PROJECT REPORT

PROJECT NAME	Personal Assistance For Seniors Who Are Self Reliant
TEAM ID	PNT2022TMID17335
TEAM MEMBERS	R.SAMPAVI SARANI S.SELVALALSHMI J.B.SAMYUKTHA S.SUBIKA
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Content

1. Introduction

1.1. Project Overview

- A medicine reminder app designed for people who frequently forget to take their medications. An app is built for the caretaker which enables him to set the desired time and medicine. You may also keep track of your appointments.
- If the medicine time arrives the web application will send the medicine name to the IoT Device through the IBM IoT platform.

● The device will receive the medicine name and notify the user with voice commands.

1.2. Purpose

● Sometimes elderly people forget to take their medicine at the correct time.

● They also forget which medicine He / She should take at that particular time.

● And it is difficult for doctors/caretakers to monitor the patients around the clock. To avoid this the medicine reminder system is developed.

2. Literature survey

2.1. Existing problem

Elderly people let slip the medications at the correct time and the existing solutions for this problem is setting reminders or using pill boxes, calendars, Personal Assistance. Though the solutions give reminders, the voice commands or assistance given by this system is more efficient.

2.2. References

1) Visual Health Reminder: A Reminder for Medication Intake and Measuring Blood Pressure to Support Elderly People ; René Baranyi; Sascha Rainer; Stefan Schlossarek; Nadja Lederer; Thomas Grechenig

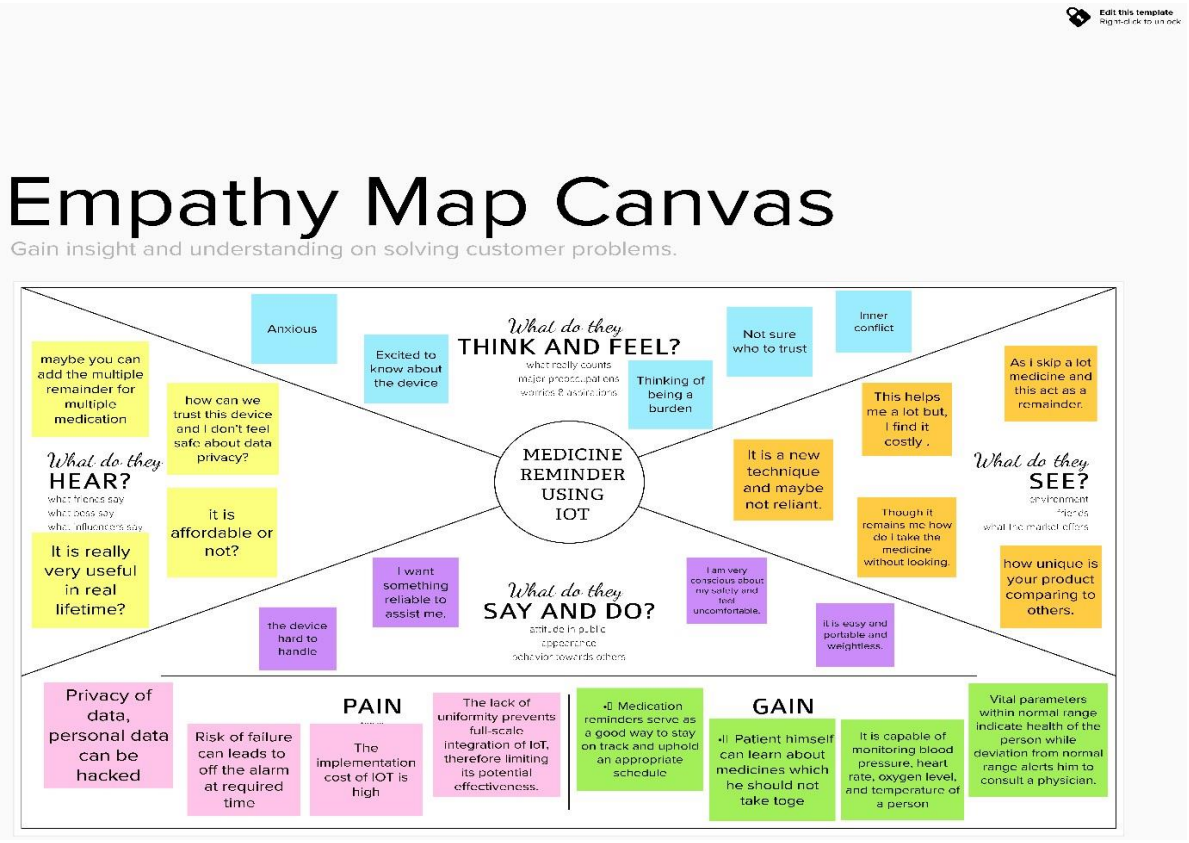
2) Cloud Computing based Medical Assistance & Pill Reminder ; A. Chinnasamy; Ram Prasad J; Syed Rafeeq Ahmed; Akash S

