## HAZARDOUS AREA MONITORING FOR INDUSTRIAL PLANTS POWERED BY IOT

SUBMITTED BY

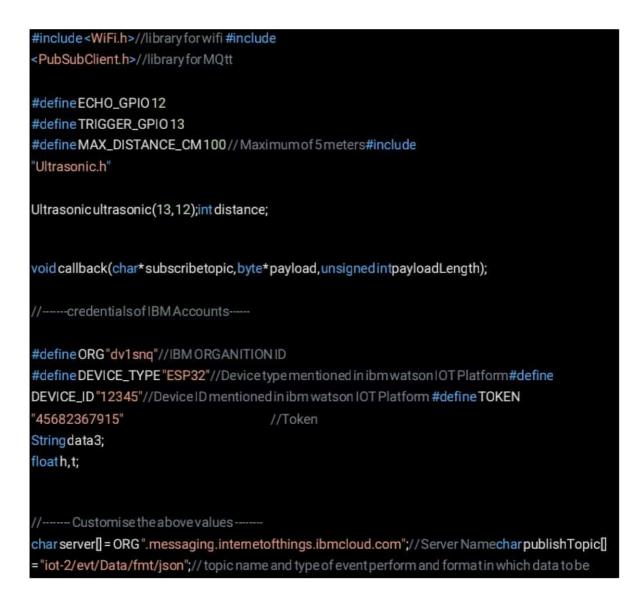
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## BACHELOR OF ENGINEERING IN ELECTRONICS AND COMMUNICATION ENGINEERING

**ASSIGNMENT-04** 

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



```
charauthMethod[] = "use-token-auth";//authenticationmethodchartoken[] =
TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ": " DEVICE_ID; // client id
WiFiClient wifiClient: // creating the instance for wificlient Pub Sub Client client (server, 1883)
callback wifiClient).//calling the predefined clientid by passing parameter like server
id,portand wificredential
void setup //configureing the ESP32
  Serial begin 115200)
  delay 10 Serial println
void loop // Recursive Function
  distance ultrasonic read CM, if distance
  < 100) Serial print ("Distance in CM:") Serial
  println (distance); PublishData (distance).
  delay 1000
  if (client loop)
  delay [1000]
/*....retrieving to
Cloud. .....*/
void PublishData float temp | mgttconnect | //function call for
  connecting to ibm
  /*
      creating the String in in form JSon to update the data to ibm cloud
  String payload = "{\"Alert Distance:\":"
```

```
payload += temp;
  payload += "}";
  Serial.print("Sending payload:");
  Serial.println(payload);
  if(client.publish(publishTopic,(char*)payload.c_str())){
     Serial.println("Publish ok");//if it sucessfully upload data on the cloud then it will print publish ok in
Serial monitor or else it will print publish failed
  }else{
     Serial.println("Publishfailed");
void mqttconnect() {
  if (!client.connected()) { Serial.print("Reconnecting
     client to "); Serial.println(server);
     while (!!!client.connect(clientId, authMethod, token)) {
        Serial.print(".");
       delay(500);
      initManagedDevice();
      Serial.println();
  }
void wificonnect() // function defination for wificonnect
  Serial.println(); Serial.print("Connecting to
  ");
  WiFi.begin("Wokwi-GUEST","",6);//passing the wifi credentials to establish the connection
  while (WiFi.status() != WL_CONNECTED) {
     delay(500);
     Serial.print(".");
  Serial.println(""); Serial.println("WiFi
  connected"); Serial.println("IP address: ");
  Serial.println(WiFi.locallP());
```

```
void initManagedDevice() {
  if (client.subscribe(subscribetopic)) { Serial.println((subscribetopic));
     Serial.println("subscribe to cmd OK");
  }else{
     Serial.println("subscribe to cmd FAILED");
void callback(char*subscribetopic, byte*payload, unsigned int payloadLength)
  Serial.print("callbackinvoked fortopic:");
  Serial.println(subscribetopic);
  for (inti = 0; i < payloadLength; i++) {
     //Serial.print((char)payload[i]);data3+=
     (char)payload[i];
  Serial.println("data: "+data3);
  if(data3=="lighton")
Serial.println(data3);
  else
 Serial.println(data3);
```

## Wokwi link:

https://wokwi.com/projects/346659959540286034

