ASSIGNMENT -4

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

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QUESTION:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events. Upload document with wokwi share link and images of ibm cloud.

CODE:

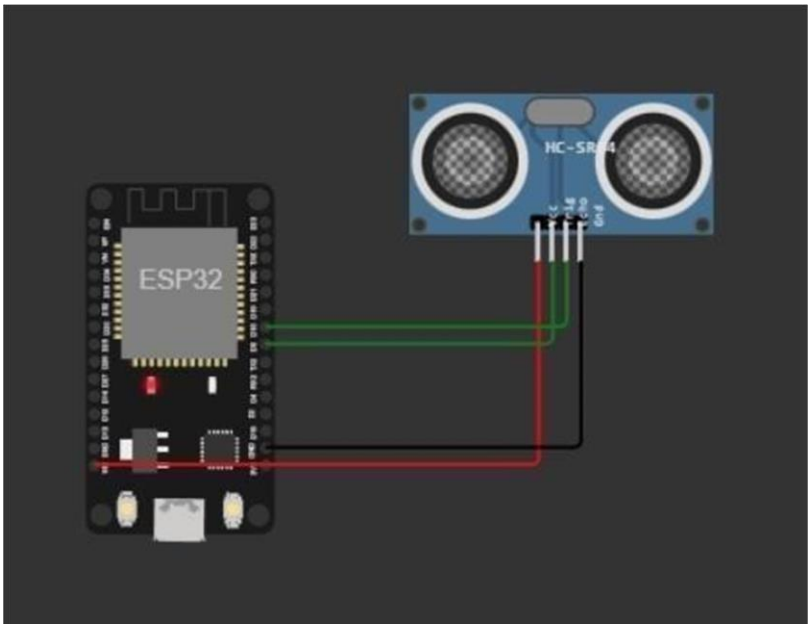
```
#include <WiFi.h> #include
<PubSubClient.h>#include
<ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "zv613n"
#defineDEVICE_TYPE"NODEMC
U"
#define DEVICE_ID"47300"
#define TOKEN
"LFnPudA0&q1&AGZN3"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";char
publishTopic[] = "iot-2/evt/abcd_1/fmt/json"; char topic[]
= "iot-2/cmd/home/fmt/String"; char authMethod[] = "use-token- auth";
char token[] = TOKEN; char clientId[] = "d:" ORG ":" DEVICE_TYPE
":" DEVICE_ID; PubSubClient client(server, 1883,wifiClient); void
publishData();
const int trigpin=5;
const int echopin=18;
String command; String
data="";
String lat="14.167589";
String lon="80.248510";
```

```
      String name="point2";
     String icon="";
longduration
  void setup()
     {
       Serial.begin(115200);
       pinMode(trigpin,
       OUTPUT);
       pinMode(echopin, INPUT);
       wifiConnect(); mqttConnect();
     }
     void loop()
     {
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(1000);
         }
         initManagedDevice();
         Serial.println();
       }
```

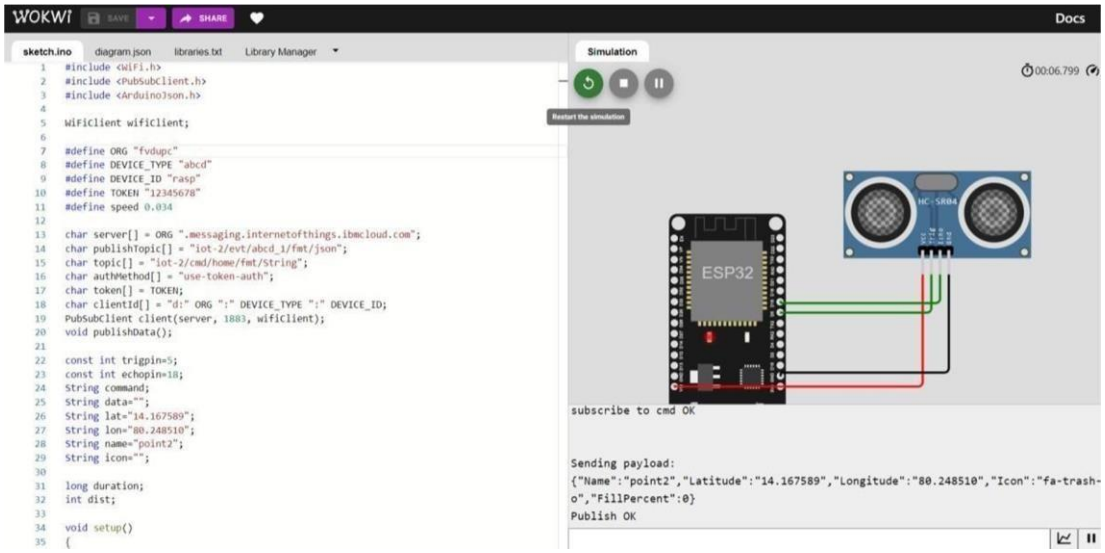
```
  }
  void initManagedDevice()
  {

    if (client.subscribe(topic)) { Serial.println(client.subscribe(topic));
      Serial.println("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){
      dist=100-dist; icon="fa-
      trash";
    }else{ dist=0;
      icon="fa-trash-o";
    }
    DynamicJsonDocument
    doc(1024);String payload;
    doc["Name"]=name;
    doc["Latitude"]=lat;
    doc["Longitude"]=lon;
    doc["Icon"]=icon;
    doc["FillPercent"]=dist;
    serializeJson(doc, payload);
    delay(3000); 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");
    }
  }
```


HC-SR04
ESP32

OUTPUT:


WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
Simulation
00:06.799
Restart the simulation
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "fvdupc"
#define DEVICE_TYPE "abcd"
#define DEVICE_ID "rasp"
#define TOKEN "12345678"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();
const int trigpin=5;
const int echopin=18;
String command;
String data="";
String lat="14.167589";
String lon="80.248510";
String name="point2";
String icon="";
long duration;
int dist;
void setup()
{
HC-SR04
ESP32
subscribe to cmd OK
Sending payload:
{"Name":"point2","Latitude":"14.167589","Longitude":"80.248510","Icon":"fa-trash-
o","FillPercent":0}
Publish OK