

PERSONAL ASSISTANCE FOR SENIORS

WHO ARE SELF-RELIANT

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report “ **PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF -RELIANT**” is the bonafide work of “**HEMALATHA.K, KARTHIKA.B, PRADEESHA.E, ZIBIAHNATHASHA.G.J, KIRUTHIGA.S**”

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ABSTRACT

In the contemporary day life style people have no time to spend with their Tamil. In such a busy life it's difficult to keep an isolated day out of their busy schedule for the doctor for consistent medical checkup and taking medicines at time. There is a necessity for new idea and technology which helps in saving their time.

The proposed model enables users to improve health related risks and reduce healthcare costs by reminding to take medicines at time, collecting, recording and analyzing data in real time efficiently. With the help of this proposal the time of both patients and doctors are saved and doctors can also help in emergency scenario as much as possible. The proposed outcome of the project is to give proper and efficient medical services to patients by reminding them when to take medicines and collecting data information through health status monitors which would include patient's Heart rate

The user can feed the type of medicine as a tablet, capsule or Syrup, dosage as half, one or two capsule/tablet/spoon, After food or before food setting, doctor name as doc-A, doc-B, doc-C and so on and dosage timing as Morning, Afternoon and Night. The morning time is assumed to be 9 AM, Afternoon time is assumed to be 12 PM and Night time is assumed to be 9 PM.

The project is built on Arduino Mega and has an RTC interfaced to keep track of time without fail. The medicine information is saved in the internal EEPROM of the Arduino board

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INDRODUCTION

In modern society, busy life has made people forget many things in day to day life. The elderly people and the people victims of chronical diseases who need to take the medicines timely without missing are suffering from dementia, which is forgetting things in their daily routine. Considering this situation study has been done in this. Paper reviewing the technologies of home healthcare which are currently used for improving this situation by reminding the scheduled of medicine, remote monitoring and update new medicine data of patients, which can be done by prescriber through web. If the patient sufferings from the disease where it is compulsory to take medicine at proper time, in this paper we have review the technology of home health care system among them a medicine reminder system and some improvement regarding authentication have well focused. Internet of Things (IoT) network will provide active and real-time appointment of patient, hospitals, caretaker and doctors apart from this the secured data transmission from source point to destination for the purpose of remote monitoring there is need of the architecture of a low cost embedded platform for Web-based monitoring .The distant monitoring is made possible by using various biomedical devices, they measure and transmit data via Bluetooth or ZigBee to a unit that manages them (PC, tv). The collected information may be stored on the device or sent to a collection center that provides a complete monitoring, for both health professionals and patients. Access to the medical center can be allowed, via web, from mobile device or PC 2 The IOT and RFID combination also play a vital role in object detection and personal identification which can be use categorized the person while remote monitoring when number of people information have observed which will helpful to unique identity to each patient and their respective data will be stored .

1.1PROJECT OVERVIEW :

When it comes to our loved ones, we always want to stay them healthy and fit. But what will happen if they get ill and forget to take medicine on time. We would be worried, right? At hospitals, there are many patients and it is difficult to remind every patient to take medicine on time. The traditional ways require human efforts to remind them to take medicines on time. The digital era doesn't follow that and we can use machines to do that. The application of **Smart Medicine Reminder** is very wide and can be used by patients at home, doctors at hospitals, and at many other places. When it comes to reminding, there can be many ways to remind it:

1. Show it on a display
2. Send notification on email or Phone
3. Using mobile apps
4. Buzz alarm
5. Using Bluetooth/ Wi-Fi
6. Get a call
7. Remind for next medicine time while reminding current time

We can combine ways depending upon the need. To keep things simple here we made a **simple Medicine Reminder using Arduino** which reminds us to take medicines 1 or 2 or 3 times a day. The time slot can be selected using push buttons. Also, it shows the current Date and Time. We will further extend it to an IoT project incoming articles where an email or SMS notification will be sent to the

user. This medication reminder can also be integrated with [Patient Monitoring System](#)

1.2 PURPOSE :

The goals of medicine encompass the relief of pain and suffering, the promotion of health and the prevention of disease, the forestalling of death and the promoting of a peaceful death, and the cure of disease when possible and the care of those who can not be cured. By analyzing the data, an internet of things (IoT) based reminder system has been developed. It is designed to assist the patient who forgets to take medicine. The proposed system consists of an IoT enabled device and an android application. It mainly focuses on dementia patient.

2.LITERATURE SURVEY:

Most patients don't recollect their whole drug routine and they additionally sometimes neglect to take their prescription [1]. Outpatients with interminable sicknesses, especially the individuals who must oversee more than one prescription or take drug more than once per day, may not take their meds appropriately. The pace of drug adherence, characterized as "the degree to which the patient adheres to restorative guidelines", has been accounted for to be around 50–80% [2-4]. Quiet adherence to prescription is clinically critical in lessening mortality of genuine infection and complete medicinal services costs. By and by, the above depicted issues have opposed an answer for quite a while [5, 6].

