



LDR BOX



01

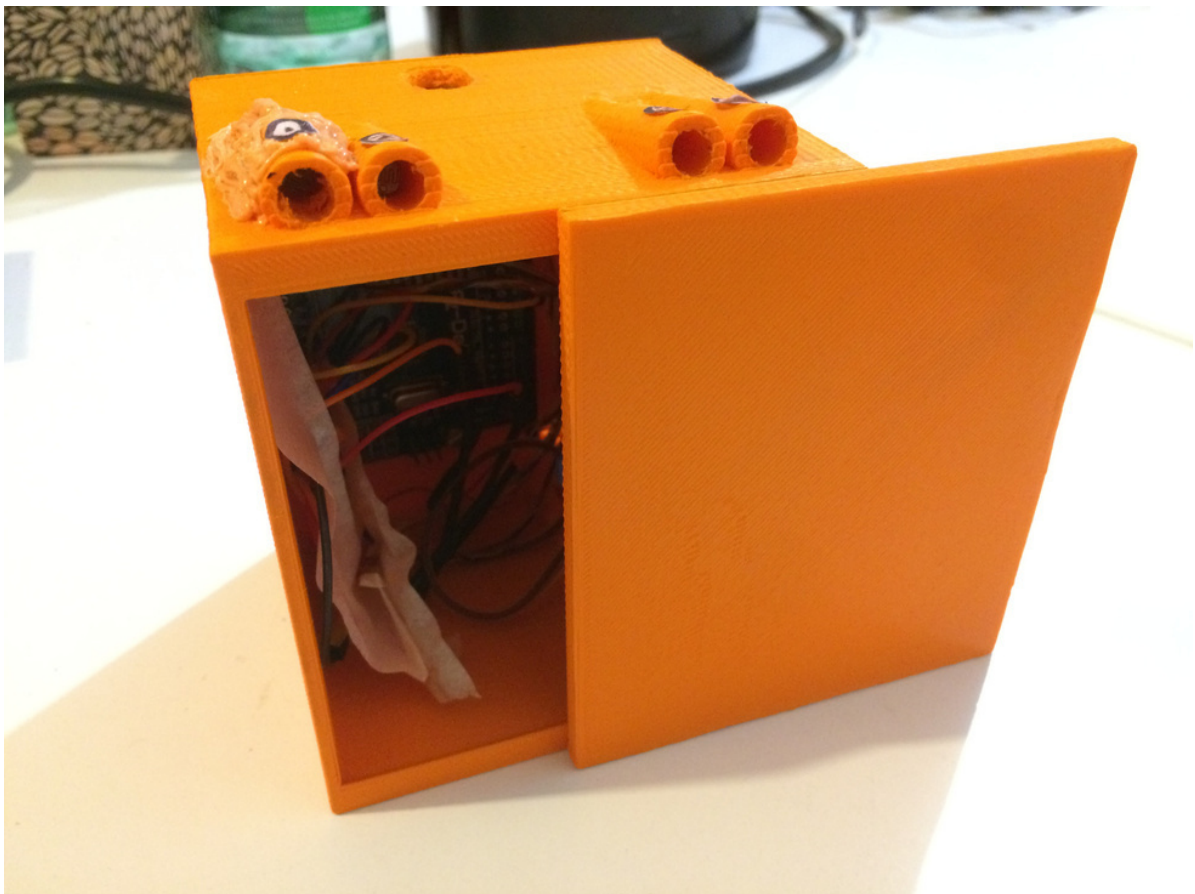
LDR BOX MATERIAL NEEDED

- Arduino Uno
- LDR sensor * 4
- A servo motor
- Resistor 10k ohm * 4
- Jumper wires
- Breadboard (not useful for the box at the end)
- 3D Printed Box (four parts)

The box's STL files are available here : [Download](#)

The Arduino file is available here : [Download](#)

