

Task - 5
25-03-2022

DETECTING INTENSITY OF LIGHT USING ANALOG GRAY SCALE SENSOR

Problem definition:

Gray scale sensor measure and identify the intensity of light from black to white using Arudino UNO board and based on the intensity values of black to white the LED blinks.

Tools used:

Software - Arduino

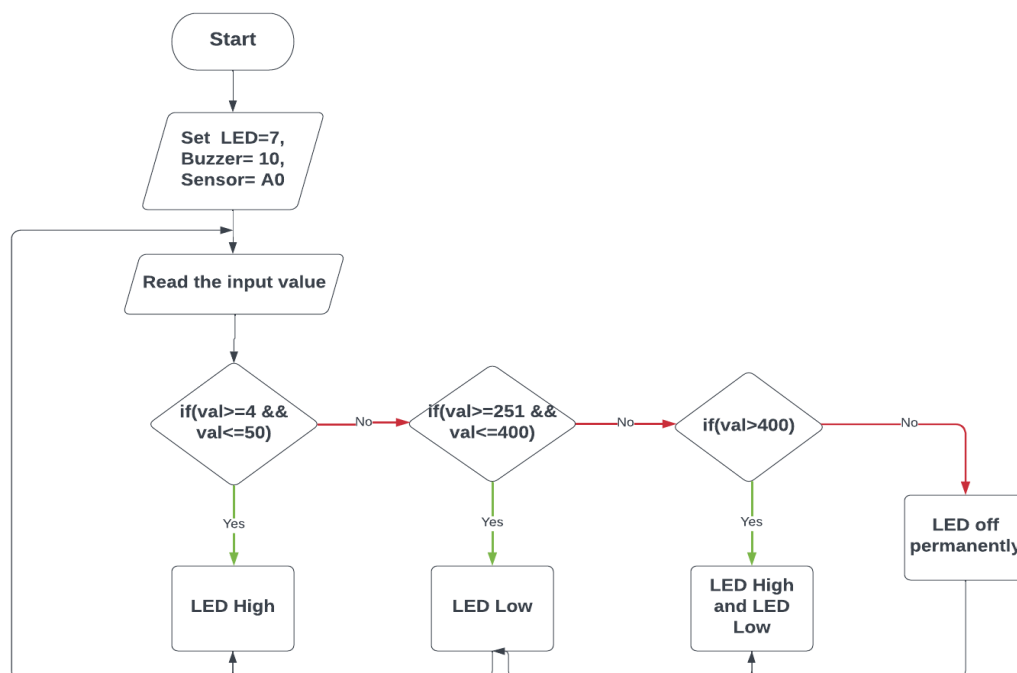
Hardware – LED and Gray scale sensor

Board - Arduino UNO

Sensor description:

The gray scale sensor is able to measure the intensity of light from black to white. A gray scale is also known as black-and-white, and is composed exclusively of shades of gray, varying from black at the weakest intensity to white at the strongest.

Flowchart:



Source code:

```
const int led=7;
const int buzzer=10;
const int sensor = A0;

void setup () {
  Serial.begin(9600);
  pinMode(led, OUTPUT);
  pinMode(sensor, INPUT);
}

void loop() {
  int val=analogRead(sensor);

  Serial.println(val);
  if (val>=4 && val<=50 ) {
    digitalWrite(led, HIGH);

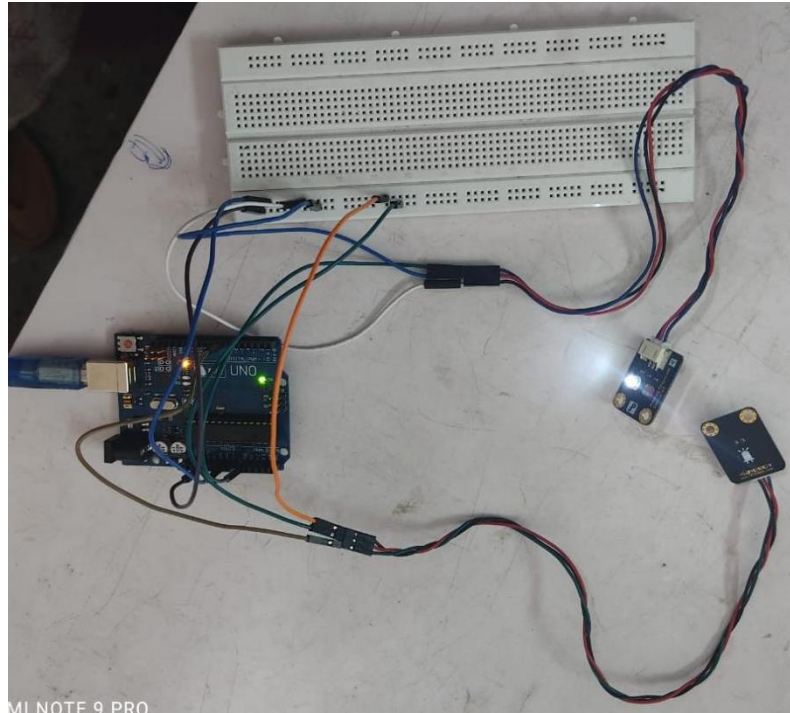
  }
  else if(val>=251 && val<=400)
  {
    digitalWrite(led, LOW);

  }
  else if(val>400)
  {
    digitalWrite(led, HIGH);
    delay(800);
    digitalWrite(led, LOW);
    delay(800);
    digitalWrite(led, HIGH);
    delay(800);
    digitalWrite(led, LOW);
    delay(800);
  }
  else {
    digitalWrite(led, LOW); //LED gets OFF permanently until value is
below 500
  }
}
```

