Assignment -4

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| Assignment Date | 20 OCTOBER 2022 |
| Student Name | XAVIER ANTONY AMILDAN |
| Maximum Marks | 2 Marks |

Question-1:

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.

Solution:

WOWKI LINK: <https://wokwi.com/projects/346149540005413459>

#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 "2jk8e5"

#define DEVICE\_TYPE "Gas\_leakage\_Detection\_Device"

#define DEVICE\_ID "Gas\_Detector\_1"

#define TOKEN "123456789"

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;

//-----------------------------------------

WiFiClient wifiClient;

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

{

Serial.begin(115200); pinMode(TRIGGER, OUTPUT); pinMode(ECHO, INPUT); delay(10);

Serial.println();

Serial.println("Reconnecting client to wp72r7.messaging.internetofthings.ibmcloud.com\niot-

2/cmd/test/fmt/String\nsubscribe to cmd OK\n\n399 cms.\n399 cms.\n243 cms.\n151 cms.\n35 cms.\nSending payload: {\"message\":\"alert\"}\nPublish ok\n41 cms.\nSending payload: {\"message\":\"alert\"}\nPublish ok\n41 cms.\nSending payload: {\"message\":\"alert\"}\nPublish ok\n41 cms.\nSending payload:

{\"message\":\"alert\"}\nPublish ok"); 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)

{

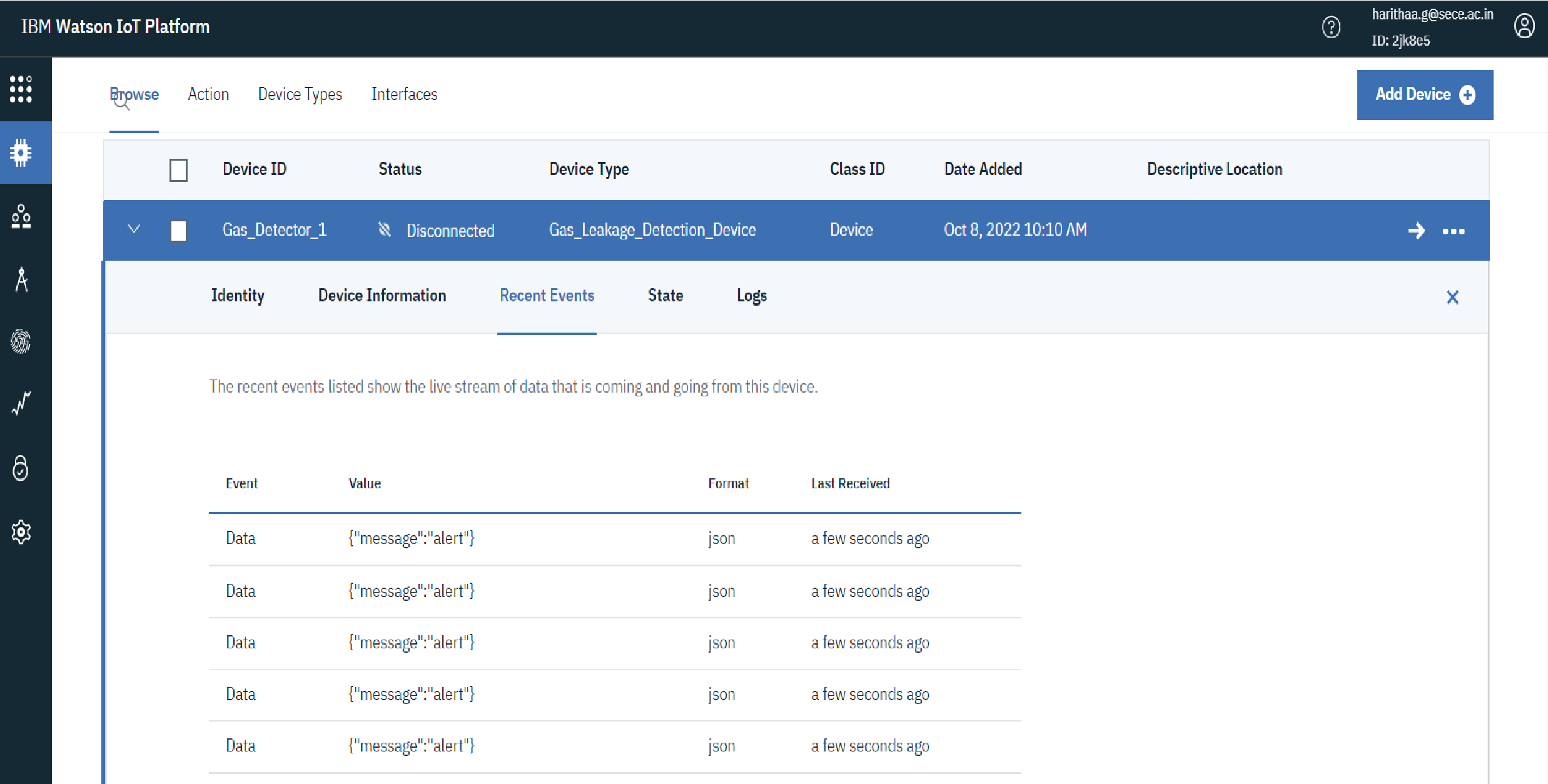
Serial.print("callback invoked for topic: "); Serial.println(subscribetopic); for (int i = 0; i < payloadLength; i++) { data3 += (char)payload[i];

