

#### Assignment 4

Assignment Date	10 November 2022
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Project Name	Project – Gas Leakage Monitoring and Alerting System for Industries
Maximum Marks	2 Marks

#### Question-1:

**Write code and connections in wokwi for ultrasonic. Whenever distance is less than 100 cms send “alert” to ibm cloud and display in device recent events.**

#### Solution:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "mmbh4c"
#define deviceType = "Ultrasonic"
#define deviceId = "pga460_sensor"
#define authMethod = "use-token-auth"
#define authToken = "123456789"

void setup()
{
  Serial.begin(9600);
  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();
```

```
    if(distance <= 100)
```

```
    {
```

```
        Serial.println("person detected ");
```

```
    }
```

```
    else{
```

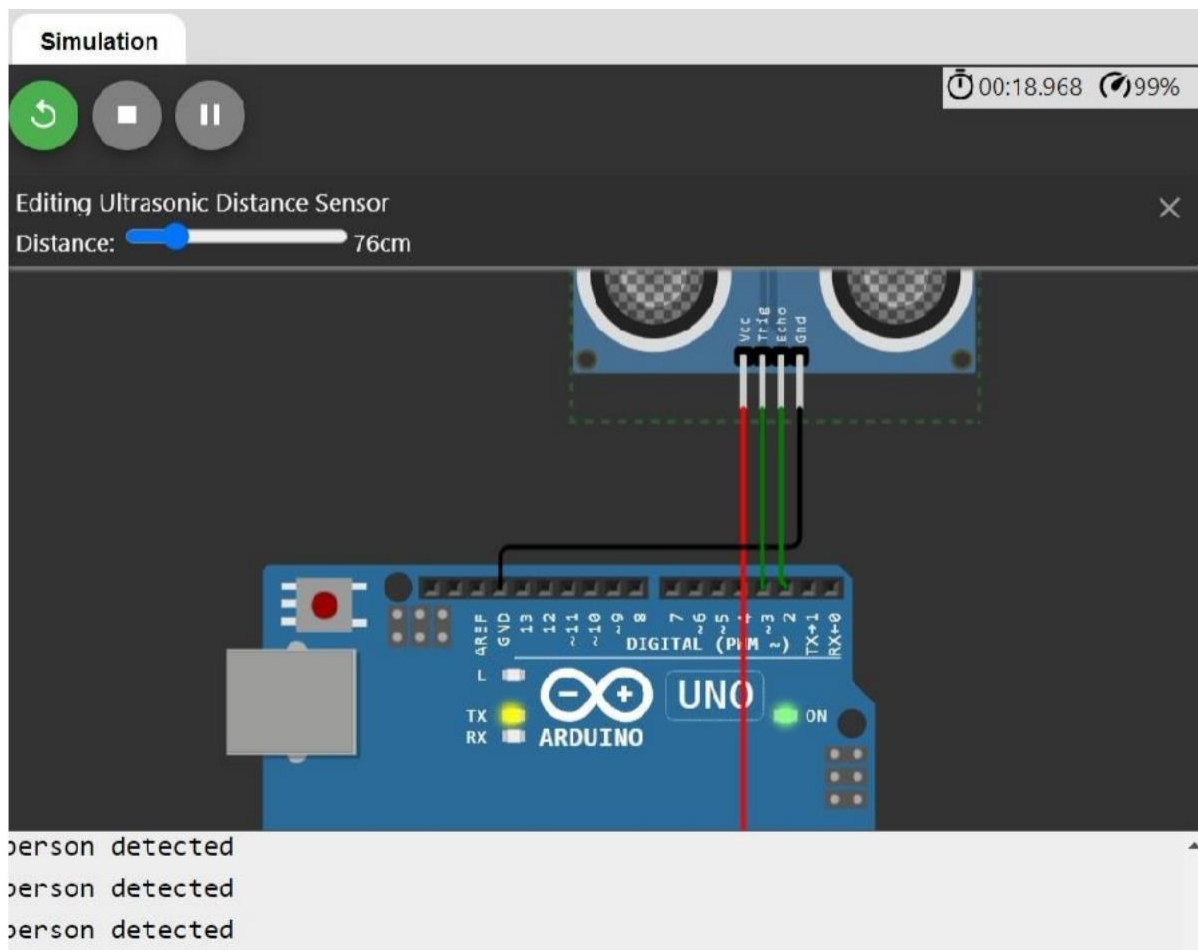
```
        Serial.print("Measured distance: ");
```

```
        Serial.println(readDistanceCM());
```

```
    }
```

```
    delay(1000);
```

```
}
```



Wokwi Link: <https://wokwi.com/projects/346094692918624851>

## IBM Cloud

### Device Recent Events

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Actions', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area displays a list of devices. The device 'Ultrasonic\_1' is selected, and its details are shown in a modal window. The details include:

Identity	Device Information	Recent Events	State	Logs
Device ID	Ultrasonic_1			
Device Type	Ultrasonic			
Date Added	Oct 25, 2022 4:05 PM			
Added By	IBM Watson IoT Platform			
Connection Status	Disconnected			
	Last Connected: Oct 25, 2022 4:28 PM			
	Client Address: 42.169.148.175			
	Duration: 2 minutes			
	Data Transfered: 2.2 KB			

The screenshot shows the 'Recent Events' tab for the device 'Ultrasonic\_1'. The device status is 'Connected'. The recent events are listed in a table:

Event	Value	Format	Last Received
event_1	["Person detected"]	json	a few seconds ago
event_1	["Person detected"]	json	a few seconds ago
event_1	["Person detected"]	json	a few seconds ago
event_1	["Person detected"]	json	a few seconds ago
event_1	["Person detected"]	json	a few seconds ago

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1 Simulation running