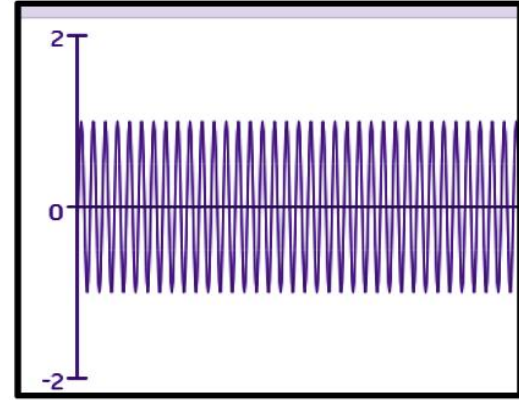
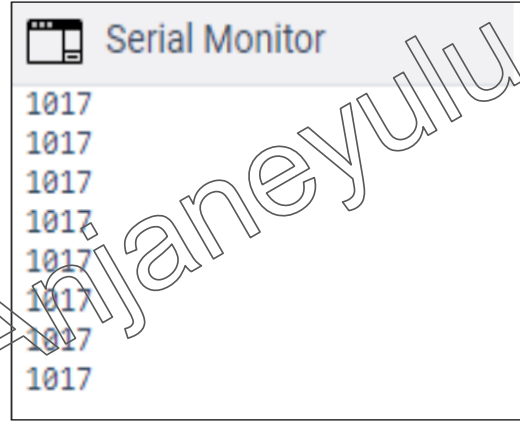
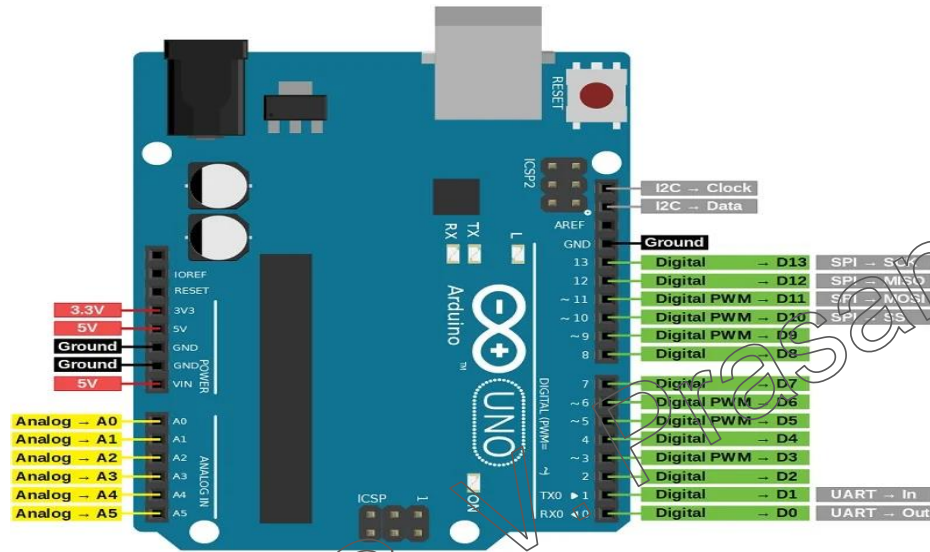


Experiment - 2

ARDUINO

Serial Monitor & Plotter



Experiment - 2

PART - A:
sensor

Plotting the Serial data from LDR

PART - B:

Serial Plotter - Sine waveforms

Syntax

Uppercase **Serial.print()** Parentheses
Lowercase



The diagram illustrates the syntax of the `Serial.print()` function. The text `Serial.print()` is shown in a large, bold, black font. A blue box highlights the word `Serial`, with the label 'Uppercase' in blue text to its left. A red box highlights the opening parenthesis `(`, with the label 'Parentheses' in red text above it. An orange bracket is positioned below the `Serial.print()` text, with the label 'Lowercase' in orange text below the bracket. A diagonal watermark reading 'Dr. G. V. Prasanna Anjaneyulu' is overlaid across the image.



```
Serial.begin(9600);  
Serial.print();  
Serial.println();
```

Dr. G. V. Prasanna Anjaneyulu

1. Serial.begin()

- This function use for start Serial communication

syntax : Serial.begin(—)

↓
baud rate

(Data transmission speed
in bits/ second)

syntex : Serial.begin(—)



baud rate

300	14400
600	19200
1200	28800
2400	38400
4800	57600
9600	115200

2. Serial.print()

Uppercase **S** **erial** **.** **print** **()** Parentheses
Lowercase

A diagram showing the components of the Serial.print() function. The text 'Serial.print()' is displayed in a large, bold, black font. A blue box highlights the 'S' in 'Serial', with the word 'Uppercase' written in blue to its left. A pink box highlights the parentheses '()', with the word 'Parentheses' written in pink above it. An orange bracket is positioned below the text, spanning from the end of 'Serial' to the end of '()', with the word 'Lowercase' written in orange below the bracket.

