ASSIGNMENT 4

Date	27 Oct 22
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Project Name	Smart Farmer -IOT

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:

```cpp
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
#define ORG "nhpwjc"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "USE YOUR ID"
#define TOKEN "USE YOUR TOKEN"
#define speed 0.034
  char server[] =
ORG
".messaging.internetofthings.ibmcloud.com"; char publishTopic[]
= "iot-2/evt/Data/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=""; long
duration; float 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(500);
    } 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);
```
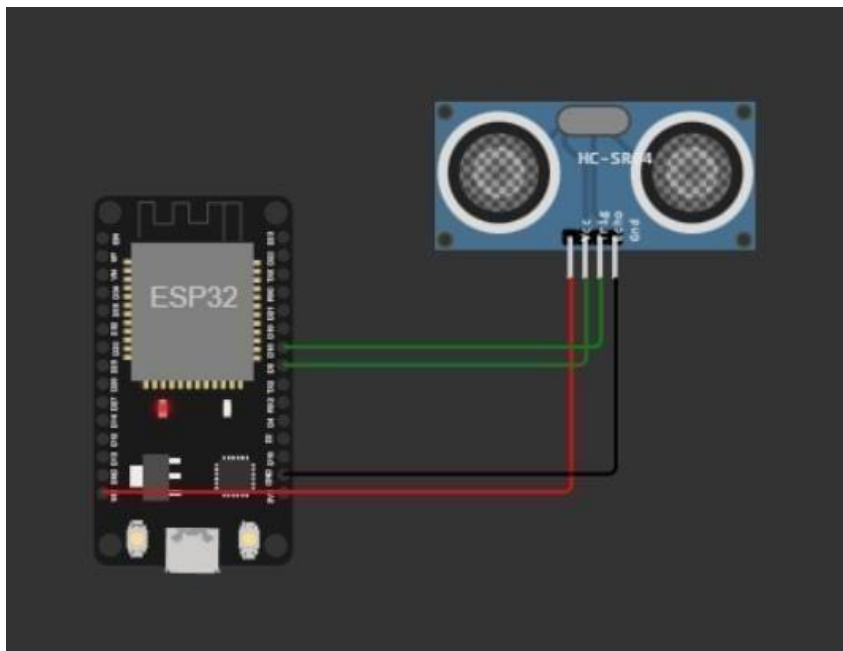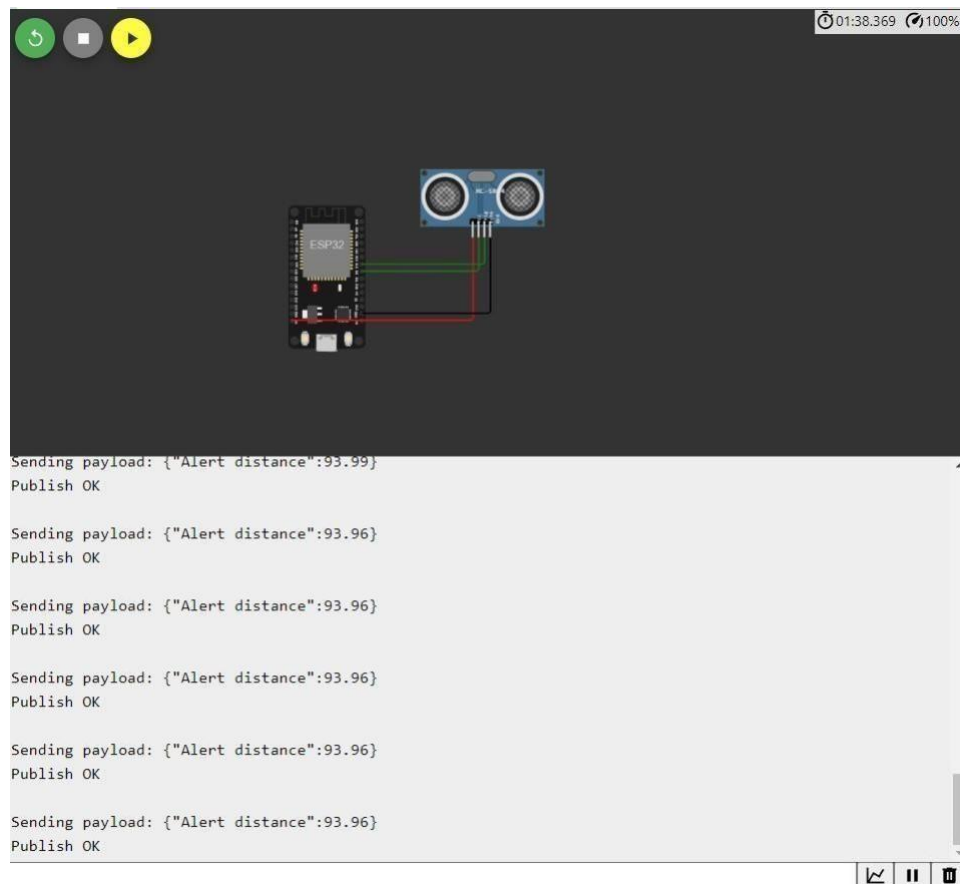
```
delayMicroseconds(10); digitalWrite(trigpin,LOW);                            {
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2; if(dist<100){
  String payload = "{\"Alert distance\":"; payload += dist;
  payload += "}";
  Serial.print("\n");
  Serial.print("Sending payload: "); Serial.println(payload);
  if       (client.publish(publishTopic,  (char*)      payload.c_str()))
    Serial.println("Publish OK");
  } else {
    Serial.println("Publish FAILED"); } }
}
```

CONNECTIONS:

OUTPUT:

WOKWI LINK -
https://wokwi.com/projects/346405970317935188