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Application Note on Interfacing Arduino with LDR

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Reviewer:
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Interfacing Arduino UNO with LDR breakout

Introduction

In this application note we will be discussing on interfacing LDR with Arduino UNO as a light-controlled variable resistor. The resistance of a photoresistor decreases with increasing incident light intensity.

Arduino UNO: Arduino is an open-source prototyping platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. All this is defined by a set of instructions programmed through the Arduino Software (IDE).

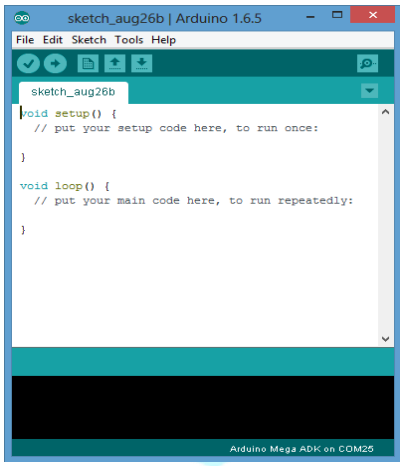
LDR: A photoresistor (or light-dependent resistor, LDR, or photocell) is a light-controlled variable resistor. The resistance of a photoresistor decreases with increasing incident light intensity; in other words, it exhibits photoconductivity. A photoresistor can be applied in light-sensitive detector circuits, and light- and dark-activated switching circuits.

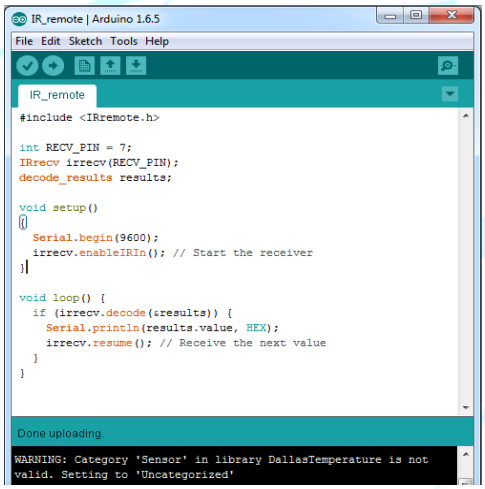
A photoresistor is made of a high resistance semiconductor. In the dark, a photoresistor can have a resistance as high as several mega ohms (MΩ), while in the light, a photoresistor can have a resistance as low as a few hundred ohms. If incident light on a photoresistor exceeds a certain frequency, photons absorbed by the semiconductor give bound electrons enough energy to jump into the conduction band. The resulting free electrons (and their hole partners) conduct electricity, thereby lowering resistance. The resistance range and sensitivity of a photoresistor can substantially differ among dissimilar devices. Moreover, unique photoresistors may react substantially differently to photons within certain wavelength bands.

Step1. The Materials required are:

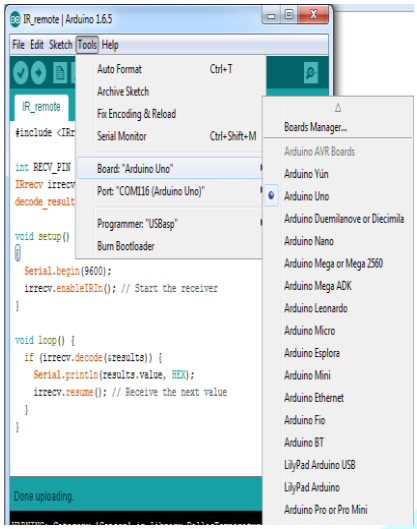
- Arduino UNO
- LDR Breakout
- Male to male Jumpers

