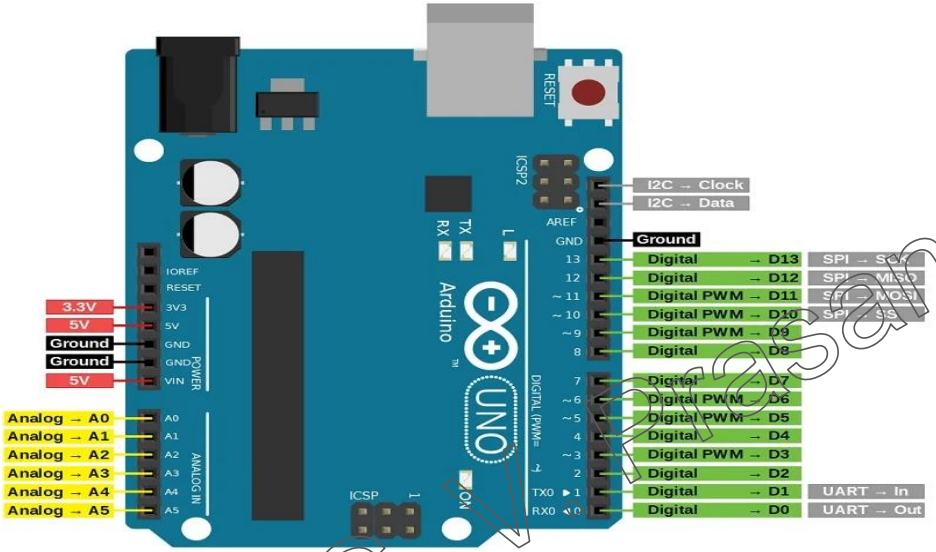
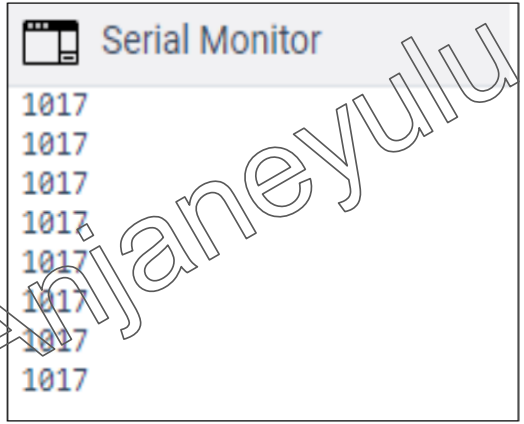
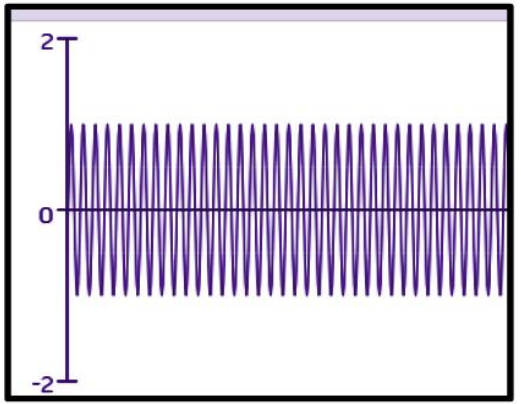
Experiment - 2

