

Assignment -4

DATE	2 NOVEMBER 2022
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MAXIMUM MARKS	2 MARKS

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:

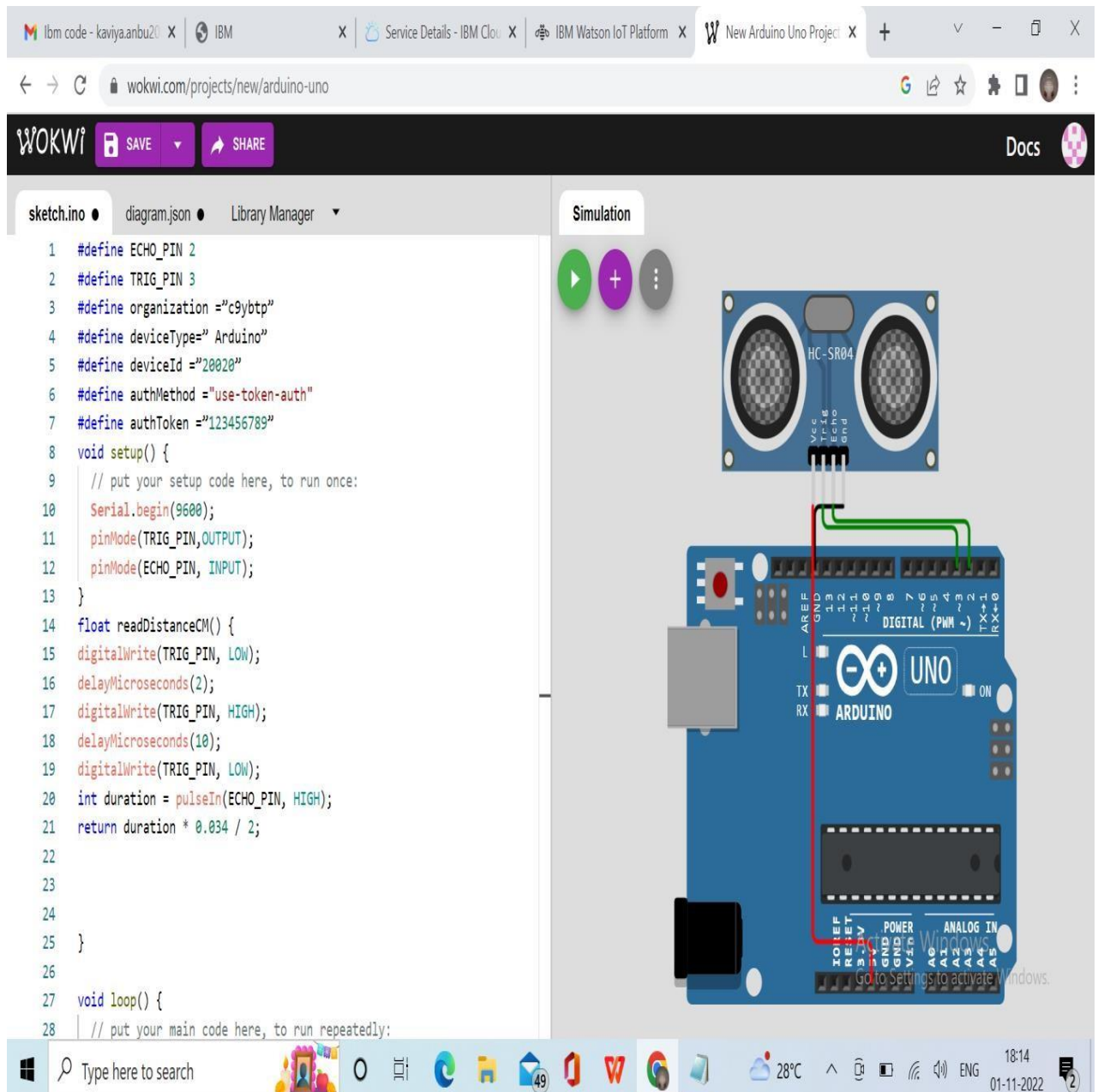
```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization ="c9ybtp"
#define deviceType=" Arduino"
#define deviceId ="20020"
#define authMethod ="use-token-auth"
#define authToken ="123456789"
void setup() {
    // put your setup code here, to run once:
    Serial.begin(9600);
    pinMode(TRIG_PIN,OUTPUT);
    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 shows the Wokwi web IDE interface. The top navigation bar includes tabs for 'IBM code - kaviya.anbu20', 'IBM', 'Service Details - IBM Cloud', 'IBM Watson IoT Platform', and 'New Arduino Uno Project'. The address bar shows 'wokwi.com/projects/new/arduino-uno'. The main workspace is divided into two panes. The left pane, titled 'sketch.ino', contains the following C++ code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization ="c9ybtpt"
4 #define deviceType=" Arduino"
5 #define deviceId ="20020"
6 #define authMethod ="use-token-auth"
7 #define authToken ="123456789"
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 }
26
27 void loop() {
28   // put your main code here, to run repeatedly:
```

The right pane, titled 'Simulation', shows a 3D model of an Arduino Uno board with an HC-SR04 ultrasonic sensor connected. 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 controls (play, add, and settings buttons) are visible at the top of the simulation area. The Windows taskbar at the bottom shows the system clock as 18:14 on 01-11-2022.

Output:

The screenshot displays the Wokwi online Arduino IDE interface. The browser tabs at the top include 'Ibm code - kaviya.anbu20', 'IBM', 'Service Details - IBM Cloud', 'IBM Watson IoT Platform', and 'New Arduino Uno Project'. The address bar shows 'wokwi.com/projects/new/arduino-uno'.

The Wokwi logo is in the top left, with 'SAVE' and 'SHARE' buttons. The 'Docs' button is in the top right. The interface is divided into three main sections:

- Sketch Editor:** Contains the following code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "c9ybtp"
4 #define deviceType "Arduino"
5 #define deviceId "20020"
6 #define authMethod "use-token-auth"
7 #define authToken "123456789"
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 }
26
27 void loop() {
28  // put your main code here, to run repeatedly:
```
- Simulation:** Shows a virtual Arduino Uno board connected to an HC-SR04 ultrasonic sensor. The sensor is connected to the Arduino's GND, VCC, and Trig pins. The Echo pin is connected to the Arduino's digital pin 2. The simulation is running, with a timer at 00:08.245 and 98% battery. A 'Restart the simulation' button is visible.
- Output Console:** Displays the following text:

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

The Windows taskbar at the bottom shows the search bar, task view, and various application icons. The system tray indicates a temperature of 28°C, the time 18:14, and the date 01-11-2022.

Wokwi Link: <https://wokwi.com/projects/347128758734422612>

IBM CLOUD

Device Recent Events

← Back

Device Drilldown - 20020

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID

c9ybtp

Device Type

arduino

Device ID

20020

Authentication Method

use-token-auth

Authentication Token

123456789

0 Simulations running

Activate Windows
Go to Settings to activate Windows.

Authentication tokens are non-new authentication token.

Browse Action Device Types Interfaces

Add 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

Items per page 50 | 1-1 of 1 item

1 of 1 page < 1 >

1 Simulation running

Activate Windows
Go to Settings to activate Windows.