

## Kobika G Assignment -4

Question-1: Write code and connections in wokwi for ultrasonic sensor.  
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 ="rmtjom"
#define deviceType=" Arduino"
#define deviceId ="20019"
#define authMethod ="use-token-auth"
#define authToken ="987654321"
void setup() {
    // put your setup code here, to run once:
    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() {
    // put your main code here, to run repeatedly:
    float distance = readDistanceCM();
    if(distance <= 100)
    {
        Serial.println("person detected ");
    }
    else{
```

```

        Serial.print("Measured distance: ");
        Serial.println(readDistanceCM());
    }
    delay(1000);
}

```

## Input :

The screenshot displays the Wokwi online IDE interface. On the left, the 'sketch.ino' file contains the following code:

```

1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3  #define organization "rmtjom"
4  #define deviceType "Arduino"
5  #define deviceId "20019"
6  #define authMethod "use-token-auth"
7  #define authToken "987654321"
8  void setup() {
9      // put your setup code here, to run once:
10     Serial.begin(9600);
11     pinMode(TRIG_PIN, OUTPUT);
12     pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM() {
15     digitalWrite(TRIG_PIN, LOW);
16     delayMicroseconds(2);
17     digitalWrite(TRIG_PIN, HIGH);
18     delayMicroseconds(10);
19     digitalWrite(TRIG_PIN, LOW);
20     int duration = pulseIn(ECHO_PIN, HIGH);
21     return duration * 0.034 / 2;
22 }
23 }
24
25 void loop() {
26     // put your main code here, to run repeatedly:
27     float distance = readDistanceCM();
28     if(distance <= 100)

```

On the right, the 'Simulation' pane shows a 3D model of an Arduino Uno board. An HC-SR04 ultrasonic sensor is connected to the board. The sensor's VCC pin is connected to the 5V pin on the Arduino, and its GND pin is connected to a GND pin. The TRIG pin is connected to digital pin 3, and the ECHO pin is connected to digital pin 2.

The bottom of the image shows a Windows taskbar with a search bar, several application icons, and system information indicating a temperature of 26°C, time of 19:13, and date of 01-11-2022.

## Output:

The screenshot displays the Wokwi online IDE interface. On the left, the `sketch.ino` file contains the following code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization ="rmtjom"
4 #define deviceType=" Arduino"
5 #define deviceId ="20019"
6 #define authMethod ="use-token-auth"
7 #define authToken ="987654321"
8 void setup() {
9   // put your setup code here, to run once:
10   Serial.begin(9600);
11   pinMode(TRIG_PIN, OUTPUT);
12   pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM() {
15   digitalWrite(TRIG_PIN, LOW);
16   delayMicroseconds(2);
17   digitalWrite(TRIG_PIN, HIGH);
18   delayMicroseconds(10);
19   digitalWrite(TRIG_PIN, LOW);
20   int duration = pulseIn(ECHO_PIN, HIGH);
21   return duration * 0.034 / 2;
22 }
23 }
24
25 void loop() {
26   // put your main code here, to run repeatedly:
27   float distance = readDistanceCM();
28   if(distance <= 100)
```

The simulation area on the right shows an HC-SR04 sensor connected to an Arduino Uno. The sensor's VCC is connected to the 5V pin, GND to GND, TRIG to digital pin 3, and ECHO to digital pin 2. The simulation is running, and the output console shows the following measured distances:

```
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.25
```

The bottom of the image shows the Windows taskbar with the search bar and various application icons.

Wokwi Link: <https://wokwi.com/projects/347132513452294738>

# IBM CLOUD

## Device Recent Events

IBM Watson IoT Platform

kopigovi19@gmail.com  
ID: rmtjom

Browse Action Device Types Interfaces

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
20019	Disconnected	arduino	Device	Nov 1, 2022 7:00 PM

Identity Device Information Recent Events State Logs

Device ID 20019

Device Type arduino

Date Added Nov 1, 2022 7:00 PM

Added By kopigovi19@gmail.com

Connection Status Disconnected

Items per page 50 | 1-1 of 1 item

1 Simulation running

Type here to search

25°C 19:24 01-11-2022

(1) WhatsApp X IBMId - Sign in X Service Details X IBM Watson Io X IBM Watson Io X wokwi - Yahoo X sketchino - W X +

← → ↻ rmtjom.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform kopigwi19@gmail.com ID: rmtjom

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Browse Action Device Types Interfaces

Search by Device ID

Device Simulator

Add Device +

Device ID	Status	Device Type	Class ID	Date Added	
20019	Disconnected	arduino	Device	Nov 1, 2022 7:00 PM	→ ...

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
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker",	1 Simulation running	

Type here to search 25°C 19:24 01-11-2022