

PROJECT DEVELOPMENT PHASE

DELIVERY OF SPRINT 3

Date	11 November 2022
Team ID	PNT2022TMID17729
Project Name	Project – Personal Assistance for senior citizens who are self-reliant

SPRINT III:Hardware Implementation

Objective:

Developing code to retrieve data from cloudant db to send that data to IoT device at the appropriate time.

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	<u>Registration:</u> Creation of IBM services like NodeRED, Cloudant DB, TTS Service and design of IoT system	USN-1	As a user,I should login into my IBM Cloud account.	2	High	Mark Gerald, Kingston Leonard
Sprint-2	<u>Web UI:</u> Creating web UI using node-red and connect it to IBM Cloudant db	USN-2	As a user,I should be able to feed the medicine name and intake time in the web UI	2	High	Melodina Carnelian D, Rufus A.R
Sprint-3	<u>Hardware implementation:</u> Developing code to retrieve data from cloudant db to send that data to IoT device at the appropriate time	USN-3	As a user, I should be able to send the medicine name to the IoT device at the scheduled time	2	High	Rufus.A.R, Kingston Leonard
Sprint-4	<u>Software implementation:</u> Converting the data received from cloud as voice using IBM Text to Speech service	USN-4	As a user, I must be able hear the medicine name which is to be taken at the appropriate time	2	High	Melodina Carnelian D, Mark Gerald

❖ Scheduling medicine name and intake time:

Add Medicine

Medicine Reminder

Medicine Name *
DOL0650

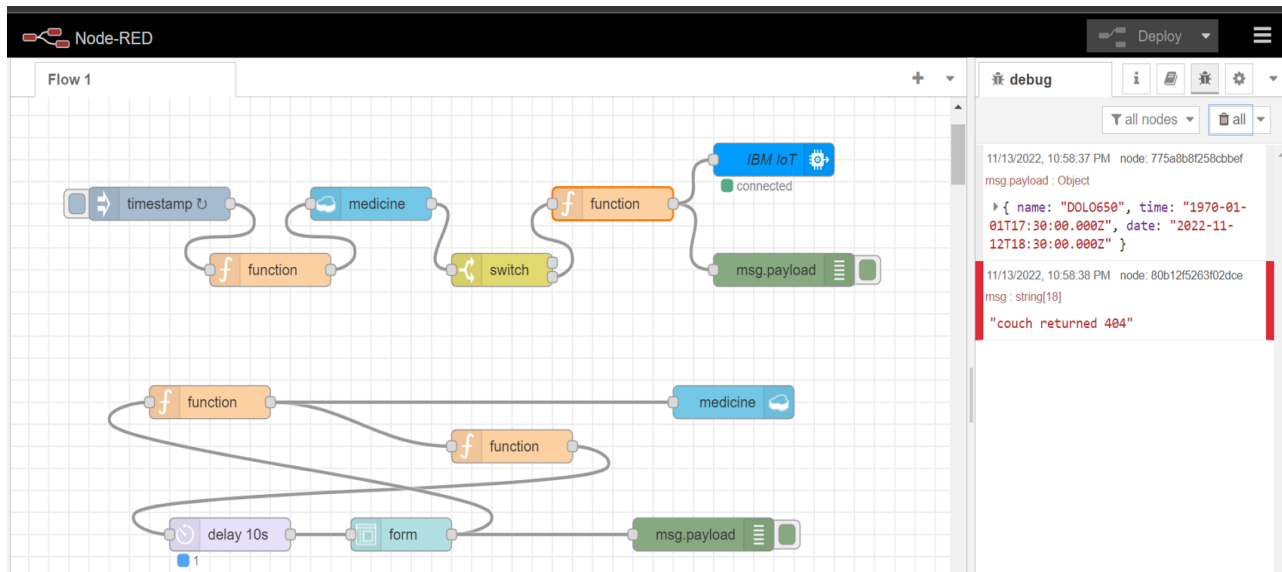
Time *
23:00

Date *
13-11-2022

SUBMIT

CANCEL

❖ Medicine details displayed in Node-Red debug window:



❖ Medicine details pushed and displayed in IBM Cloudant db:

The screenshot shows the IBM Cloudant dashboard for a database named 'medicine'. The table view displays a list of documents with columns for '_id' and 'name'. The documents are as follows:

_id	name
2022-11-13 08:35	Amoxicillin
2022-11-13 18:57	crocin
2022-11-13 21:30	Gelusil
2022-11-13 22:43	Vicks
2022-11-13 22:46	montair
2022-11-13 22:55	Gelusil
2022-11-13 23:00	DOL0650
2022-11-14 14:22	Azithromycin
2022-11-15 01:02	Paracetamol
2022-11-15 08:00	PAN-20
2022-11-15 20:30	Clindamycin

Scheduled DOLO650 medicine to be take at 23:00(11:00PM)

The screenshot shows the 'medicine' document editor for the document with ID '2022-11-13 23:00'. The JSON data is as follows:

```
{
  "_id": "2022-11-13 23:00",
  "_rev": "1-50a3645e6e95cc90cb779ac8ef57f665",
  "name": "DOL0650"
}
```

❖ Medicine name sent to ESP32 on the scheduled time 23:00:

The screenshot shows the WOKWI IoT simulator interface. On the left, the Arduino IDE editor displays the following code:

```

75 Serial.println(WiFi.localIP());
76 }
77
78 void initManagedDevice() {
79   if (client.subscribe(subscribetopic)) {
80     Serial.println((subscribetopic));
81     Serial.println("subscribe to cmd OK");
82   } else {
83     Serial.println("subscribe to cmd FAILED");
84   }
85 }
86
87 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength) {
88   {
89     Serial.print("callback invoked for topic: ");
90     Serial.println(subscribetopic);
91     for (int i = 0; i < payloadLength; i++) {
92       //Serial.print((char)payload[i]);
93       data3 += (char)payload[i];
94     }
95
96     Serial.println("Please take " + data3);
97     if(data3 != "")
98     {
99       lcd.init();
100       lcd.print("Take " + data3);
101     }
102   }
103   digitalWrite(LED,HIGH);
104   delay(20000);
105   digitalWrite(LED,LOW);
106 }

```

The simulation window on the right shows an ESP32 microcontroller connected to an LCD screen. The LCD displays the text "Take DOL0650". The console output shows the MQTT connection and the received message:

```

Reconnecting client to
ok5c7o.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

callback invoked for topic: iot-2/cmd/command/fmt/String
Please take DOL0650

```

The system clock in the bottom right corner shows 23:00 on 13-11-2022.

❖ Medicine name sent to ESP32 on the scheduled time 23:00:

The screenshot shows the IBM Watson IoT Platform dashboard. The 'Recent Events' tab is selected, showing a table of events for the device 'ESP32'. The table has the following columns: Event, Value, Format, and Last Received.

Event	Value	Format	Last Received
command	{"type":"Buffer","data":[68,79,76,79,54,53,48]}	String	a few seconds ago
command	{"type":"Buffer","data":[68,79,76,79,54,53,48]}	String	a few seconds ago
command	{"type":"Buffer","data":[68,79,76,79]}	String	a minute ago

A red circle highlights the first event's value, and a red arrow points from it to the text below.

Medicine name(DOLO650) sent to IBM Watson IoT as ASCII values

Conclusion:

Hardware implementation phase is successfully completed

