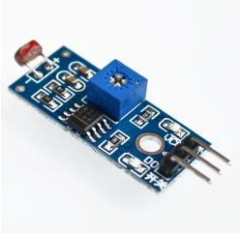
LDR Sensor using Arduino Nano

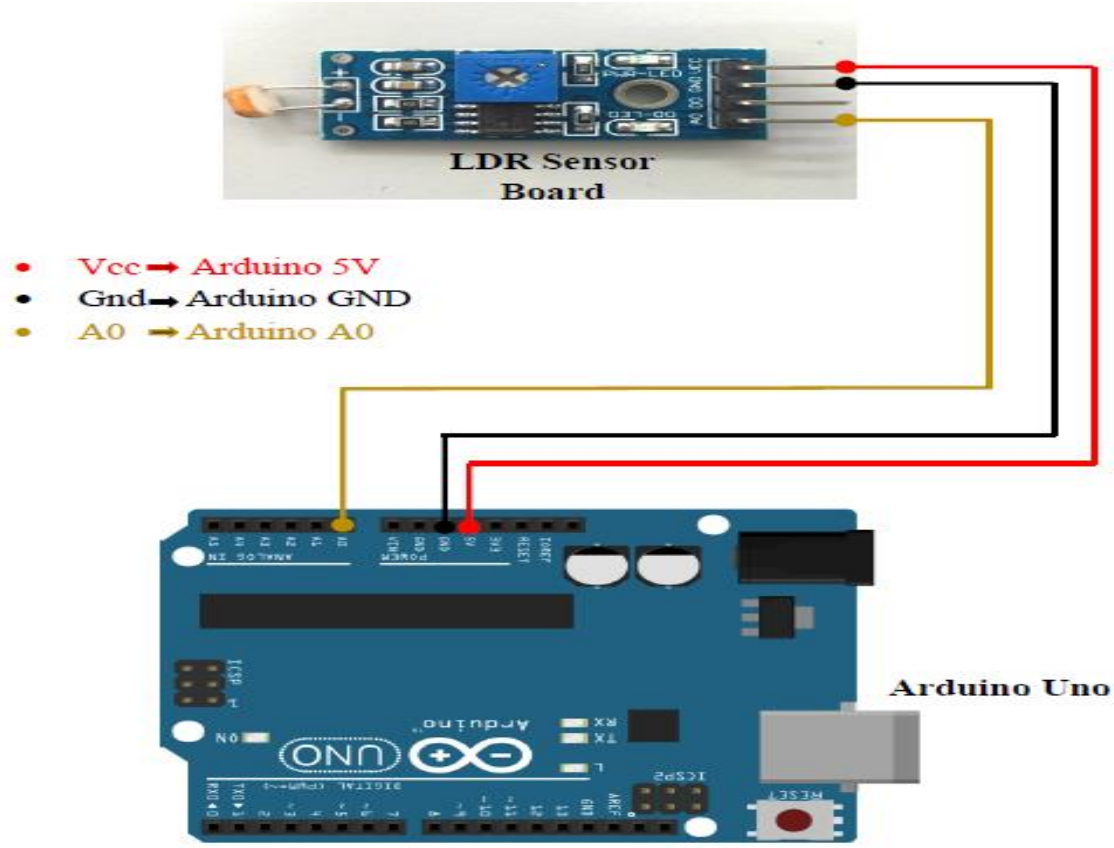
Light Sensitivity: LDRs are sensitive to light. When light falls on the LDR, its resistance changes. In darkness, LDRs have a very high resistance, while in brighter light, their resistance drops significantly.

Variable Resistance: LDRs act like variable resistors. This means their resistance is not fixed but depends on the amount of light they detect. This variable resistance makes them useful for applications where we need to detect or measure light intensity.

Parts required:

Sl.no	Description	Image	Quantity
1	Arduino board		1
2	LDR Sensor		1
4	External power source		1
5	Connecting power cable		1
6	Connecting wires		1

Circuit diagram:



Hardware connections:

1. Connect the wire between the Arduino Nano board and Vibration Sensor as given below

VCC	→	+5v
GND	→	Gnd
A0	→	A0

2. Connect the USB Cable between Arduino Nano and PC.
3. Integrate the program into the arduino Nano board.
4. Open the Serial monitor and check for the output value with and without vibrating the sensor.

```
// Define LED pin (change this if needed)
const int ledPin = 13;

// Define LDR pin (change this if using a different analog pin)
const int ldrPin = A0;

// Threshold value for light detection (adjust as needed)
const int threshold = 500; // Higher value for darker threshold

void setup() {
  Serial.begin(9600);     // Initialize serial communication for debugging (optional)
  pinMode(ledPin, OUTPUT);  // Set LED pin as output
  pinMode(ldrPin, INPUT);  // Set LDR pin as input
}

void loop() {
  int ldrValue = analogRead(ldrPin);  // Read analog value from LDR
  Serial.print("LDR Value: ");  // Print LDR value for debugging (optional)
  Serial.println(ldrValue);  // Print LDR value for debugging (optional)

  if (ldrValue < threshold) {  // Check if LDR value is below threshold (darker)
    digitalWrite(ledPin, HIGH);  // Turn LED on
  } else {
    digitalWrite(ledPin, LOW);  // Turn LED off
  }

  delay(100);  // Add a delay to avoid rapid changes (optional)
}
```