

Assignment -4

Assignment Date	6 th November 2022
Team ID	PNT2022TMID33827
Project Name	Smart Farmer-IoT Enabled SmartFarming Application
Maximum Marks	2 Marks

Question-1:

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 = “fkxdqs”

#define deviceType = “Arduino”

#define deviceId = “1200”

#define authMethod = “use-token-auth”

#define authToken = “00000000”

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 =
```

```
    readDistanceC
```

```
    M());if(distance
```

```
    <= 100)
```

```
{
```

```
    Serial.println("person detected ");
```

```
}
```

```
else{
```

```
    Serial.print("Measur
```

```
    eddistance: ");
```

```
    Serial.println(readDistanceC
```

```
    M());
```

```
}
```

```
    delay(1000);
```

```
}
```

Wokwi simulation interface showing a sketch and a simulated circuit.

Sketch (sketch.ino):

```
1
2 #define ECHO_PIN 2
3 #define TRIG_PIN 3
4 void setup() {
5   Serial.begin(9600);
6   pinMode(TRIG_PIN, OUTPUT);
7   pinMode(ECHO_PIN, INPUT);
8 }
9 float readDistanceCM() {
10  digitalWrite(TRIG_PIN, LOW);
11  delayMicroseconds(2);
12  digitalWrite(TRIG_PIN, HIGH);
13  delayMicroseconds(10);
14  digitalWrite(TRIG_PIN, LOW);
15  int duration = pulseIn(ECHO_PIN, HIGH);
16  return duration * 0.034 / 2;
17 }
18 void loop() {
19  float distance = readDistanceCM();
20  if(distance <= 100)
21  {
22    Serial.println("person detected ");
23  }
24  else{
25    Serial.print("Measured distance: ");
26    Serial.println(readDistanceCM());
27  }
28  delay(1000);
29 }
```

Simulation:

Editing Ultrasonic Distance Sensor
Distance: 76cm

Measured distance: 395.27
Measured distance: 395.25
person detected
person detected
person detected
person detected
person detected

The simulation shows an Arduino Uno connected to an Ultrasonic Distance Sensor. The sensor's distance is currently set to 76cm. The serial monitor displays the measured distance and detects a person when the distance is 100cm or less.

Wokwi Link: <https://wokwi.com/projects/347589536829669972>