

Sprint 4

Team ID	PNT2022TMID48824
Project Name	Personal Assistance for Seniors Who Are SelfReliant

Code for Simulation:

```
#include <WiFi.h> //library for wifi
#include <PubSubClient.h> //library for MQTT
#include <LiquidCrystal_I2C.h>
#include "DHT.h" // Library for dht11
#define DHTPIN 15 // what pin we're connected to
#define DHTTYPE DHT11 // define type of sensor DHT 11
#define LED 2
DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and typr of
dht connected
void callback(char* subscribetopic, byte* payload, unsigned int
payloadLength);

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

#define ORG "64yf7x" //IBM ORGANITION ID
#define DEVICE_TYPE "b11m3edevicetype" //Device type mentioned in ibm watson
IOT Platform
#define DEVICE_ID "b11m3edeviceid" //Device ID mentioned in ibm watson IOT
Platform
#define TOKEN "-&EMtr7l-v-Gz2G))e" //Token
String data3="";
int buzz= 13;

//----- 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/command/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
LiquidCrystal_I2C lcd(0x27,16,2);

//-----
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
```

```
void setup()// configureing the ESP32
{
```

```
    Serial.begin(115200);
    dht.begin();
    pinMode(buzz, OUTPUT);
    pinMode(LED,OUTPUT);
    delay(10);
    Serial.println();
    wificonnect();
    mqttconnect();
}
```

```
void loop()// Recursive Function
{
    if (!client.loop()) {
        mqttconnect();
    }
}
```

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

```
void PublishData(float temp, float humid) {
    mqttconnect();//function call for connecting to ibm
```

```

}
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());
}

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("Medicine Name: "+ data3);
    if(data3 != "")
    {
        lcd.init();

        lcd.print(data3);
        digitalWrite(LED, HIGH);
        tone(buzz, 100, 1000);
        delay(2000);
        digitalWrite(LED, LOW);
        noTone(buzz);
        delay(1000);
    }
}

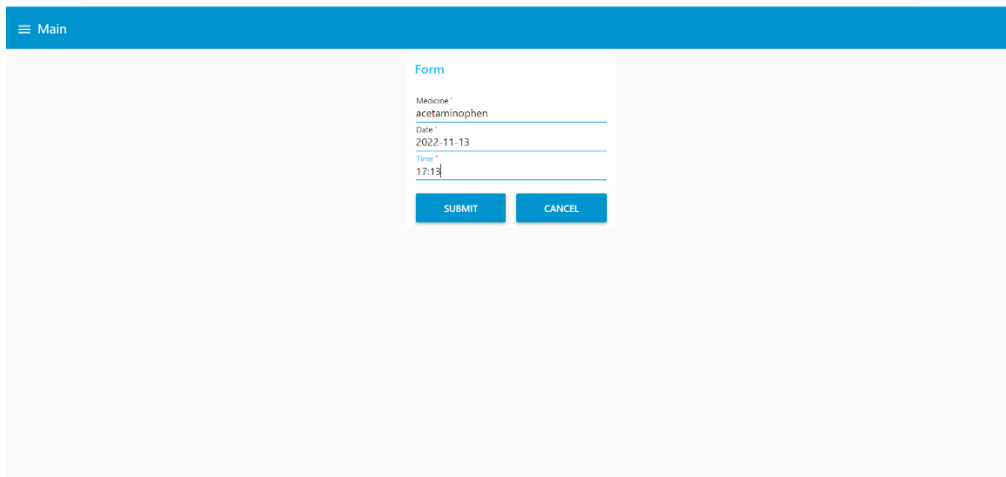
```

```
else
{
digitalWrite(LED,LOW);

}
data3="";
}
```

