

IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE -ASSIGNMENT 4

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Project Name	IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE.

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors.

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>
WiFiClient wifiClient;

#define ORG "ORG"
#define DEVICE_TYPE "raspberrypi"
#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/raspberrypi_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="";

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();
}
}

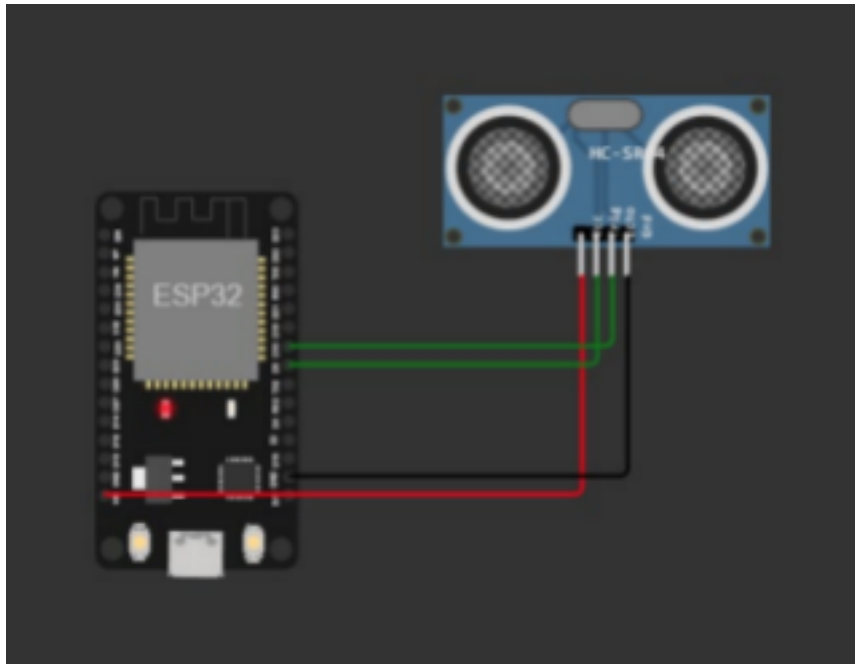
void initManagedDevice() {
    if (client.subscribe(topic)) {
        // Serial.println(client.subscribe(topic));
        Serial.println("subscribe to cmd OK");
    }
    else {
        Serial.println("subscribe to cmd FAILED");
    }
}

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:



WOKWI LINK: <https://wokwi.com/projects/346567870244717140>

OUTPUT:

WOKWI SAVE SHARE Docs

sketch.ino diagram.json libraries.txt Library Manager

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4
5 WiFiClient wificlient;
6
7 #define ORG "1vnziy"
8 #define DEVICE_TYPE "raspberrypi"
9 #define DEVICE_ID "12345"
10 #define TOKEN "12345678"
11 #define speed 0.034
12
13 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/raspberrypi_1/fmt/";
15 char topic[] = "iot-2/cmd/home/fmt/String";
16 char authMethod[] = "use-token-auth";
17 char token[] = TOKEN;
  
```

Simulation 00:16.801 96%

": "80.248510", "Icon": "fa-trash-o", "FillPercent": 0}

Publish OK

Sending payload:

{"Name": "point2", "Latitude": "14.167589", "Longitude": "80.248510", "Icon": "fa-trash-o", "FillPercent": 0}

Publish OK

IBM Watson IoT Platform 412719106004@smartinternz.com ID: 1vnziy

Browse Action Device Types Interfaces Add Device

Event	Value	Format	Last Received
event_1	{"Alert distance": 88}	json	a few second
event_1	{"Alert distance": 58}	json	a few second
event_1	{"Alert distance": 94}	json	a few second
event_1	{"Alert distance": 60}	json	a few second
event_1	1 Simulation running		