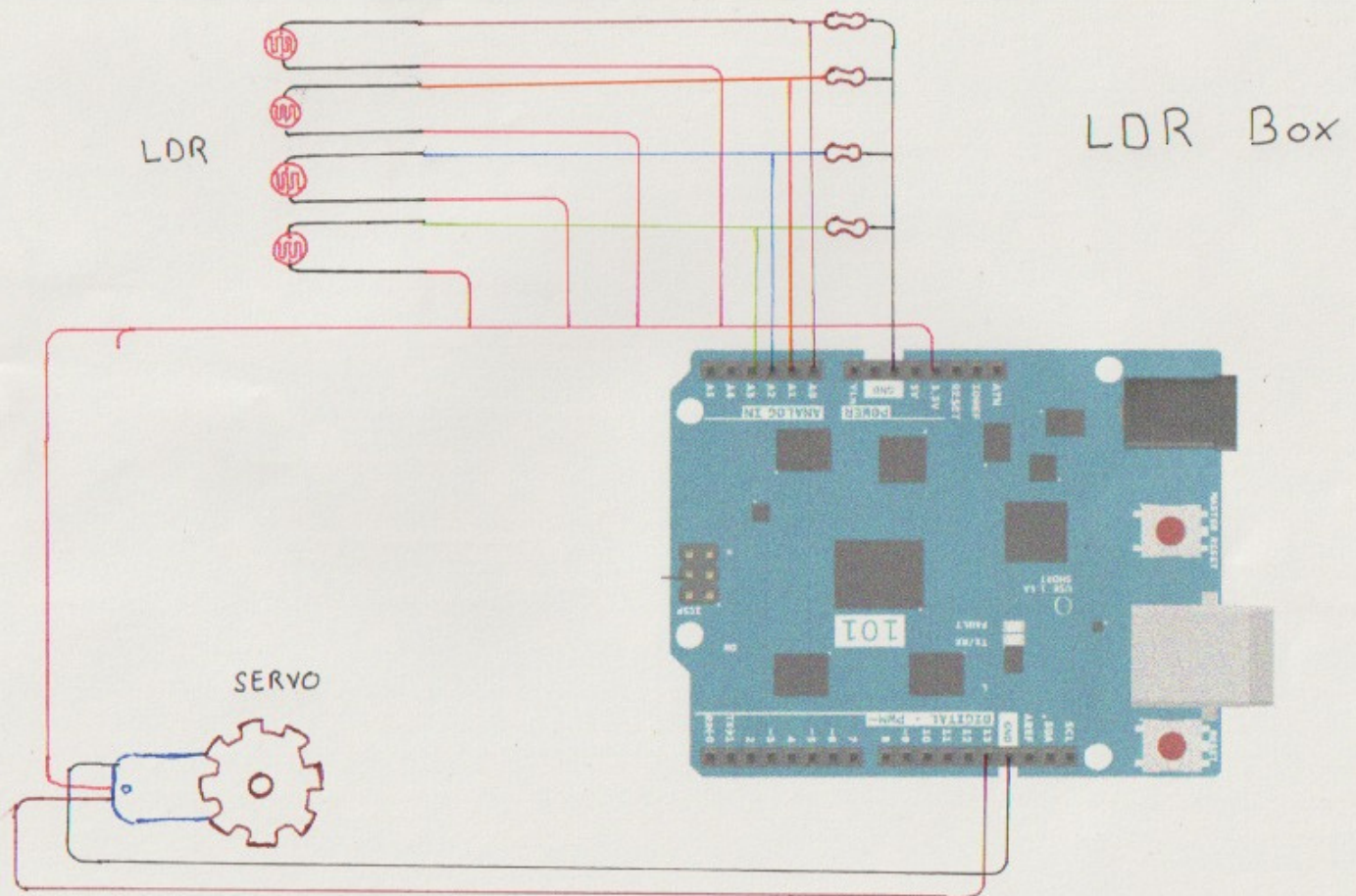
If you have gathered everything you can jump to Step 2.



02 LDR BOX WIRING



Follow this scheme to make your prototype with a breadboard first.



03 LDR BOX UPLOADING THE CODE



Upload the code downloaded earlier to your Arduino Board and try out your prototype. You need to open the Serial Monitor to understand what is happening with the LDR sensors.

Each one of them is returning a value through the analog port. It is the value of the light it gets at this specific moment. If you try to approach a light or to cover the sensor you should see the value going up and down.

You have to find out what are the light and the dark values. For example, if you get a value around 900 with light and a value of 300 when you cover the sensor then you need to set up valueLight a little bit under the 900 value, something like 850 will do it, and you do the same with valueDark that you can set around 350 line 17 in our example.

You need to choose which sensor needs to be covered or enlightened at line 45 by writing for each sensor if they need to be superior to valueLight or inferior to valueDark to activate the mechanism.

You should also check lockPos and unlockPos values and change them according to your servo motor.

```
LDR_box
1 // Digijeunes
2 // Safe that open with four LDR
3 // Set your safe code
4
5 #include <Servo.h>
6 Servo servo;
7 int angle = 0;
8 int servoPin = 13; // Pin to Servo Motor
9 String safeState = "unlock"; // State of the Safe
10
11 int sensorValueA0;
12 int sensorValueA1;
13 int sensorValueA2;
14 int sensorValueA3;
15
16 int valueLight = 800; // Minimum value to be considered "light"
17 int valueDark = 400; // Maximum value to be considered "dark"
18
19 int code = 0;
20
21 void setup()
22 {
23   Serial.begin(9600); // starts the serial port at 9600
24   servo.attach(servoPin);
25   servo.write(15);
26 }
27
28
29 void loop()
30 {
31   sensorValueA0 = analogRead(0);
32   sensorValueA1 = analogRead(1);
33   sensorValueA2 = analogRead(2);
34   sensorValueA3 = analogRead(3);
35
36   Serial.print(sensorValueA0, DEC);
37   Serial.print(", ");
38   Serial.print(sensorValueA1, DEC);
39   Serial.print(", ");
40   Serial.print(sensorValueA2, DEC);
41   Serial.print(", ");
42   Serial.println(sensorValueA3, DEC);
43
44   // Choose here which values unlock
45   if ( sensorValueA0 > valueLight && sensorValueA1 > valueLight && sensorValueA2 < valueDark && sensorValueA3 < valueDark ) {
46
47     // Switch the locked state
48     if (safeState == "unlock"){
```


04 LDR BOX MAKING THE BOX



You're ready to assemble your box and finish with the prototype.

You should first stick the Arduino Board to the back of the box. Choose where you are going to put it and open a hole with a drill to leave space for the Arduino cable to pass.

For the LDR sensors, one way of adding them is to solder their two legs with wires and protect them from touching each other with duct tape.

Connect the LDR to the Arduino then slide it in one of the four holes and fix it with a glue gun.

Do the same for the three other LDR and your prototype is ready to be tested!

You may also need to clean a little bit the box's locking mechanism with an X-acto knife to make the gear function properly.