2.3. Problem statement definition

Skipping medicines can be serious for some medical health conditions; Sometimes elderly people forget to take their medicine at the correct time.They also forget which medicine one should take at that particular time. And it is difficult for doctors/caretakers to monitor the patients around the clock.

3. Ideation and proposed solution

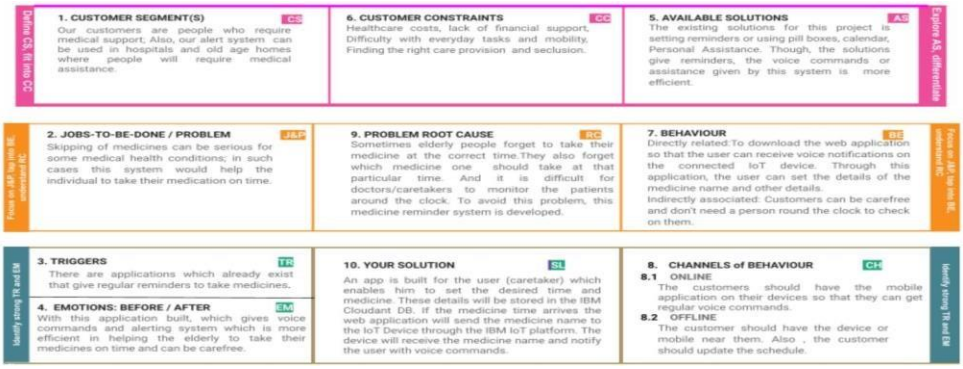
3.1. Empathy Map Canva



3.2. Proposed solution

S.NO	PARAMETER	DESCRIPTION
1	PROBLEM STATEMENT(PROBLEM TO BE SOLVED)	Some people find it difficult to learn new apps in this ever-expanding digital environment, and people nowadays tend to forget things more easily, such as taking their prescriptions.
2	IDEA / SOLUTION DESCRIPTION	Create a basic, easy-to-use app so that users don't forget their medicine schedules, can easily discover pharmacies and clinics near them.
3	NOVELTY / UNIQUENESS	It is a user-friendly app that sends users medication and refill reminders, provides drug interaction warnings, and helps caregivers manage prescriptions for loved ones.
4	SOCIAL IMPACT /CUSTOMER SATISFACTION	I constructed these proto-personas, or names, based on the research findings from the user interview. They would be crucial to the rest of the design process. All design decisions may be assessed and re evaluated using these personas, keeping the user and their perspective in mind.
5	BUSINESS MODEL(REVENUE MODEL)	When it comes to the business there is no one-size-fits- all solution. The model you choose depends on your target audience , business goals , and the resources you already posses
6	SCALABILITY OF THE SOLUTION	As the model is integrated with cloud software , we can update the user experience without reinstalling a model and the person can keep a remainder up to the year.

3.3. Problem Solution fit



4. Requirement analysis

4.1. Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task
FR-1	Access Cloud services	Access the cloud service with correct credentials Store the details in the database
FR-2	IOT configuration	Fine Tuning the IOT device based on Access the Cloud DB via device Manage the request and response displayed in the web page

