

# Yogeshwari C 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.

## Solutions

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization "coodbj"
#define deviceType "Arduino"
#define deviceId "30020"
#define authMethod "use-token-auth"
#define authToken "30022007"

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);
```

```
}
```

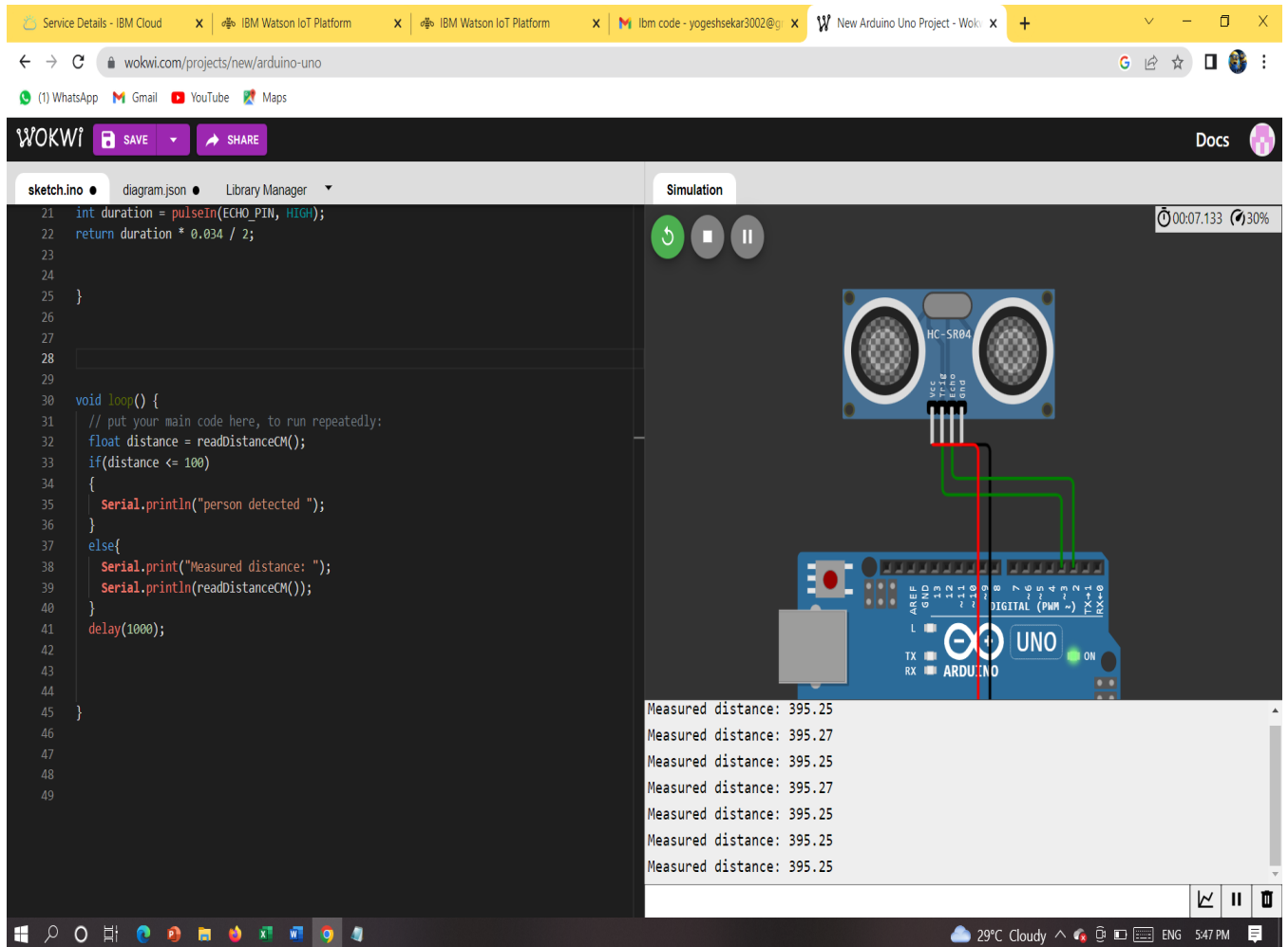
Input:

The screenshot displays the Wokwi online Arduino IDE interface. The left pane shows the 'sketch.ino' file with the following code:

