Home automation

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Simulate this project on https://wokwi.com
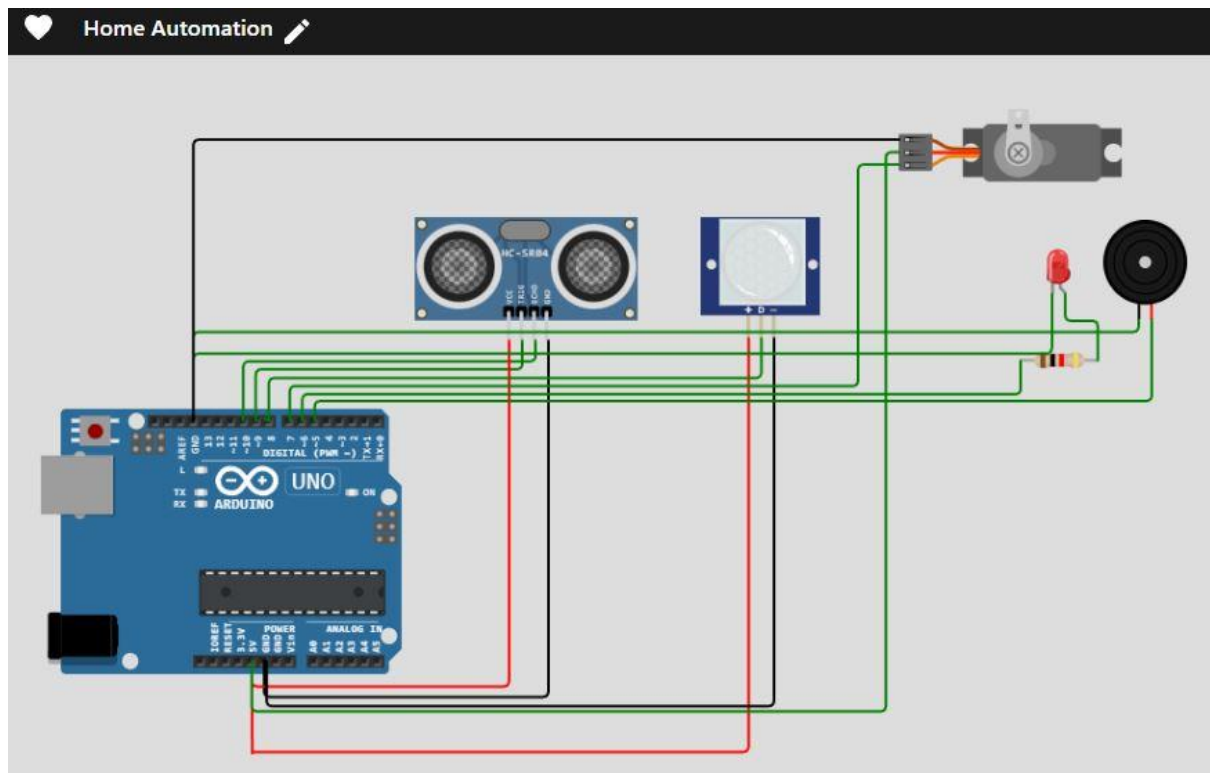
Sketch.ino

```cpp
#include <Servo.h>

const int ultrasonicTrigPin = 9;
const int ultrasonicEchoPin = 10;
const int pirPin = 8;
const int servoPin = 7;
const int ledPin = 6;
const int buzzerPin = 5;

Servo myservo;

long duration;
int distance;

void setup() {
  pinMode(ultrasonicTrigPin, OUTPUT);
  pinMode(ultrasonicEchoPin, INPUT);
  pinMode(pirPin, INPUT);
  pinMode(ledPin, OUTPUT);
  pinMode(buzzerPin, OUTPUT);
  myservo.attach(servoPin);
  Serial.begin(9600);
}

void loop() {
  // Read distance from ultrasonic sensor
  digitalWrite(ultrasonicTrigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(ultrasonicTrigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(ultrasonicTrigPin, LOW);
  duration = pulseIn(ultrasonicEchoPin, HIGH);
  distance = duration * 0.034 / 2;
  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");

  // Move the servo motor to lock/unlock the door
  if (distance < 10) {
    myservo.write(90); // Unlock the door
  } else {
    myservo.write(0); // Lock the door
  }

  // Read motion from PIR sensor
  int pirValue = digitalRead(pirPin);
```

```arduino
  // Turn on/off the light based on the motion value
  if (pirValue == HIGH) {
    digitalWrite(ledPin, HIGH);
  } else {
    digitalWrite(ledPin, LOW);
  }

  // Sound the buzzer if there is motion detected and the door is closed
  if (pirValue == HIGH && distance < 10) {
    digitalWrite(buzzerPin, HIGH);
    delay(500);
    digitalWrite(buzzerPin, LOW);
    delay(500);
  }

  delay(500);
}
```

Diagram.json

```json
{
  "version": 1,
  "author": "Akalyasri Durairaj",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-arduino-uno", "id": "uno", "top": 15, "left": -182.63,
"attrs": {} },
    {
      "type": "wokwi-led",
      "id": "led1",
      "top": -114.6,
      "left": 572.5,
      "attrs": { "color": "red" }
    },
    {
      "type": "wokwi-hc-sr04",
      "id": "ultrasonic1",
      "top": -131.48,
      "left": 102.31,