ARDUINO

Serial Monitor & Plotter







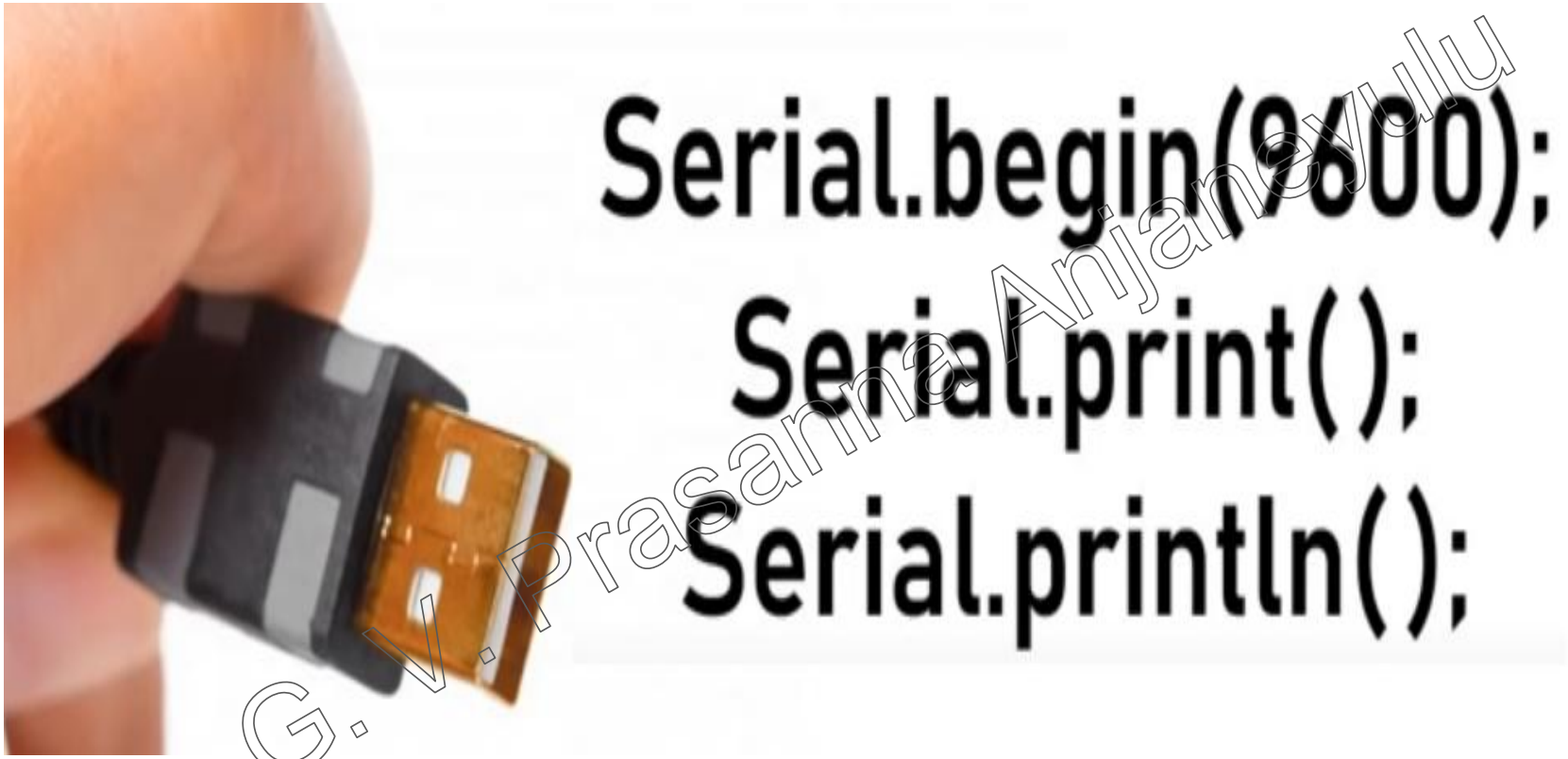
Serial_Plotter_Monitor_by Dr.GVP

Experiment - 2

PART - A: Plotting the Serial data from LDR sensor

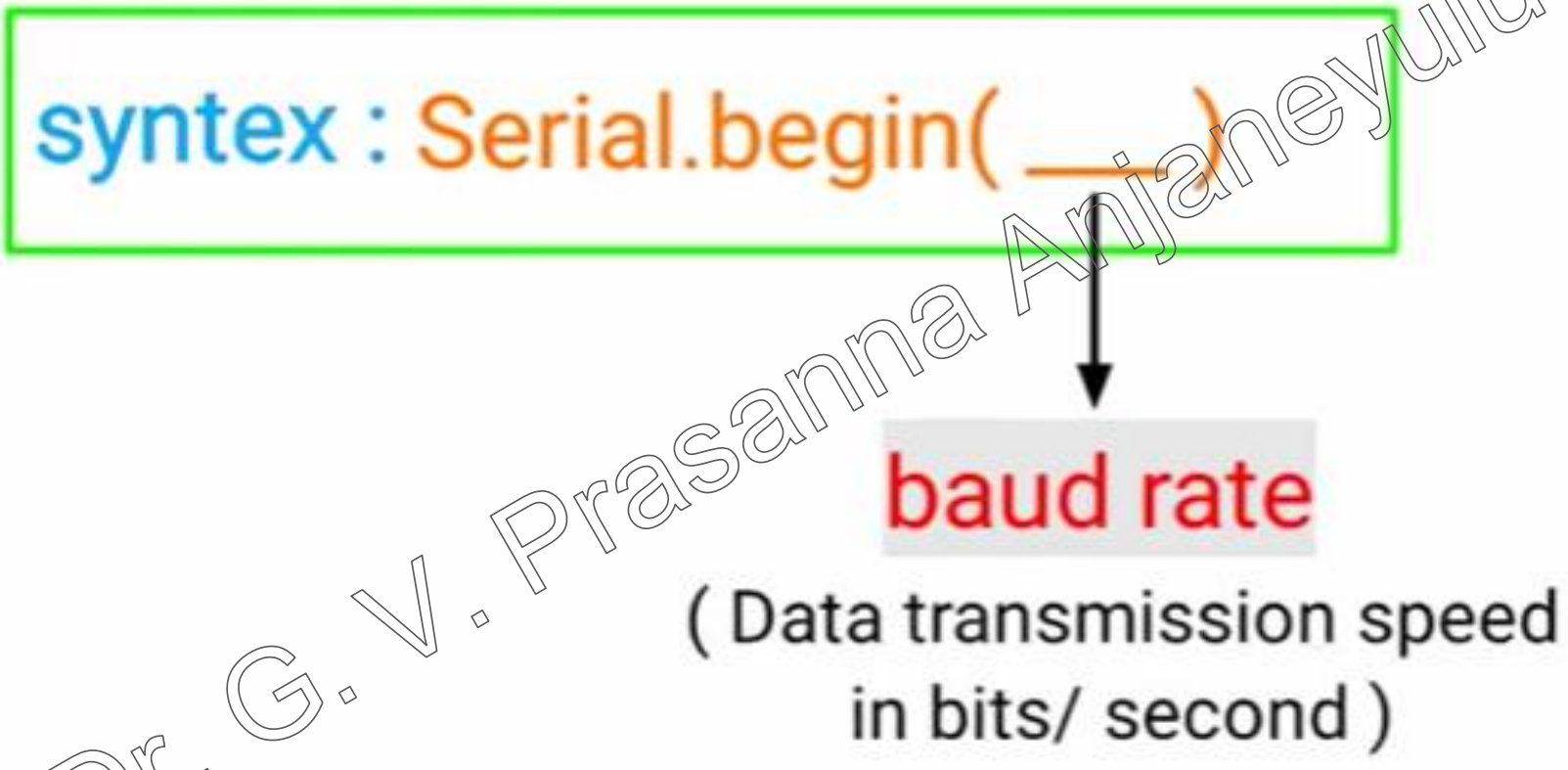
PART - B: Serial Plotter - Sine waveforms

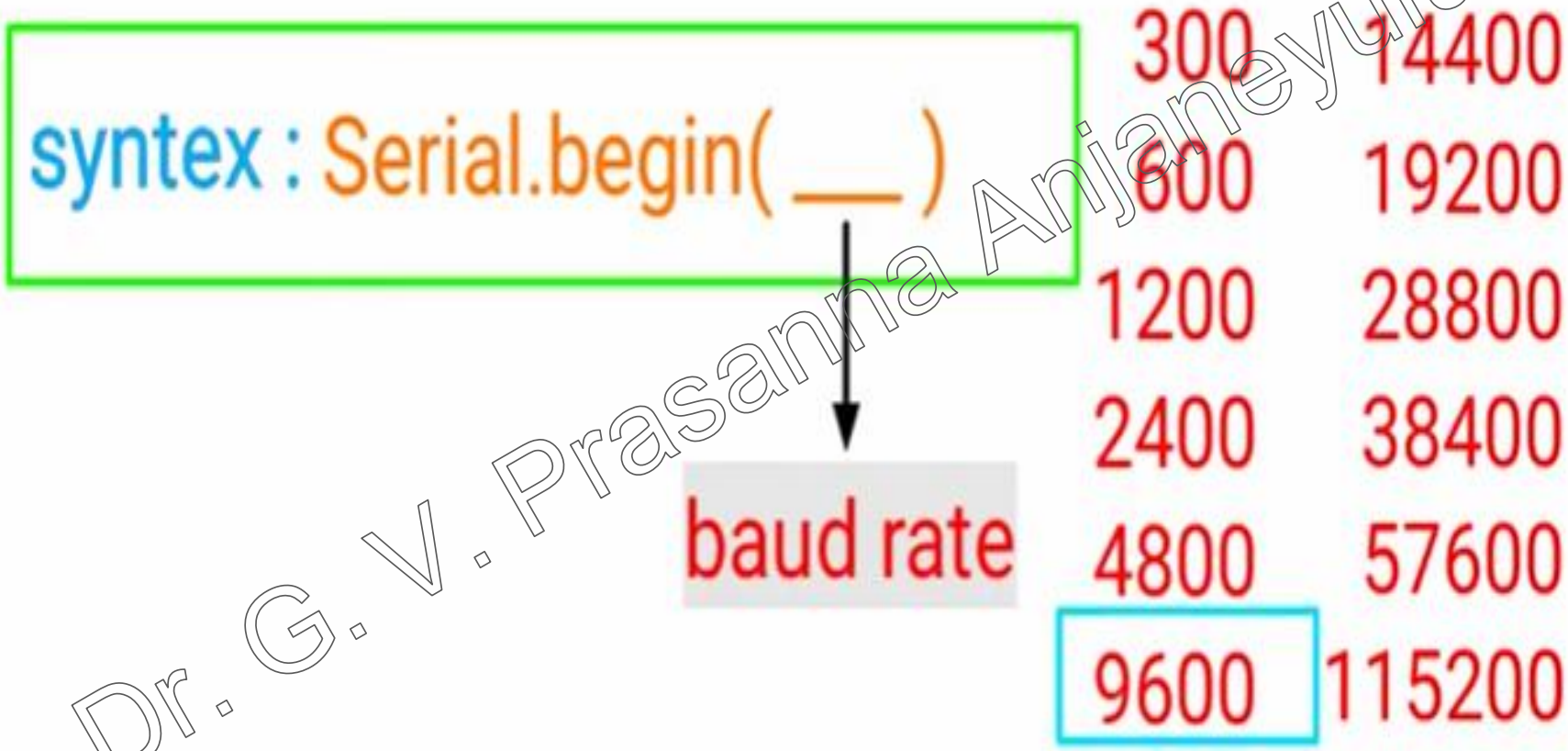
Syntax



1. Serial.begin( )

- This function use for start Serial communication




syntex : Serial.begin(___)
baud rate
300
600
1200
2400
4800
9600
14400
19200
28800
38400
57600
115200
Dr. G. V. Prasanna Anjaneyulu

2. Serial.print()

- This function is use for print any data or value of variables

Contd….

