## **ASSIGNMENT-4**

Assignment Date	24 Oct 2022		
Team ID	PNT2022TMID16510		
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Project Name	Smart Farmer-IoT Enabled Smart Farming		
	Application		

Question:

1.Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send "Alert" to ibm cloud and display in device recent events

## Code:

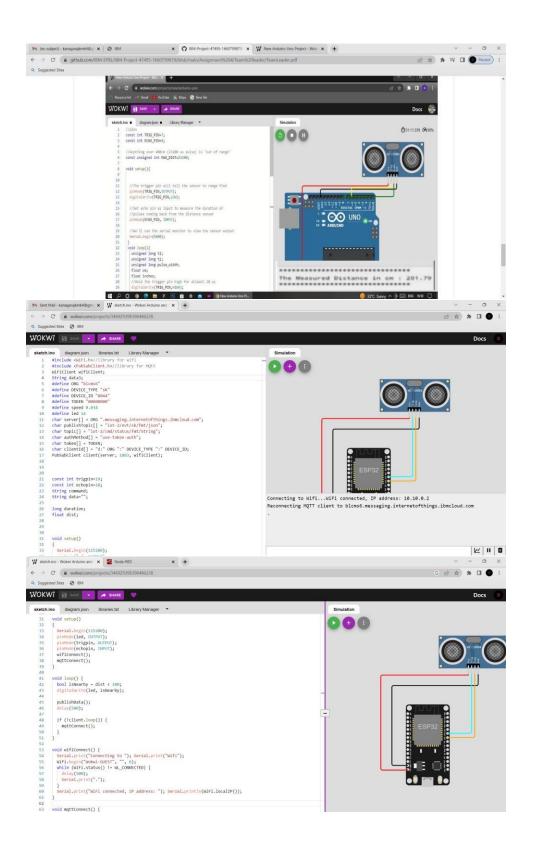
```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
WiFiClient wifiClient;
String data3;
#define ORG "blcms6"
#define DEVICE_TYPE "sk"
#define DEVICE_ID "0044"
#define TOKEN "00000000"
#define speed 0.034 #define led 14 char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char publishTopic[]
= "iot-2/evt/sk/fmt/json"; char topic[] = "iot-
2/cmd/status/fmt/String"; char authMethod[] = "use-token-auth"; char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
```

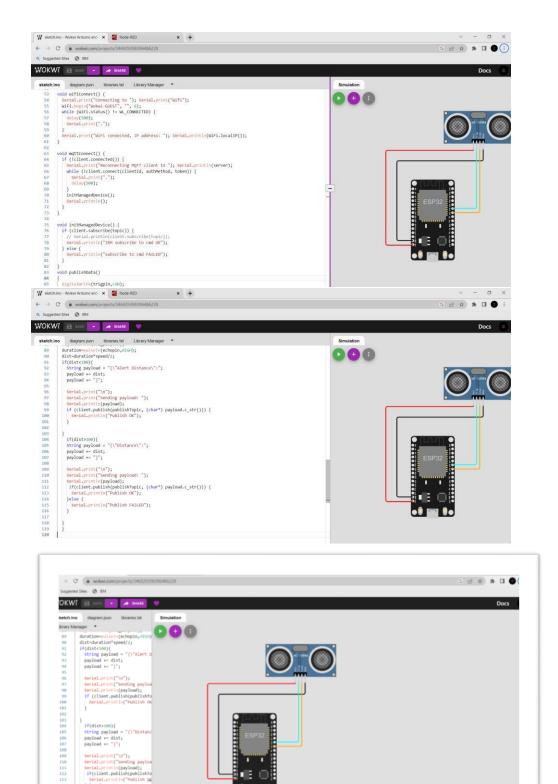
```
const int trigpin=19; const
int echopin=18; String
command;
String data="";
long duration; float
dist;
void setup()
{
  Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(trigpin, OUTPUT);
pinMode(echopin, INPUT);
wifiConnect(); mqttConnect();
}
void loop() { bool isNearby
= dist < 100;</pre>
digitalWrite(led, 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){</pre>
   String payload = "{\"Alert Distance\":";
payload += dist; payload += "}";
   Serial.print("\n");
   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");
}
```





Serial.print("\n"); Serial.print("Sending payloa Serial.printin(payload); if(client.publish(publish) to Serial.printin("Publish Oc Jelse { Serial.println("Publish FA }