- 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 " "

eg. Serial.print("hello")



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()

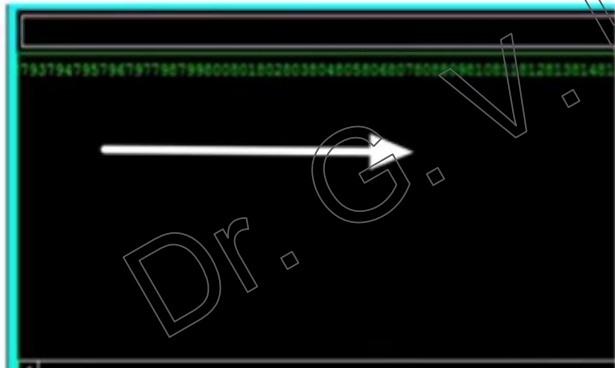
- This function is used to print any data or value of variables (vertically)

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

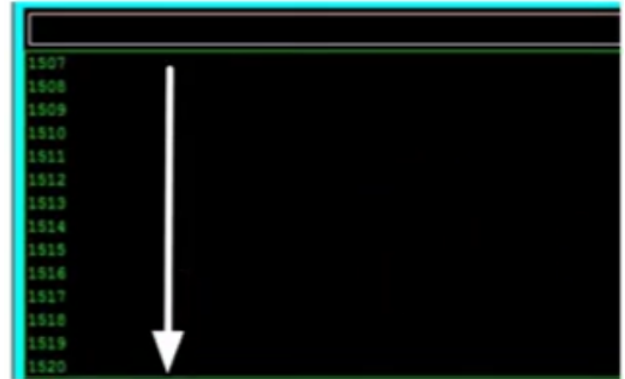
Serial.print()

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



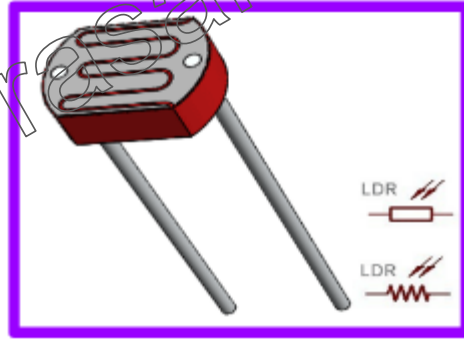
Serial.println()

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

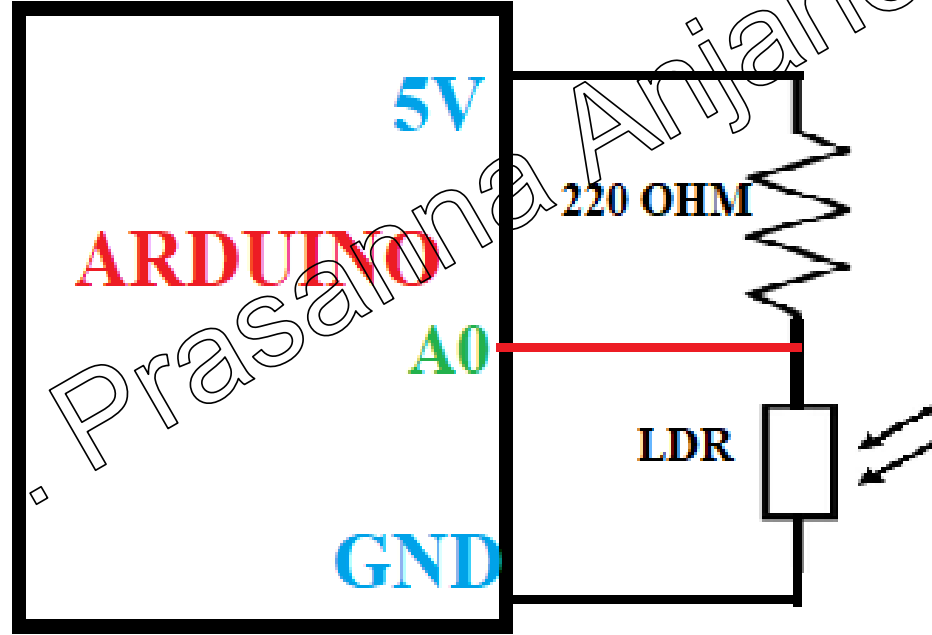


PART - A:

Plotting the serial data from LDR sensor



Circuit diagram



Apparatus

1.PC with Arduino IDE

2.Arduino UNO Board

3.USB cable

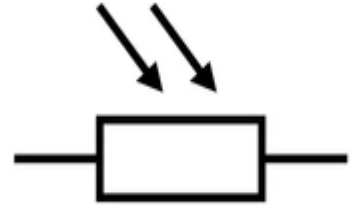
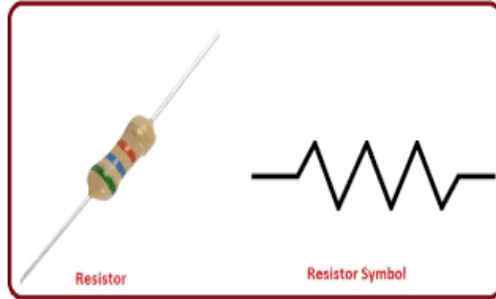
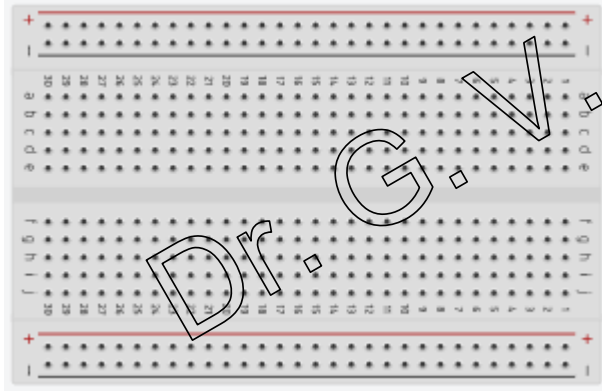
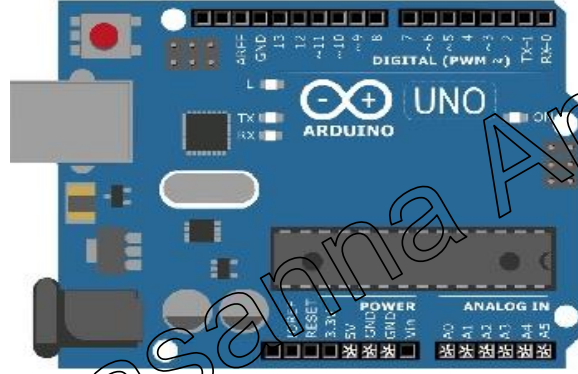
4.Light Dependent Resistor(photoresistor)