- For printing data by serial.print function that data must be written inside " "

Contd……

- For printing the value of a variable

That variable must be written inside serial.print function without (" ") sign

eg. Serial.print(i)

3. Serial.println( )

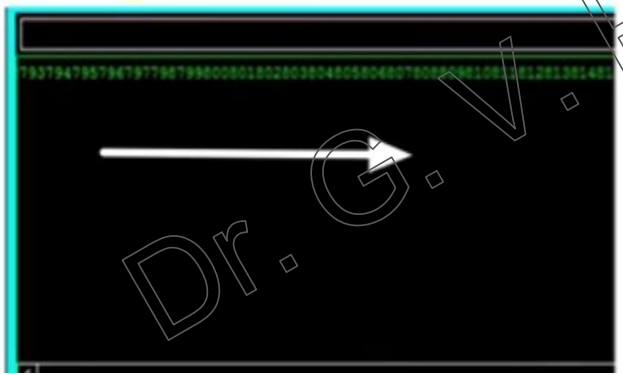
- This function is use for print any data or value of variables(vertically)

Contd……

- For printing data by serial.println function that data must be written inside " " sign
- For printing the value of a variable , the variable written inside serial.println without " " sign

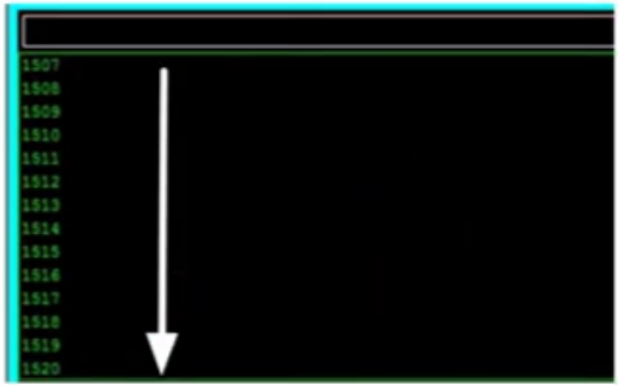
Serial.print()

```
Void setup( )
{
Int i =0;
For (i=0; i<=1000; i++)
    {
        Serial.print(i)
    }
}
```

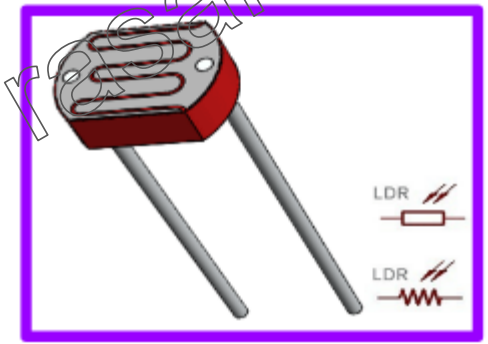


Serial.println()

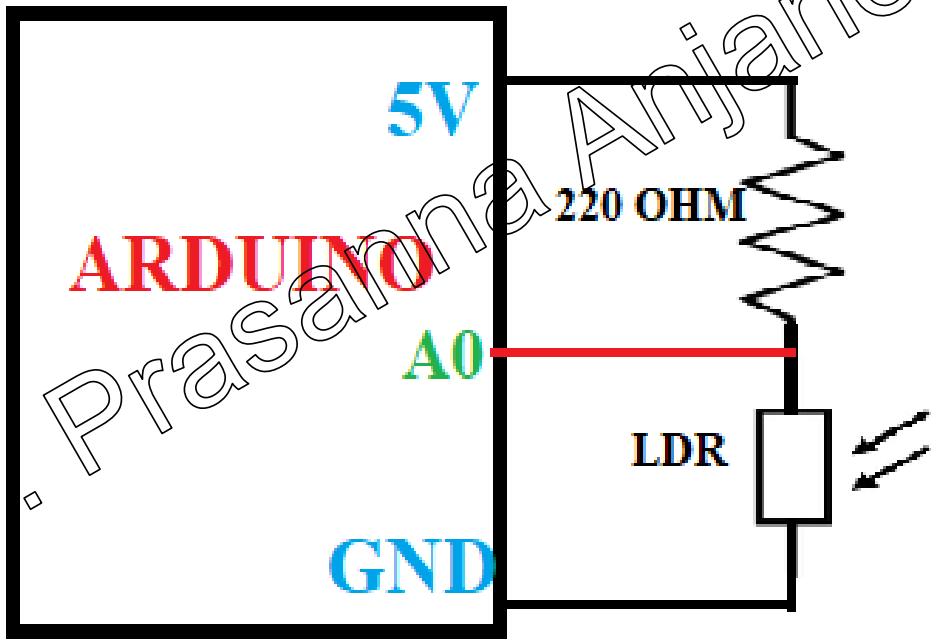
```
Void setup( )
{
Int i =0;
For (i=0; i<=1000; i++)
    {
        Serial.println(i)
    }
}
```



PART - A: Plotting the serial data from LDR sensor



Circuit diagram



Apparatus

1.PC with Arduino IDE

2.Arduino UNO Board

3.USB cable

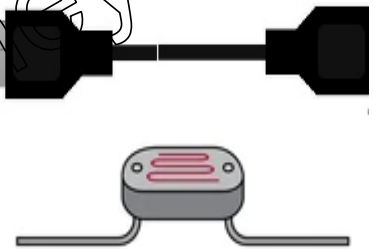
4.Light Dependent Resistor(photoresistor)

