

## Assignment-04

Assignment Date	1 November 2022
Team ID	PNT2022TMID11451
Project Name	Project-Smart Farmer-IoT Enabled Smart Farming Application

### Question-4:

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 = "2tpzx1"
#define deviceType = "Ultrasonic_1"
#define deviceId = "Ultrasonic"
#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/347143640248746580>

The screenshot displays the Wokwi web IDE interface. On the left, the 'sketch.ino' file is open, containing the following code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization = "2tpzx1"
4 #define deviceType = "Ultrasonic_1"
5 #define deviceId = "Ultrasonic"
6 #define authMethod = "use-token-auth"
7 #define authToken = "123456789"
8 void setup() {
9   Serial.begin(9600);
10  pinMode(TRIG_PIN, OUTPUT);
11  pinMode(ECHO_PIN, INPUT);
12 }
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 void loop() {
25   float distance = readDistanceCM();
26   if(distance <= 100)
27   {
28     Serial.println("person detected ");
29   }
30   else{
31     Serial.print("Measured distance: ");
32   }
```

On the right, the 'Simulation' window shows a virtual circuit with an ultrasonic sensor module connected to a microcontroller board. A slider control for the sensor is set to 73cm. Below the circuit, the serial monitor displays the output of the program:

```
person detected
person detected
person detected
person detected
person detected
person detected
```

The bottom of the screen shows the Windows taskbar with the system clock at 11:17 on 01-11-2022.

# IBM Cloud

## Device Recent Events

RAK2245 x RAK2245 x RAK2245 x Welcome x IBM x IBM Wat x My IBM x Service D x IBM Wat x assignme x sketchin x +

2tpzx1.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform samritha.s2019@kgkite.ac.in ID: 2tpzx1

Browse Action Device Types Interfaces

Device ID Status Device type Class ID Date Added Descriptive Location

12345 Disconnected NodeMCU Device Oct 25, 2022 1:46 PM

Ultrasonic Disconnected Ultrasonic\_1 Device Nov 1, 2022 9:53 PM

Ultrasonic\_1 Connected Ultrasonic Device Nov 1, 2022 10:41 PM

Identity Device Information Recent Events State Logs

Device ID Ultrasonic\_1

Device Type Ultrasonic

Date Added Nov 1, 2022 10:41 PM

Added By samritha.s2019@kgkite.ac.in

Connection Status Connected

Connection Time: Nov 1, 2022 10:41 PM

Client Address: 106.197.123.99 SecureToken

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1 of 1 page

1 Simulation running

76°F Mostly cloudy

ENG IN 01-11-20

RAK2245 x RAK2245 x RAK2245 x Welcome x IBM x IBM Wat x My IBM x Service D x IBM Wat x sketchin x assignme x +

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IBM Watson IoT Platform samritha.s2019@kgkite.ac.in ID: 2tpzx1

Browse Action Device Types Interfaces

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	{"Persondetected":94}	json	a few seconds ago
event_1	{"Persondetected":37}	json	a few seconds ago
event_1	{"Persondetected":97}	json	a few seconds ago
event_1	{"Persondetected":5}	json	a few seconds ago
event_1	{"Persondetected":92}	json	a few seconds ago

Items per page 50 1-2 of 2 items

1 Simulation running

simulator.json Show all

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