ASSIGNMENT -4

Assignment Date	26 October 2022
Team ID	PNT2022TMID17187
Project Name	Project - IoT based safety gadget for Child Safety Monitoring and Notification
Team Leader	BHARANI
Team Members	AJITH V ARULSELVAN A BHARATH M

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.

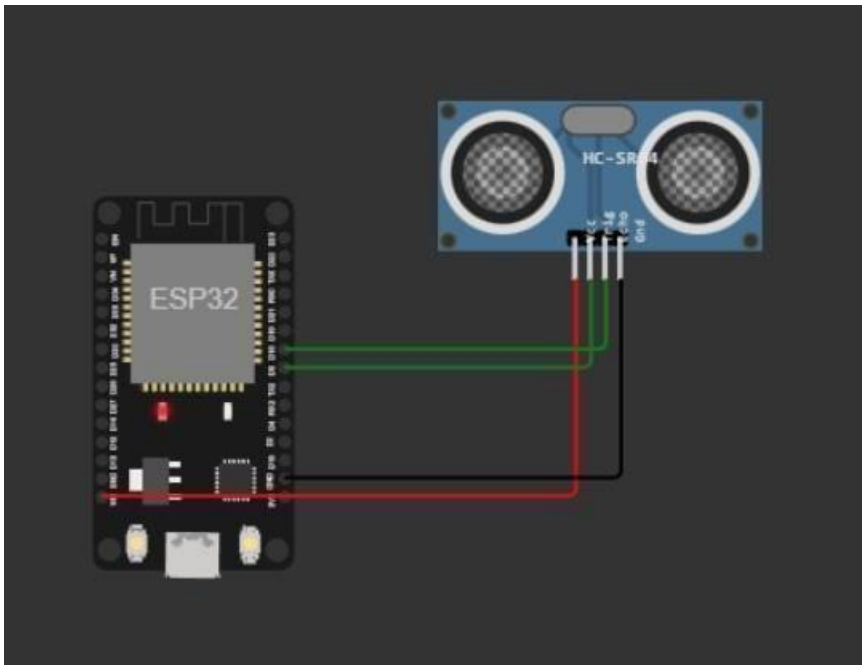
CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

WiFiClient wifiClient;
#define ORG "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-tokenauth";
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()
{
  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="fatrash";
  }else{ dist=0;
    icon="fa-trasho";
  }
  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");
  }
}
```

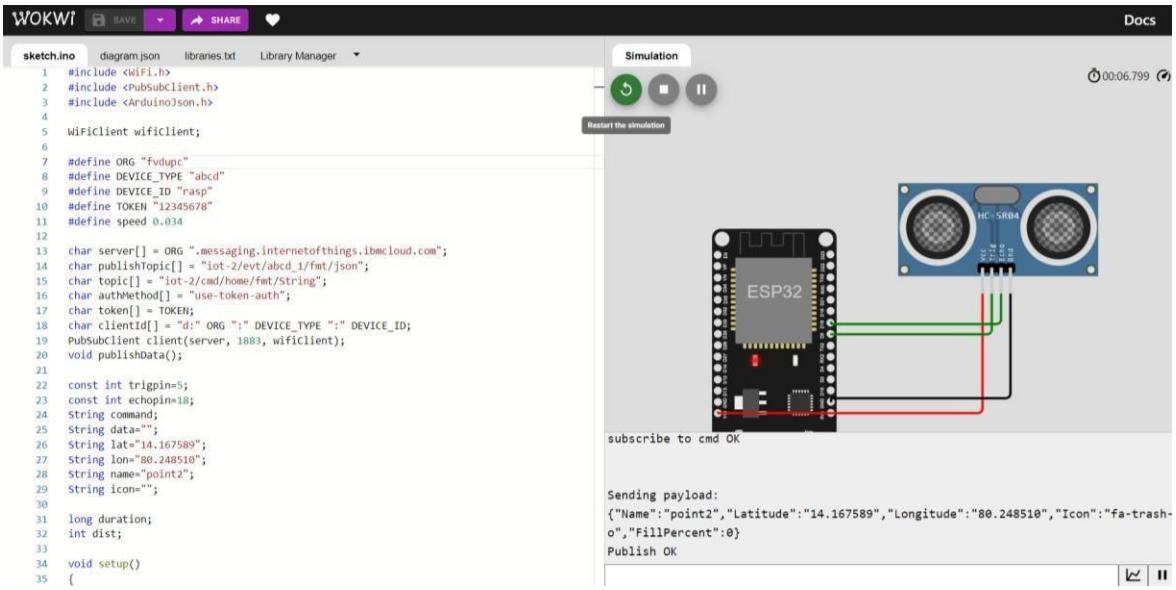
CONNECTIONS:



WOKWI LINK:

https://wokwi.com/projects/346590330080985684

OUTPUT:




```
#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()
{
```