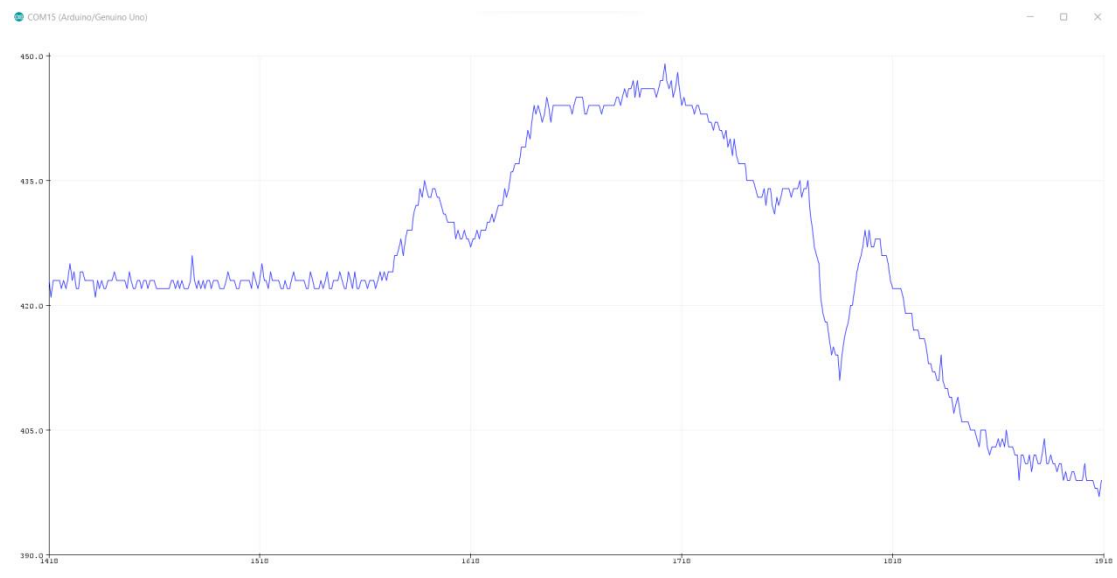
}

Sample input and output:

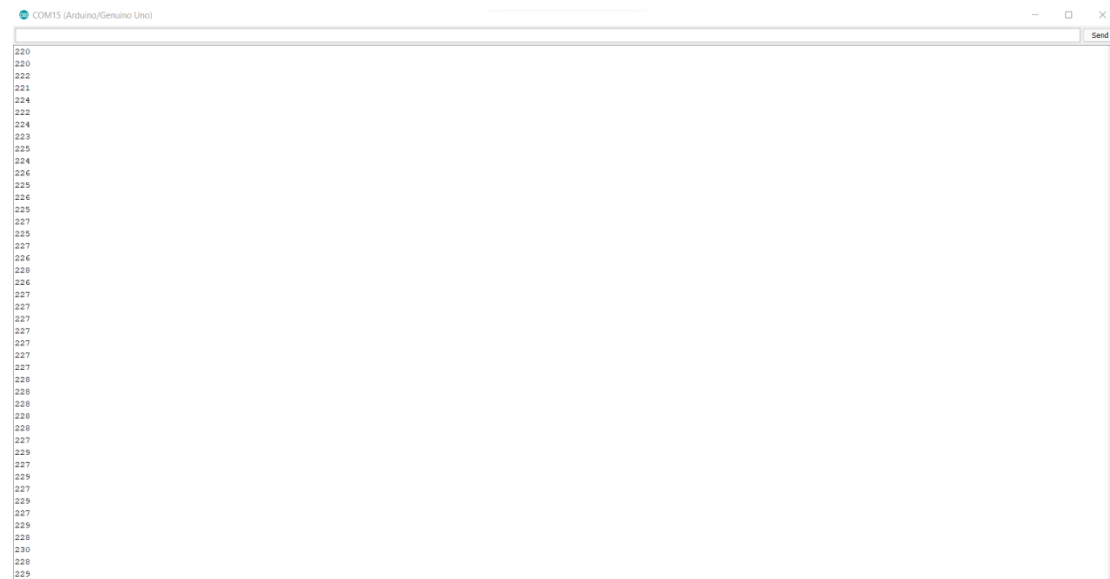
LED blinks based on the intensity of the light:



Gray scale Serial monitor:



Gray scale Serial plotter:



Real time application:

Grayscale is used for assessing the color shading in between products and the customer's approval sample or among pieces in production.

Conclusion:

Hence, the gray scale calculates the intensity of the light from black to white and generates the result and basessd on the result LED blinks.