

## Assignment - 4

### Wowki & IBM Cloud

Assignment Date	13 November 2022
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Maximum Marks	2 Marks

Question-1:

Write code and connections in wowki for the sensor. Whenever the distance less than 100cms sent "alert" to IBM cloud and display in device recent events.

Code:

```
1 #include <WiFi.h>
#include <PubSubClient.h>
#include <Arduino.h>

WiFiClient wifiClient;

#define ORG "oa8490"
#define DEVICE_TYPE "TestDeviceType"
#define DEVICE_ID "12345"
#define TOKEN "-Al0raS44flfdjYBVS"
#define speed 0.034

1 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd1/fms/json"; char topic[]
- "iot-2/cmd/home/button/Strique" char authMethod[] = "use-token-
auth"; char token[] = TOKEN;

char ClientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID:
PubSubClient client(server, 1883, wifiClient);
publishData();
```

```

const int trigpin=5;
const int echopin=13;
String command;

String data=" ";
String lat="14. 167589";
String lon="80.248510";

String name="point2":
String icon="";

```

```

long duration;
int dist;

```

```

void zerap ()
( Serial.b-gi (115200) ;
  p- " :e(trigpin,
    OUTPUT)
  p- +(echopin, lPUT) ;
  wifiConnect();
  mqttConnect();
}

```

```

void loop() (

  publishData();
  - (500) ;

  if (!client.loop()) (
    mqXtZonectC;
  )
}

```

```

void wifiConnect() (
  Serial.print("Connecting to ");
  Serial.:: ("Wifi") ; WiFi.h=j ("Wokwi-GUEST" , ,
  ;_while WiFi .status() != WL_CONNECTED) (

    r Se ial .1:• (" .") ;

    Serial.¿== ("WiFi connected, lP address: ") ;
  Serial. : ( WiFi.localIP())
}

```

```

void mqttConnect() {
    if (! client.connected()) {
        Serial.pr n'("Reconnecting MQTT client to ") ;
        Serial.p >r l server); while (!client.connect(cli'entId,
        authMethod, taken) ( Serial.p =' (".")) ;
        delay(1000) ;
        } + - - - - -
        'initManagedDevice();
        Serial.pt_ >_ u() ;
    }
}

```

```

void initManagedDevice() {
    if ( client.subscribe(topic)) {
        Serial.pi: : .( client.subscri'be(topic));
        Ser lal . >i i* i("s ubscr ibe to cmd OK") ;
    } : else {
        Serial.p '>' > ("subscribe to cmd FAILED") ;
    } } void
publishData() {
    ( I'm' ' !W °'••(trigpin,LOW)
    . a?' !'i' ••(trigpin,HIGH) ;'
    ... .. .... =*..1...
    q3' !:< i_=(trigpin,LQW) ;
    dur0tion=pu.'c ':(echopin,MIGM)
    ; dist=duration*speed/2;
}

```

```

if(dist<100){
    dist=100- dist; icon="fa-
trash";
} else( distr:
    icon="fa-trasN-
_O";
}

