

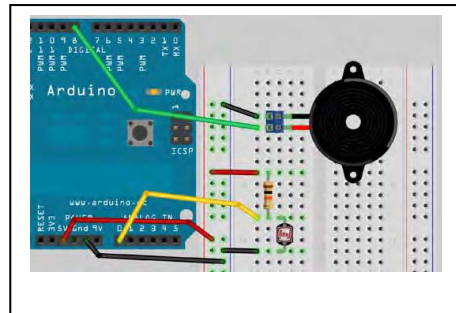
Project 12 – Light Sensor

(text based on **Beginning Arduino**

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This project introduces a new component known as a **Light Dependent Resistor**, or **LDR**. As the name implies, the device is a resistor that depends on light. In a dark environment, the resistor has a very high resistance. As photons (light) land on the detector, the resistance decreases.

By reading the resistance value of the sensor, you can detect if it is light, dark, or anywhere between. In this project, you use an LDR to detect light and a piezo sounder to give audible feedback of the amount of light detected. This setup could be used as an alarm that indicates when a door has been opened, for example. The principle can be used to switch off a lamp, switch on a motor, etc.



```
// Project 12 - LDR
```

```
int piezoPin = 8; // Piezo on Pin 8
```

```
int ldrPin = 0; // LDR on Analog Pin 0
```

```
int ldrValue = 0; // Value read from the LDR
```

```
void setup() {
```

```
    // nothing to do here
```

```
}
```

```
void loop() {
```

```
    ldrValue = analogRead(ldrPin); // read the value from the LDR
```

```
    tone(piezoPin,1000); // play a 1000Hz tone from the piezo
```

```
    delay(25); // wait a bit
```

```
    noTone(piezoPin); // stop the tone
```

```
    delay(ldrValue); // wait the amount of milliseconds in ldrValue
```

```
}
```

When you upload this code to the Arduino, the Arduino makes short beeps. The gap between the beeps will be long if the LDR is in the shade and will be short if bright light shines on the LDR, giving it a Geiger counter type effect. You may find it more practical to solder a set of long wires to the LDR to allow you to keep your breadboard and Arduino on the table while moving the LDR around to point it at dark and light areas. Alternatively, shine a flashlight on the sensor and move it around. The code is very simple and you should be able to work out how it works yourself without any help.