Assignment -4

Python Programming

Assignment Date	26 October 2022
Student Name	Madhavarajan
Student Roll Number	MECR19EC047
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.

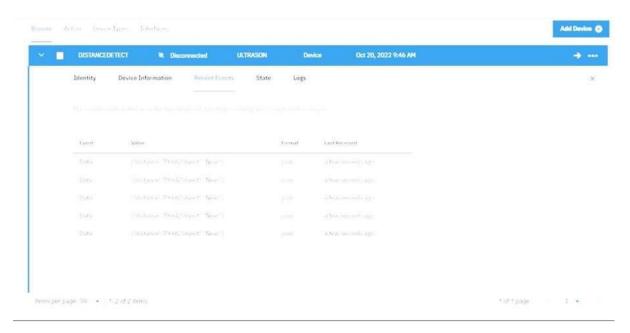
Solution:

```
sketch.ino • diagram.json libraries.bit •
                                        Library Manager *
                                                                                                                          Simu
   1 #includecWiFi.h>//library for wifi
       #includecPubSubClient.ha//library for MQTT
       void callback(char* subscribetopic, byte* payload,unsigned int payloadlength);
   4 //-----credentials of IBM Account-
   5 #define ORG "lzyy6o"// IBM ORGANIZATION ID
   6
       #define DEVICE_TYPE "iotdeviceproject"//DEVICE TYPE MENTIONED IN 101 NATSON PLATFORM
        #define DEVICE_ID "229714"//DEVICE ID MENTIONED IN 10T WATSON PLATEFORM
       #define TOKEN "24681812"//Token
       String data3;
   10 float dist;
   11 //----customize the above value-----
   17
       char server[]=ORG ".messaging.internetofthings.immcloud.com";//server name
        char publishtopic[]="ultrasonic/evt/Data/fmt/json";/"topic mame and type of event perform
        and formut in which data to be send*/
   14
   15
       char subscribetopic[]="ultrasonic/cmd/test/fmt/StrIng";/*cmd REPRESENT Command tope and
       COMMAND IS TEST OF FORMAT STRING*/
       char authMethod[]-"use-token-auth";//authentication method
   17
   SB
       char token[]=TOKEN;
   19
        char clientid[]*"d:" ORG ":" DEVICE_TYPE":" DEVICE_ID;//CLIENT ID
   20
   21
       WifiClient wifiClient; // creating an instance for wificlient
       PubSubClient client(server, 1883 , callback , wifiClient); /*calling the predefined client id
   23
       by passing parameter like server id, portand wificredential*/
   24
        int LED =4;
                                                                                                                        nn
   25
        int trig =5;
                                                                                                                        ec
   26
        Int echo-18;
        void setup()
                                                                                                                        ti
   27
   28
                                                                                                                        ng
   29
        Serial.begin(115200);
                                                                                                                        to .
   30
        pinMode(trig, DUTPUT);
```

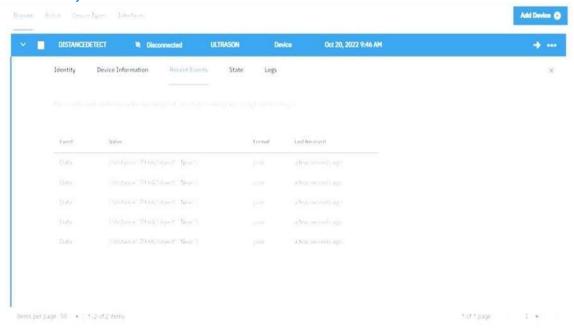
```
Simu
sketch.ino •
                            libraries.txf .
              diagram.json
                                           Library Manager *
   92
   93
            init/HanagedDevice();
   94
            herial printin();
   95
   96
   97
        void wificonnect()//function defenition for wificonnect
   98
   99
          Serial printin();
  100
          Serial.print("Connecting to ");
          WiFi, begin("Wokal GUEST", "",6);//PASSING THE WIFI CREDIDENTIALS TO ESTABLISH CONNECTION
  101
          while (WiFi.status() !-WL_CONNECTED)[
  192
  183
            delay(508);
            Merial.print(".");
  184
  105
          Serial.println("");
  186
  107
          Sorial println("Wifi connected");
  168
          Serial, println("IP address");
          Serial.println(WdFf.localIP());
  109
  110
        void initNanagedDevice(){
  111
          if(client.subscribe(subscribetopic))(
  112
  133
            Serial.orimin((subscribetopic));
  114
            Serial.printin("subscribe to end OK");
                                                                                                                             Co
  115
          )else(
                                                                                                                             nn
            herial.println("subscribe to cod failed");
  116
                                                                                                                             ec
  117
                                                                                                                             ti
  118
        void callback(char* subscribetopic,byte*payload,unsigned int payloadLength)
  119
                                                                                                                             ng
  120
                                                                                                                             to *
          Sorial.print("callback invoked for topic: ");
  121
  122
          Serial.println(subscribetopic);
```

```
on libraries.txt • Library Manager •
sketch.ino •
              diagram.json
          for(int i=8; i< payloadlength; i++){
  123
            //Serial.print((char)payload[i]);
  124
            data3 +=(char)payload[1];
  125
  126
          //Serial.println("dta: "+ data3);
  127
          //if(data3--"Near")
  128
          111
  129
          //Serial.printin(data3);
  130
  131
          //digitalwrite(LED,HIGH);
          //}
  132
          //else
  133
  134
          111
          //Serial.println(data3);
  135
          //digitalWrite(LED,LOW);
 136
  137
          11)
          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