5.Bread board

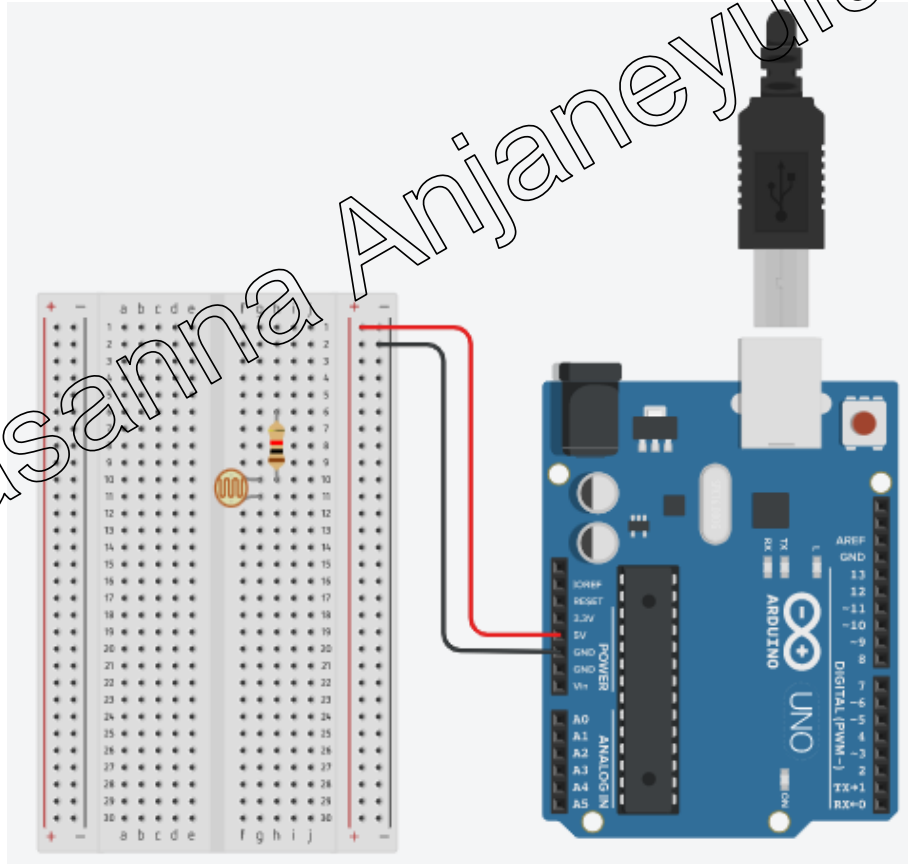
6.220 Ω resistor

7.Jumper wires

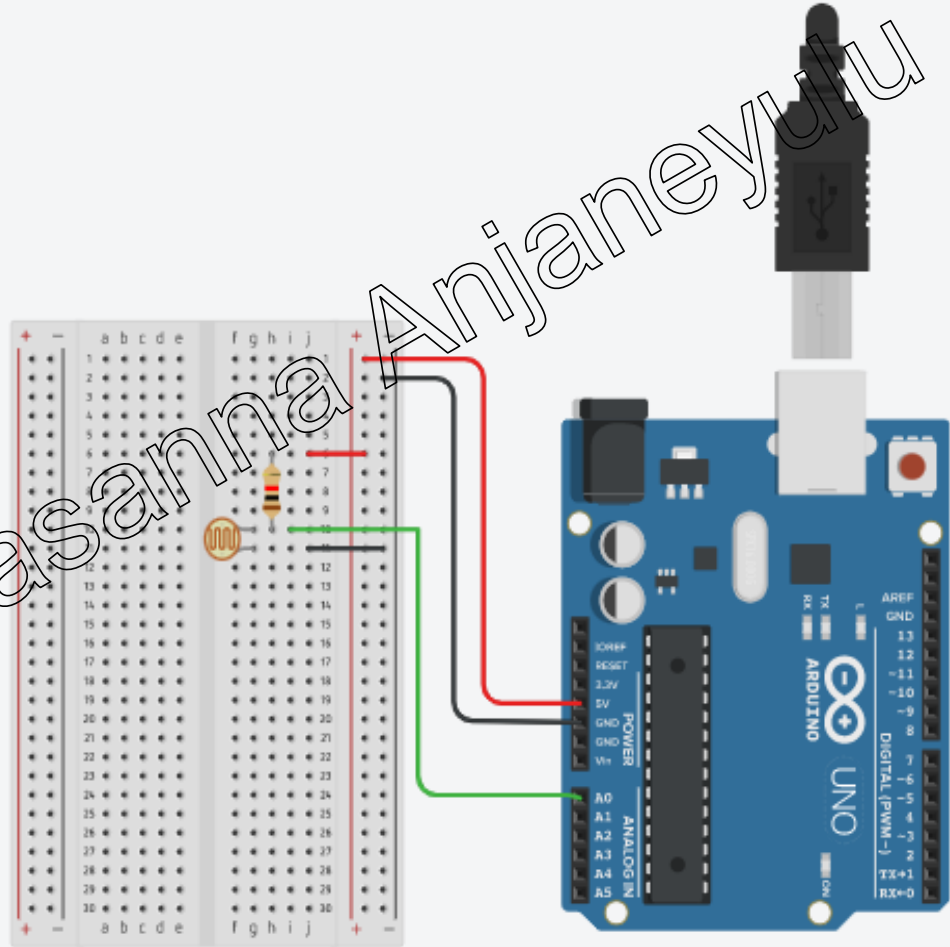
Implementation



Dr. G. V. Prasanna Anjaneyulu



Dr. G. V. Prasanna Anjaneyulu



ARDUINO Program

// PART-A: Serial print & plot of voltage across LDR

void setup()

{

Serial.begin(9600);

}

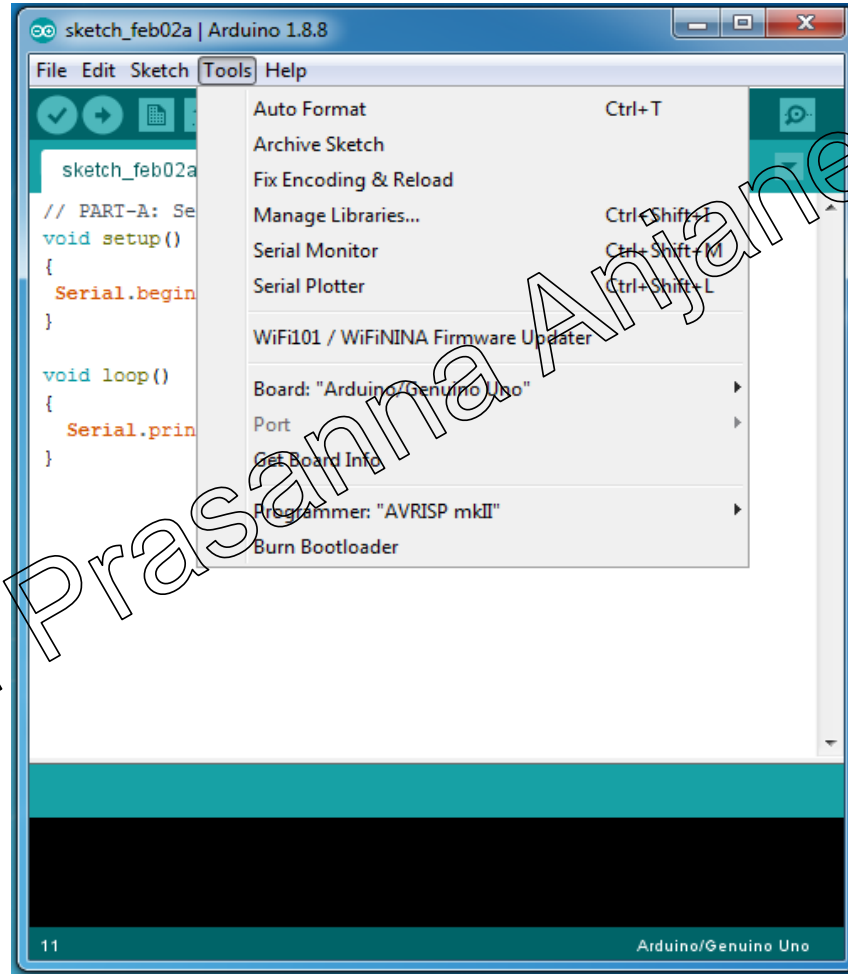
void loop()

{

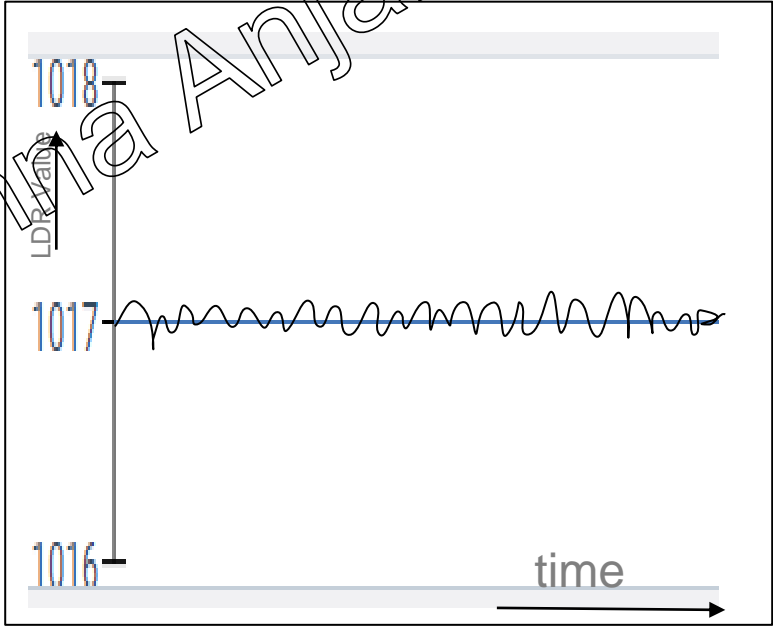
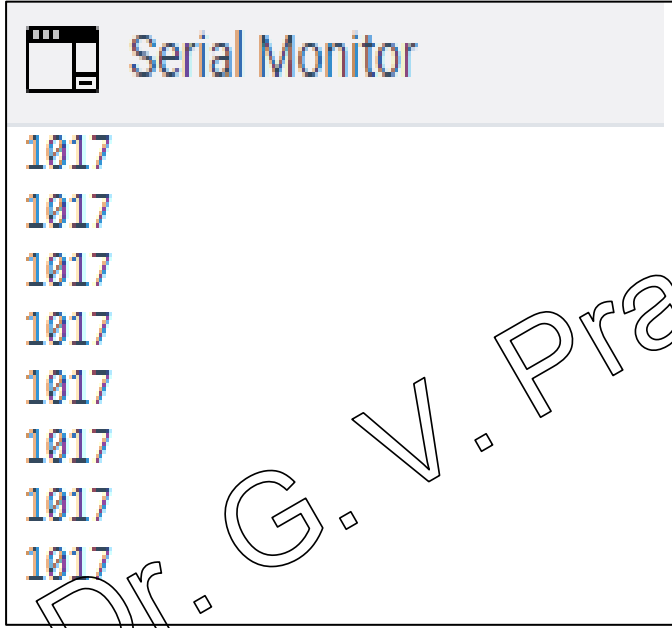
Serial.println(analogRead(A0));

}

ARDUINO - IDE

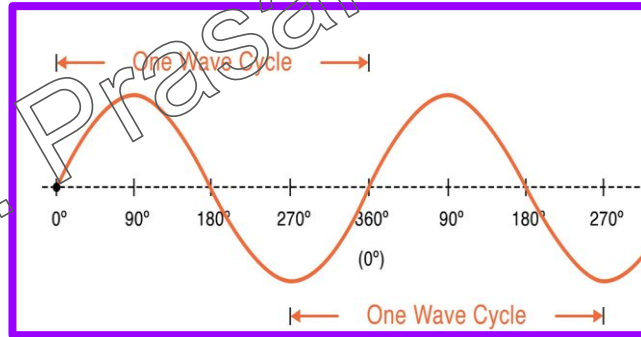


Results



PART - B:

Serial Plotter - Sine waveform



Part-B

//PART-B: printing of sine wave plot

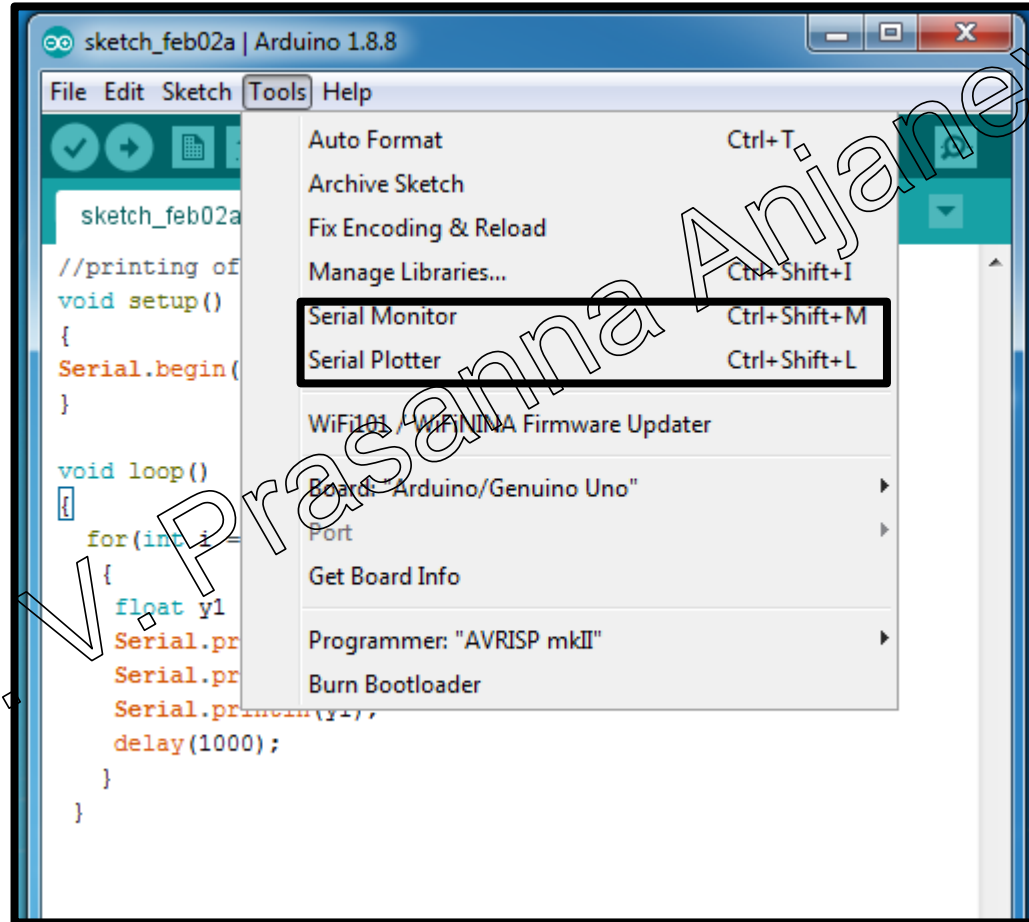
```
void setup()
```

```
{  
  Serial.begin(9600);  
}
```

```
void loop()
```

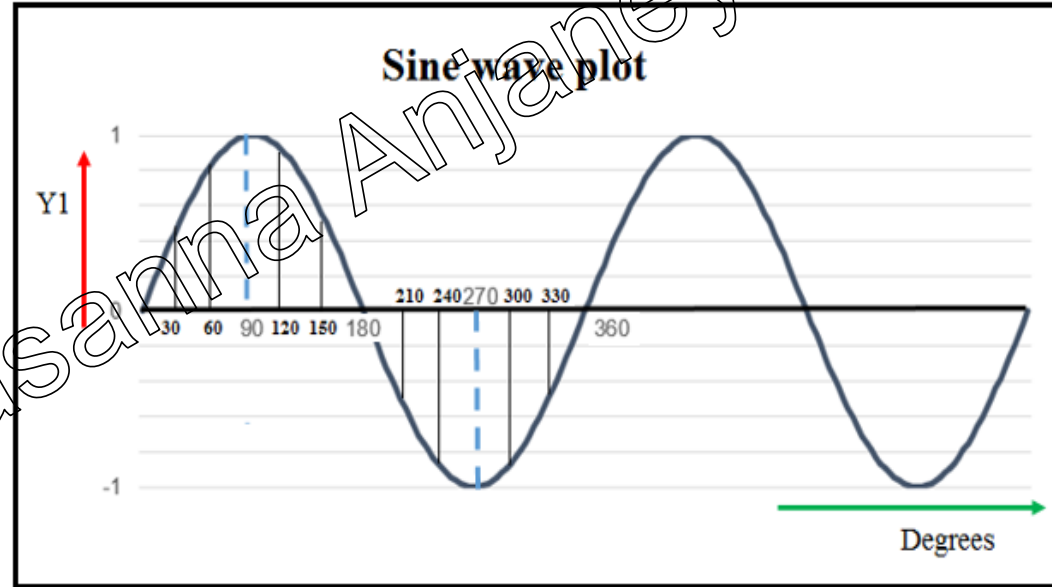
```
{  
  for(int i = 0; i <= 360; i += 30)  
  {  
    float y1 = 1 * sin(i * M_PI / 180);  
    Serial.print(i);  
  
    Serial.print(" , ");  
  
    Serial.println(y1);  
    delay(200);  
  }  
}
```

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



PROJECTS - ADVANCED

Dr. G. V. Prasanna Anjaneyulu

LDR based Projects

1.Arduino with LDR Project Using LED Schematics

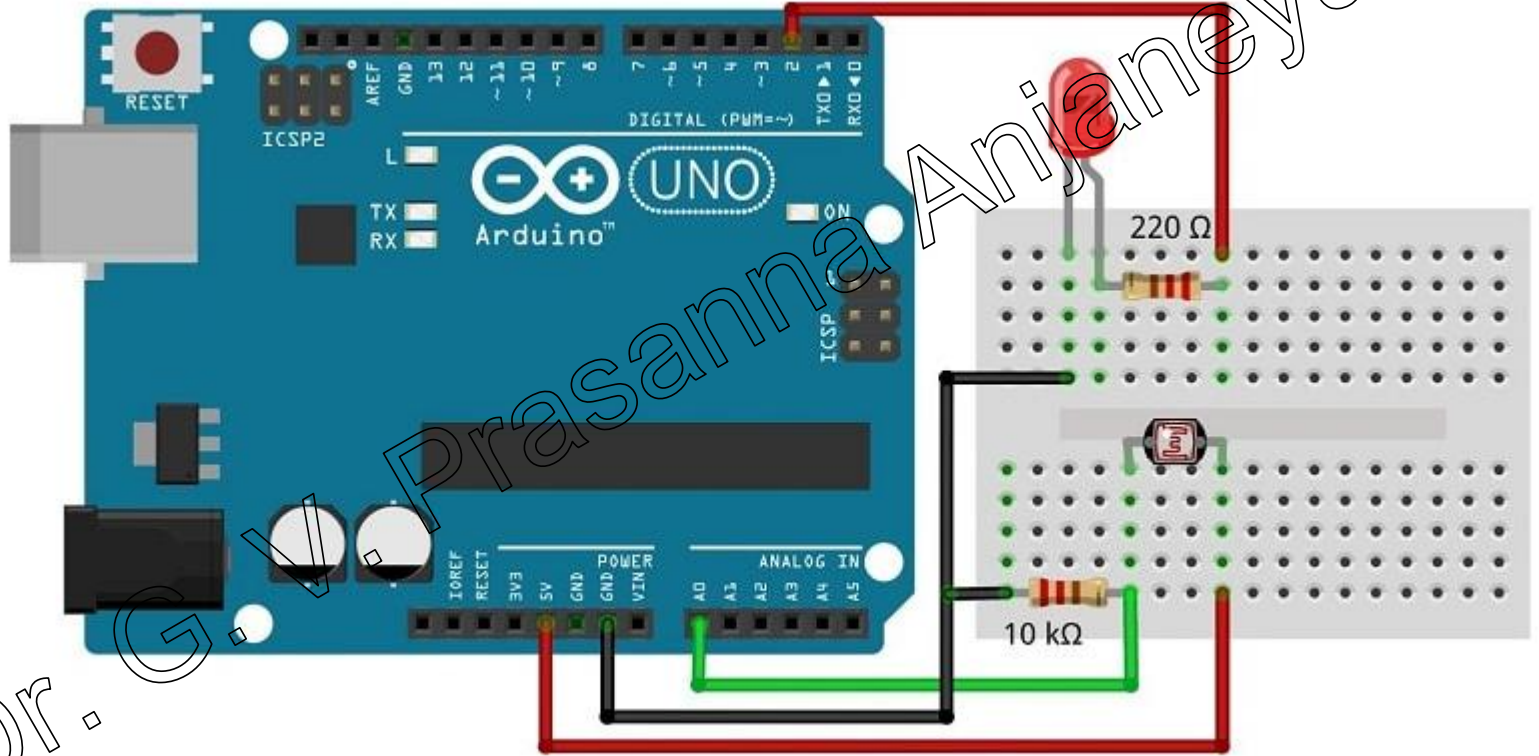
2.Arduino with LDR Project Using Relay Schematics

