

IBM Nalaiyathiran

Assignment-4

Aim:

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Source code:

```
#define ECHO_PIN 2
#define TRIG_PIN 3

#define ORG "ioe64s"//IBM ORGANIZATION ID
#define DEVICE_TYPE "ultrasonic"//Device type mentioned in ibm
watson IOT Platform
#define DEVICE_ID "123"//Device ID mentioned in ibm watson IOT
Platform
#define TOKEN "12345678" //Token
String data3;

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";//
Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and
type of event perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd
REPRESENT command type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client
id

void setup() {
  Serial.begin(115200);
  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.print("alert");
    else
        Serial.print("Measured distance: ");
    Serial.println(readDistanceCM());

    delay(100);
}
```

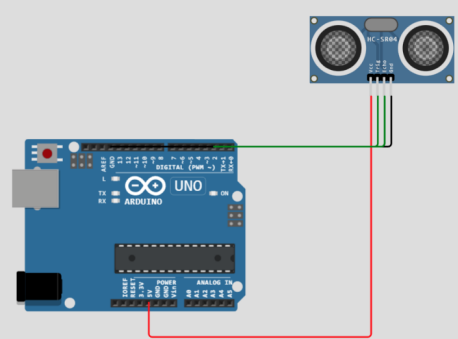
Output:

WOKWI SAVE SHARE Docs

sketch.ino • diagram.json • Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define ORG "10ed46"//IBM ORGANIZATION ID
4 #define DEVICE_TYPE "ultrasonic"//Device type mentioned in ibm watson IOT Platform
5 #define DEVICE_ID "123"//Device ID mentioned in ibm watson IOT Platform
6 #define TOKEN "12345678" //Token
7 String data3;
8
9 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
10 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and format in which data t
11 char subscribeTopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command type AND COMMAND IS TEST OF FORWA
12 char authMethod[] = "use-token-auth";// authentication method
13 char token[] = TOKEN;
14 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
15
16
17 void setup() {
18   Serial.begin(115200);
19   pinMode(TRIG_PIN, OUTPUT);
20   pinMode(ECHO_PIN, INPUT);
21 }
22
23 float readDistanceCH() {
24   digitalWrite(TRIG_PIN, LOW);
25   delayMicroseconds(3);
26   digitalWrite(TRIG_PIN, HIGH);
27   delayMicroseconds(10);
28   digitalWrite(TRIG_PIN, LOW);
29   int duration = pulseIn(ECHO_PIN, HIGH);
30   return duration * 0.034 / 2;
31 }
32
33 void loop() {
34   float distance = readDistanceCH();
35
36   if (distance<100)
37     Serial.print("alert");
38   else
39     Serial.print("Measured distance: ");
40     Serial.println(readDistanceCH());
41
42   delay(100);
43 }
44
45
```

Simulation



Measured distance: 395.91
Measured distance: 395.91
Measured distance: 395.91
Measured distance: 395.91
Measured distance: 395.98
Measured distance: 395.91
Measured distance

Activate Windows
Go to Settings to activate Windows.