

R. Soorya Priya Assignment -4

Question-1: Write code and connection 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 ="and2ah"  
#define deviceType=" Arduino"  
#define deviceId ="90909"  
#define authMethod ="use-token-auth"  
#define authToken ="Ck3ER+yr8qmwsSZ*KI"  
  
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: ");
```

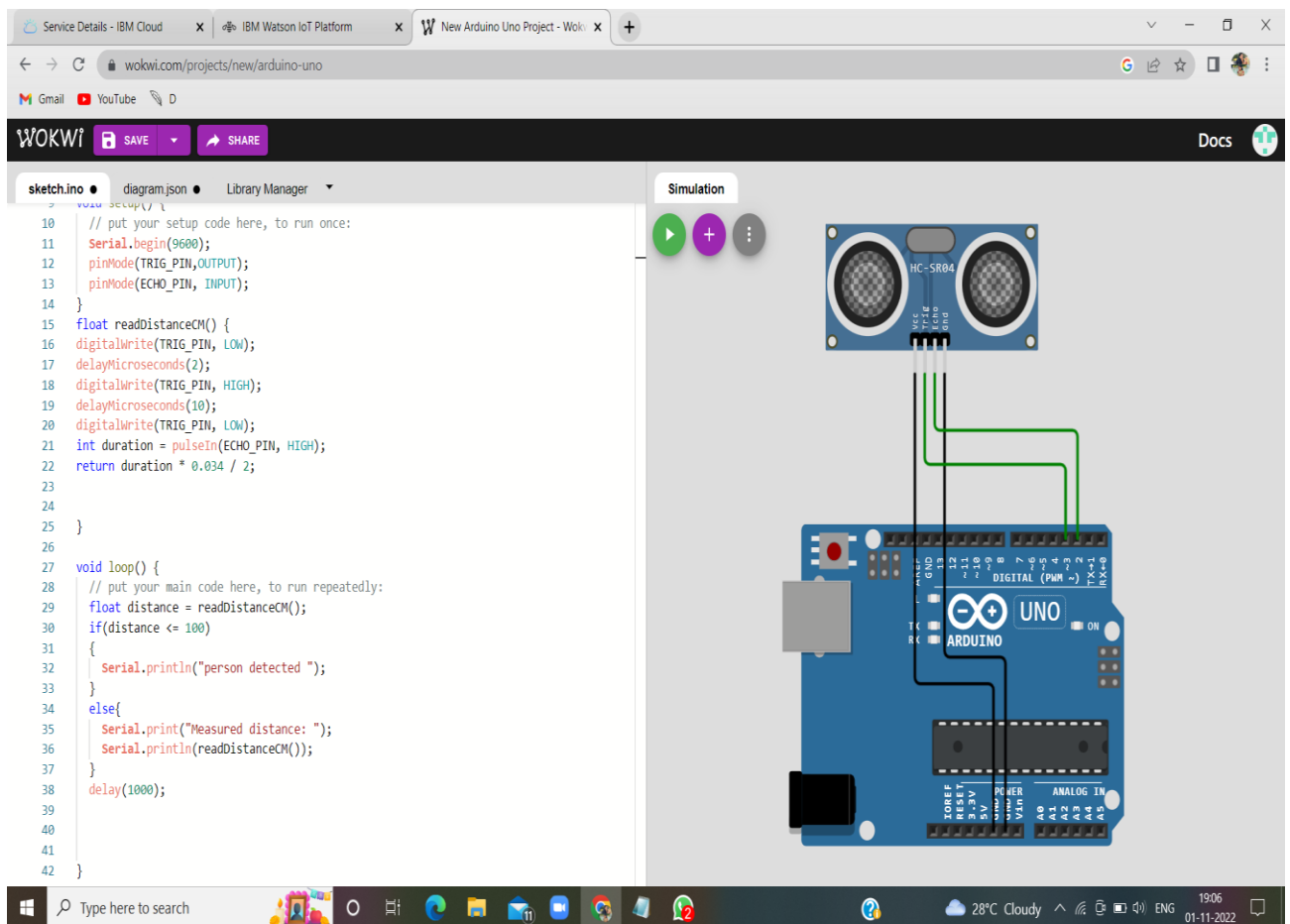
```

Serial.println(readDistanceCM());
}

delay(1000);

}

```



Output:

The screenshot displays the Wokwi online Arduino IDE interface. On the left, the sketch editor shows the following code:

```
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 void loop() {
28   // put your main code here, to run repeatedly:
29   float distance = readDistanceCM();
30   if(distance <= 100)
31   {
32     Serial.println("person detected");
33   }
34   else{
35     Serial.print("Measured distance: ");
36     Serial.println(readDistanceCM());
37   }
38   delay(1000);
39 }
40
41
42 }
```

On the right, the simulation window shows an HC-SR04 ultrasonic sensor connected to an Arduino Uno. The sensor's output is displayed as a series of 'Measured distance' values:

```
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.35
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.25
```

The bottom status bar shows the system clock at 19:06 on 01-11-2022, with a temperature of 28°C and a cloud icon.

Wokwi link:

<https://wokwi.com/projects/347132134181306963>

IBM

Device Recent Events

The screenshot shows the IBM Watson IoT Platform interface. The left sidebar contains a navigation menu with icons for Home, Devices, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The main content area is titled "Device Drilldown - 90909" and displays the "Device Credentials" section. This section includes a description: "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." Below this is a table with the following data:

Organization ID	and2ah
Device Type	arduino
Device ID	90909
Authentication Method	use-token-auth
Authentication Token	NluR&6FCWtn8lCFbE(

Below the table, there is a warning icon and text: "Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token." A link "Find out how to add these credentials to your device" is also present.

The screenshot shows the IBM Watson IoT Platform interface, specifically the "Device Drilldown - 90909" page. The left sidebar is the same as in the previous screenshot. The main content area displays the "Connection Information" section, which includes a description: "Basic connection information about this device." Below this is a table with the following data:

Device ID	90909
Device Type	arduino
Date Added	Nov 1, 2022 6:50 PM
Added By	sooryapriya11sp@gmail.com
Connection Status	Disconnected

Below the table, there is a section titled "Recent Events" with a description: "The recent events listed show the live stream of data that is coming and going from this device." Below this description is a table with the following headers: "Event", "Value", "Format", and "Last Received".

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Service Details - IBM Cloud', 'IBM Watson IoT Platform', and 'sketch.ino copy - Wokwi Arduino'. The browser address bar shows the URL 'and2ah.internetofthings.ibmcloud.com/dashboard/devices/browse'. The user is logged in as 'sooryapriya11sp@gmail.com' with ID 'and2ah'.

The main content area displays the 'Recent Events' tab for a device. The tab is titled 'Identity Device Information Recent Events State Logs'. Below the tabs, a message states: 'The recent events listed show the live stream of data that is coming and going from this device.'

A table lists the recent events:

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

At the bottom right, a status bar indicates '1 Simulation running'.