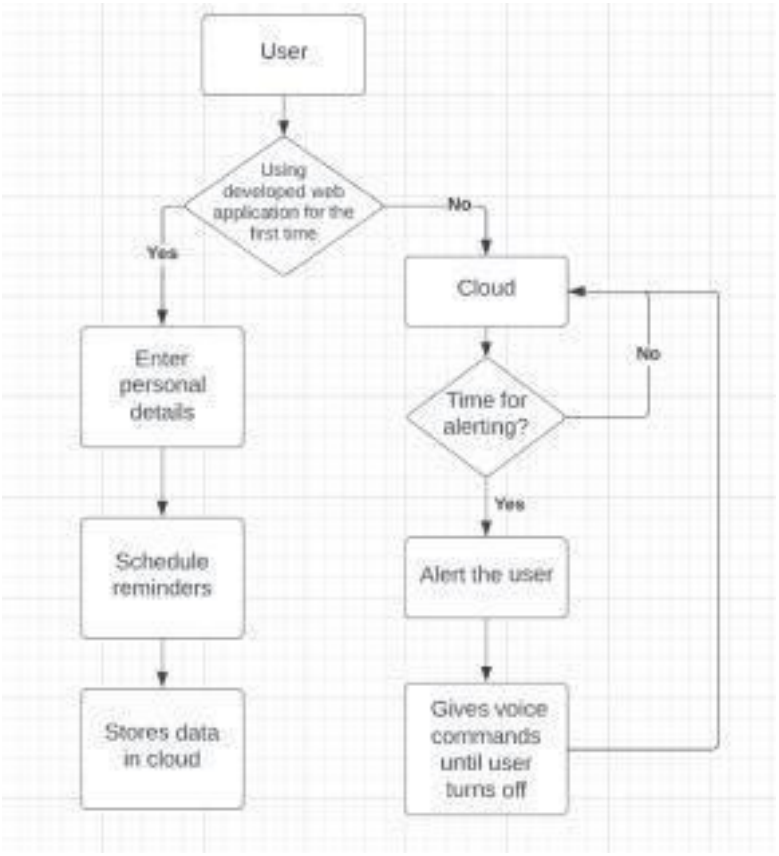
4.2. Non-functional Requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	App can be used by anyone who has knowledge about internet and computer.
NFR-2	Security	For security, TFA is enabled and biometrics are also added for user safety
NFR-3	Reliability	Highly reliable since, It uses Trusted cloud services like IBM
NFR-4	Performance	Performance is better compared to other market products.
NFR-5	Availability	Available on web page

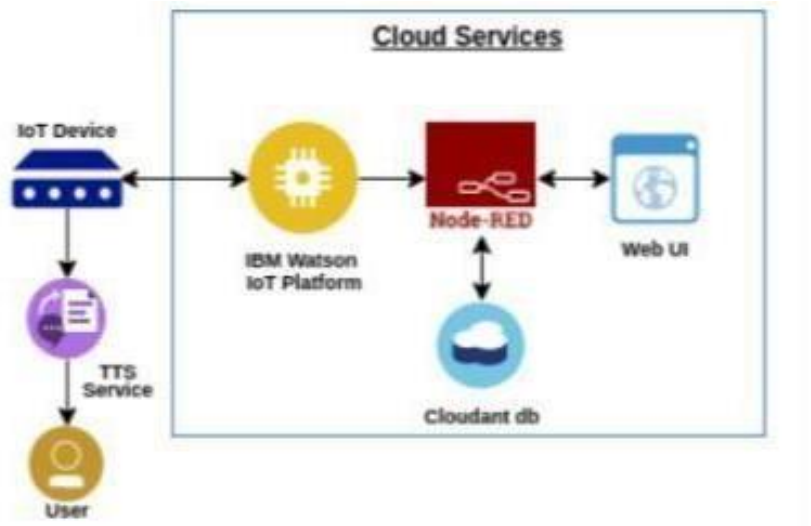
NFR-6	Scalability	Using Cloud services, makes the scalability higher the using traditional database.

5.Project Design

5.1. Data Flow Diagrams



5.2. Solution & Technical architecture



5.3. User Stories

User Type	Functional Requirement(Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Senior citizen)	Caretaker	USN-1	As a user, I want to take Medicines on time and monitor my health	I want to Take Medicines On time	High	Sprint-1
Customer (Alzheimer patient)	Smart medicine box	USN-2	As a user, I want to take my tablets on time by voice command	I want to take my tablets on time by voice command	High	Sprint-1
Customer (Mentally idled patient)	Caretaker	USN-3	As a user, my patient needs to take medicines on time and monitoring the activity	My patient needs to take medicines on time	Medium	Sprint-2
Customer (Coma patient)	Caretaker	USN-4	As a user, my patient medication time and prescription should load in database for upcoming week	My patient medication time and prescription should be in database list	Low	Sprint-4
Customer (Disabled people's)	Smart medicine box	USN-5	As a user, I need to take my medicine in nearby places with light notification	I need to take my medicine in nearby places with light notification	Medium	Sprint-3