1. Open Arduino sketch on your PC or Laptop to start the programming.

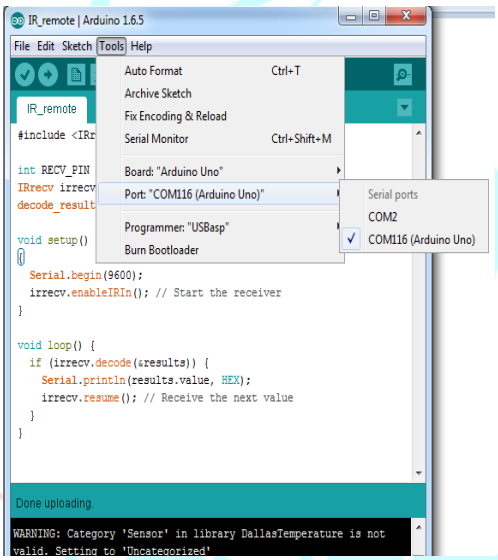




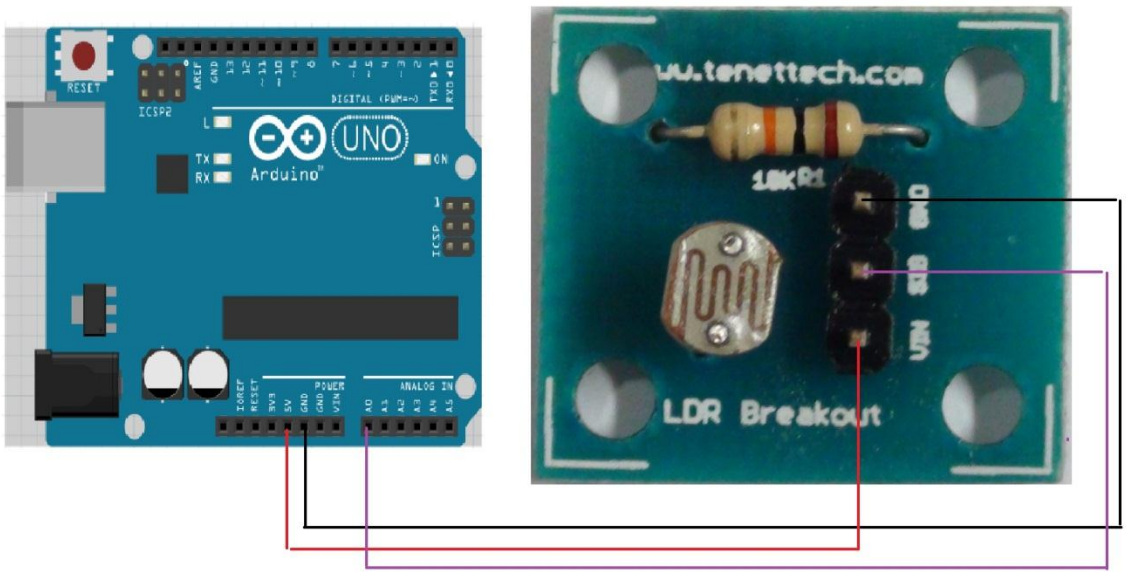
- Type the program for the LDR whenever the light is incident on it the voltage should vary.
- Click on verify and check for any errors in the program. If no errors are present select the Arduino UNO in IDE. Go to tools> Board> Select Arduino UNO.



- Select port of programming by Tools> Port> Select the port for programming



- Now Upload the program to the arduino

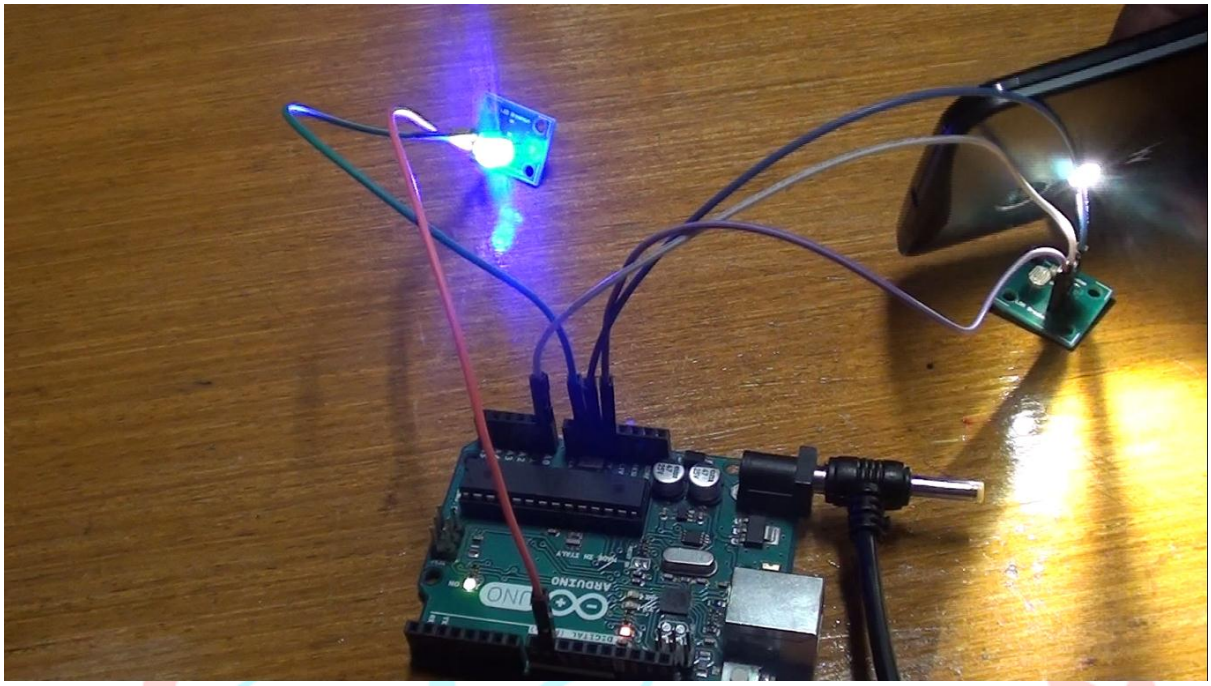


CODE:

```
void setup() {
  // initialize serial communication at 9600 bits per second:
  Serial.begin(9600);
}

// the loop routine runs over and over again forever:
void loop() {
  // read the input on analog pin 0:
  int sensorValue = analogRead(A0);
  // print out the value you read:
  Serial.println(sensorValue);
  delay(1);        // delay in between reads for stability
}
```

OUTPUT:



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For technical query please send an e-mail: info@tenettech.com

For product info:

1. http://www.tenettech.com/product/5098/lcd-16x2-characters-white-text-blue-background
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