

PROJECT DEVELOPMENT PHASE

DELIVERY OF SPRINT 3

Date	11 November 2022
Team ID	PNT2022TMID27535
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

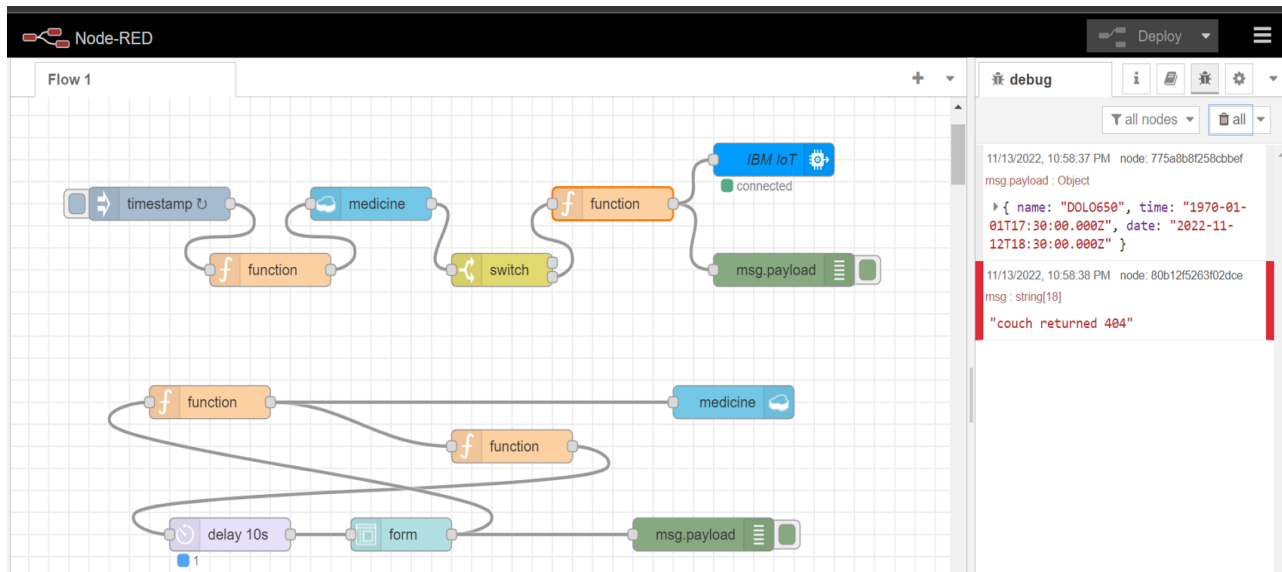
Time *
23:00

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 screen displays the text "Take DOL0650". The console output shows the following messages:

```

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 the time 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

