Sprint 4

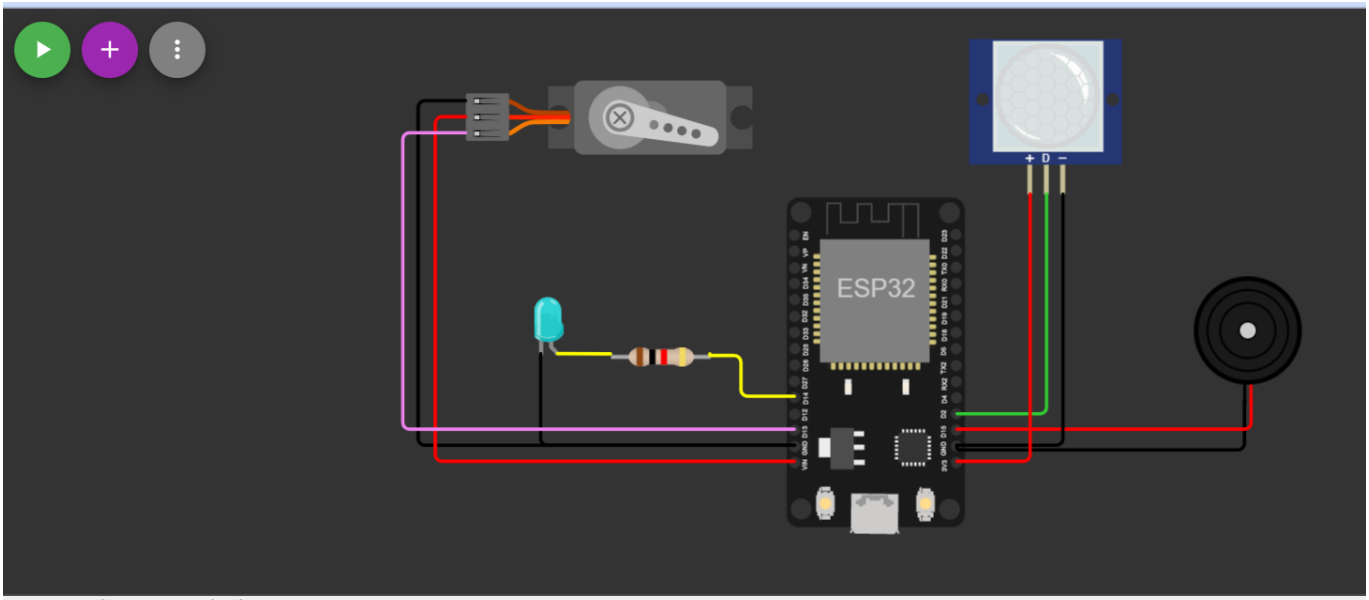
Program:

```
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include <ESP32Servo.h>
const char* ssid = "Wokwi-GUEST";
const char* password = "";
#define ORG "4fvguz"
#define DEVICE_TYPE "ESP32"
#define DEVICE_ID "ultrasonic_sensor"
#define TOKEN "12345678"
#define led 14
#define buzzer 15
#define pir 2
#define servoPin 13
Servo servo;
int sensor_value=0;
int pirState=LOW;
int val=0;
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char pubTopic[] = "iot-2/evt/status1/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);
void setup()
{
  Serial.begin(115200);
  pinMode(led, OUTPUT);
  pinMode(buzzer, OUTPUT);
  pinMode(pir, INPUT);
  servo.attach(servoPin, 500, 2400);
  Serial.print("Connecting to ");
  Serial.print(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
```

