PROJECT REPORT

On

" PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF-RELIANT "

Submitted to

" NALAIYA THIRAN "

TEAM ID : PNT2022TMID26620

Submitted by

TEAM LEADER : BALAJI.T(212919106013)

TEAM MEMBER : ANNAMALAI.A(212919106009)

TEAM MEMBER : ISAK DAYAS.S(212919106032)

TEAM MEMBER : AJAY.A(212919106004)

TEAM MEMBER : GIRISANKAR.M(212919106026)

CONTENTS

1.INTRODUCTION :

1.11 Project Overview :

In this scenario, the Internet of Things (IoT), a technology that connects a variety of everyday devices and systems (e.g., sensors, actuators, appliances, computers, and smartphones), can provide highly distributed intelligent systems in order to connect several devices and exchange information with human beings and collecting the related data [29], thus representing an effective solution to design smart home with integrated e-health and assisted living technology. This IoT application in gerontechnology could play a crucial role in overturning the healthcare system for the elderly.

1.12 Purpose :

As technology improves, IoT can help eliminate these issues. Data collected from IoT devices formulates an individual's daily story by monitoring their routine, picking up inconsistencies and alerting emergency services if necessary. Connected IoT devices in the home improve safety, with experts projecting sales of 50 million wireless consumer devices for monitoring health by 2017, the smart home is here to stay.

2.LITERATURE SURVEY

2.1 Existing problem

A Comprehensive survey of IoT- and IoMT based edge-intelligent smart health care, mainly focussing on journal articles published between 2014 and 2020.The systematic review process PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to identify studies and narrow down results for this review.

2.2 References

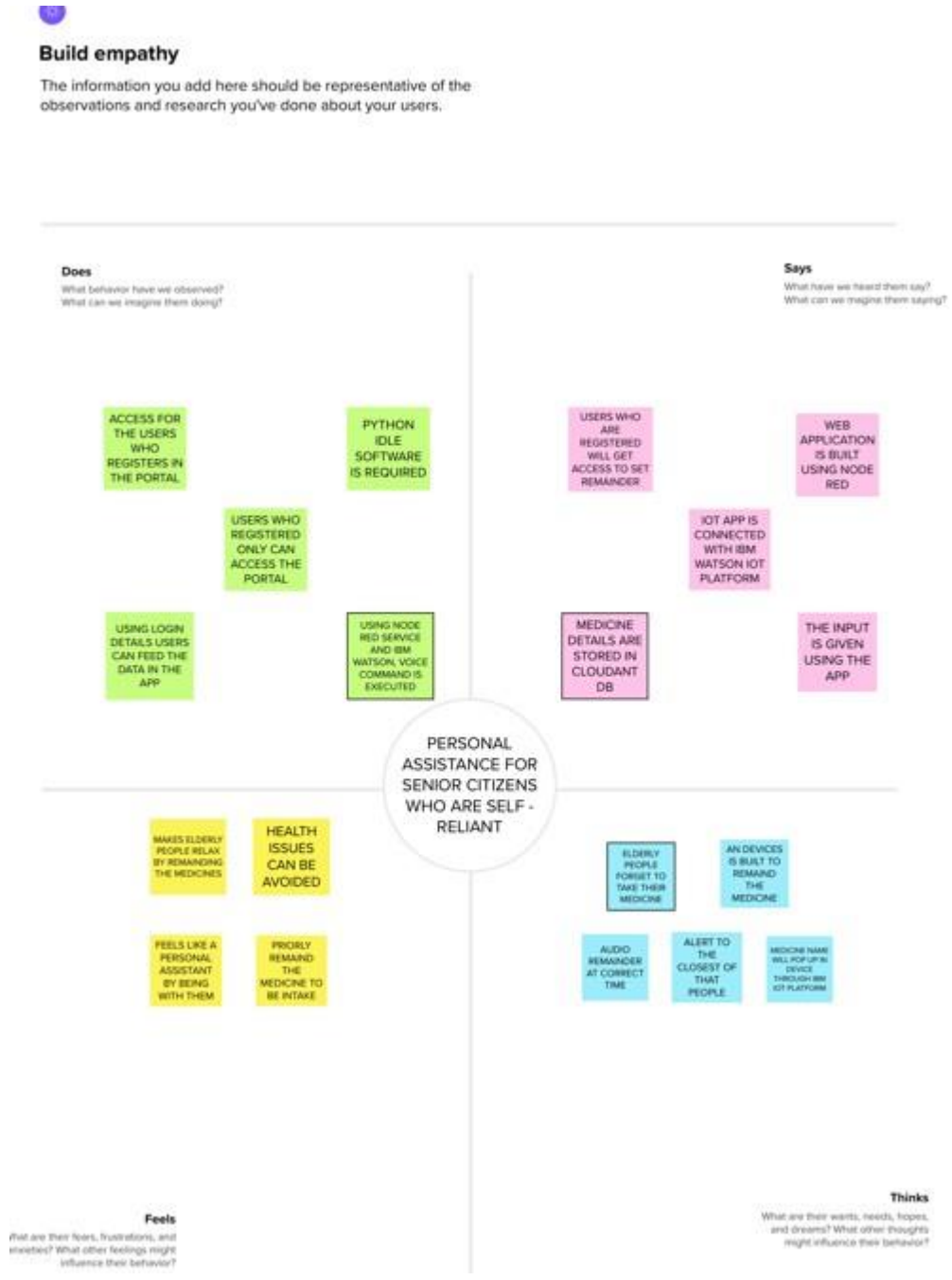
The study proposed, Unobtrusive Biosensors, Intelligent Medical Boxes,and a Cloud Computing Architectural Framework. Amongs other technologies and advancement that would pitch the HealthCare Industry to unparalled heights in terms of efficiency and Patient Comfort.