6. Project Planning and Scheduling

6.1. Sprint Planning and Estimation

Sprint	Functional Requirement (Epic)	Task	Story Points	Priority	Team Members
Sprint-1	IBM Watson IOT platform	Creating devices and board and generating data	1	medium	Varunapriya Varana shree Srivarsini Saikeerthi
Sprint-2	Storing Data using node-red	Storing the data in IBM Cloudant DB through node-red functions	2	High	Varunapriya Varana shree Srivarsini Saikeerthi
Sprint-3	Medication Details	The medicine details get retrieved from database and people able to see the text in webpage	2	Low	Varunapriya Varana shree Srivarsini Saikeerthi
Sprint-4	Reminder (TTS)	Getting the speech	1	High	

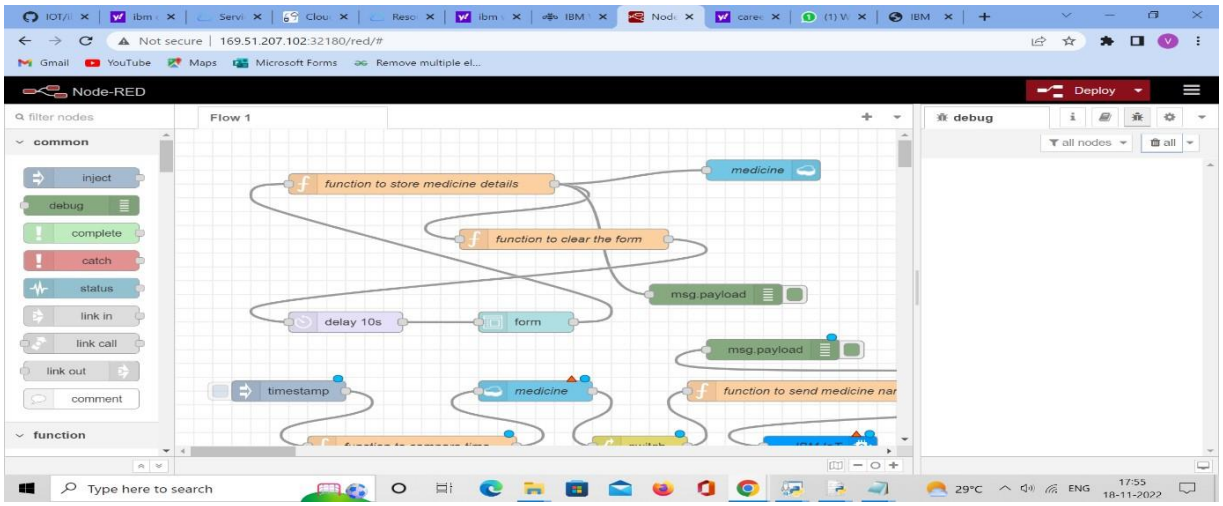
		reminder to users to take their tablet			Varunapriya Varana shree Srivarsini Saikeerthi

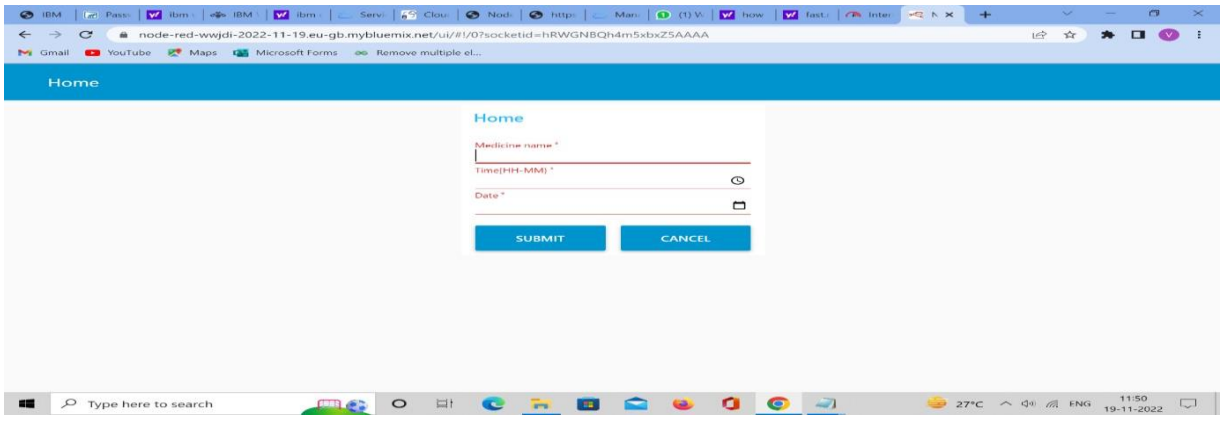
6.2. Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	30 Oct 2022	4 Nov 2022	20	3 Nov 2022
Sprint-2	20	6 Days	5 Nov 2022	10 Nov 2022	20	9 Nov 2022
Sprint-3	20	6 Days	10 Nov 2022	15 Nov 2022	20	14 Nov 2022
Sprint-4	20	6 Days	16 Nov 2022	21 Nov 2022	20	20 Nov 2022