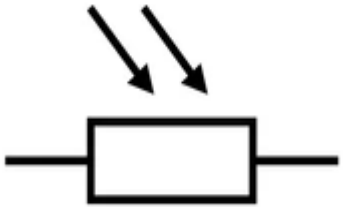
5.Bread board

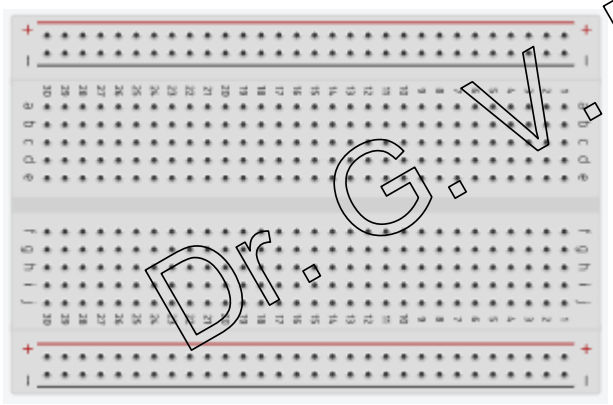
6.220Ω resistor

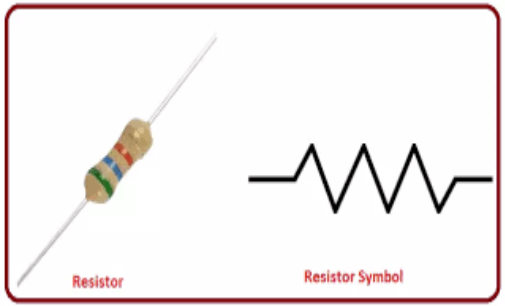
7.Jumper wires

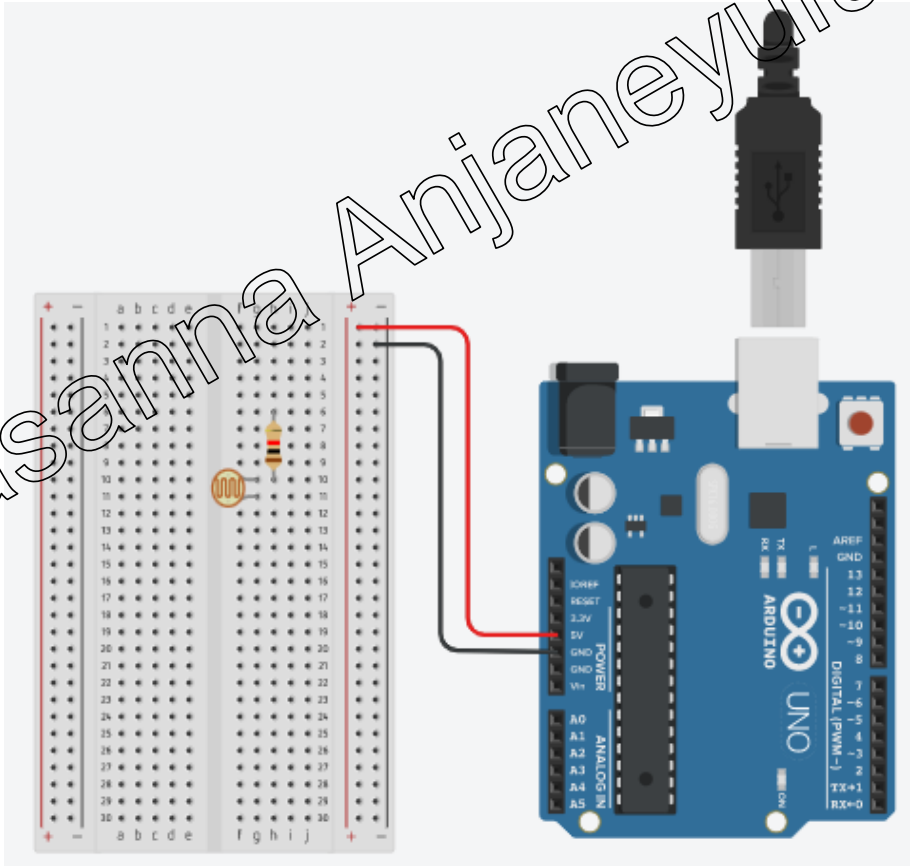
Implementation

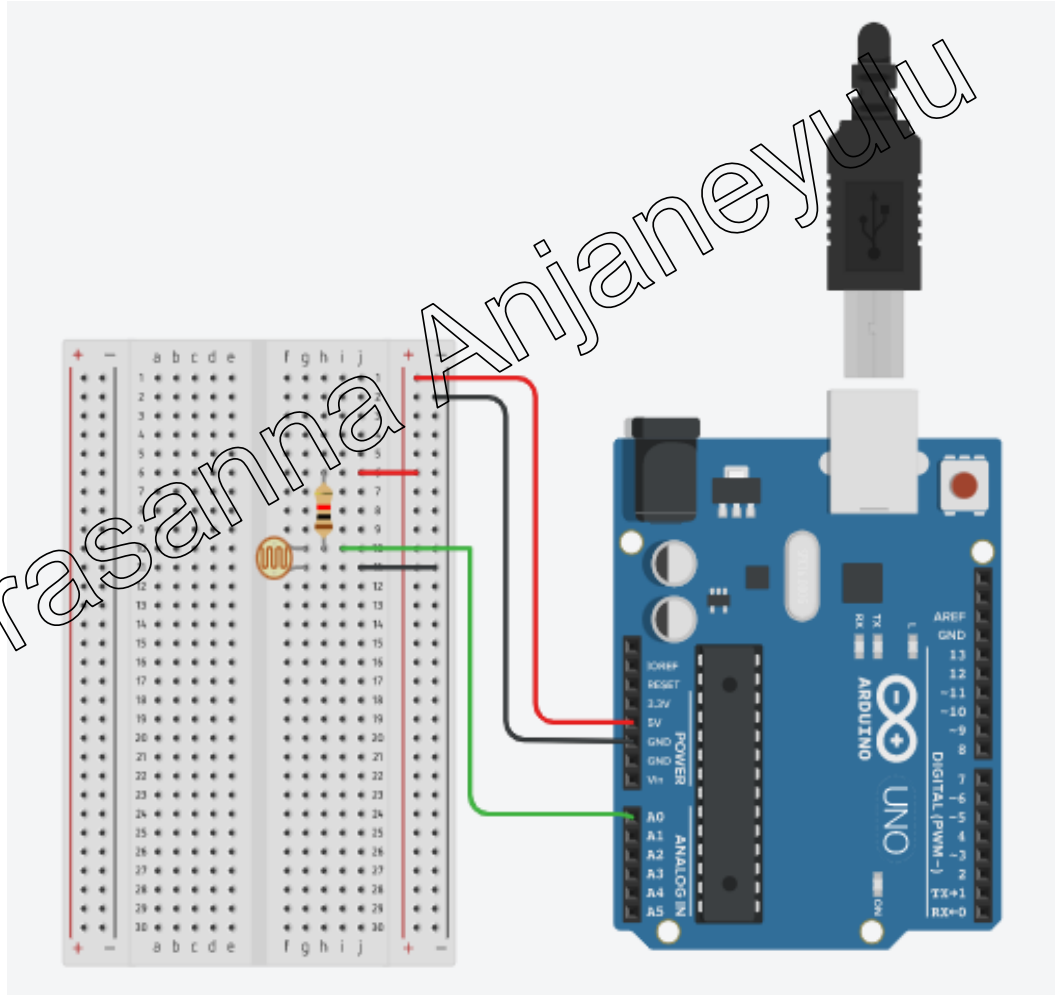