2.3 Problem Statement Definition

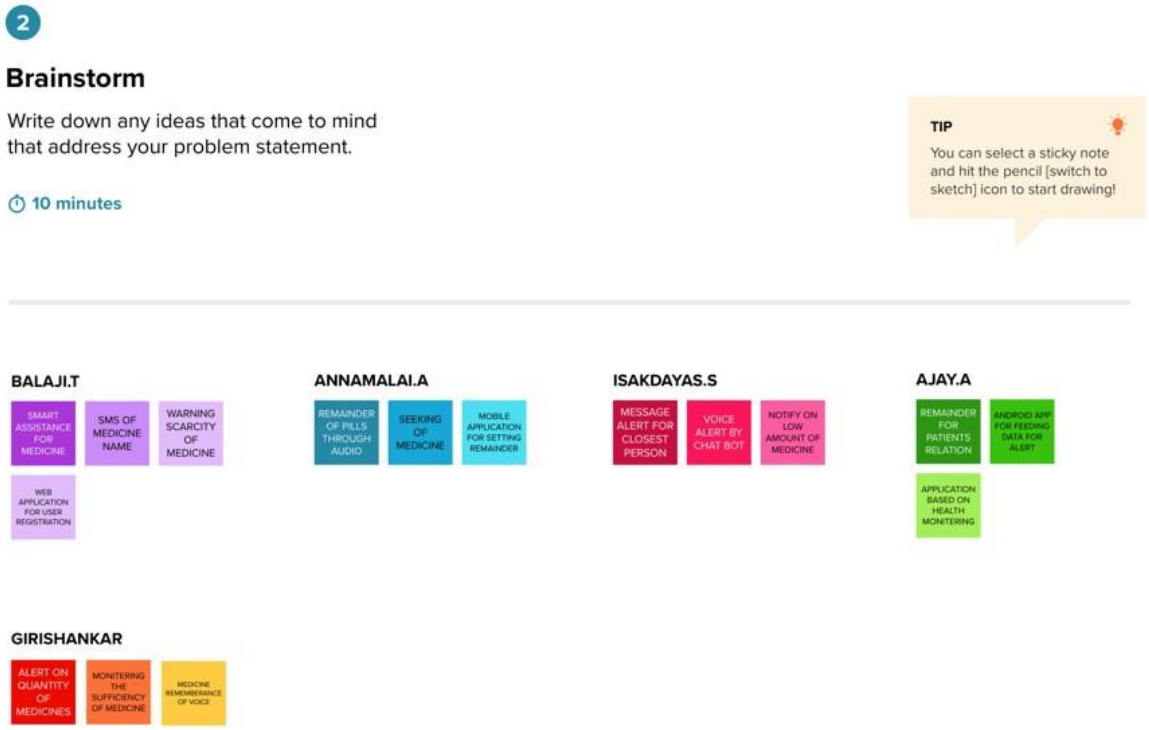
The Paper Proposes to revolutionize the industry by real time exchange of data to seamlessly and proactively offer prediction,diagnosis and remedies.The framework this paper proposes is aptly called the internet of medical things (IoMT) which opens a whole new avenue for the patient-Healthcare provider interface (PHI) and wearable Health Technology (WHT).

