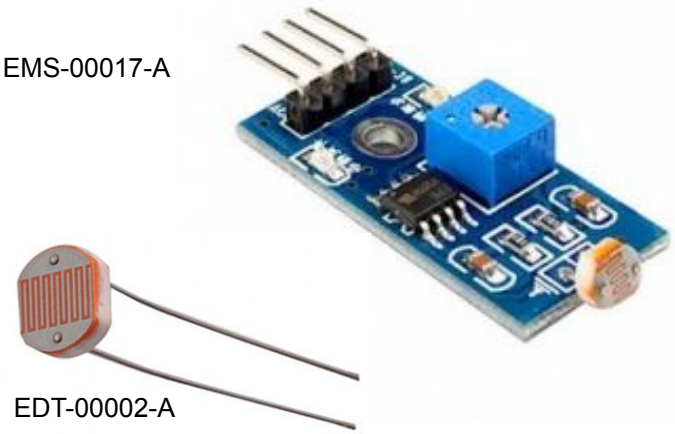
Light Dependent Resistor (LDR) (Technical Note)

What is LDR?



A light dependent photoresistor(or LDR) is a light-controlled variable resistor which works on the principle of photoconductivity. As the principle suggests that, with the increase in light intensity, the resistance of the photo-resistor decreases and vice-versa.

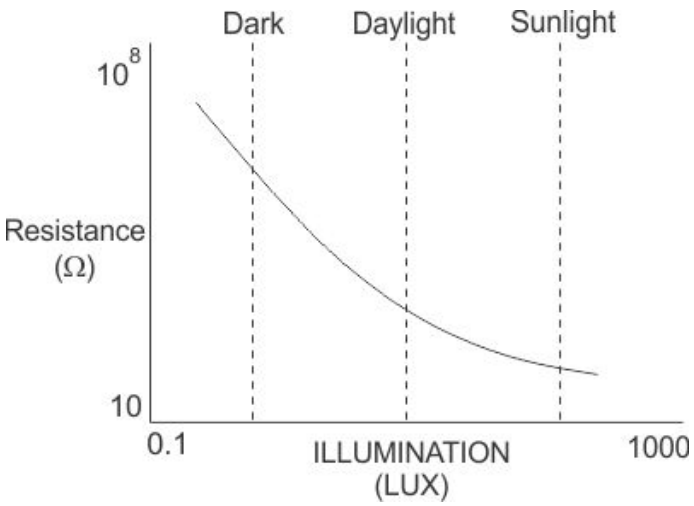
Applications

Optical Tremolo for Guitar Amplifiers

LDR detects the oscillating light patterns and changes its resistance. Using onboard tremolo effect with the its variable resistance, it controls the level of signals generated. The optical tremolo circuit was prominently found and well-loved in Fender amplifiers. This type of tremolo uses a light dependent resistor.

Street Lights

Streetlights today have a LDR with a relay embedded in it. During the day, the LDR detects light, the resistance drops and activates relay to turn off the light. During the night, the lights are turned on. This way it helps in energy saving.



Z2M Part Number:
EMS-00017-A

Light Dependent Resistor (LDR)
(Application Note)

Project

To analyse the change in resistance of the LDR by the surrounding light.

Procedure

LDR

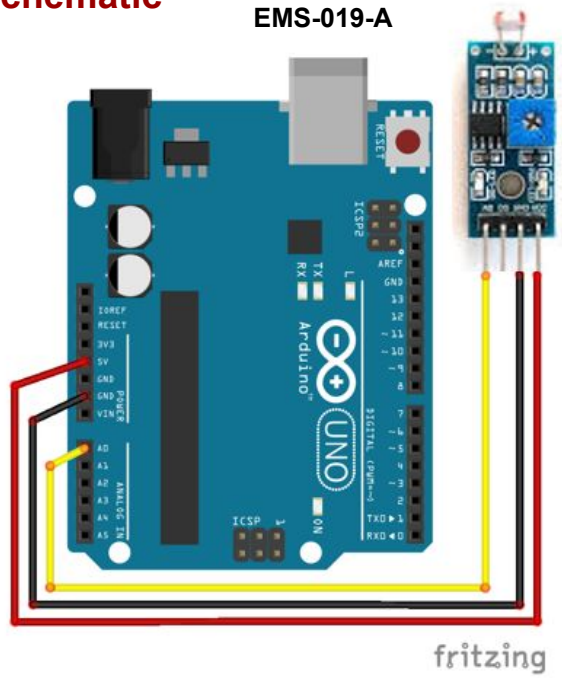
- Connect **VCC** pin of LDR to **5V** of Arduino
- Connect **GND** pin of LDR to **GND** of Arduino
- Connect **AO** pin of LDR to **A0** pin of Arduino

Components Required

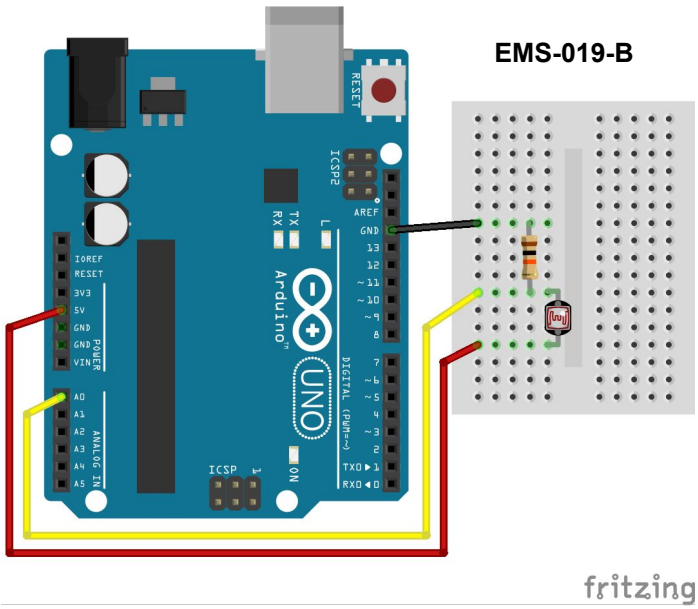
Component	Part No.	Qty
Arduino UNO	EMX-00001-A	1
LDR	EMS-00017-A or EDT-00002-A	1
Jumper Wires - M-F	EDA-00001-A	3
10 k ohm Resistor	EDR-00001-10K0	1

Schematic

EMS-019-A



EMS-019-B



Code

```
int LDR = A0;/* LDR is connected to
analog pin A0*/
int LDRVal;

void setup()
{
  pinMode(LDR,INPUT);/*Setting LDR
connected pin to take Input*/
  Serial.begin(9600); /* sets serial
port for communication*/
}

void loop()
{
  LDRVal = analogRead(LDR);/* read the
value from the LDR*/
  Serial.println(LDRVal);/* print the
value to the serial monitor*/
  delay(100);/* wait a little time*/
}
```

Challenge

1. Design automatic street light using LDR
2. Make a LDR driven window curtain motor controller