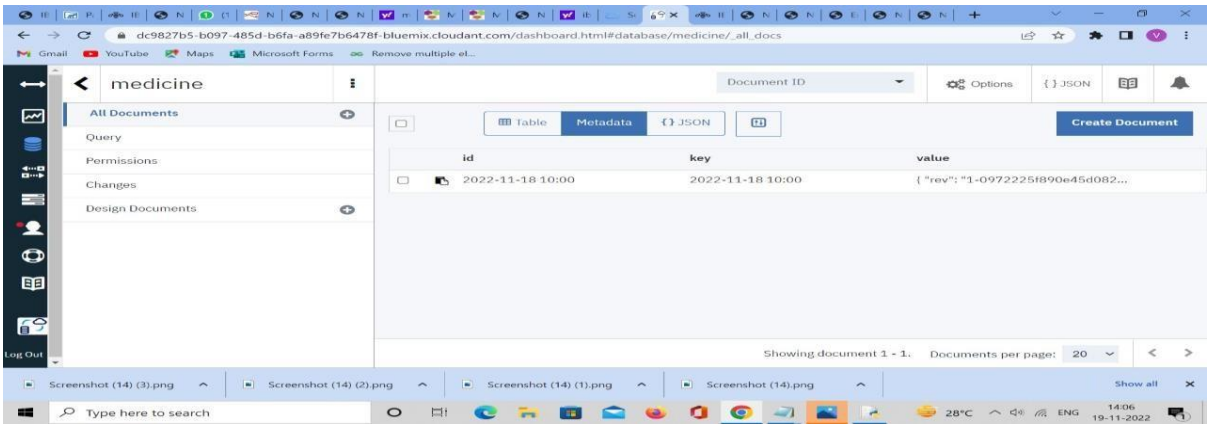
7. Coding and Solutioning

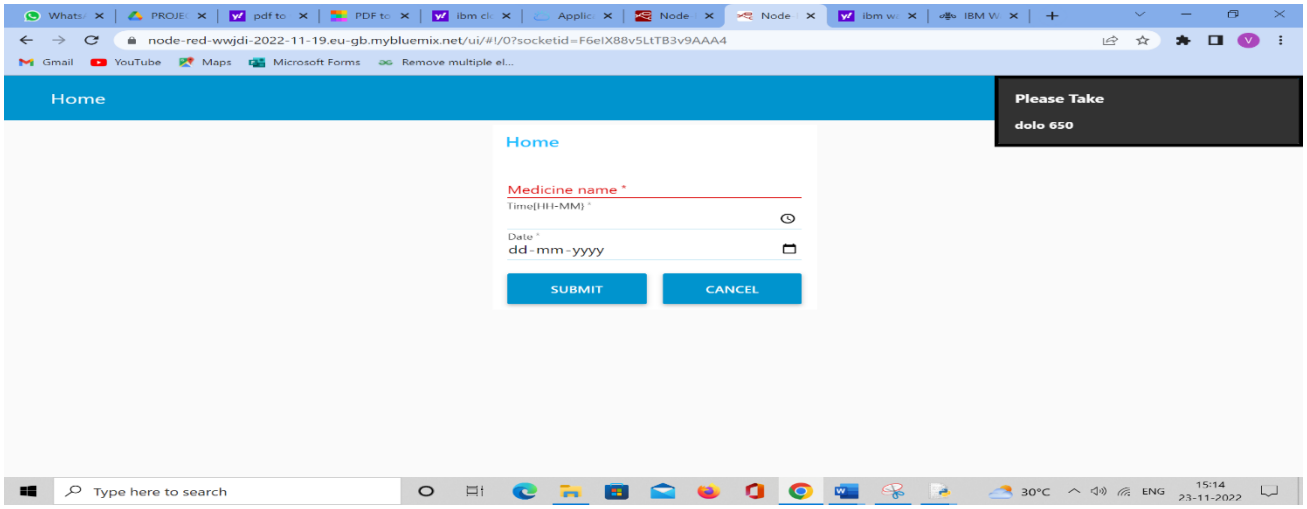
7.1 Feature 1





7.1 Feature 2





8. Testing

8.1 Test Case

Test Case	Precondition	Test Steps	Test Data	Expected Result
Verify the IBM Watson Connection	User should have a network connection	1.Run the python code. 2.In IBM Watson the connection is enabled	1.Connected successfully	1.Connected Successfully
Run the nodered and enter the medicine details	Install the nodered and Python	1.Enter the URL 2.Enter the medicine details 3.Save in database	1.Medicine:Dolo65 2.Time:18:12 3.Date:18:11:2022	User able to see the medicine details in database
Text to speech	User should have a network connection	1.Convert the text into speech 2.Display the message notification	1.Please Take Dolo65	It play the audio

8.2 User Acceptance Testing

https://drive.google.com/file/d/1Q_QZA-7WzjWSX0zzU5hkY0EszzUP3Wf9/view?usp=drivesdk

9. Result

9.1. Performance Metric

S.NO	Parameter	Performance
1	Response Time	0.2s (Average of 10 trials)
2	Workload	500 users (Calculated based on Cloud Space)
3	Revenue	Individual users and pharmaceutical industries.
4	Efficiency	Simple and straightforward workflow, which makes the process efficient.
5	Down Time	Almost no down time due to IBM Cloud enabled solution

10. ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

- Patient can easily take medicine at correct time

- It increase patient satisfaction
- avoid the difficulties for doctors/caretaker
- Help in decreasing medication dispensing errors
- Easy to use
- Time saving for users

DISADVANTAGES:

- If seniors/patients who are physically disabled (like deaf) ,they can't hear the voice command
- If seniors/patients who are visually challenged (like cataracts)and illiterate, they can't read the medicine/drugs name properly

11. CONCLUSION

