## **Assignment -4**

### **Python Programming**

| Assignment Date     | 26 October 2022 |
|---------------------|-----------------|
| Student Name        | Santhiya.M      |
| Student Roll Number | 951219106061    |
| Maximum Marks       | 2 Marks         |

#### Question-1:

Write code and connections in WOKWi for ultrasonic sensor.

Whenever distance is less than 100 cms send "alert" to IBM cloud and display in device recentevents.

Upload document with WOKWi share link and images of IBM cloud.

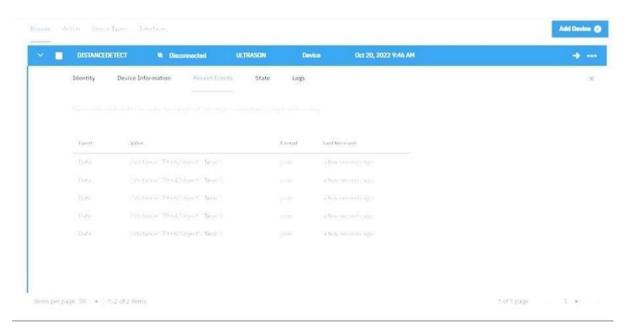
#### **Solution:**

```
sketch.ino • diagram.json libraries.bt •
                                         Library Manager *
                                                                                                                          Simu
   1 #includecWiFi.h>//library for wifi
   7 #includecPubSubClient.ha//library for MOTT
   3 void callback(char* subscribetopic, byte* payload,unsigned int payloadlength);
       //------credentlals of IBM Account---
       #define ORG "lzyy6o"// IBM ORGANIZATION ID
       #define DEVICE_TYPE "iotdeviceproject"//DEVICE TYPE MENTIONED IN 101 NATSON PLATFORM
       #define DEVICE_ID "229714"//DEVICE ID MENTIONED IN IDT WATSON PLATEFORM
   8 #define TOKEN "24681812"//Token
       String data3;
   10 float dist;
        //----customize the above value-----
       char server[]-ORG ".messaging.internetofthings.itmcloud.com";//server name
   17
       char publishtopic[]="ultrasonic/evt/Data/fmt/json";/"topic name and type of event perform
   13
       and formut in which data to be send*/
   15 char subscribetopic[]="ultrasonic/cmd/test/fmt/String";/"cmd REPRESENT Command tupe and
       COMMAND IS TEST OF FORMAT STRING*)
   16
        char authMethod[]="use-token-auth";//authentication method
       char token[]=TOKEN;
   SB
       char clientid[]*"d:" ORG ":" DEVICE_TYPE":" DEVICE_ID;//CLIENT ID
   19
   20
       WifiClient wifiClient;// creating an instance for wificlient
   21
        PubSubClient client(server, 1883 , callback , wifiClient);/*calling the predefined client id
   22
   23
        by passing parameter like server id, portand wificredential*/
                                                                                                                        Co
   24
       int LED =4;
                                                                                                                        nn
   25
       int trig =5;
                                                                                                                        ec
   26
       Int echo-18;
   27
        void setup()
                                                                                                                        ti
   28
                                                                                                                        ng
   29
         Serial.bugin(115200);
                                                                                                                        to .
   30
         pinMone(trig, DUTPUT);
```

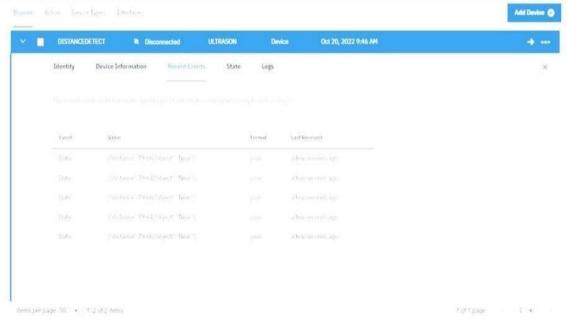
```
Simu
sketch.ino .
                             libraries.txt .
                                           Library Manager *
              diagram.json
   ġģ
   93
            init/NanagedDevice();
   94
            herial.println();
   95
   96
        void wificonnect()//function defenition for wificonnect
   97
   98
   99
          Sectal printin();
  100
          Serial.print("Connecting to ");
          WIFE, begin("Workel.GUEST", "",6);//PASSING THE WIFE CREDIDENTIALS TO ESTABLISH CONNECTION
  101
  102
          while (WiFi.status() 1-WL_CONNECTED)(
  183
            delay(508);
            Merial print(".");
  184
  105
          Serial println("");
  186
  197
          Sorial, println("WiFi connected");
  108
          Serial println("IP address");
  109
          Serial.println(WiF1.localIP());
  110
  111
        void initManagedDevice(){
          if(client.subscribe(subscribetapic))(
  112
  113
            Serial.orimin((subscribetopic));
            Serial printin("subscribe to end OK");
  114
  115
          }else{
                                                                                                                              nn
  116
            merial.println("subscribe to cod failed");
                                                                                                                              ec
  117
                                                                                                                              ti
  118
        void callback(char* subscribetopic,byte*payload,unsigned int payloadLength)
  119
                                                                                                                              ng
  120
                                                                                                                              to *
          Sorial.print("callback invoked for topic: ");
  221
  122
          Serial.println(subscribetopic);
```

```
sketch.ino •
              diagram.json
                                          Library Manager *
                            libraries.txt •
          for(int i=8; ic payloadlength; i++){
  123
            //Serial.print((char)payload[i]);
  124
            data3 +=(char)payload[1];
  125
  126
          //Serial.println("dta: "+ data));
  127
          //if(data3--"Near")
  128
  129
          111
          //Serial.println(data3);
  130
          //digitalwrite(LED,HIGH);
  131
  132
  133
          //else
  134
          111
  135
          //Serial.println(data3);
          //digitalWrite(LED,LOW);
 136
  137
          data3="";
  138
  139
```

# OUTPUT: DATA IS SENT TO IBM CLOUD WHEN NO OBJECT IS DETECTED.



## When no object is detected



# When object is detected in ultrasonic detector