```
1 #define ECHO_PIN 2  
2 #define TRIG_PIN 3  
3 #define organization "coodbj"  
4 #define deviceType=" Arduino"  
5 #define deviceId ="30020"  
6 #define authMethod ="use-token-auth"  
7 #define authToken ="30022007"  
8  
9 void setup() {  
10 // put your setup code here, to run once:  
11 Serial.begin(9600);  
12 pinMode(TRIG_PIN,OUTPUT);  
13 pinMode(ECHO_PIN, INPUT);  
14 }  
15 float readDistanceCM() {  
16 digitalWrite(TRIG_PIN, LOW);  
17 delayMicroseconds(2);  
18 digitalWrite(TRIG_PIN, HIGH);  
19 delayMicroseconds(10);  
20 digitalWrite(TRIG_PIN, LOW);  
21 int duration = pulseIn(ECHO_PIN, HIGH);  
22 return duration * 0.034 / 2;  
23 }  
24  
25 }  
26  
27 }  
28  
29 }  
30 void loop() {  
31 // put your main code here, to run repeatedly:  
32 float distance = readDistanceCM();  
33 if(distance <= 100)  
34 {
```

The right pane shows a simulation of an Arduino Uno board connected to an HC-SR04 ultrasonic sensor. 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 simulation window includes a 'Simulation' button and a status bar at the bottom showing '29°C Cloudy' and '5:46 PM'.

## Output:



The screenshot displays the Wokwi online Arduino IDE interface. The top navigation bar includes links to Service Details - IBM Cloud, IBM Watson IoT Platform, and a user profile. The main workspace is divided into two panels: the left panel shows the sketch.ino file with the following code:

```
21 int duration = pulseIn(ECHO_PIN, HIGH);
22 return duration * 0.034 / 2;
23
24 }
25
26
27
28
29
30 void loop() {
31 // put your main code here, to run repeatedly:
32 float distance = readDistanceCM();
33 if(distance <= 100)
34 {
35 Serial.println("person detected ");
36 }
37 else{
38 Serial.print("Measured distance: ");
39 Serial.println(readDistanceCM());
40 }
41 delay(1000);
42
43 }
44
45
46
47
48
49
```

The right panel shows a simulation of the hardware. An HC-SR04 ultrasonic sensor is connected to an Arduino Uno. 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 ECHO pin is connected to digital pin 12, and the TRIG pin is connected to digital pin 11. The simulation is running, and the serial monitor at the bottom displays the following output:

```
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 status bar shows the system temperature as 29°C Cloudy, the language as ENG, and the time as 5:47 PM.

Wokwi Link : <https://wokwi.com/projects/347036538679329362>

# IBM CLOUD

## Device Recent Events

The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes tabs for 'Service Details - IBM Cloud', 'IBM Watson IoT Platform', and 'IBM code - yogeshsekar3002@gmail.com'. The main header shows the user's email 'yogeshsekar3002@gmail.com' and ID 'c00dbj'. The left sidebar contains icons for various platform features. The main content area is titled 'Browse' and includes a search bar 'Search by Device ID'. A table lists devices, with the first entry being device ID 30020, status 'Disconnected', type 'arduino', and class 'Device'. Below the table, a detailed view for device 30020 is shown, including fields for Device ID, Device Type, Date Added, Added By, and Connection Status. The bottom status bar indicates '1 Simulation running'.

IBM Watson IoT Platform

Search by Device ID

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
30020	Disconnected	arduino	Device	Oct 31, 2022 5:30 PM	

Identity | Device Information | Recent Events | State | Logs

Device ID: 30020  
Device Type: arduino  
Date Added: Oct 31, 2022 5:30 PM  
Added By: yogeshsekar3002@gmail.com  
Connection Status: Disconnected

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1 of 1 page

1 Simulation running

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	
▼	30020	Disconnected	arduino	Device	Oct 31, 2022 5:30 PM		→ ...

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

1 Simulation running