**Assignment- 4**

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| Date | 26 October 2022 |
| Team ID | PNT2022TMID22515 |
| Project Name | IoT Based Safety Gadget for Child Safety Monitoring & Notification |
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**Write code and connections in wokwi for ultrasonic sensor. Whenever the distance is less than 100 cms send “alert” to IBM cloud and display in device recent events.**

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| **Code**  #include <WiFi.h>  #include <PubSubClient.h>  WiFiClient wifiClient;  String data3;  #define ORG "639ihg"  #define DEVICE\_TYPE "jumli\_assignment"  #define DEVICE\_ID "1917124"  #define TOKEN "6eZCVnv?v9\_H@E149y"  #define speed 0.034 #define led 14 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; char publishTopic[] = "iot-2/evt/jumli\_assignment/fmt/json"; char topic[] = "iot-2/cmd/led/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=13; const int echopin=12;  String command;  String data="";  long duration; float dist;  void setup()  {  **Serial**.begin(115200); pinMode(led, OUTPUT); pinMode(trigpin, OUTPUT); pinMode(echopin, INPUT); |

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| wifiConnect(); mqttConnect();  } void loop() { bool isNearby = dist < 100; 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() |

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| { 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");  }  }  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");  }  }  } |

**Screenshots:**

**Wokwi**

**IBM**

