Marwadi University	**Marwadi University** **Faculty of Technology** **Department of Information and Communication Technology**	
Subject: Foundation Skills in Sensor Interfacing (01CT11032)	**Aim:** To interface LDR sensor with Arduino.	
Experiment No: 06	**Date: 08-01-22**	**Enrolment No: 92100133020**

Aim: To interface LDR sensor with Arduino.

Apparatus: LDR sensor, Arduino UNO, Resistor, USB cable, jumper wires**.**

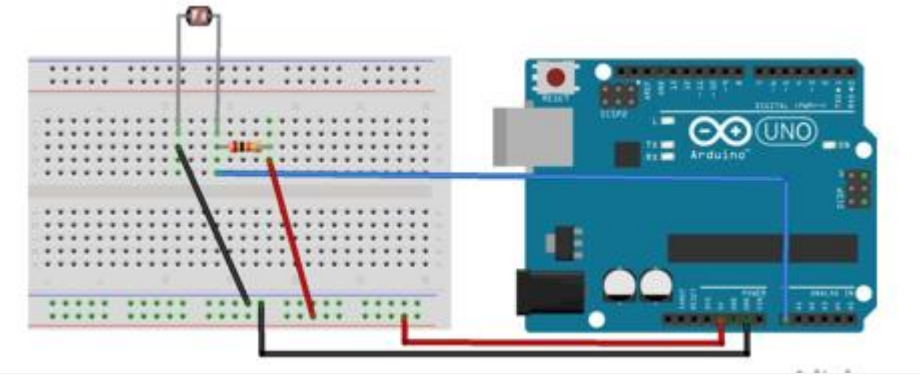
Theory: LDR (light depended resistor) are light sensitive devices mostly used to indicate the presence or absence of the light. They are also used to measure the intensity of the light. In dark, their resistance is very high and when in the bright, its resistance drops according to the intensity of the light. The sensitivity of this sensor varies with the wavelength of the light. If the wavelength is outside a certain range, it will not affect the resistance of the sensor. Extrinsic light dependent resistors are generally designed for longer wavelengths of light, with a tendency towards the infrared (IR).

This sensor is just another type of resistor and so has no polarity which means they can be connected in any direction. The symbol of this sensor is similar to that of resistor but just has inward arrows in it. These inward arrows indicate the light signals.

During the interfacing, one leg of the sensor is connected to VCC (5V) on the Arduino and other to the analog pin 0 on the Arduino. A 20k resistor is also connected to the leg that is connected with the VCC (5V).

The LDR changes its resistance with light and we will measure that using an analog pin of the Arduino Board. But we need a voltage divider to measure the exact resistance. If the LDR and the resistor have the same resistance, the 5V is split evenly to each part.

Interfacing Diagram:



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Code:

```
 int val;
void setup() {
  // put your setup code here, to run once:
  pinMode(A0,INPUT);
 Serial.begin(9600);

}

void loop() {
  // put your main code here, to run repeatedly:
  val = analogRead(A0);
 Serial.println(val);
}
```

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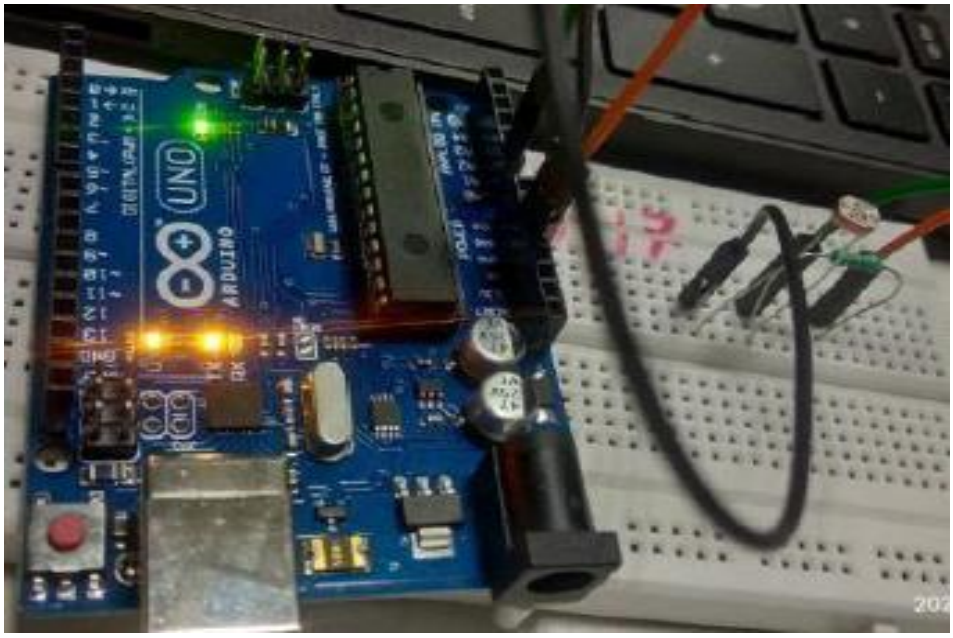
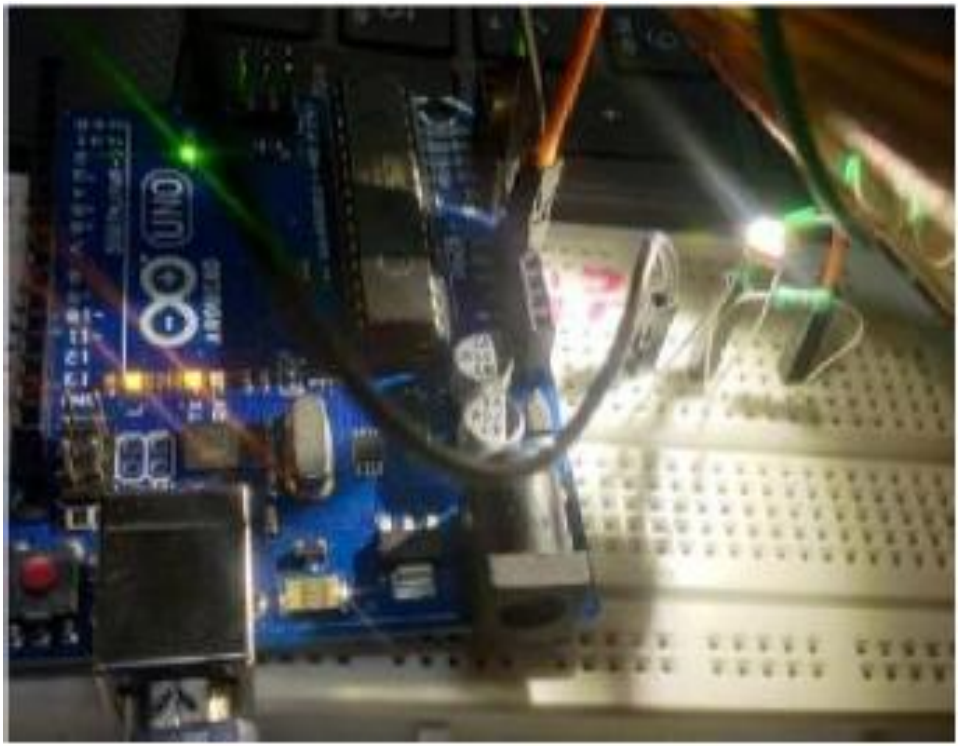
Output:





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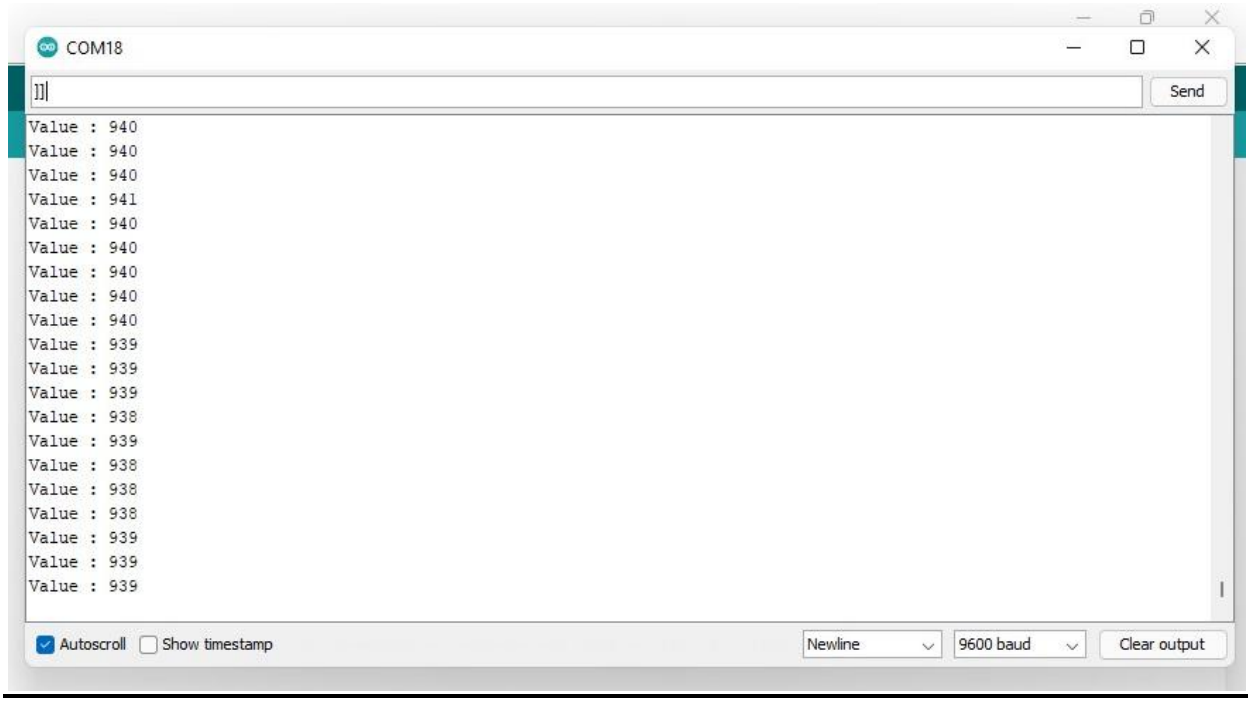
Observations:



Conclusion:

An LDR is a sensor which converts light to resistance. It is made from cadmium sulphide (CdS) and the resistance decreases as the brightness of light falling on the LDR increases. This sensor can be used in various home appliances. By using this sensor we can also save much power.