

Assignment -4 Wowki & IBM Cloud

Assignment Date	04 October 2022
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Maximum Marks	2 Marks

Question-1:

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

Code:

```
#include <WiFi.h>

#include <PubSubClient.h>

#include <ArduinoJson.h>

WiFiClient wifiClient; String data3;

#define ORG "4o5bpF"

#define DEVICE_TYPE "TestDeviceType"

#define DEVICE_ID "28122001"

#define TOKEN "rlerLKxv&K2!a0FFQC"

#define speed 0.034 #define led 14 char server[] = ORG

".messaging.internetofthings.ibmcloud.com"; char publishTopic[]

= "iot-2/evt/shreedharen/fmt/json"; char topic[] = "iot-

2/cmd/led/fmt/String"; char authMethod[] = "use-token-auth";

char token[] = TOKEN; char clientId[] = "d:"
```

```

ORG ":" DEVICE_TYPE ":" DEVICE_ID;

PubSubClient client(server, 1883, wifiClient);

const int trigpin=5; const int echopin=18; String
command; String data=""; long duration; float
dist; void setup()

{

Serial.begin(115200);

pinMode(led, OUTPUT);

pinMode(trigpin, OUTPUT);

pinMode(echopin, INPUT);

wifiConnect(); mqttConnect();

} void loop() { bool isNearby

= dist < 100; digitalWrite(led,

isNearby); publishData();

delay(500); if

(!client.loop())

{ mqttConnect();

} } void

wifiConnect() {

Serial.print("Connecting to "); Serial.print("Wifi");

WiFi.begin("Wokwi-GUEST", "", 6); while

(WiFi.status() != WL_CONNECTED) { delay(500);

Serial.print(".");

}

Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());

} void mqttConnect() { if

