ASSIGNMENT - 1

Date	19 September 2022
Team ID	PNT2022TMID21393
Project Name	Personal Assistance for Seniors Who Are Self-Reliant.
Maximum Marks	2 Marks

Objective:

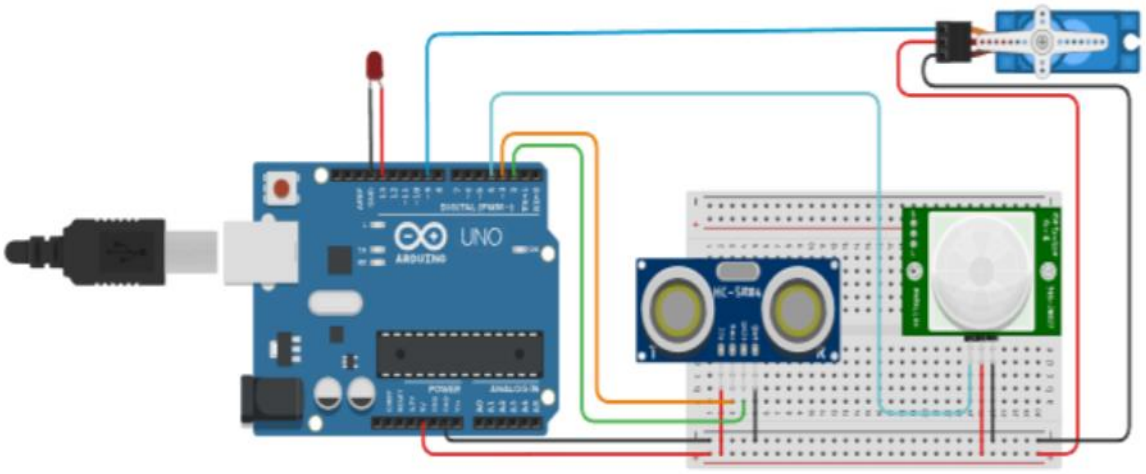
Create an Arduino project for smart home with two sensors.

Sensors Used:

- Ultrasonic Sensor
- PIR Sensor

Circuit Diagram:

Link: https://www.tinkercad.com/things/9na00abnAgC

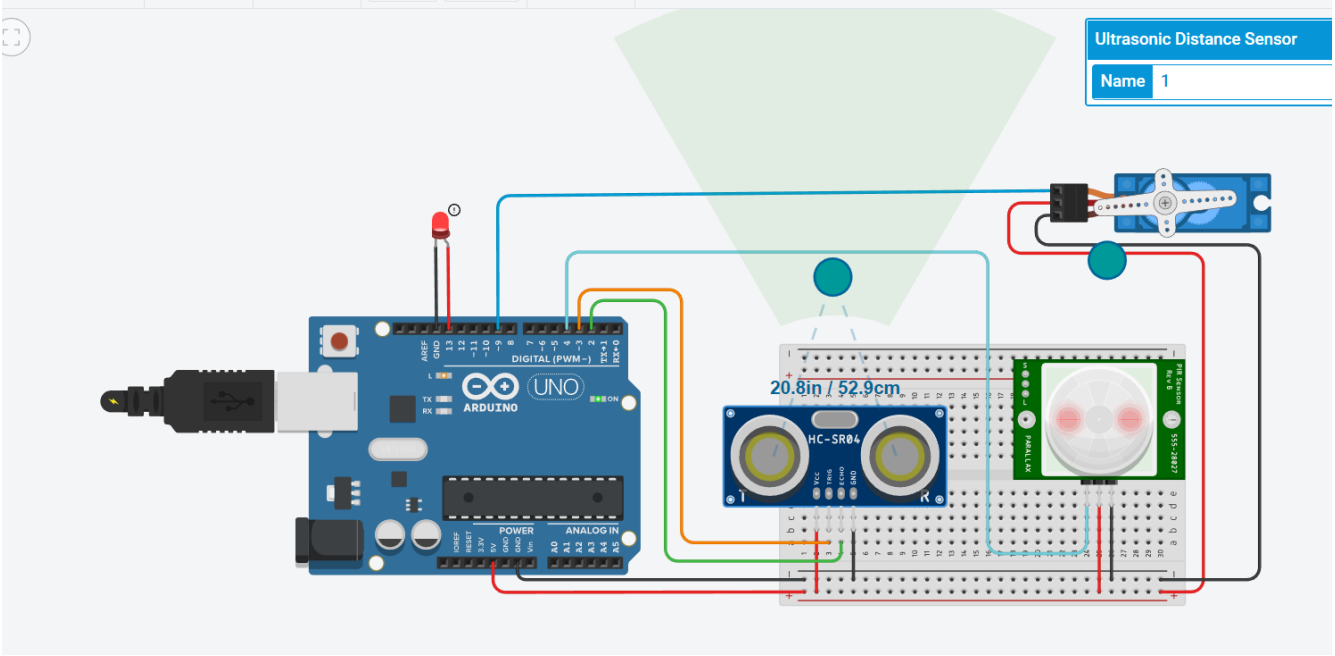


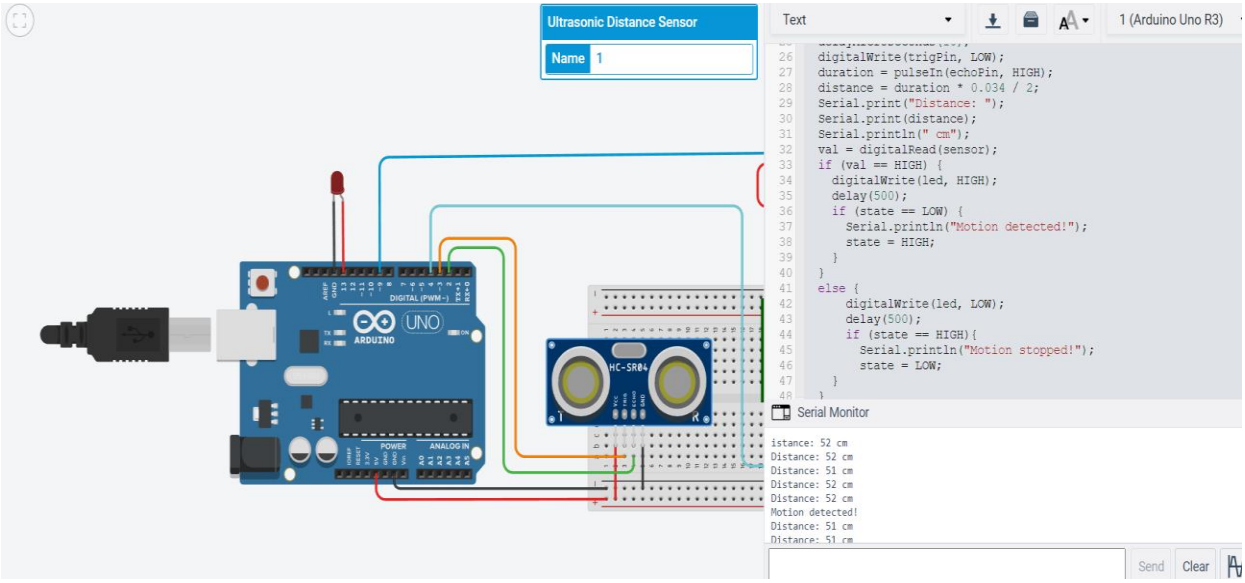
Code:

```
#include <Servo.h>
Servo myservo;
#define echoPin 2
#define trigPin 3
int led = 13;
int sensor = 4;
int state = LOW;
int val = 0;

long duration;
int distance;

void setup() {
   myservo.attach(9);
   pinMode(led, OUTPUT);
   pinMode(sensor, INPUT);
   pinMode(trigPin, OUTPUT);
   pinMode(echoPin, INPUT);
   Serial.begin(9600);
}
void loop() {
   digitalWrite(trigPin, LOW);
   delayMicroseconds(2);
   digitalWrite(trigPin, HIGH);
   delayMicroseconds(10);
   digitalWrite(trigPin, LOW);
   duration = pulseIn(echoPin, HIGH);
   distance = duration * 0.034 / 2;
   Serial.print("Distance: ");
   Serial.print(distance);
   Serial.println(" cm");
   val = digitalRead(sensor);
   if (val == HIGH) {
      digitalWrite(led, HIGH);
      delay(500);
      if (state == LOW) {
         Serial.println("Motion detected!");
         state = HIGH;
      }
   }
   else {
         digitalWrite(led, LOW);
```

```
        delay(500);
        if (state == HIGH){
          Serial.println("Motion stopped!");
          state = LOW;
        }
    }
    if(distance<=40){
      int val = map(180, 0, 1023, 0, 180);
      myservo.write(val);
      Serial.println("Door Open");
      delay(2000);
      val = map(-180, 0, 1023, 0, 180);
      myservo.write(val);
      Serial.println("Door Close");
    }
}
```

OUTPUT:




Ultrasonic Distance Sensor
Name 1
Text
1 (Arduino Uno R3)
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = duration * 0.034 / 2;
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
val = digitalRead(sensor);
if (val == HIGH) {
digitalWrite(led, HIGH);
delay(500);
if (state == LOW) {
Serial.println("Motion detected!");
state = HIGH;
}
}
else {
digitalWrite(led, LOW);
delay(500);
if (state == HIGH){
Serial.println("Motion stopped!");
state = LOW;
}
Serial Monitor
istance: 52 cm
Distance: 52 cm
Distance: 51 cm
Distance: 52 cm
Distance: 52 cm
Motion detected!
Distance: 51 cm
Distance: 51 cm
Send
Clear
HC-SR04
UNO
ARDUINO
DIGITAL (PWM~)
POWER
ANALOG IN