Team ID	PNT2022TMID32053
Date	**13 November 2022**
Project Title	**IoT Based Safety Gadget for Child Safety Monitoring and Notification**

Sprint 2 is about **LOGIN and NOTIFIACATION** of the IoT device in Parent's Web Application for getting information about Child's Status.

```cpp
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt


void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);

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

#define ORG "o6i6hl"//IBM ORGANITION ID
#define DEVICE_TYPE "ESP32"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "Nodemcu"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "Dps+?2lX5qe6?lbRDz"
String data3;
float dist;
//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/test/fmt/String";// cmd  REPRESENT command type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
```

```
//-----------------------------------------
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined client id by passing parameter like server
id,portand wificredential

int LED = 4;
int trig = 5;
int echo = 18;
void setup()
{
Serial.begin(115200);
pinMode(trig,OUTPUT);
pinMode(echo,INPUT);
pinMode(LED, OUTPUT);
delay(10);
wificonnect();
mqttconnect();
}
void loop()// Recursive Function
{

 digitalWrite(trig,LOW);
  digitalWrite(trig,HIGH);
  delayMicroseconds(10);
  digitalWrite(trig,LOW);
  float dur = pulseIn(echo,HIGH);
  float dist = (dur * 0.0343)/2;
  Serial.print ("Distancein cm");
  Serial.println(dist);


  PublishData(dist);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
```

```
}

/*............................retrieving to Cloud.............................*/

void PublishData(float dist) {
  mqttconnect();//function call for connecting to ibm
  /*
    creating the String in in form JSon to update the data to ibm cloud
  */
  String object;
  if (dist <100)
  {
    digitalWrite(LED,HIGH);
    Serial.println("object is near");
    object = "Near";
  }
  else
  {
    digitalWrite(LED,LOW);
    Serial.println("no object found");
    object = "No";
  }

  String payload = "{\"distance\":";
  payload += dist;
  payload += "," "\"object\":\"";
  payload += object;
  payload += "\"}";


  Serial.print("Sending payload: ");
  Serial.println(payload);
```

```cpp
    if (client.publish(publishTopic, (char*) payload.c_str())) {
      Serial.println("Publish ok");// if it sucessfully upload data on the cloud then it will print publish ok in Serial
monitor or else it will print publish failed
    } 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() //function defination for wificonnect
{
  Serial.println();
  Serial.print("Connecting to ");

  WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish the connection
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
}
```

```cpp
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++) {
    //Serial.print((char)payload[i]);
    data3 += (char)payload[i];
  }
  //    Serial.println("data: "+ data3);
//    if(data3=="Near")
//    {
// Serial.println(data3);
// digitalWrite(LED,HIGH);

//    }

//    else
//    {
// Serial.println(data3);
// digitalWrite(LED,LOW);

//    }
data3="";
```

}

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Browse   Action   Device Types   Interfaces

Add Device ⊕

| > | ☐ | 12345 | Disconnected | python | Device | 12 Nov 2022 2:41 PM |

| ∨ | ☐ | Nodemcu | Disconnected | ESP32 | Device | 15 Nov 2022 1:56 PM | → ⋯ |

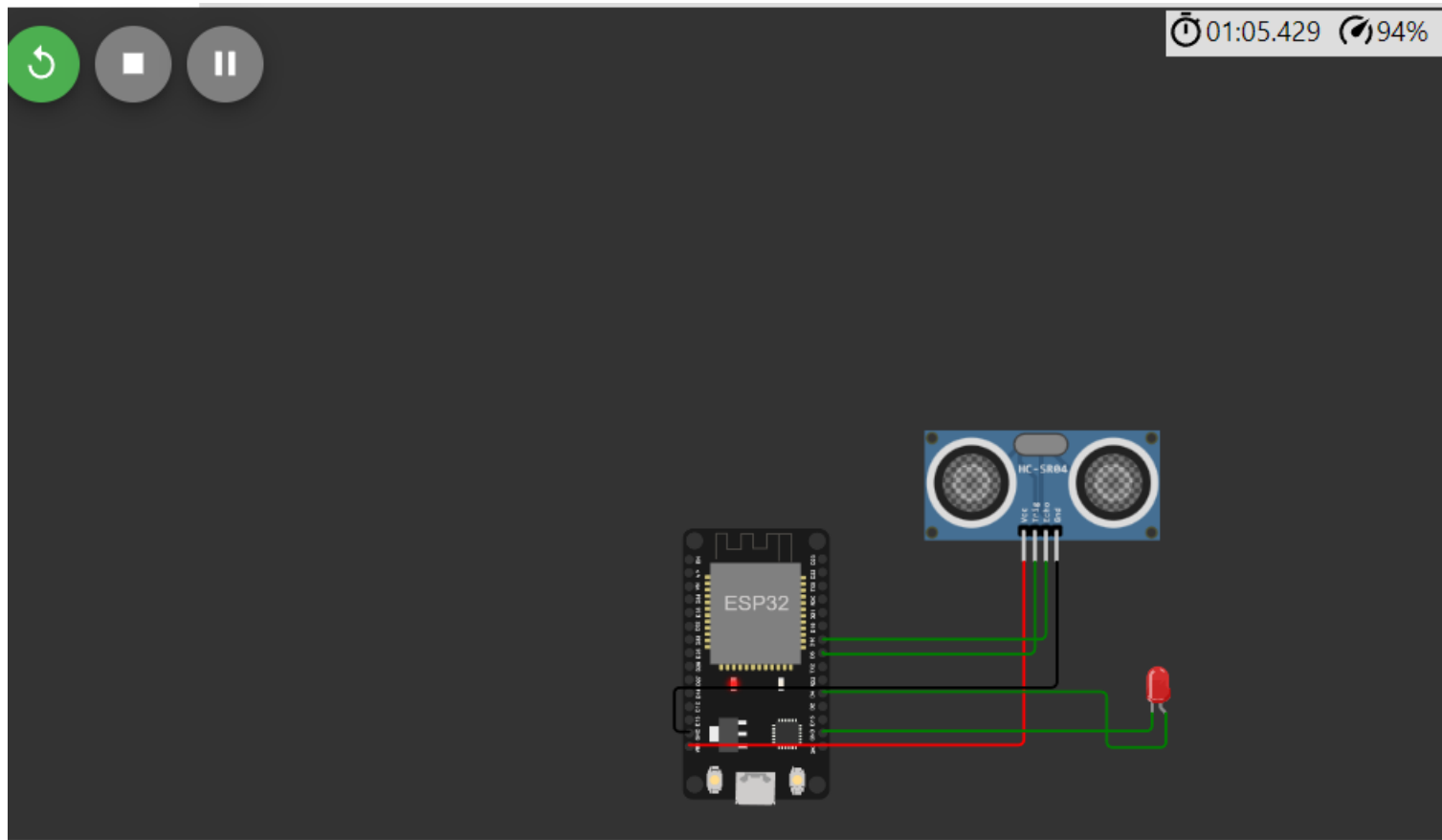Identity   Device Information   **Recent Events**   State   Logs   ✕

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"distance":403.49,"object":"No"}	json	a minute ago
Data	{"distance":403.45,"object":"No"}	json	a minute ago
Data	{"distance":403.49,"object":"No"}	json	a minute ago
Data	{"distance":403.44,"object":"No"}	json	a minute ago
Data	{"distance":403.61,"object":"No"}	json	a minute ago

Link : https://wokwi.com/projects/348382996059914834