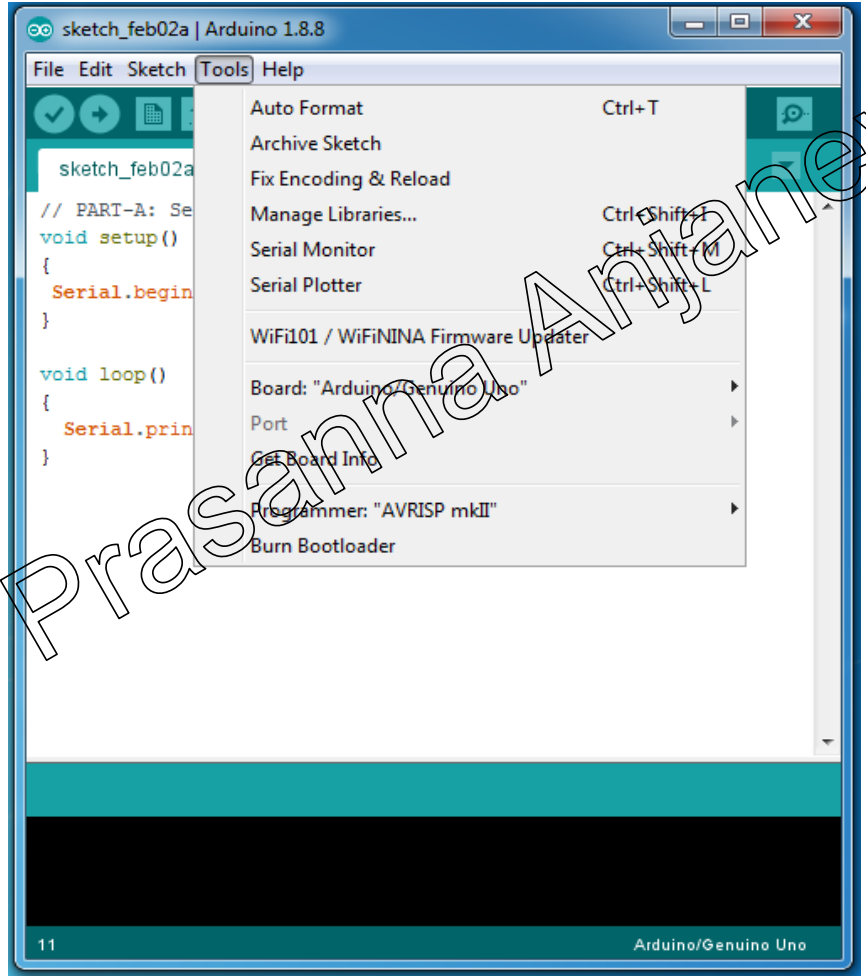




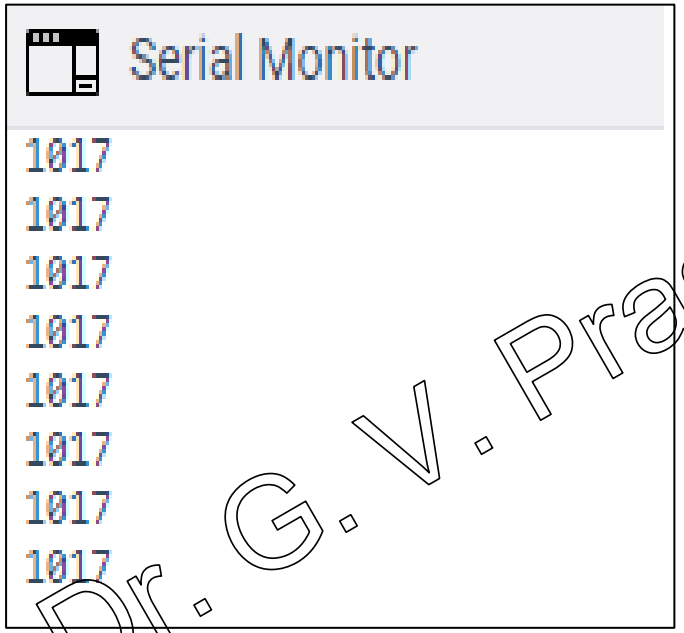
ARDUINO Program

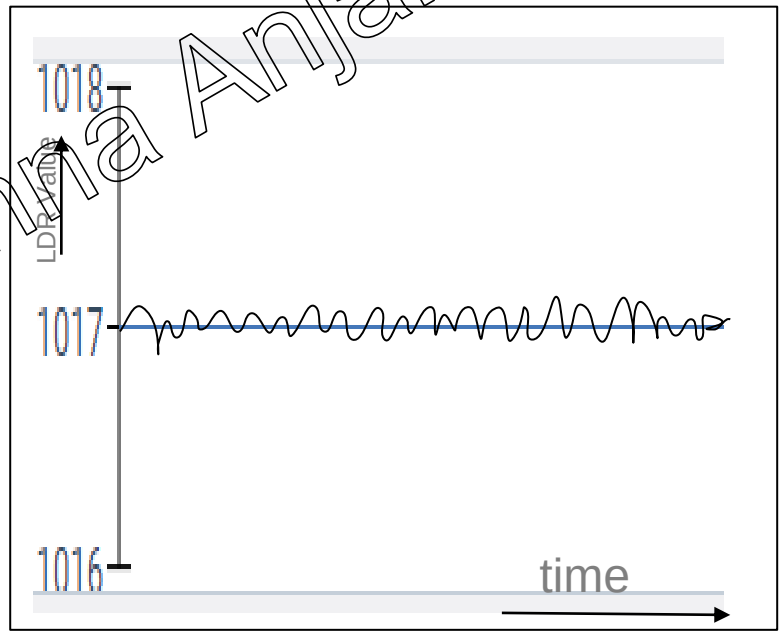
```
// PART-A: Serial print & plot of voltage across LDR
void setup()
{
 Serial.begin(9600);
}

void loop()
{
  Serial.println(analogRead(A0));
}
```