```

```

DynamicJ sonDocument doc (1024) i
String payload; doc{"Name"}= I
' name; docl"Latitude"}= lat;
doc{"Longitude"}= lon;
doc["Icon"]=icon;
docl"FillPercent"}= diet;
serializeJ son(doc, payload);
delay(3000) ;
Serial.print("\n") ,

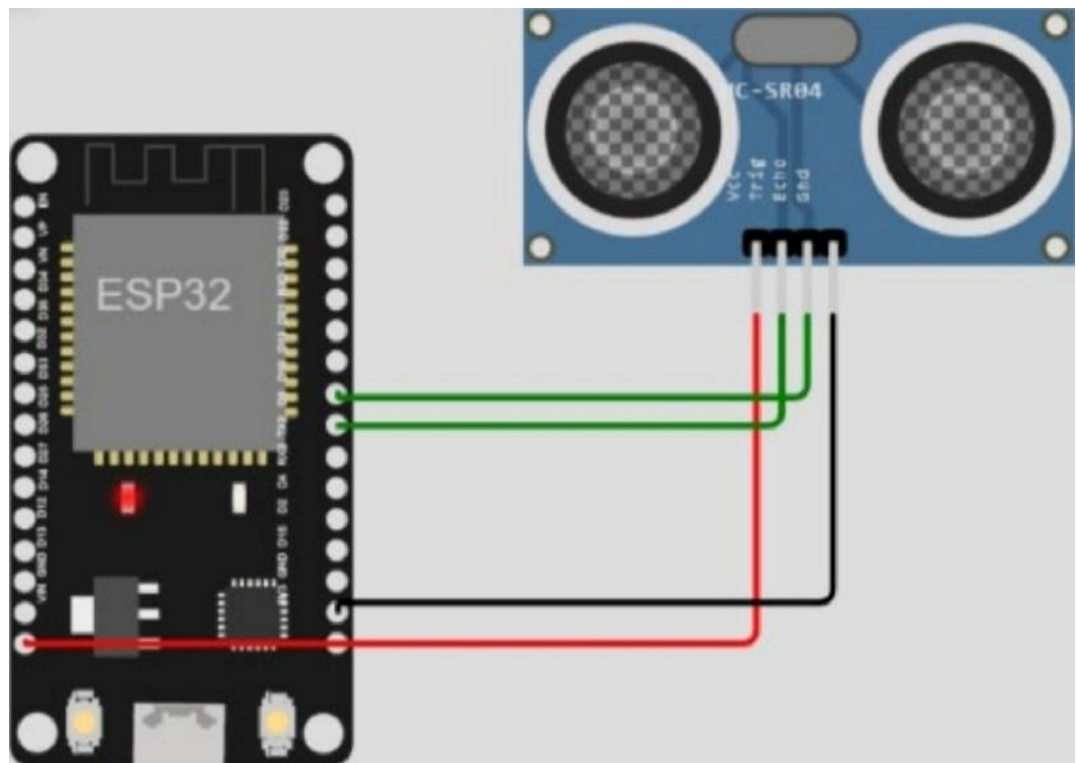
```

```

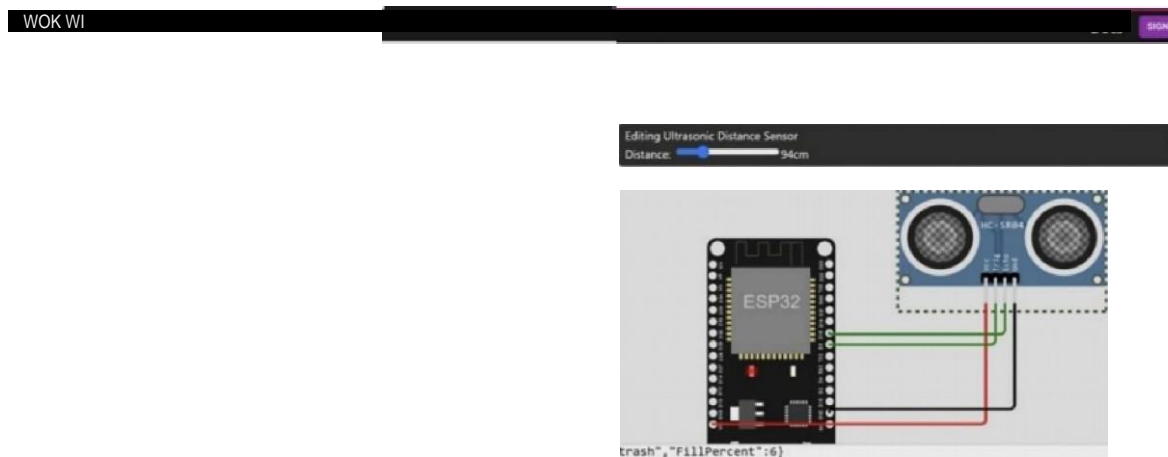
Serial.p  .' ("lending payload: ") ; I
1 Serial.p _.' .( payload):      _      I
' if (client.publish(publishTopic, (ohar') payload.c_str()))
  ( Serial.p  .' .("Publish OK") ;
) else I
'   Serial.)  .' .("Publish FAILED") ; I

```

Connecdons :



Output:



Output :( IBM Cloud)

The image is a screenshot of the IBM Watson IoT Platform web interface. The top navigation bar includes "Browse", "Action", "Device Types", and "Interfaces". A user profile is visible in the top right corner. The main content area shows a table of devices. One device with ID "12345" is selected, and its "Recent Events" tab is active. Below the tab, a message states: "The recent events listed show the live stream of data that is coming and going from this device." A table of events is displayed below:

Event	Value	Format	Last Received
event_1	("Alert Distance":8)	json	a few seconds ago
event_1	("Alert Distance":81)	json	a few seconds ago
event_1	("Alert Distance":56)	json	a few seconds ago
event_1	("Alert Distance":98)	json	a few seconds ago
event_1	("Alert Distance":72)	json	a few seconds ago

At the bottom of the interface, it says "1 Simulation running". A Windows watermark "Activate Windows" is visible in the bottom right corner.