#define Sensor 8

#define RELAY\_PIN 12

#define soundPin A0

#define LED1 2

#define LED2 3

#define LED3 4

#define LED4 5

#define LED5 6

#define LED6 7

#define LED7 9

#define LED8 10

int clap = 0;

long detection\_range\_start = 0;

long detection\_range = 0;

long lastSoundDetected = 0;

boolean status\_lights = false;

void setup() {

pinMode(Sensor, INPUT);

pinMode(13, OUTPUT);

pinMode(RELAY\_PIN, OUTPUT);

digitalWrite(RELAY\_PIN, HIGH);

Serial.begin(9600);

pinMode(LED1, OUTPUT);

pinMode(LED2, OUTPUT);

pinMode(LED3, OUTPUT);

pinMode(LED4, OUTPUT);

pinMode(LED5, OUTPUT);

pinMode(LED6, OUTPUT);

pinMode(LED7, OUTPUT);

pinMode(LED8, OUTPUT);

}

void loop() {

int status\_sensor = digitalRead(Sensor);

// Clap detection

if (status\_sensor == 0) {

if (clap == 0) {

detection\_range\_start = detection\_range = millis();

clap++;

} else if (clap > 0 && millis() - detection\_range >= 50) {

detection\_range = millis();

clap++;

}

}

// Check for double clap

if (millis() - detection\_range\_start >= 400) {

if (clap == 2) {

if (!status\_lights) {

status\_lights = true;

digitalWrite(13, HIGH);

digitalWrite(RELAY\_PIN, LOW);

lastSoundDetected = millis(); // Reset sound detection timer

} else if (status\_lights) {

status\_lights = false;

digitalWrite(13, LOW);

digitalWrite(RELAY\_PIN, HIGH);

turnOffLEDs();

}

}

clap = 0;

}

// If the system is active, run the music reactive LED code

if (status\_lights) {

long sum = 0;

for (int i = 0; i < 100; i++) {

sum += analogRead(soundPin);

}

sum = sum / 100; // average the sample of sound

if (sum >= 450) digitalWrite(LED1, HIGH); else digitalWrite(LED1, LOW);

if (sum >= 350) digitalWrite(LED2, HIGH); else digitalWrite(LED2, LOW);

if (sum >= 250) digitalWrite(LED3, HIGH); else digitalWrite(LED3, LOW);

if (sum >= 100) digitalWrite(LED4, HIGH); else digitalWrite(LED4, LOW);

if (sum >= 100) digitalWrite(LED5, HIGH); else digitalWrite(LED5, LOW);

if (sum >= 250) digitalWrite(LED6, HIGH); else digitalWrite(LED6, LOW);

if (sum >= 350) digitalWrite(LED7, HIGH); else digitalWrite(LED7, LOW);

if (sum >= 400) digitalWrite(LED8, HIGH); else digitalWrite(LED8, LOW);

delay(10);

Serial.println(sum);

// Update last sound detected time if there is sound

if (sum >= 50) {

lastSoundDetected = millis();

}

// Check if 10 seconds have passed with no sound

if (millis() - lastSoundDetected >= 10000) {

status\_lights = false;

digitalWrite(13, LOW);

digitalWrite(RELAY\_PIN, HIGH);

turnOffLEDs();

}

}

}

// Function to turn off all LEDs

void turnOffLEDs() {

digitalWrite(LED1, LOW);

digitalWrite(LED2, LOW);

digitalWrite(LED3, LOW);

digitalWrite(LED4, LOW);

digitalWrite(LED5, LOW);

digitalWrite(LED6, LOW);

digitalWrite(LED7, LOW);

digitalWrite(LED8, LOW);

}