ARDUINO - IDE

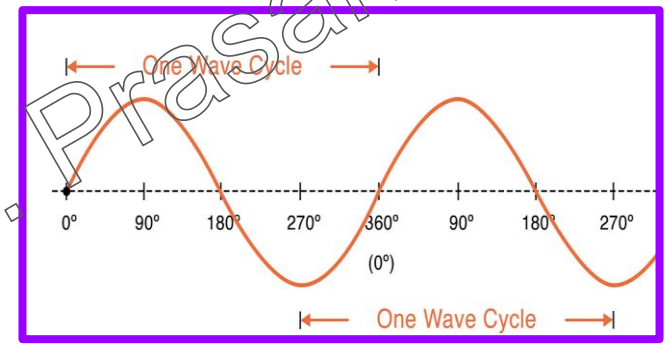


Results





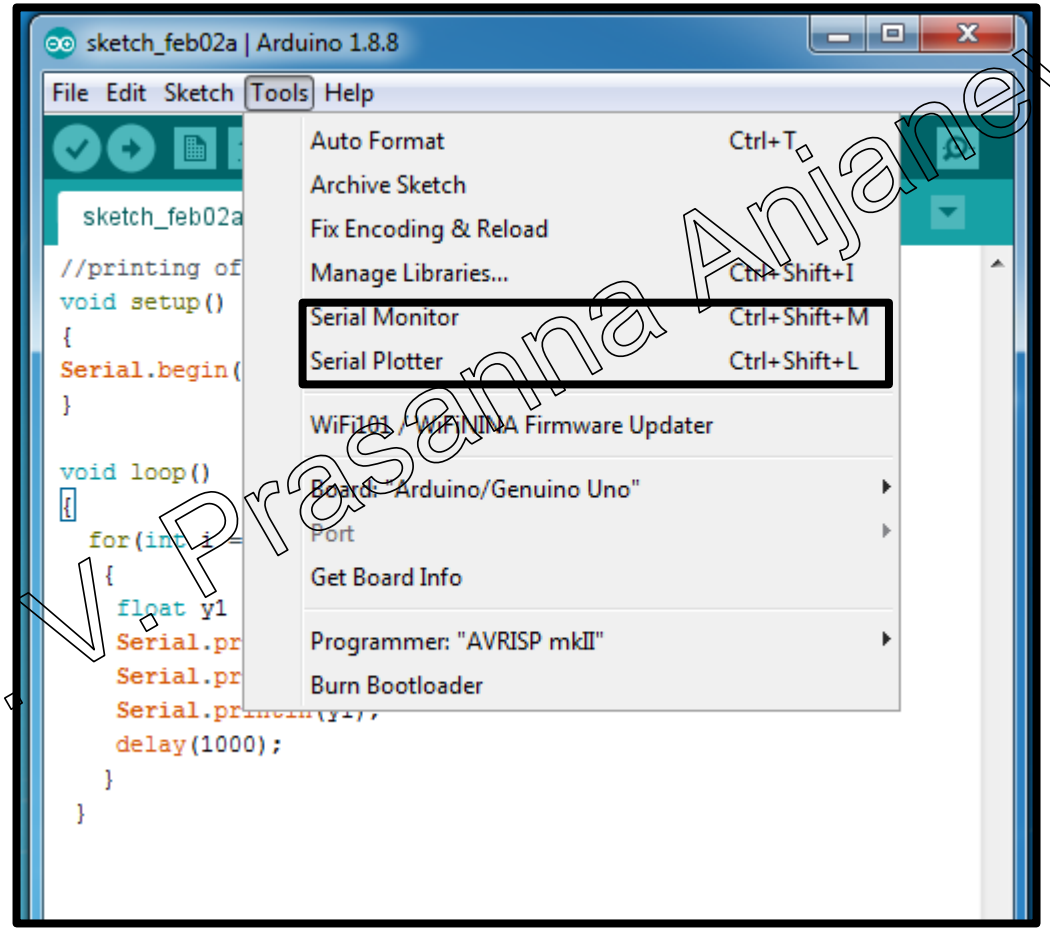
PART - B: Serial Plotter - Sine waveform



Part-B

```
//PART-B: printing of sine wave plot
void setup()
{
Serial.begin(9600);
}

void loop()
{
  for(int i = 0; i <= 360; i += 30)
   {
            float y1 = 1 * sin(i * M_PI / 180);
            Serial.print(i);

            Serial.print(" , ");

            Serial.println(y1);
            delay(200);
   }
}
```

ARDUINO - IDE

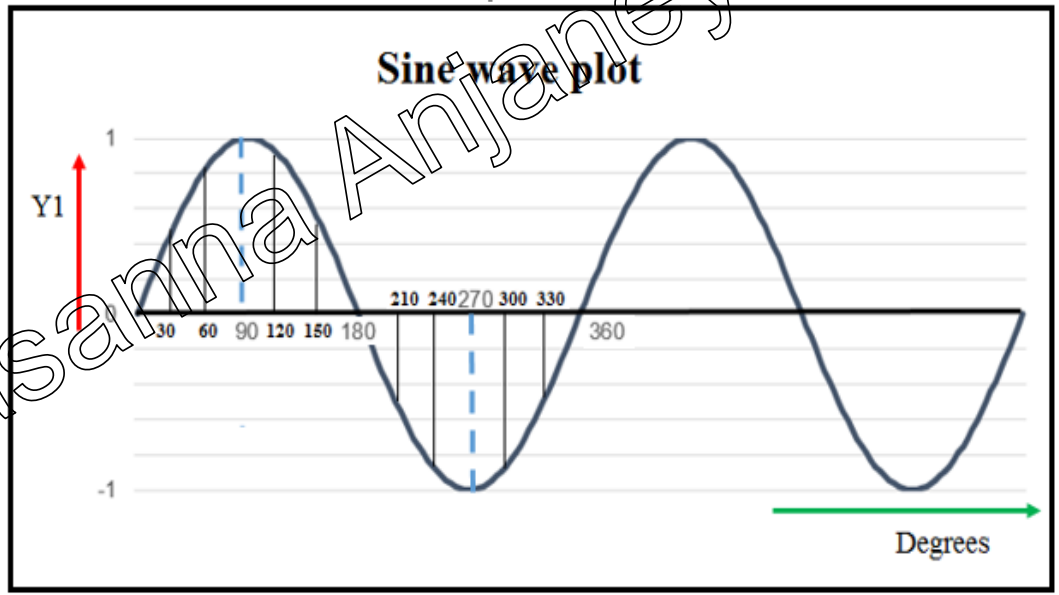


Result

Serial Monitor

0	0.00
30	0.50
60	0.87
90	1.00
120	0.87
150	0.50
180	-0.00
210	-0.50
240	-0.87
270	-1.00
300	-0.87
330	-0.50
360	0.00

