that matches the rate passed to Serial.begin in your sketch



Procedure:

1. Open Arduino IDE.
2. Write the code in the text editor.
3. Save the sketch with .ino extension.
4. Connect the hardware circuit and Connect your Arduino Board to the USB port of your computer.
5. Select the serial device of the Arduino board from the Tools | Serial Port menu.
6. Compile the file by clicking on the verify button.
7. If successful, the message "Done Compiling." will appear in the status bar.
8. If there are any errors it will show them in the Transcript window, rectify those errors and compile it again.
9. Push the reset button on the board then click the Upload button in the IDE. Wait a few seconds. If successful, the message "Done uploading." will appear in the status bar.
10. Click the serial monitor button in the toolbar and select the same baud rate used in the call to begin ().



Code:

```
int ledPin = 13; // LED connected to digital pin 13
void setup( )
{
  pinMode(ledPin ,OUTPUT);
  Serial.begin(9600);
}
void loop( )
{
  digitalWrite(ledPin ,HIGH);
  Serial.println("LED is High");
  delay(1000);
  digitalWrite(ledPin ,LOW);
  Serial.println("LED is Low");
  delay(1000);
}
```

Result:Status of LED is observed in the serial monitor



LED controlling by Serial Monitor

AIM: Control led by giving characters or strings to Serial Monitor

Software Required: Arduino IDE

Components Required:

1. System -1
2. Arduino Uno Board -1
3. Arduino dumping cable -1
4. LED -1
5. Resistor 330 ohms-1
6. Breadboard-1
7. Connecting Wires -Required

Theory:

After your source code completes compile and upload your source code to the Arduino board after the uploading process. In the Arduino IDE right side corner we have the serial monitor window. Just right click and give the command ON and press send. The LED will glow and gives command OFF; after the command the led will turn off,

Procedure:-

1. Open Arduino IDE.
2. Write the code in the text editor.
3. Save the sketch with .ino extension.
4. Connect the hardware circuit and Connect your Arduino Board to the USB port of your computer.
5. Select the serial device of the Arduino board from the Tools | Serial Port menu.
6. Compile the file by clicking on the verify button.
7. If successful, the message "Done Compiling." will appear in the status bar.
8. If there are any errors it will show them in the Transcript window, rectify those errors and compile it again.
9. Push the reset button on the board then click the Upload button in the IDE. Wait a few seconds. If successful, the message "Done uploading." will appear in the status bar.
10. Click the serial monitor button in the toolbar and select the same baud rate used in the call to begin ().

Code:-

```
int led=2;  
void setup() {  
  pinMode(led,OUTPUT);  
  Serial.begin(9600);
```



// put your setup code here, to run once:

```
}  
void loop() {  
  if(Serial.available()>0)  
  {  
    char ch=(Serial.read());  
    {  
      if(ch=='o')  
      {  
        digitalWrite(led,HIGH);  
        Serial.println("led on");  
      }  
      else if(ch=='f')  
      {  
        digitalWrite(led,LOW);  
        Serial.println("led off");  
      }  
    }  
  }  
}
```

Result:-When a character is given to the serial monitor then the led will turn ON and for another character led will turn OFF.

RGB LED

AIM:Our goal in this project is to control the “RGB” using serial monitor

Software Required:Arduino IDE

Components Required:

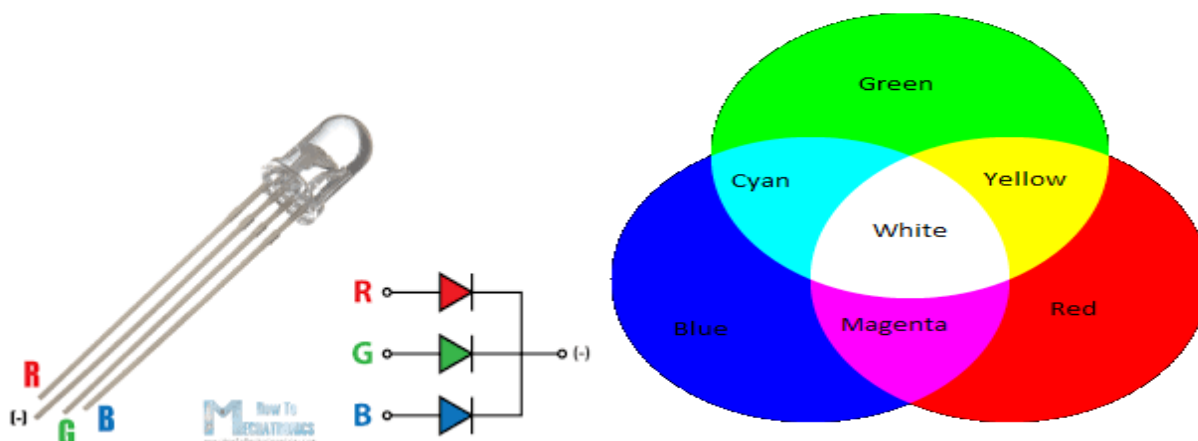
1. System -1
2. Arduino Uno Board -1
3. Arduino dumping cable -1
4. RGB -1
5. Resistor 330 ohms-1
6. Breadboard-1
7. Connecting Wires -Required

Theory:-RGB is called an additive color system because the combinations of red, green, and blue light create the colors that we perceive by stimulating the different types of cone cells simultaneously. ... Red and blue light will appear magenta, and a combination of all three will

appear to be white.

Procedure:-

1. Open Arduino IDE.
2. Write the code in the text editor.
3. Save the sketch with .ino extension.
4. Connect the hardware circuit and Connect your Arduino Board to the USB port of your computer.
5. Select the serial device of the Arduino board from the Tools | Serial Port menu.
6. Compile the file by clicking on the verify button.
7. If successful, the message "Done Compiling." will appear in the status bar.
8. If there are any errors it will show them in the Transcript window, rectify those errors and compile it again.
9. Push the reset button on the board then click the Upload button in the IDE. Wait a few seconds. If successful, the message "Done uploading." will appear in the status bar.
10. Click the serial monitor button in the toolbar and select the same baud rate used in the call to begin ().



Code:-

```
int redled=7;
int blueled=6;
int greenled=5;
char ch;
void setup()
{
  pinMode(redled,OUTPUT);
  pinMode(blueled,OUTPUT);
  pinMode(greenled,OUTPUT);
  Serial.begin(9600);
}
```




```
void loop()
{
  if(Serial.available()>0)
  ch=Serial.read();
  if(ch=='r')
  {
    digitalWrite(redled,1);
    digitalWrite(blueled,0);
    digitalWrite(greenled,0);
    Serial.println("Red Led ON");
  }
  else if(ch=='b')
  {
    digitalWrite(redled,0);
    digitalWrite(blueled,1);
    digitalWrite(greenled,0);
    Serial.println("Blue Led ON");
  }
  else if(ch=='g')
  {
    digitalWrite(redled,0);
    digitalWrite(blueled,0);
    digitalWrite(greenled,1);
    Serial.println("Green Led ON");
  }
  else if(ch=='y')
  {
    digitalWrite(redled,1);
    digitalWrite(blueled,0);
    digitalWrite(greenled,1);
    Serial.println("Yellow Led ON");
  }
  else if(ch=='c')
  {
    digitalWrite(redled,0);
    digitalWrite(blueled,1);
    digitalWrite(greenled,1);
    Serial.println("Cyan Led ON");
  }
  else if(ch=='m')
  {
    digitalWrite(redled,1);
    digitalWrite(blueled,1);
    digitalWrite(greenled,0);
    Serial.println("Magenta Led ON");
  }
  else if(ch=='w')
  {
    digitalWrite(redled,1);
    digitalWrite(blueled,1);
    digitalWrite(greenled,1);
  }
}
```

```
Serial.println("White Led ON");
}
else
{
digitalWrite(redled,0);
digitalWrite(blueled,0);
digitalWrite(greenled,0);
Serial.println(" Led OFF");
}
}
```