3. Automatic Curtain Operation Using LDR

4. LDR Plus GSM Based Security System

5. LDR-Based DC Motor Speed Control

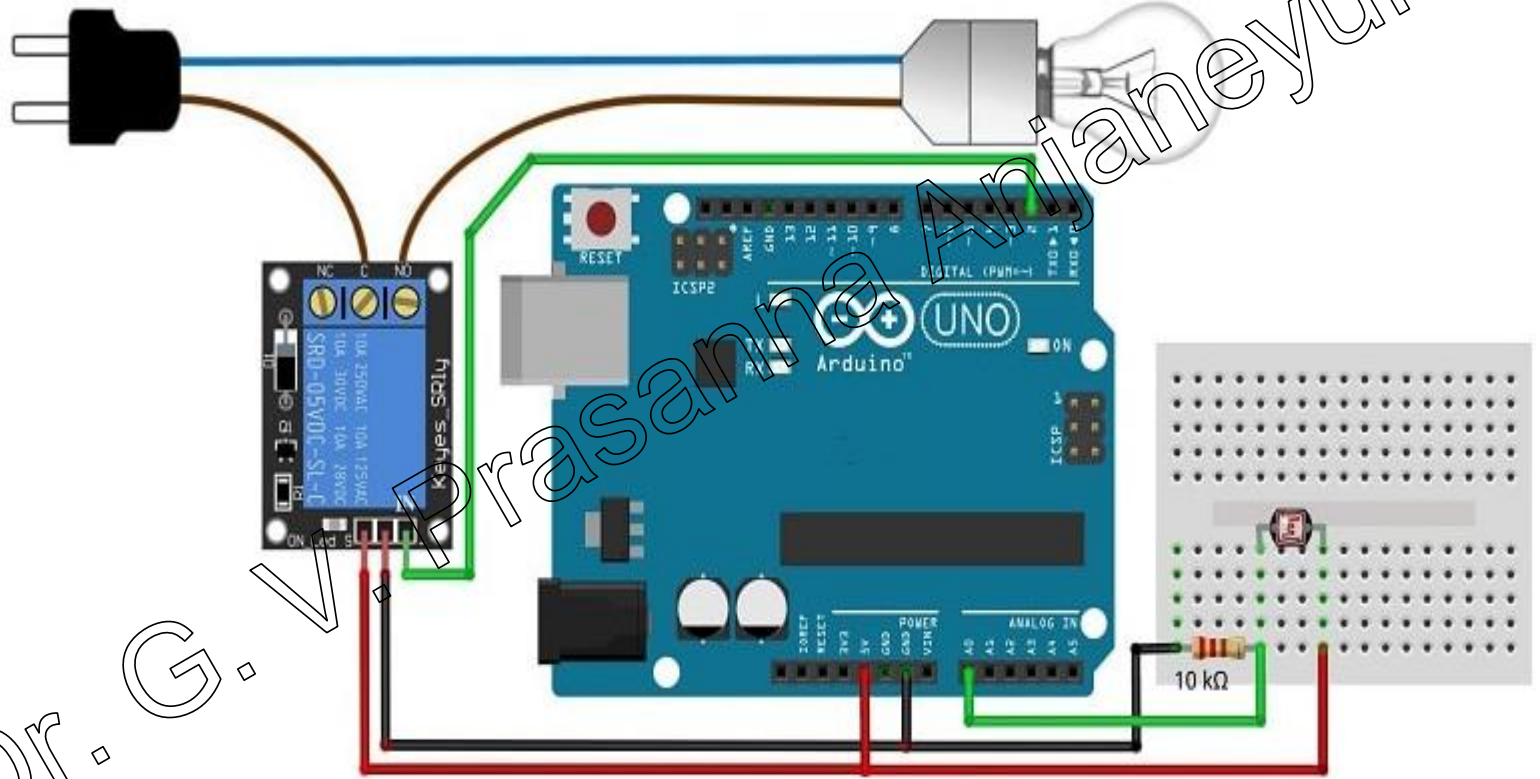
1.Arduino with LDR Project Using LED Schematics