Serial plotter



PROJECTS - ADVANCED

LDR based Projects

1.Arduino with LDR Project Using LED Schematics

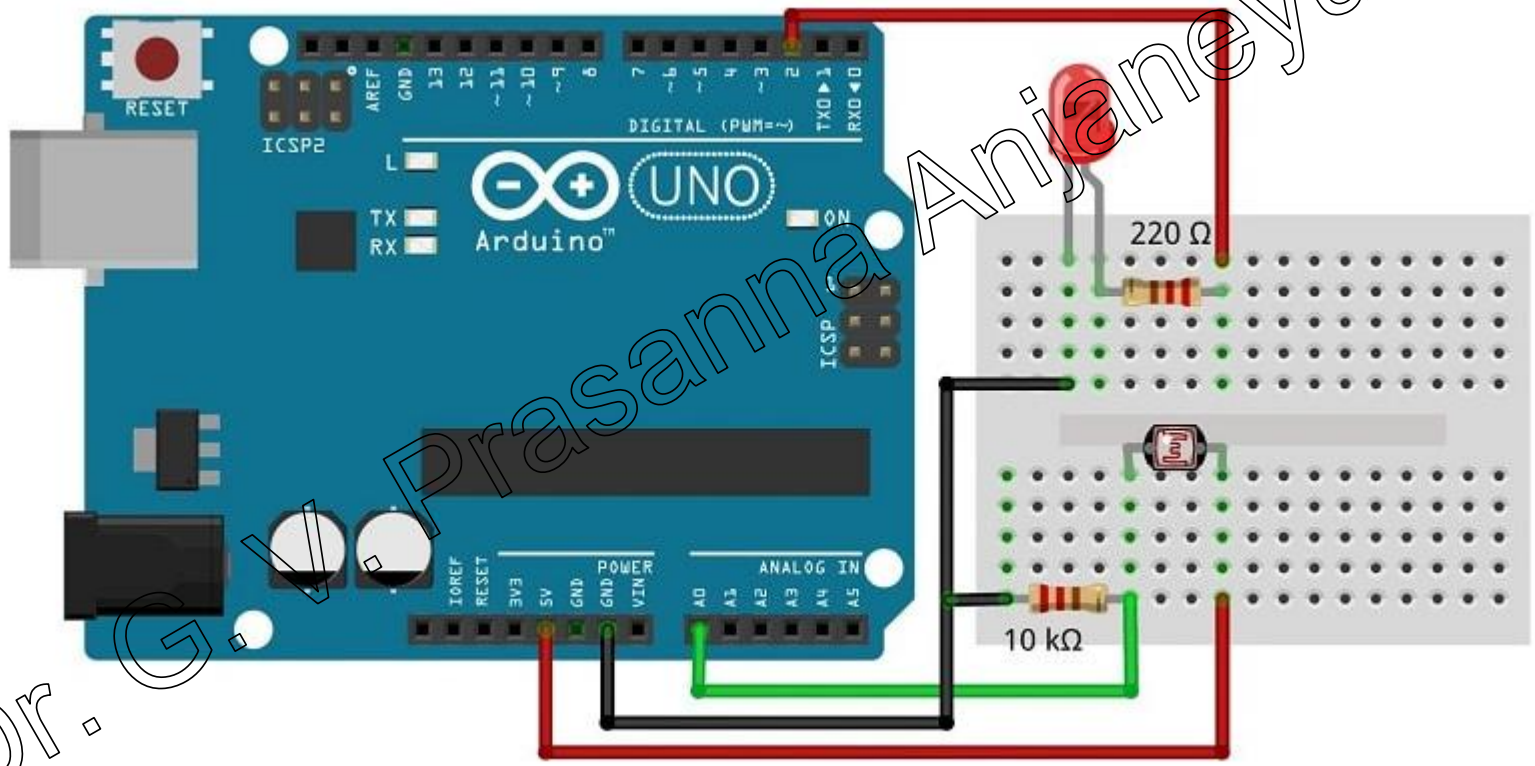
2.Arduino with LDR Project Using Relay Schematics

3. Automatic Curtain Operation Using LDR

4. LDR Plus GSM Based Security System

5. LDR-Based DC Motor Speed Control

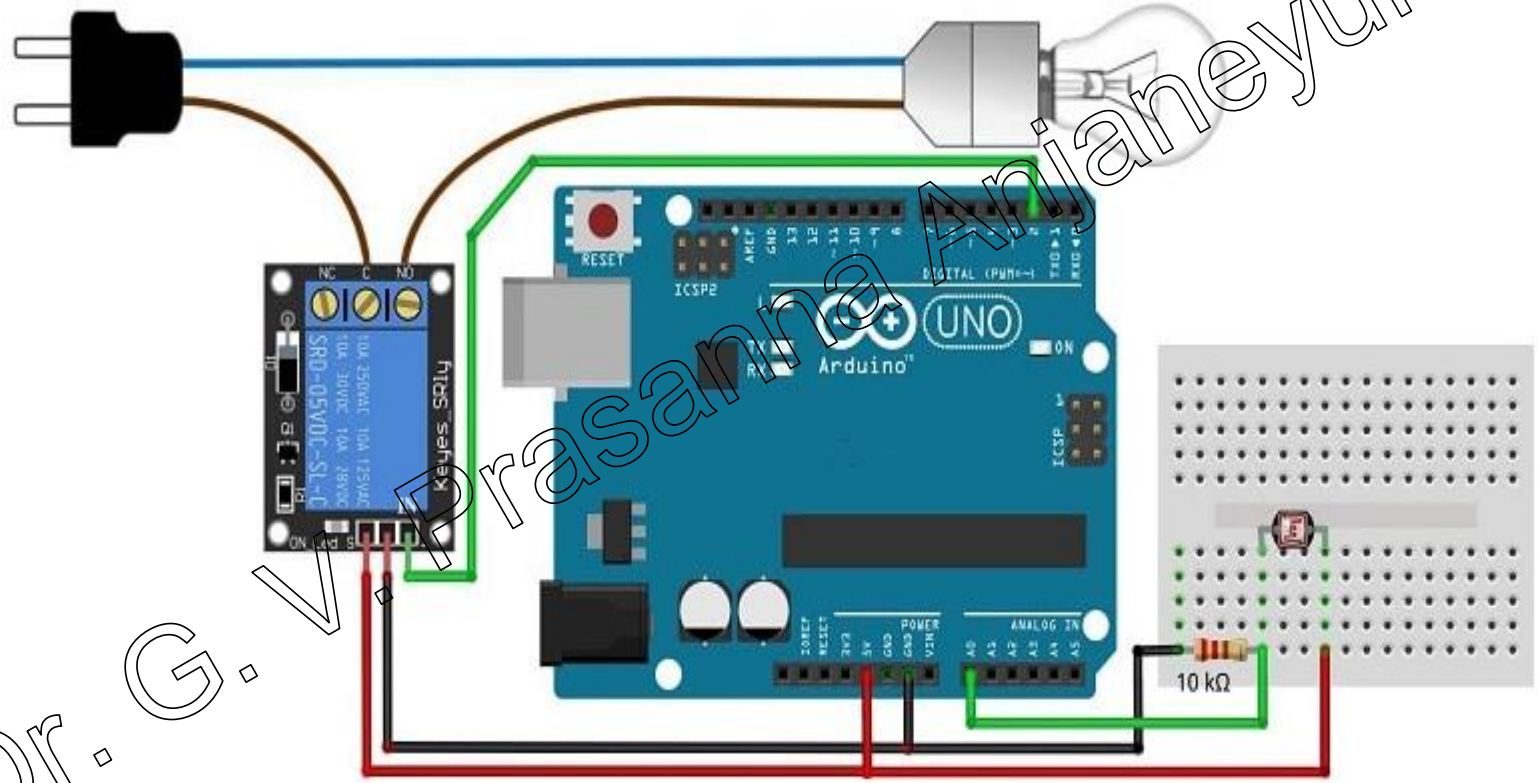
1.Arduino with LDR Project Using LED Schematics