```

```

(!client.connected()) {

Serial.print("Reconnecting MQTT client to ");

Serial.println(server); while (!client.connect(clientId, authMethod,
token)) { Serial.print("."); delay(500); } initManagedDevice();

Serial.println(); } } void initManagedDevice() { if
(client.subscribe(topic)) {

// Serial.println(client.subscribe(topic)); Serial.println("IBM subscribe to cmd OK");

} else {

Serial.println("subscribe to cmd FAILED");

} } void publishData() { digitalWrite(trigpin,LOW);

digitalWrite(trigpin,HIGH);

delayMicroseconds(10); digitalWrite(trigpin,LOW);

duration=pulseIn(echopin,HIGH);

dist=duration*speed/2; if(dist<100){

String payload = "{\"Alert Distance\":"; payload

+= dist; payload += "}"; Serial.print("\n");

Serial.print("Sending payload: ");

Serial.println(payload); if (client.publish(publishTopic,

(char*) payload.c_str())) {

Serial.println("Publish OK");

} } if(dist>100){

String payload = "{\"Distance\":";

payload += dist; payload += "}";

Serial.print("\n");

Serial.print("Sending payload: ");

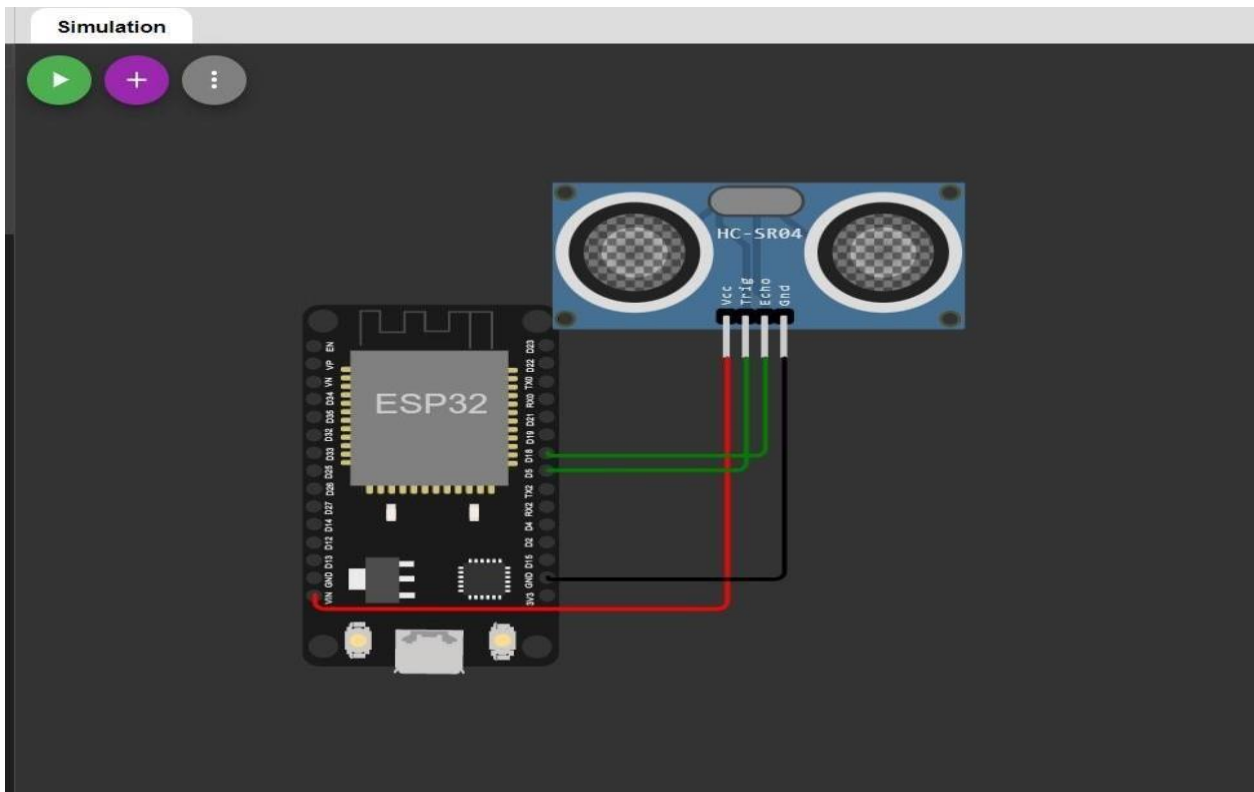
Serial.println(payload); if(client.publish(publishTopic,

(char*) payload.c_str())) {

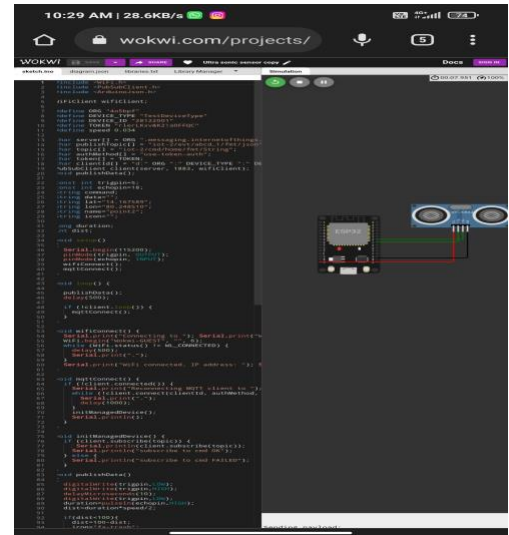
```

```
Serial.println("Publish OK");  
  
}else  
  
{  
  
Serial.println("Publish FAILED");  
  
}  
  
}  
  
}
```

Connections:



Output:



Output:(IBM Cloud)

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays a table of recent events for a device with ID '12345'. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. The events are listed as 'event_test' with values like 'Alert distance:26', 'Alert distance:80', 'Alert distance:20', 'Alert distance:52', and 'Alert distance:13'. The format for all events is 'json', and they were received 'a few seconds ago'. A status bar at the bottom indicates '1 Simulation running'.

Event	Value	Format	Last Received
event_test	Alert distance:26	json	a few seconds ago
event_test	Alert distance:80	json	a few seconds ago
event_test	Alert distance:20	json	a few seconds ago
event_test	Alert distance:52	json	a few seconds ago
event_test	Alert distance:13	json	a few seconds ago

Link : <https://wokwi.com/projects/346587874175484499>