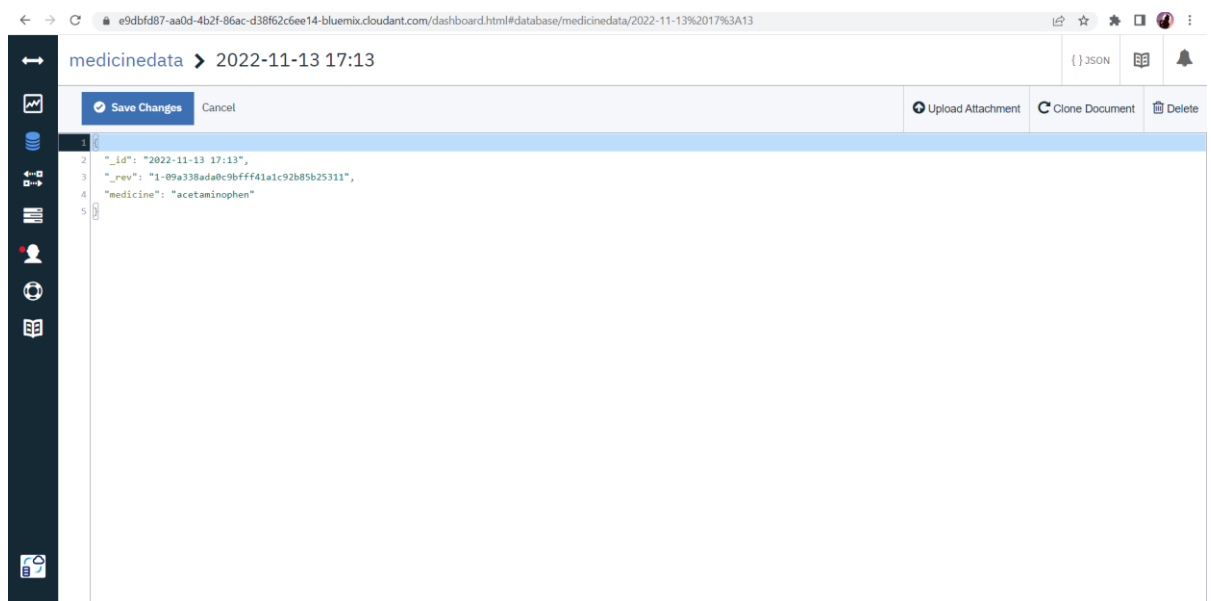
Output:

1. Get Data From User:

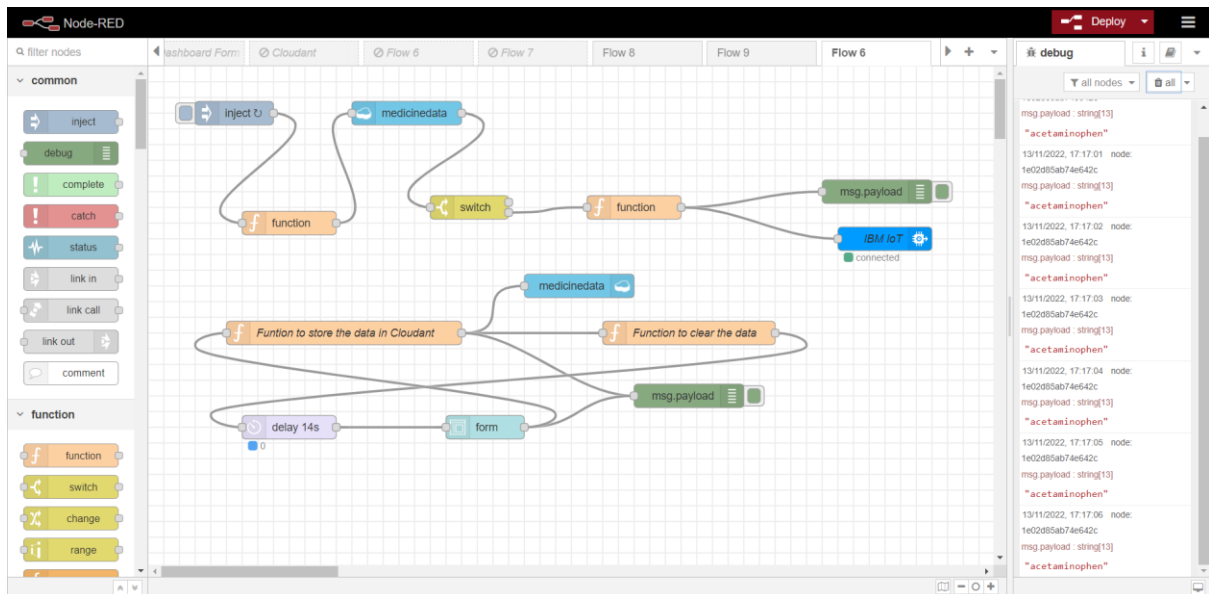


The screenshot shows a web application interface. At the top is a blue header bar with a hamburger menu icon and the text 'Main'. Below the header is a large light gray area. In the center of this area is a white box titled 'Form'. Inside the form box, there are three input fields: 'Medicine' with the value 'acetaminophen', 'Date' with the value '2022-11-13', and 'Time' with the value '17:13'. Below these fields are two blue buttons: 'SUBMIT' and 'CANCEL'.

2. Stored in Cloudant



3. Display in Node-red



4. Streaming in Watson IoT Platform

The IBM Watson IoT Platform dashboard displays the following information:

- Device ID:** b11m3edeviceld
- Status:** Connected
- Device Type:** b11m3edevicetype
- Class ID:** Device
- Date Added:** Oct 29, 2022 9:44 PM
- Descriptive Location:**

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

Event	Value	Format	Last Received
IoT Device	("medicine": "acetaminophen")	json	a few seconds ago
IoT Device	("medicine": "acetaminophen")	json	a few seconds ago
IoT Device	("medicine": "acetaminophen")	json	a few seconds ago
IoT Device	("medicine": "acetaminophen")	json	a few seconds ago
IoT Device	("medicine": "acetaminophen")	json	a few seconds ago

5. Simulation

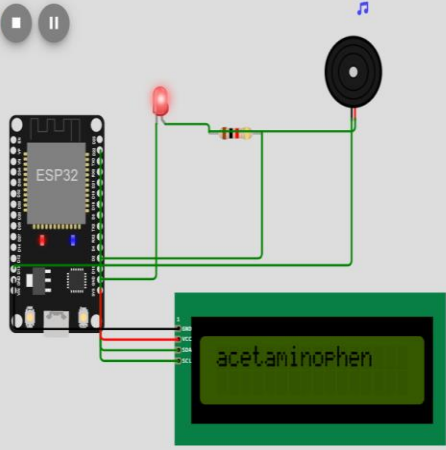
WOKWI SAVE SHARE Medicine Remainder Docs

PNT2022TMD50622.ino diagram.json libraries.txt Library Manager

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5 #define DHTPIN 15 // what pin we're connected to
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7 #define LED 2
8 DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and type of dht
9 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
10
11
12 //-----credentials of IBM Accounts-----
13
14 #define ORG "64yf7x" //IBM ORGANIZATION ID
15 #define DEVICE_TYPE "b11m3edevicetype" //Device type mentioned in ibm watson IOT
16 #define DEVICE_ID "b11m3edeviceid" //Device ID mentioned in ibm watson IOT Platform
17 #define TOKEN "-&ENtr7l-v-Gz2G)e" //Token
18 String data3="";
19 int buzz= 13;
20
21 //----- Customise the above values -----
22 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
23 char publishTopic[] = "iot-2/evt/data/fmt/json"; // topic name and type of event
24 char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT command
25 char authMethod[] = "use-token-auth"; // authentication method
26 char token[] = TOKEN;
27 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
28 LiquidCrystal_I2C lcd(0x27,16,2);
29
30 //-----
31 WiFiClient wifiClient; // creating the instance for wifiClient
32 PubSubClient client(server, 1883, callback, wifiClient); //calling the predefined
33
34 void setup() // configuring the ESP32
35 {
```

Simulation

00:21.421 89%



Medicine Name: acetaminophen
callback invoked for topic: iot-2/cmd/command/fmt/String
Medicine Name: acetaminophen
callback invoked for topic: iot-2/cmd/command/fmt/String
Medicine Name: acetaminophen
callback invoked for topic: iot-2/cmd/command/fmt/String
Medicine Name: acetaminophen