

## ASSIGNMENT -4

### DISTANCE DETECTION USING ULTRASONIC SENSOR

DATE	07/11/2022
TEAM ID	PNT2022TMID42536
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STUDENT ROLL NUMBER	711019106001
MAXIMUM MARKS	2 Marks

#### QUESTION:

- 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.
- Upload document with wokwi share link and images of IBM cloud

#### WOKWI LINK:

<https://wokwi.com/projects/347670701615874642>

#### CODE:

```
void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
```

```
//-----credentials of IBM Accounts-----
```

```
#define ORG "cd0q6t"//IBM ORGANITION ID
```

```
#define DEVICE_TYPE "ESP32"//Device type mentioned in ibm watson IOT Platform
```

```
#define DEVICE_ID "ESP32_1"//Device ID mentioned in ibm watson IOT Platform
```

```
#define TOKEN "S3G&e-tbtaMa1Meze&" //Token
```

```
String data3;
```

```
float h, t;
```

```
//----- Customise the above values -----
```

```
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
int trigPin = 5;
int echoPin = 18;
int duration;
int distance;
void setup() {
    Serial.begin(115200);
    pinMode(trigPin, OUTPUT);
    pinMode(echoPin, INPUT);
}
void loop() {
    digitalWrite(trigPin, LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigPin, LOW);
    duration = pulseIn(echoPin, HIGH);
    distance= duration*0.034/2;
    Serial.println("Distance:");
    Serial.println(distance);
    delay(100);
    if(distance<100)
    {
        Serial.println("Alert!..");
    }
}

```

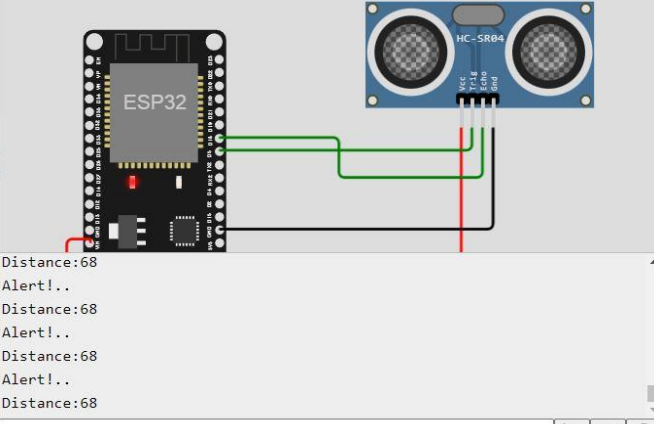
## DESIGN:

WOKWI SAVE SHARE sketch.ino Docs A

sketch.ino diagram.json Library Manager

```
1 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
2
3 //-----credentials of IBM Accounts-----
4
5 #define ORG "cd0q6t"//IBM ORGANITION ID
6 #define DEVICE_TYPE "ESP32"//Device type mentioned in ibm watson IOT Platform
7 #define DEVICE_ID "ESP32_1"//Device ID mentioned in ibm watson IOT Platform
8 #define TOKEN "S3G&e-tbtaMa1Meze&" //Token
9 String data3;
10 float h, t;
11
12
13 //----- Customise the above values -----
14 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
15 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event
16 char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT comma
17 char authMethod[] = "use-token-auth";// authentication method
18 char token[] = TOKEN;
19 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
20 int trigPin = 5;
21 int echoPin = 18;
22 int duration;
23 int distance;
24 void setup() {
25   Serial.begin(115200);
26   pinMode(trigPin, OUTPUT);
27   pinMode(echoPin, INPUT);
28 }
29 void loop() {
30   digitalWrite(trigPin, LOW);
```

Simulation 00:06.233 27%



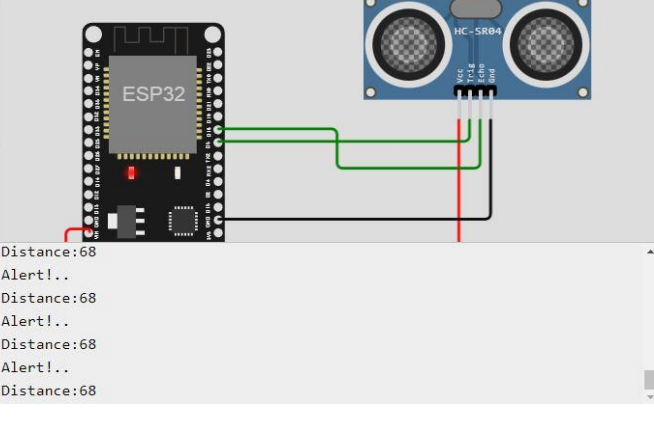
Distance:68  
Alert!..  
Distance:68  
Alert!..  
Distance:68  
Alert!..  
Distance:68

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sketch.ino diagram.json Library Manager

```
29 delayMicroseconds(2);
30 digitalWrite(trigPin, HIGH);
31 delayMicroseconds(10);
32 digitalWrite(trigPin, LOW);
33 duration = pulseIn(echoPin, HIGH);
34 distance= duration*0.034/2;
35 Serial.print("Distance:");
36 Serial.println(distance);
37 delay(100);
38 if(distance<100)
39 {
40   Serial.println("Alert!..");
41 }
42 }
```

Simulation 00:02.533 24%



Distance:68  
Alert!..  
Distance:68  
Alert!..  
Distance:68  
Alert!..  
Distance:68

IMAGES OF IBM CLOUD:

Device ID

Status

Device Type

Class ID

Date Added

▼

ESP32\_1

Connected

ESP32

Device

Nov 7, 2022 5:27 PM

→ ...

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	{"Distance":28,"Alert!..":0}	json	a few seconds ago
event_1	{"Distance":5,"Alert!..":0}	json	a few seconds ago
event_1	{"Distance":44,"Alert!..":0}	json	a few seconds ago
event_1	{"Distance":79,"Alert!..":0}	json	a few seconds ago
event_1	{"Distance":48,"Alert!..":0}		

1 Simulation running