Patients/elders faces difficulties while taking medicine at correct time.it is also difficult for doctors/caretakers to monitor the patient.To avoid these problems,medicine reminder system is developed.an app is built for the patient which enables him to set the time.Users can configure the medicine name, and time through a web application. All the medicine details will be stored in the IBM Cloudant DB.The web application will send the medicine name to the IoT device at the desired time.After getting the medicine name the device will speak out the medicine name using IBM text to speech Service to intimate the user to take the medicine.

12. FUTURE SCOPE

Patients/elders can individually take their medicine without the help of others.it is very useful for patients whose age in between 50-80.there is no need to depend others for taking medicine.main acception of this medicine reminder system is,notification will be sent through the voice command not by alarm.so patient can easy identify their medicine name.It is very helpful for the patients who are suffered from metabolic disorder,cardigenic shock,heart attack,pneumonia,diabetics,cancer etc..

13. APPENDIX:

Source Code:

```
import json

import wiotp.sdk.device

import time

import random

myConfig = {

"identity": {

"orgId": "yu1n93",
```

```
 "typeId": "Module",
 "deviceId": "55555"
 },
 "auth": {
 "token": "5555555555"
 }
}
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
for i in range(0,20):
 tablet=["Paracetamol","Aspirine","Dolo 650","Insulin","Vicks"]
 medicinetime=[12.00,1.00,2.00,3.00,5.00,18.00,20.00,7.00]
 name = "Madhu"
 medicine=random.choice(tablet)
 medicinetime=random.choice(medicinetime)
 mydata = {'Patient Name': name, 'Medicine Name': medicine, 'Time': medicinetime}
 client.publishEvent("MEDICINE REMINDER", "json", data=mydata, qos=0,
onPublish=None)
 print("Data published to IBM IOT platform :", mydata)
 time.sleep(5)
client.disconnect()
```

Github Link: https://github.com/IBM-EPBL/IBM-Project-35918-1660290425