ASSIGNMENT 4

TEAM ID	PNT2022TMID36685
PROJECT NAME	Gas Leakage monitoring & Alerting system for Industries
TEAM LEAD NAME	Divya S

Question:

Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an "Alert" to IBM cloud and display in the device recent events.

Solution :

Code:

```
 // defines pins numbers
const int trigPin = 2;
const int echoPin = 5;
// defines variables
long duration;
int distance;
void setup() {
pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output
pinMode(echoPin, INPUT); // Sets the echoPin as an Input
Serial.begin(9600); // Starts the serial communication
}
void loop() {
// Clears the trigPin
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
// Sets the trigPin on HIGH state for 10 micro seconds
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
// Reads the echoPin, returns the sound wave travel time in
microseconds
duration = pulseIn(echoPin, HIGH);
// Calculating the distance
distance= duration*0.034/2;
// Prints the distance on the Serial Monitor
```

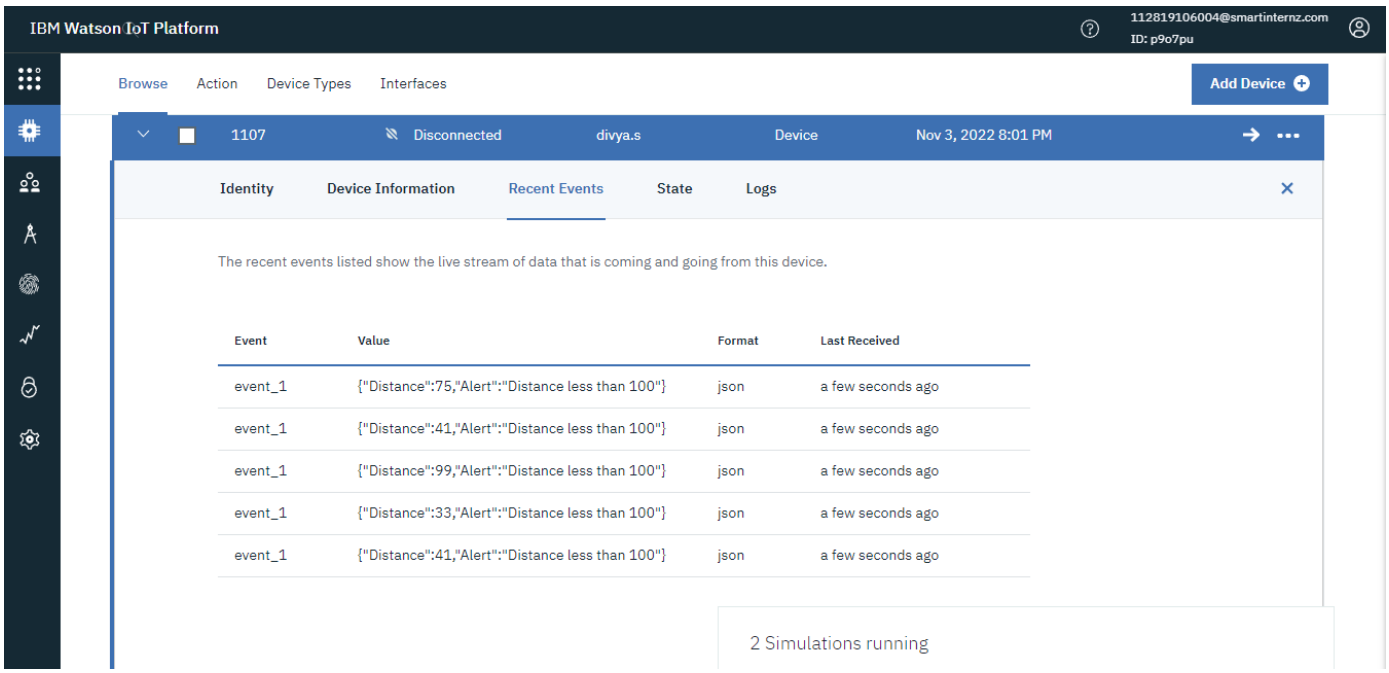
```
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
if(distance <= 100){
Serial.println("Alert Distance is less than 100 cm");

}
}
```