      "attrs": { "distance": "400" }
    },
    {
      "type": "wokwi-pir-motion-sensor",
      "id": "pir1",
```

```json
      "top": -130.66,
      "left": 319.97,
      "attrs": {}
    },
    {
      "type": "wokwi-buzzer",
      "id": "bz1",
      "top": -136.91,
      "left": 626.53,
      "attrs": { "volume": "0.1" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": -27.57,
      "left": 563.6,
      "attrs": { "value": "1000" }
    },
    { "type": "wokwi-servo", "id": "servo1", "top": -240.01, "left": 471.15,
"attrs": {} }
  ],
  "connections": [
    [ "ultrasonic1:GND", "uno:GND.2", "black", [ "v271.23", "h-211.91" ] ],
    [ "ultrasonic1:TRIG", "uno:9", "green", [ "v21.78", "h-206.87" ] ],
    [ "ultrasonic1:ECHO", "uno:10", "green", [ "v15.79", "h-221.86" ] ],
    [ "pir1:VCC", "uno:5V", "red", [ "v314.81", "h-378.41", "v2", "h0" ] ],
    [ "ultrasonic1:VCC", "uno:5V", "red", [ "v263.24", "h-197.87" ] ],
    [ "pir1:GND", "uno:GND.2", "black", [ "v279.89", "h-386.9", "v1" ] ],
    [ "r1:1", "uno:6", "green", [ "v25.67", "h-546.95" ] ],
    [ "led1:C", "uno:GND.1", "green", [ "v37.44", "h-0.11", "v7.98", "h-
655.55" ] ],
    [ "led1:A", "r1:2", "green", [ "v20.48", "h27.8" ] ],
    [ "servo1:V+", "uno:5V", "green", [ "h-10.36", "v425.74", "h-438.43" ] ],
    [ "servo1:PWM", "uno:7", "green", [ "h-31.55", "v168.51", "h-436.8" ] ],
    [
      "uno:8",
      "uno:10",
      "green",
      [
        "v-0.59",
        "h-2.83",
        "v-20.46",
        "h0",
        "v112.53",
        "h450.14",
        "v6.82",
        "h-206.88",
        "v286.43",
```

```json
                "h-340.06",
                "v-167.9",
                "h-104.1",
                "v-89.67",
                "h76.27",
                "v120.59",
                "h316.42",
                "v-285.5"
            ]
        ],
        [ "pir1:OUT", "uno:8", "green", [ "v30.07", "h-378.26" ] ],
        [ "bz1:1", "uno:GND.1", "green", [ "v9.28", "h-720.13" ] ],
        [ "bz1:2", "uno:5", "green", [ "v61.84", "h-640.46" ] ],
        [ "servo1:GND", "uno:GND.1", "black", [ "h0" ] ]
    ],
    "dependencies": {}
}
```