

Part 1 (Photoresistor, Servo):

/*

1. Sweep by BARRAGAN <<http://barraganstudio.com>>

This example code is in the public domain. Modified 8 Nov 2013 by Scott Fitzgerald

<https://www.arduino.cc/en/Tutorial/LibraryExamples/Sweep>

2. Photoresistor Example by tropicalbean. Mar 11, 2022

<https://projecthub.arduino.cc/tropicalbean/how-to-use-a-photoresistor-1143fd>

*/

```
#include <Servo.h>
```

```
Servo myservo; // create servo object to control a servo
```

```
// twelve servo objects can be created on most boards
```

```
int pos = 0; // variable to store the servo position
```

```
int delayTime = 15; // Initial delay time between steps
```

```
int LED = 13;
```

```
void setup() {
```

```
  myservo.attach(9); // attaches the servo on pin 9 to the servo object
```

```
  Serial.begin(9600);
```

```
  pinMode(LED, OUTPUT);
```

```
}
```

```
void loop() {
```

```
  digitalWrite(LED, HIGH);
```

```
  map(analogRead(A0), 0, 1023, 0, 255);
```

```
  Serial.println(analogRead(A0));
```

```
  delay(200);
```

```
// <= 100 part's number should be changed depending on the environment brightness
if (analogRead(A0) <= 300) {

  for (pos = 0; pos <= 130; pos += 1) {
    myservo.write(pos);
    delay(delayTime);
  }

  for (pos = 130; pos >= 0; pos -= 1) {
    myservo.write(pos);
    delay(delayTime);
  }

  // Increase the speed gradually
  if (delayTime > 1) {
    delayTime-= 1; // Decrease the delay time
  }
}

// if brighter than 100, turn it off
else {
  myservo.write(45);
  digitalWrite(LED, LOW);
  delay(5000);

  // Reset delay time when brightness increases
  delayTime = 15;
}
}
```

Part 2 (PIR Sensor, Laser, Piezo) :

```
/*
```

```
References:
```

1. Rui Santos, "Arduino with PIR motion sensor," (Modified based on PIR sensor by Limor Fried)
For complete project details, visit: <http://RandomNerdTutorials.com/pirsensor>
 2. Jehan Kandy, "Arduino With Motion Sensor," <https://projecthub.arduino.cc/jehankandt/arduino-with-motion-sensor-b59f87>
- ```
*/
```

```
int Laser = 13; // indicating the pin laser is attached to
int MotionSensor = 2; // indicating the pin sensor is attached to
int SensorVal = 0; // setting a variable to store sensor value
int buzzer = 8; // indicating the pin piezo buzzer is attached to

void setup() {

 Serial.begin(9600);

 pinMode(Laser, OUTPUT); // defining laser as an output
 pinMode(MotionSensor, INPUT); // defining sensor as an input
}

void loop() {

 Serial.println(digitalRead(MotionSensor)); // talk to serial monitor

 SensorVal = digitalRead(MotionSensor); // give SensorVal variable input value

 if (SensorVal == HIGH) { // check if the sensor is HIGH
 digitalWrite(Laser, HIGH); // turn laser ON
 delay (30000);
 digitalWrite(buzzer, HIGH); // turn buzzer ON
 tone(8,40,2000); // (pin number, pitch in hz, tone duration)
 delay(3000); // toggle how long laser stays on
 digitalWrite(buzzer, LOW);
 delay(2000);
 }
 else {
 digitalWrite(Laser, LOW); // turn LED OFF
 delay(5000);
 }
}
```