DIAGRAM.JSON

```
{
"version": 1,
"author": "Uri Shaked",
"editor": "wokwi",
"parts": [
{ "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": -21.91,
"left": -66.98, "attrs": {} },
{ "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": -56.74,
"left": 85.25, "attrs": {} }
],
"connections": [
[ "esp:TX0", "$serialMonitor:RX", "", [] ],
[ "esp:RX0", "$serialMonitor:TX", "", [] ],
[ "ultrasonic1:ECHO", "esp:D5", "green", [ "v0" ] ],
[ "ultrasonic1:VCC", "esp:3V3", "red", [ "v99.32", "h-11.05" ] ],
[ "esp:GND.1", "ultrasonic1:GND", "black", [ "h0" ] ],
[ "esp:D2", "ultrasonic1:TRIG", "green", [ "h0" ] ]
]
}
```

OUTPUT:

IBM CLOULD OUTPUT:



WOKWI SAVE SHARE esp32-dht22.ino by urish Docs SIGN IN

esp32-dht22.ino ● diagram.json ● libraries.txt Library Manager

```
const int trigPin = 2;
const int echoPin = 5;
// defines variables
long duration;
int distance;
void setup() {
pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output
pinMode(echoPin, INPUT); // Sets the echoPin as an Input
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// Prints the distance on the Serial Monitor
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Serial.print(distance);
Serial.println(" cm");
if(distance <= 100){
Serial.println("Alert Distance is less than 100 cm");
}
}
```

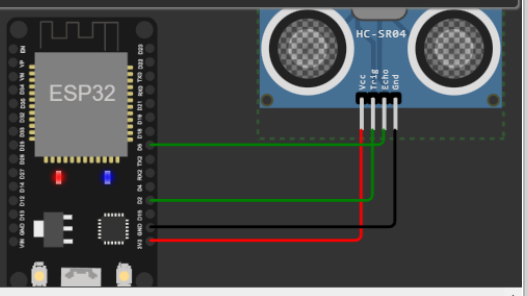
Simulation

00:10.531 46%

Pause

Editing Ultrasonic Distance Sensor

Distance: 23cm




```
Distance: 23 cm
Alert Distance is less than 100 cm
Distance: 22 cm
Alert Distance is less than 100 cm
Distance: 23 cm
Alert Distance is less than 100 cm
Distance: 22 cm
```

WOKWI SAVE SHARE esp32-dht22.ino by urish Docs SIGN IN

esp32-dht22.ino ● diagram.json ● libraries.txt Library Manager

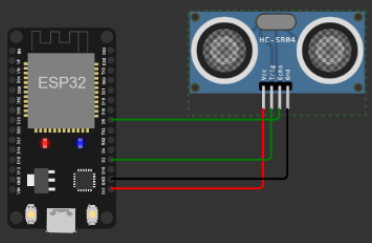
```
{
  "version": 1,
  "author": "Uri Shaked",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": -53.33, "left": -99
    { "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": -66.84, "left": 77.
  ],
  "connections": [
    [ "esp:TX0", "$serialMonitor:RX", "", [] ],
    [ "esp:RX0", "$serialMonitor:TX", "", [] ],
    [ "ultrasonic1:VCC", "esp:3V3", "red", [ "v0" ] ],
    [ "ultrasonic1:TRIG", "esp:D2", "green", [ "v0" ] ],
    [ "ultrasonic1:ECHO", "esp:D5", "green", [ "v0" ] ],
    [ "ultrasonic1:GND", "esp:GND.1", "black", [ "v0" ] ]
  ]
}
```

Simulation

00:12.831 42%

Editing Ultrasonic Distance Sensor

Distance: 59cm




```
Alert Distance is less than 100 cm
Distance: 58 cm
Alert Distance is less than 100 cm
Distance: 58 cm
Alert Distance is less than 100 cm
Distance: 59 cm
Alert Distance is less than 100 cm
```