3. IDEATION & PROPOSED SOLUTION :

3.1 Empathy Map Canvas



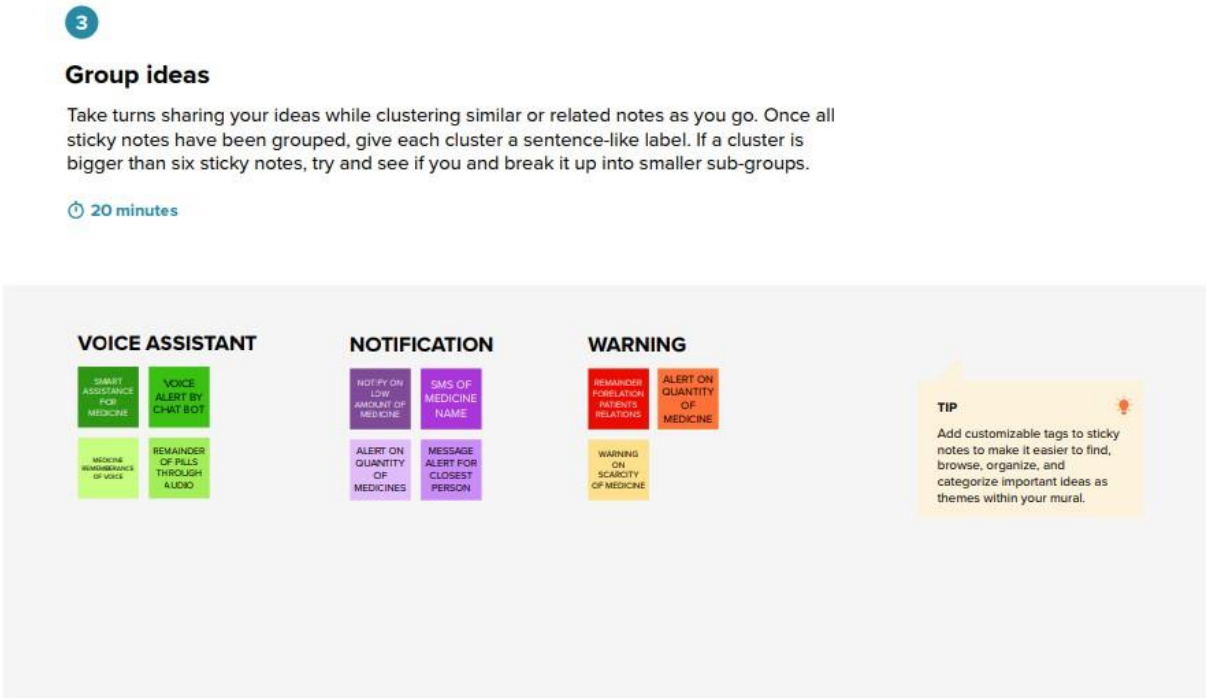
3.2 Ideation & Brainstorming



3.3 Problem Solution fit

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Senior citizen who is selfreliant.	Eat medicines at correct time	Fails to eat	No one is there to remind about medicines or forgot by themselves	Anxious

3.4 Proposed Solution



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Project Title: Personal Assistance for Seniors who are Self Reliant **Project Design Phase-I - Solution Fit Template** **Team ID:** PNT2022TMID26620

Focus on J&P, tap into BE, understand RC

1. CUSTOMER SEGMENT(S)

CS

- Here the customers are the elder people who needs to take medicine regularly at correct time.
- Patients who can't be

6. CUSTOMER CONSTRAINTS

- Due to lack of internet.
- It should be present near to them.
- Knowing the process of using the

5. AVAILABL

- If custom medicine ,med them to take m
- Alert the notification by

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

- Rememberance of the medicine to be consumed through voice.
- Message sent on regarding intake of medicines to the closest persons.
- Alert the patient about the low amount of medicine.

9. PROBLEM ROOT CAUSE

RC

- Doctors cannot monitor the patients all the time.
- Visually impaired persons needs an assistance.
- Elder people(self-reliant) who needs care to be taken.

7. BEHAVIOUR

- The customer can use in the application to getthe solved.
- The user can use user available in the 'about' sect reference.

Identify strong TR & EM

3. TRIGGERS TR

- The customers are introduced with this by the doctors.
- By seeing ads on the internet.

4. EMOTIONS: BEFORE / AFTER EM

How do customers feel when they face a problem or a job and afterwards?

BEFORE: Customers forgot to take at right time which affect their health.

AFTER: Now after using medcare applications customers are taking their medicines properly at correct time.

10. YOUR SOLUTION SL

Notifying of medicines names through audio and message with the help of data fed from the mobile application which stores the user details.