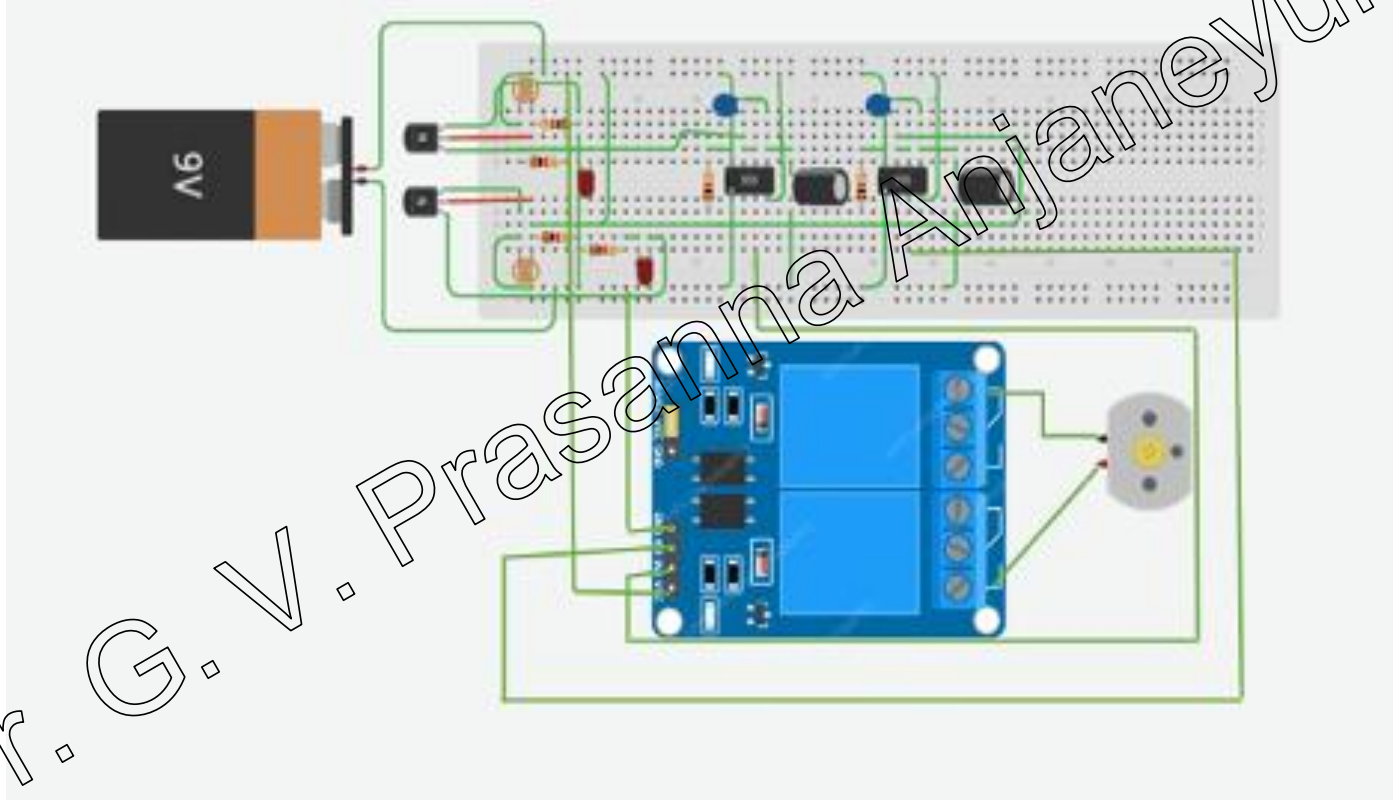
Program code

```
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

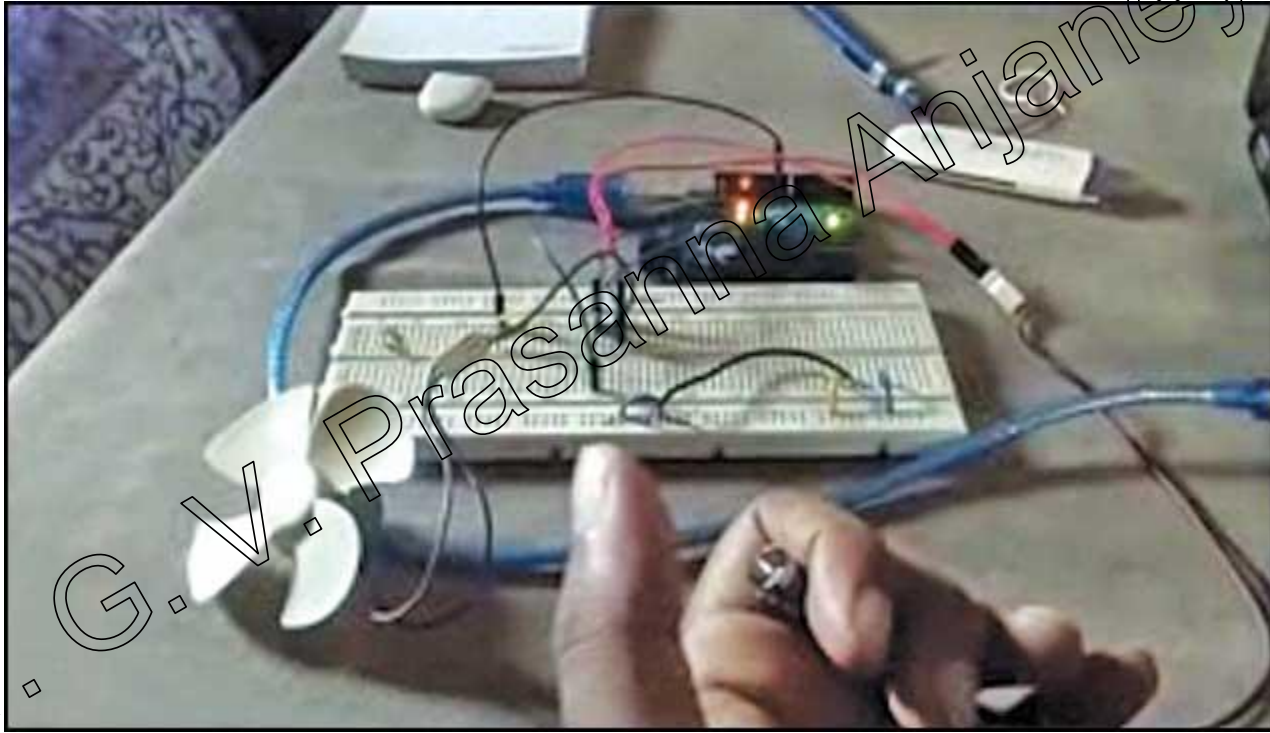


4. LDR Plus GSM Based Security System



<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/ltr-based-dc-motor-speed-control>

*Thank
you!*