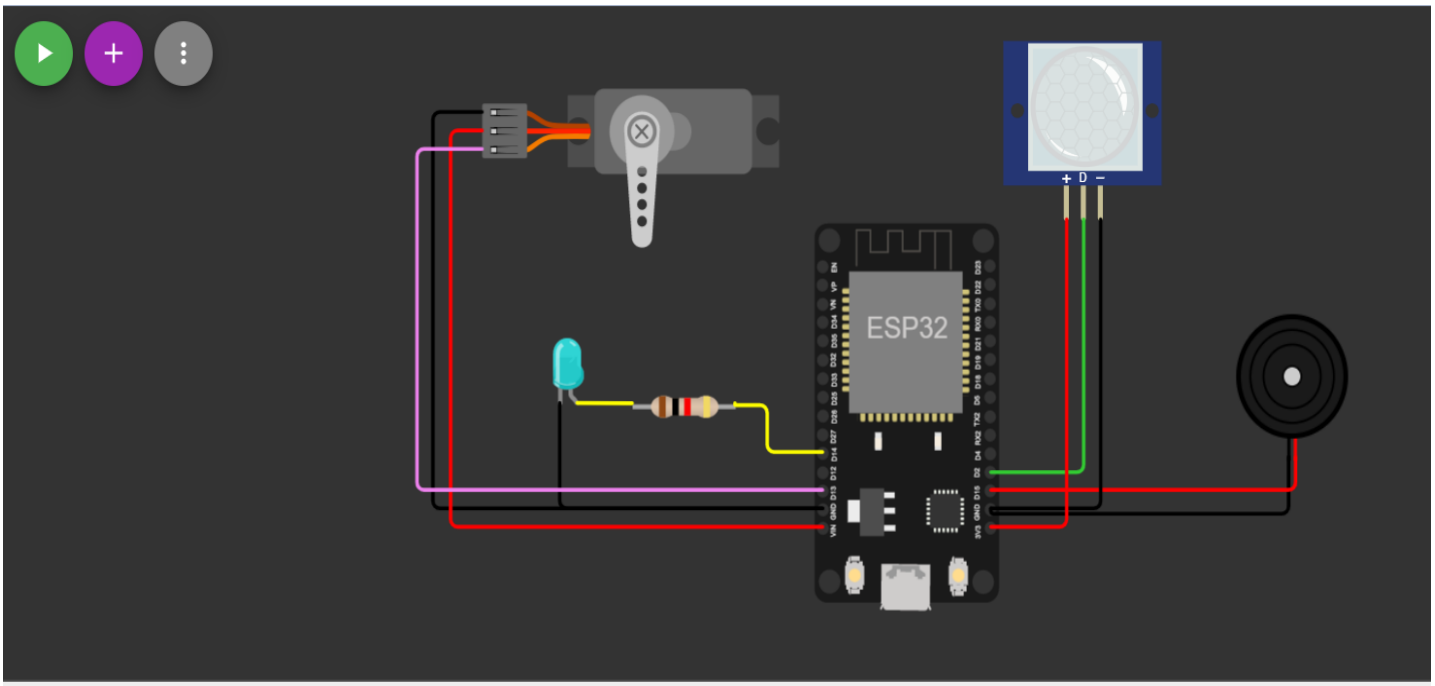
```
  Serial.print("WiFi connected, IP address: ");
  Serial.println(WiFi.localIP());
  if (!client.connected())
  {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token))
    {
      Serial.print(".");
      delay(500);
    }
    Serial.println("Bluemix connected");
  }
}
int pos = 0;
void loop()
{
  sensor_value=random(300,10000);
  for (pos = 0; pos <= 180; pos += 1)
  {
    servo.write(pos);
    delay(15);
  }
  String payload = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
  payload += ",\"GasValue\":";
  payload += sensor_value;
  payload += "ppm";
  payload += "}}";
  if(sensor_value>1000)
  {
    digitalWrite(led, HIGH);
    delay(500);
    tone(buzzer,1000);
    delay(1000);
    payload += "High";
    val = digitalRead(pir);
    if (val == HIGH)
    {
      if (pirState == LOW)
      {
        Serial.println("Motion detected! Evacuate NOW!!!");
      }
    }
    else
    {
```

```
      Serial.println("No Motion detected! Door Closes NOW!!!");
      for (pos = 180; pos >= 0; pos -= 1)
      {
        servo.write(pos);
        delay(15);
      }
    }
  }
  Serial.print("Sending value: ");
  Serial.println(payload);
  if (client.publish(pubTopic, (char*) payload.c_str()))
  {
    Serial.println("Publish Success");
  }
  else
  {
    Serial.println("Publish Failed");
  }
  delay(100);
}
```

Output:




```
Connecting to Wokwi-GUEST....
WiFi connected, IP address: 10.10.0.2
Reconnecting client to 4fvguz.messaging.internetofthings.ibmcloud.com
Bluemix connected
No Motion detected! Door Closes NOW!!!
Sending value: {"d":{"Name":"ultrasonic_sensor","GasValue":9926ppm}}High
Publish Success
```




```
Connecting to Wokwi-GUEST...
WiFi connected, IP address: 10.10.0.2
Reconnecting client to 4fvguz.messaging.internetofthings.ibmcloud.com
Bluemix connected
Motion detected! Evacuate NOW!!!
Sending value: {"d":{"Name":"ultrasonic_sensor","GasValue":5628ppm}}High
Publish Success
```

Identity | Device Information | Recent Events | State | Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...	json	a few seconds ago

Link:

https://wokwi.com/projects/347680296930378322