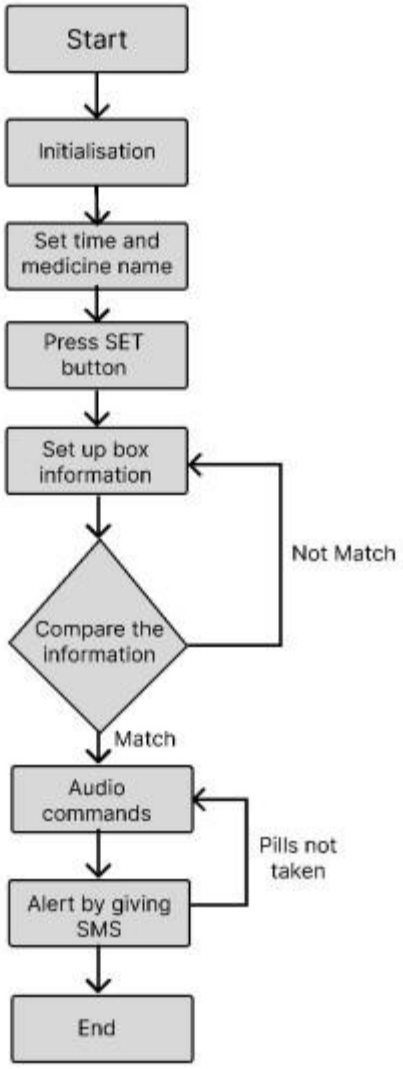
4.2 Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system should be user-friendly for the users. It is used to remaind the medicine names. It alerts the users through voice commands.
NFR-2	**Security**	The login information should not be accessed by anyother users than the respective. The data of the users should be kept confidential.
NFR-3	**Reliability**	Reminds on correct time The user data should be updated and examined after certain period of time.

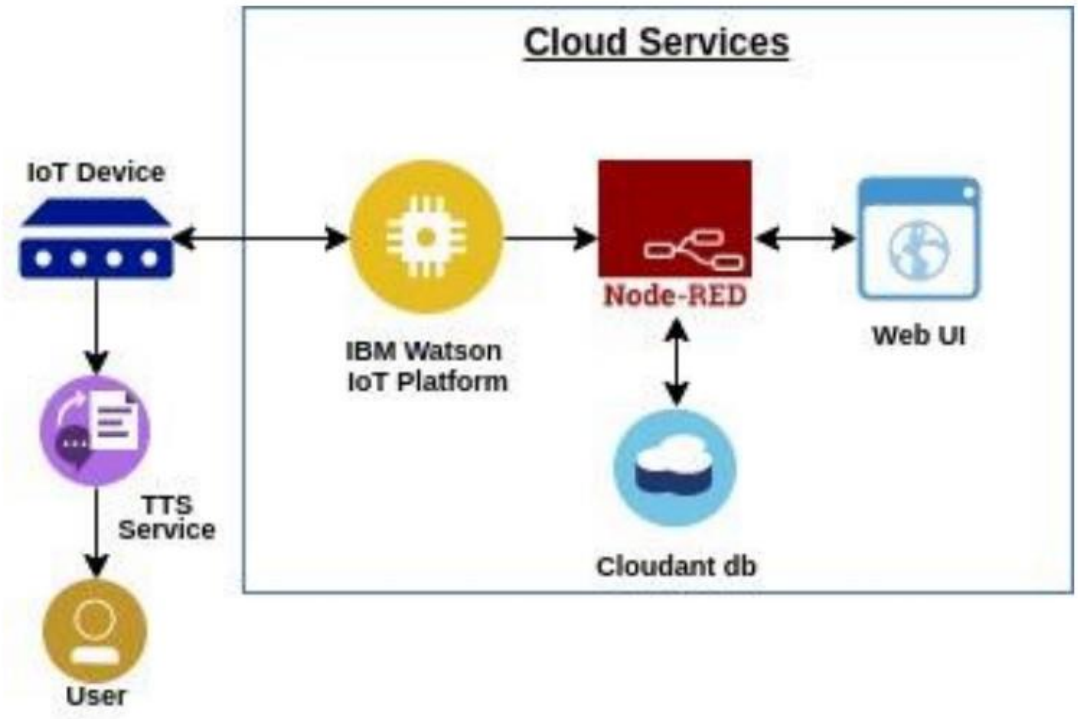
NFR-4	**Performance**	The voice message will be delivered accurately to the given time. It works without any connection interruption
NFR-5	**Availability**	The system should be monitored 24X7 for the alert of medicines. It can be used by any registered users from any place.
NFR-6	**Scalability**	It is easily adaptable The device is compatible and portable The application can handle any number of registration.

5.PROJECT DESIGN :

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture



6.PROJECT PLANNING & SCHEDULING

6.1 Sprint Delivery Schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Poi
Sprint-1	Login	USN-1	As a admin, I can log into the application by entering username & password	5
Sprint-1		USN-2	When the admin doesn't enter the username it displays an error message group	3
Sprint-1		USN-3	When the admin doesn't enter the password it displays an error message popup	4
Sprint-1		USN-4	When the admin enters the invalid credentials it displays an error popup	5

Sprint-1		USN-5	When the admin enter the correct username and password it redirects to the dashboard		3
Sprint-2	Dashboard	USN-1	Creating a Node-Red dashboard		5
Sprint-2		USN-2	Devoloping a Node-Red to publish data to IBM cloud		8
Sprint-2		USN-3	Create a register form in Node-Red		7
Sprint-3	Creating device	USN-1	Creating a device in IBM Watson IOT platform		10
Sprint-3	Python	USN-2	Connect the device created in wokwi to the device created in IBM Watson IOT platform.		10
Sprint-4		USN-1	Troubleshooting errors		5
Sprint	**Functional Requirement (Epic)**	**User Story Number**	**User Story / Task**	**Story Poi**	
Sprint-4		USN-2	Install twilio node in node-red		5
Sprint-4		USN-3	Using right credentials in it		6

Sprint-4		USN-4	Run the program from iot devices and check the simulation		4

7. CODING :

PYTHON CODE :

```
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
myConfig = {
"identity": {
"orgId": "rjt3pq",
"typeId": "CheckingDeviceType",
"deviceId":"26620"
},
"auth": {
"token": ")jTAgpooTUE+vVYW4K"
}
}
def myCommandCallback(cmd):
print("Message received from IBM IoT Platform: %s" %
```

```
cmd.data['command'])
m=cmd.data['command']
client = wiotp.sdk.device.DeviceClient(config=myConfig,
logHandlers=None)
client.connect()
while True:
med="Paracetamol"
med1="D Cold"
myData={'medicine1':med, 'medicine2':med1}
client.publishEvent(eventId="status", msgFormat="json",
data=myData, qos=0,
onPublish=None)
print("Published data Successfully: %s", myData)
client.commandCallback = myCommandCallback
time.sleep(2)
client.disconnect()
```

CODES IN NODE-RED :

1).var d = new Date();

var utc = d.getTime() + (d.getTimezoneOffset() * 60000);

var offset = 5.5;

newDate = new Date(utc +(3600000*offset));

var n=newDate.toISOString()

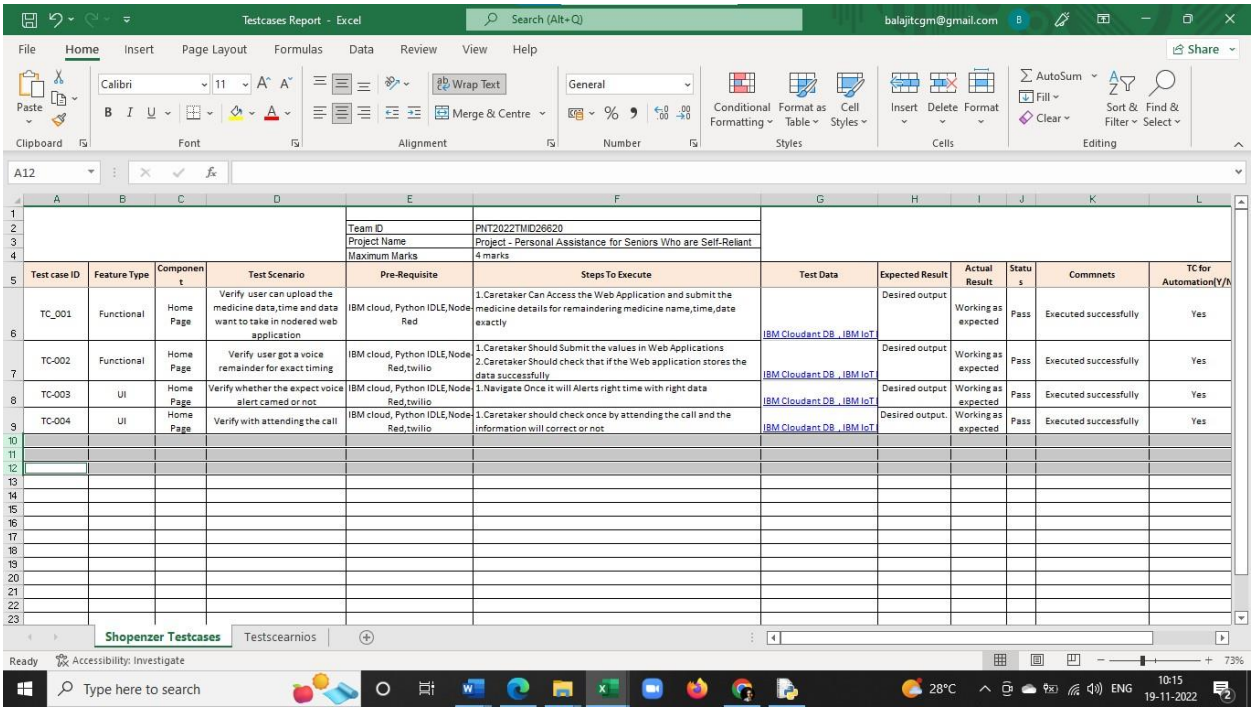
```
var date = n.slice(0,10)
var time = n.slice(11,16)
global.set('time',time)
msg.payload=date+" "+time
return msg;
```

```
2).var d=msg.payload.date
var t=msg.payload.time
msg.payload = {
    "_id":d+" "+t,
    "name":msg.payload.name,
}
return msg;
```

```
3).msg.payload = {
    "date":"",
    "time":""
}
return msg;
```

```
4).msg.payload={"command" :msg.payload.name}
return msg;
```

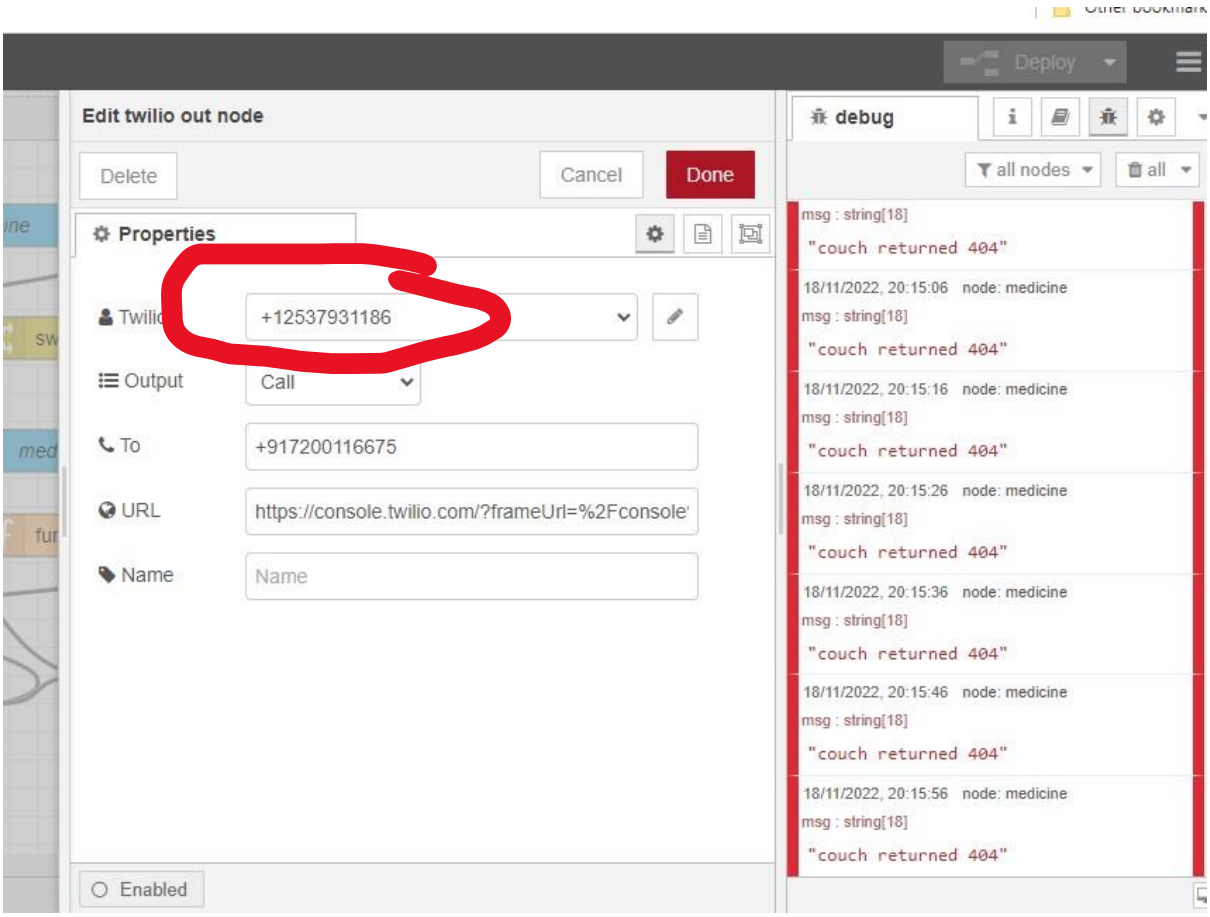
8.TESTING :