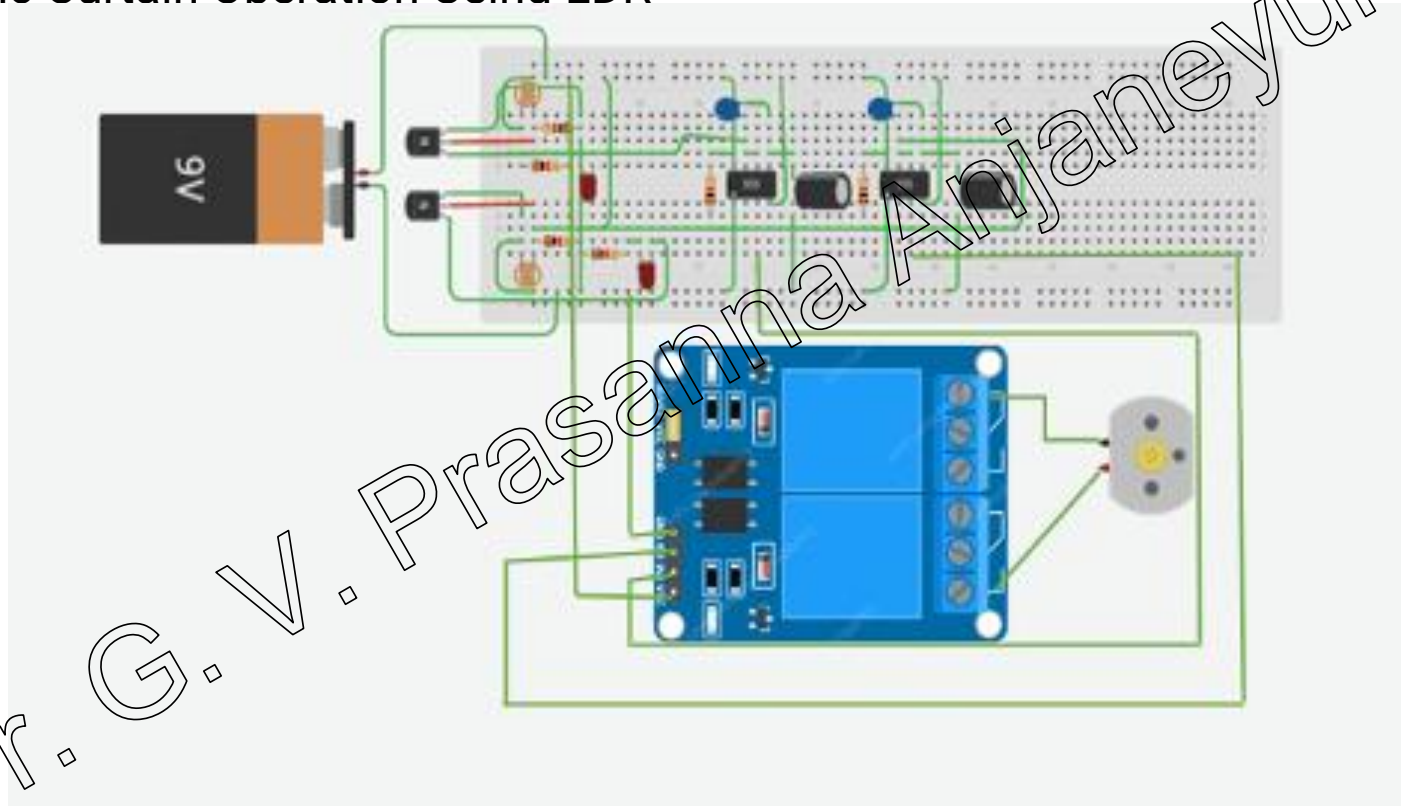
Program code

```
int LDRInput=A0; //Set Analog Input A0 for LDR.
int LED=2;
void setup() {
Serial.begin(9600);
pinMode(LDRInput,INPUT);
pinMode(LED,OUTPUT);
}
void loop() {
int value=analogRead(LDRInput);//Reads the Value of LDR(light).
Serial.println("LDR value is :");//Prints the value of LDR to Serial Monitor.
Serial.println(value);
LDR_Threshold=300;
if(value<LDR_Threshold)
  {
    digitalWrite(LED,HIGH);//The LED turns ON in Dark.
  }
  else
  {
    digitalWrite(LED,LOW);//The LED turns OFF in Light.
  }
}
```

2. Arduino with LDR Project Using Relay Schematics



3. Automatic Curtain Operation Using LDR

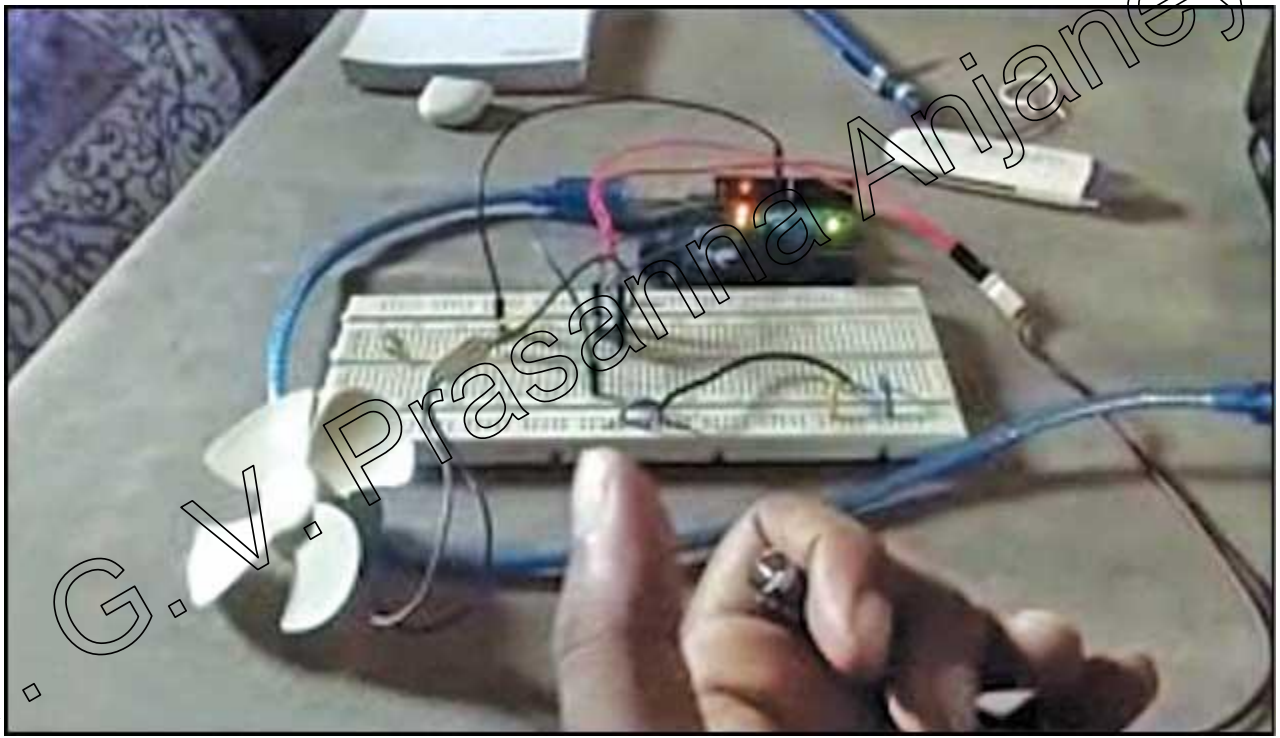


https://www.electronicsforu.com/electronics-projects/prototypes/automatic-curtain-operation-using-ldr

4. LDR Plus GSM Based Security System

https://www.electronicsforu.com/electronics-projects/ldr-plus-gsm-based-security-system

5. LDR-Based DC Motor Speed Control



https://www.electronicsforu.com/buyers-guides/hardware-buyers-guide/ldr-based-dc-motor-speed-control


Thank
you!