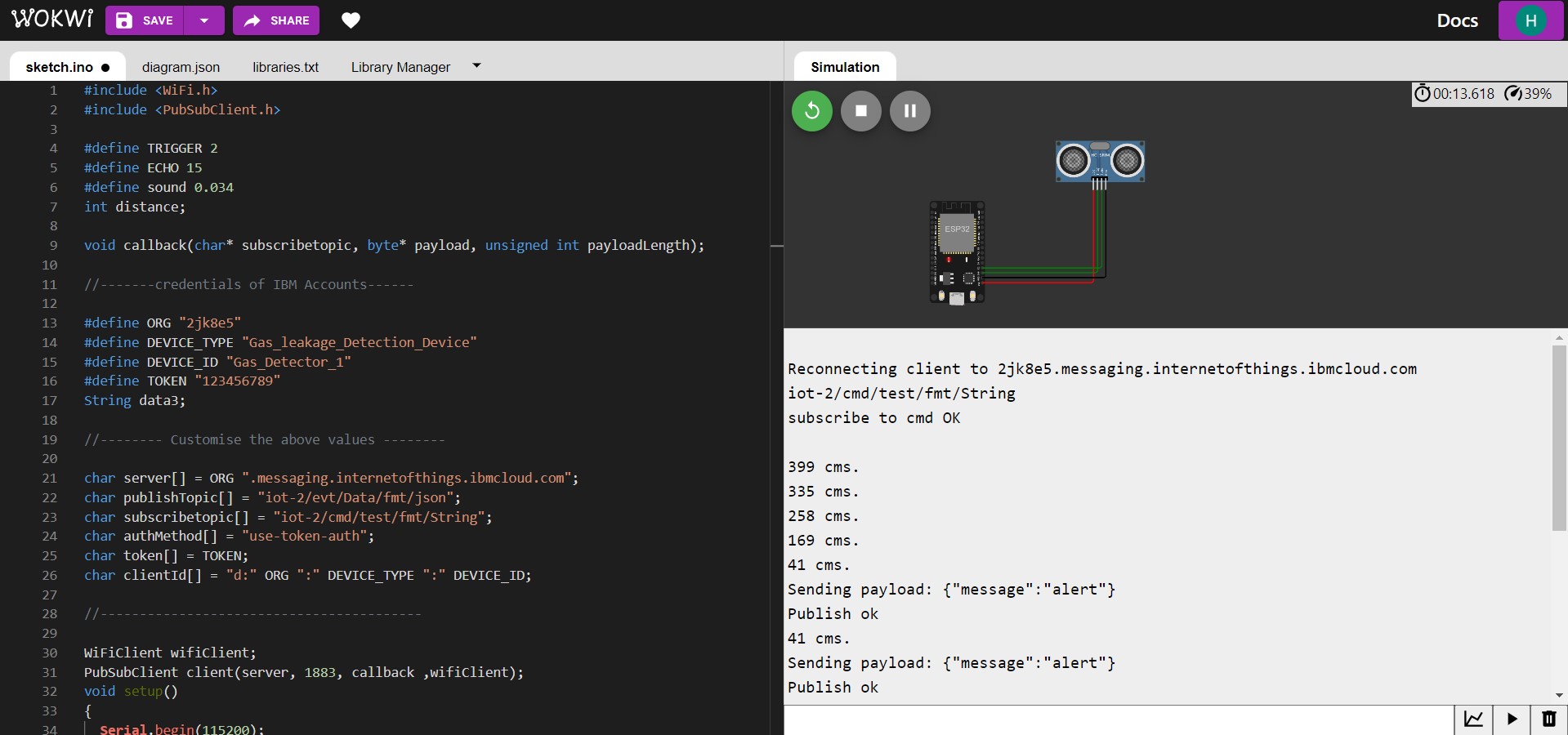
}

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

}

CIRCUIT DIAGRAM:





IBM CLOUD RECENT EVENTS: