

ASSIGNMENT-4

Team ID	PNT2022TMID13299
Project Name	Gas Leakage Monitoring and Alerting System

Program:

```
#define ECHO_PIN 2
#define TRIG_PIN 3

void setup() {
    Serial.begin(115200);
    pinMode(LED_BUILTIN, OUTPUT);
    pinMode(TRIG_PIN, OUTPUT);
    pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
    digitalWrite(TRIG_PIN, LOW);
    delayMicroseconds(2);
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW);
    int duration = pulseIn(ECHO_PIN, HIGH);
    return duration * 0.034 / 2;
}

void loop() {
    float distance = readDistanceCM();

    bool isNearby = distance < 100;
    digitalWrite(LED_BUILTIN, isNearby);

    Serial.print("Measured distance: ");
    Serial.println(readDistanceCM());

    delay(100);
}
```

Diagram.json:

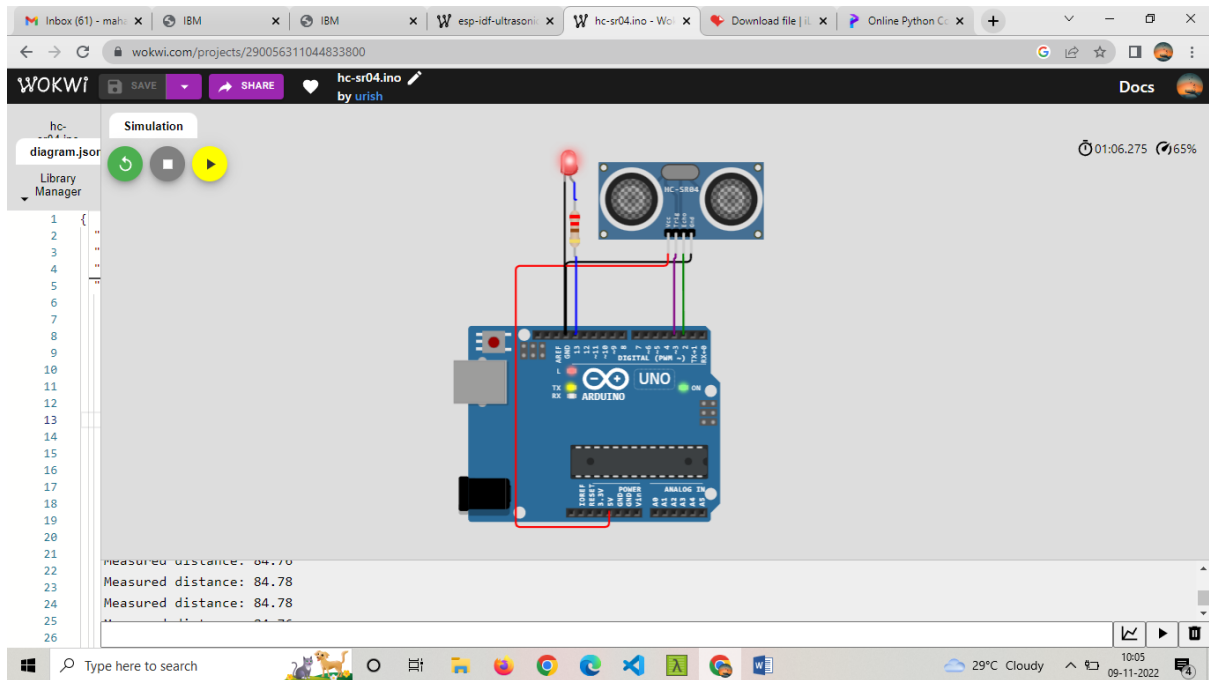
```
{
  "version": 1,
  "author": "Uri Shaked",
  "editor": "wokwi",
  "parts": [
    {
      "type": "wokwi-arduino-uno",
      "id": "uno",
      "top": 275.99,
      "left": 47.73,
      "rotate": 0,
      "hide": false,
      "attrs": {}
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 165.87,
      "left": 142.81,
      "rotate": 90,
      "hide": false,
      "attrs": { "value": "220" }
    },
    {
      "type": "wokwi-led",
      "id": "led",
      "top": 87.29,
      "left": 147.05,
      "rotate": 0,
      "hide": false,
      "attrs": { "color": "red" }
    },
    {
      "type": "wokwi-hc-sr04",
      "id": "ultrasonic",
      "top": 108.43,
      "left": 196.5,
      "rotate": 0,
      "hide": false,
      "attrs": { "distance": "180" }
    }
  ],
  "connections": [
    [ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],
    [ "uno:2", "ultrasonic:ECHO", "green", [ ] ],
    [ "uno:3", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],
  ]
}
```

```

[ "uno:5V", "ultrasonic:VCC", "red", [ "v16", "h-96", "*", "v12" ] ],
[ "uno:GND.1", "led:C", "black", [] ],
[ "r1:1", "led:A", "blue", [] ],
[ "uno:13", "r1:2", "blue", [] ]
]
}

```

Circuit Diagram:



Output:

Wokwi Output:

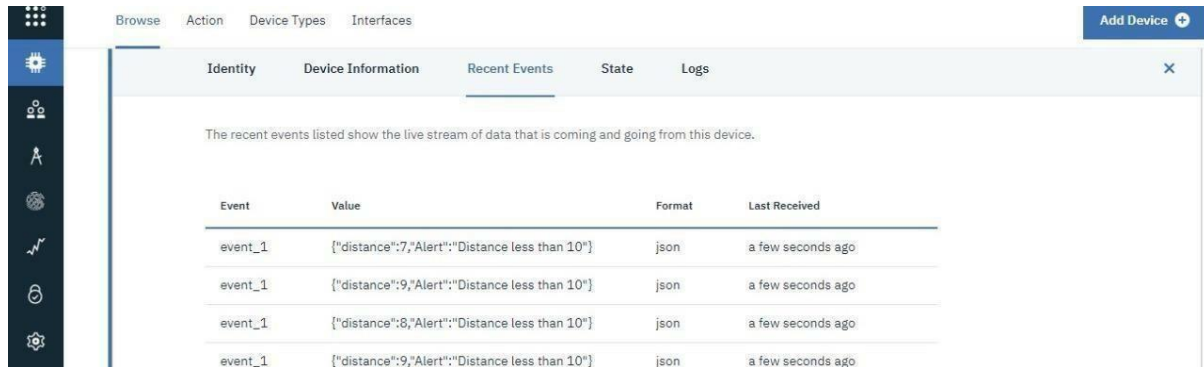
```

Measured distance: 80.77
Measured distance: 80.77
Measured distance: 80.77
Measured distance: 80.77
Measured distance: 80.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.67
Measured distance: 87.67
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77

```

Measured distance: 87.77
Measured distance: 87.67

IBM Cloud Output:



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

Event	Value	Format	Last Received
event_1	{"distance":7,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":9,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":8,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":9,"Alert":"Distance less than 10"}	json	a few seconds ago