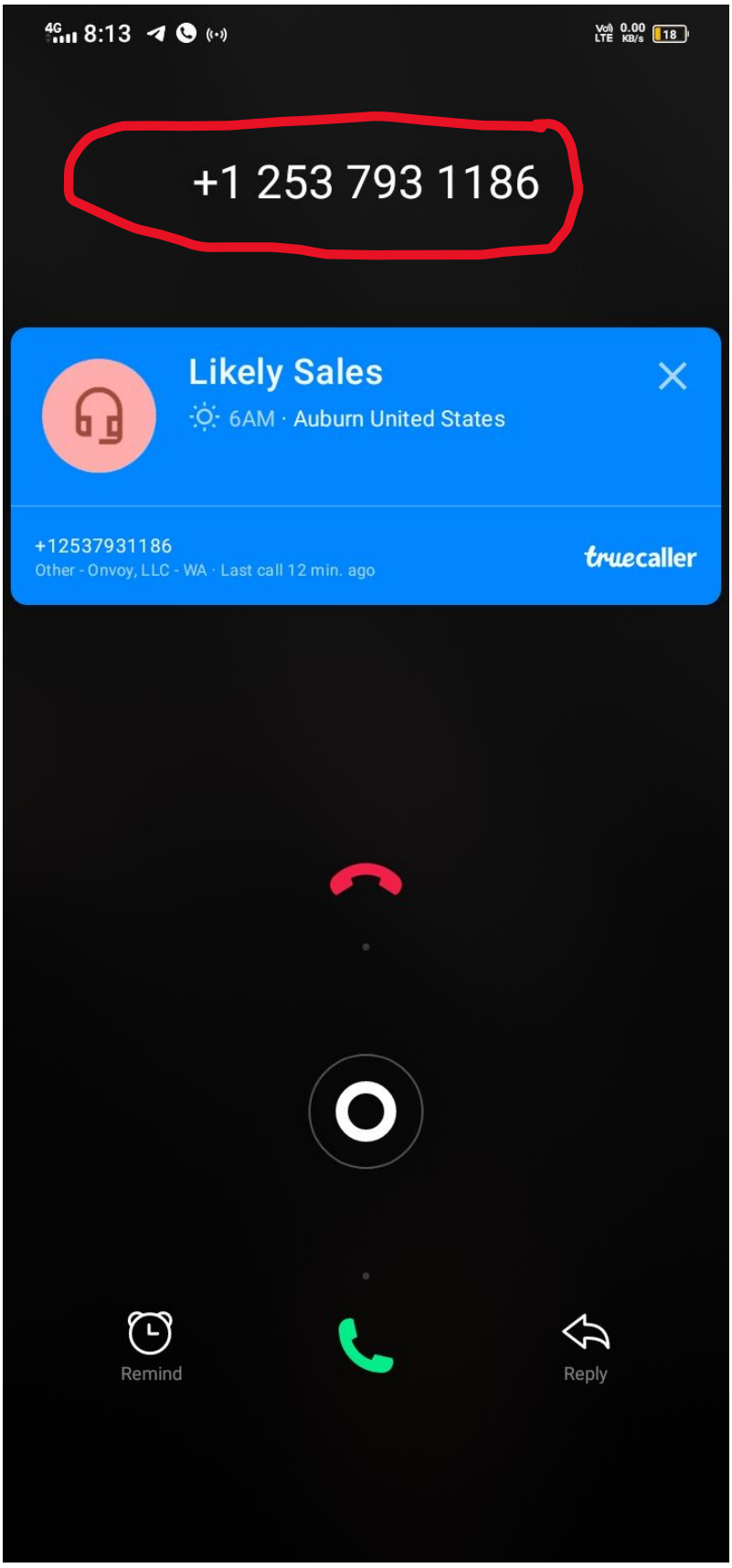


Team ID	PNT2022TMID26620
Project Name	Project - Personal Assistance for Seniors Who are Self-Reliant
Maximum Marks	4 marks

