ASSIGNMENT 4

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| NAME | ARULRAJA S |
| REGISTER NUMBER | 112719205003 |
| TEAM ID | PNT2022TMID36601 |
| ASSIGNMENT | 4 |

Write code and connections in wowki for ultrasonic sensor. Whenever distance is less than 100 cms send “alert” to IBM cloud and display in device recent events.

#include <WiFi.h>

#include <PubSubClient.h>

#define TRIGGER 2

#define ECHO 15

#define sound 0.034 int distance;

void callback(char\* subscribetopic, byte\* payload, unsigned int

payloadLength);

//-------credentials of IBM Accounts------

#define ORG "msi400"

#define DEVICE\_TYPE "abcd"

#define DEVICE\_ID "12"

#define TOKEN "12345678"

String data3;

//-------- Customise the above values --------

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[] = "iot-2/evt/Data/fmt/json"; char

subscribetopic[] = "iot-2/cmd/test/fmt/String"; char authMethod[] = "use-token-auth"; char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE\_TYPE ":" DEVICE\_ID; //---------

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WiFiClient wifiClient;

PubSubClient client(server, 1883, callback ,wifiClient); void setup()

{

Serial.begin(115200); pinMode(TRIGGER, OUTPUT);

pinMode(ECHO, INPUT); delay(10); Serial.println(); wificonnect();

mqttconnect();

}

void loop()

{

digitalWrite(TRIGGER, HIGH); delayMicroseconds(10); digitalWrite(TRIGGER, LOW); int time=pulseIn(ECHO,HIGH); distance=(time\*sound)/2; Serial.print("Distance:");

Serial.print(distance); Serial.println("cms"); if(distance<100){ PublishData(distance);

}

delay(1000); if (!client.loop()) { mqttconnect();

}

}

/\*.....................................retrieving to Cloud...............................\*/ void PublishData(int d) { mqttconnect();

String payload = "{\"message\":\"alert\"}";

Serial.print("Sending payload: ");

Serial.println(payload);

if (client.publish(publishTopic, (char\*) payload.c\_str())) {

Serial.println("Publish ok");

} else {

Serial.println("Publish failed");

}

}

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()

{

Serial.println();

Serial.print("Connecting to ");

WiFi.begin("Wokwi-GUEST", "", 6); while

(WiFi.status() != WL\_CONNECTED) {

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.println("WiFi connected");

Serial.println("IP address: ");

Serial.println(WiFi.localIP());

}

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("callback invoked for topic: ");

Serial.println(subscribetopic); for (int i =

0; i < payloadLength; i++) { data3 +=

(char)payload[i];

}

Serial.println("data: "+ data3);

data3="";

}

# **REFERENCE LINK:** https://wokwi.com/projects/347297065319006802