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N
TC_001	Functional	Home Page	Verify user can upload the medicine data,time and data want to take in nodered web application	IBM cloud, Python IDLE,Node-Red	1.Caretaker Can Access the Web Application and submit the medicine details for remaindering medicine name,time,date exactly	IBM Cloudant DB , IBM IoT	Desired output	Working as expected	Pass	Executed successfully	Yes
TC-002	Functional	Home Page	Verify user got a voice remainder for exact timing	IBM cloud, Python IDLE,Node-Red,twilio	1.Caretaker Should Submit the values in Web Applications 2.Caretaker Should check that if the Web application stores the data successfully	IBM Cloudant DB , IBM IoT	Desired output	Working as expected	Pass	Executed successfully	Yes
TC-003	UI	Home Page	Verify whether the expect voice alert camed or not	IBM cloud, Python IDLE,Node-Red,twilio	1.Navigate Once it will Alerts right time with right data	IBM Cloudant DB , IBM IoT	Desired output	Working as expected	Pass	Executed successfully	Yes
TC-004	UI	Home Page	Verify with attending the call	IBM cloud, Python IDLE,Node-Red,twilio	1.Caretaker should check once by attending the call and the information will correct or not	IBM Cloudant DB , IBM IoT	Desired output.	Working as expected	Pass	Executed successfully	Yes

RESULT :


Deploy
Edit twilio out node
Delete
Cancel
Done
Properties
Twilio
+12537931186
Output
Call
To
+917200116675
URL
https://console.twilio.com/?frameUrl=%2Fconsole'
Name
Name
Enabled
debug
all nodes
all
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:06 node: medicine
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:16 node: medicine
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:26 node: medicine
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:36 node: medicine
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:46 node: medicine
msg : string[18]
"couch returned 404"
18/11/2022, 20:15:56 node: medicine
msg : string[18]
"couch returned 404"


8:13
+1 253 793 1186
Likely Sales
6AM · Auburn United States
+12537931186
Other - Onvoy, LLC - WA · Last call 12 min. ago
truecaller
Remind
Reply

10. CONCLUSION :

Along with an exponential growth in connected devices, each thing in IoT communicates packets of data that require reliable connectivity, storage, and security. With IoT, an organization is challenged with managing, monitoring, and securing immense volumes of data and connections from dispersed devices.

11. FUTURE SCOPE :

The future of IoT is virtually unlimited due to advances in technology and consumers desire to integrate devices such as smart phones with household machines. A Networking and connectivity protocol has made it possible to connect people and machines on all platforms.

12.APPENDIX :

SOURCE CODE :

PYTHON CODE :

```
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
```

```
import random
myConfig = {
"identity": {
"orgId": "rjt3pq",
"typeId": "CheckingDeviceType",
"deviceId":"26620"
},
"auth": {
"token": ")jTAgpooTUE+vVYW4K"
}
}
def myCommandCallback(cmd):
print("Message received from IBM IoT Platform: %s" %
cmd.data['command'])
m=cmd.data['command']
client = wiotp.sdk.device.DeviceClient(config=myConfig,
logHandlers=None)
client.connect()
while True:
med="Paracetamol"
med1="D Cold"
myData={'medicine1':med, 'medicine2':med1}
client.publishEvent(eventId="status", msgFormat="json",
```

```
data=myData, qos=0,
onPublish=None)
print("Published data Successfully: %s", myData)
client.commandCallback = myCommandCallback
time.sleep(2)
client.disconnect()
```

CODES IN NODE-RED :

1).
```
var d = new Date();
var utc = d.getTime() + (d.getTimezoneOffset() * 60000);
var offset = 5.5;
newDate = new Date(utc +(3600000*offset));
var n=newDate.toISOString()
var date = n.slice(0,10)
var time = n.slice(11,16)
global.set('time',time)
msg.payload=date+" "+time
return msg;
```

2).
```
var d=msg.payload.date
var t=msg.payload.time
msg.payload = {
    "_id":d+" "+t,
```

```
    "name":msg.payload.name,
}
return msg;
3).msg.payload = {
    "date":"",
    "time":""
}
return msg;

4).msg.payload={"command" :msg.payload.name}
return msg;
```

APPENDIX :

GITHUB LINK： https://github.com/IBM-EPBL/IBM-Project-28190-1660108395

PROJECT DEMO LINK : https://youtu.be/2wDBEuobv3c

CLOUD LINK : https://cloud.ibm.com/resources

IBM IOT WATSON :

https://rjt3pq.internetofthings.ibmcloud.com/dashboard/devices/browse

NODE-RED LINK : https://node-red-xznvx-2022-11-15.eu-gb.mybluemix.net/red/#flow/43b6580e92bdc304

WEB APPLICATION LINK : https://node-red-xznvx-2022-11-15.eu-gb.mybluemix.net/ui/#!/0?socketid=7VBgtWCQQvI2PGAaAAAZ