Now days there are large number of mobile phone/smart phone users in the world. The bulky number of variety of applications available in the mobile phone made the luxurious life. Mobile phone companies are providing such a wonderful

application for their users then question arises in mind that why not to use those applications when company is providing them? Out of those applications, Reminder facility in the mobile phone is the most commonly used application which is used for preventing to remember each and every small thing.

2.1 EXISTING PROBLEM:

Patients may often fail to comply with their medication whether it was from forgetting to take the medicine, from taking medicine at the wrong time or even from taking too much medicine. Therefore, there are many systems such as reminder, alarm, and so on to remind patient. We have focus on those patients who having difficulty to take medication on time, we tried to design and to aid patients with managing their medical prescriptions, through a reminder app they will use to look at and manage their medications. The Pill Reminder will facilitate users to require the right medication on time. This system provides a real time monitoring system that allow related people to monitor the patient's activity remote.

2.2 REFERENCE:

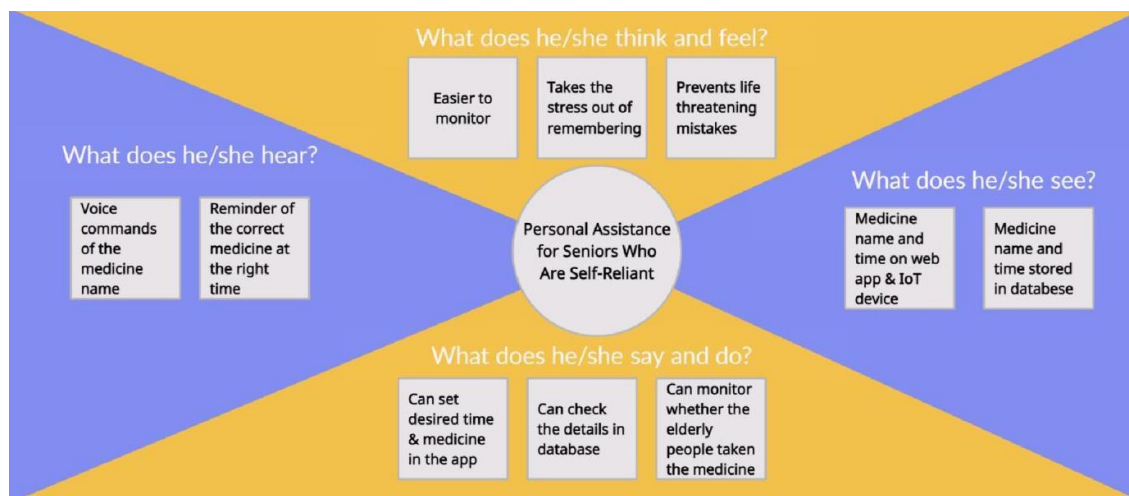
Andreas Handojo, Tioe Julio Adrian Sutiono, Anita Nathania
Purbowo, Metin Berke Yelaldi, Veliyullah Öztürk, Anıl Gün, Berke Küçüksağır,
Alim Kerem
Erdoğan, Uğur Yayan, Rifat Edizkan, Sawsan M. Mahmoud, Hesham A.
Alabbasi, Tawfiq
E. Abdulabbas, Rainer Lutze, Klemens Waldhör

2.3 PROBLEM STATEMENT DEFINITION :

Patients may often fail to comply with their medication whether it was from forgetting to take the medicine, from taking medicine at the wrong time or even from taking too much medicine. Therefore, there are many systems such as reminder, alarm, and so on to remind patient. We have focus on those patients who having difficulty to take medication on time, we tried to design and to aid patients with managing their medical prescriptions, through a reminder app they will use to look at and manage their medications. The Pill Reminder will facilitate users to require the right medication on time. This system provides a real time monitoring system that allow related people to monitor the patient's activity remote.

3.IDEATION & PROPOSED SOLUTION :

3.1 EMPATHY MAP CANVAS:



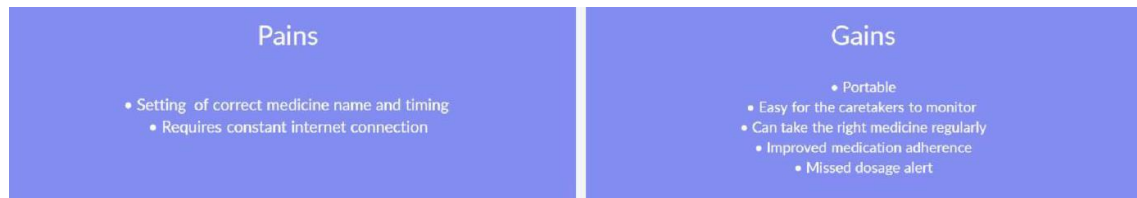


Figure 3.1 Empathy map

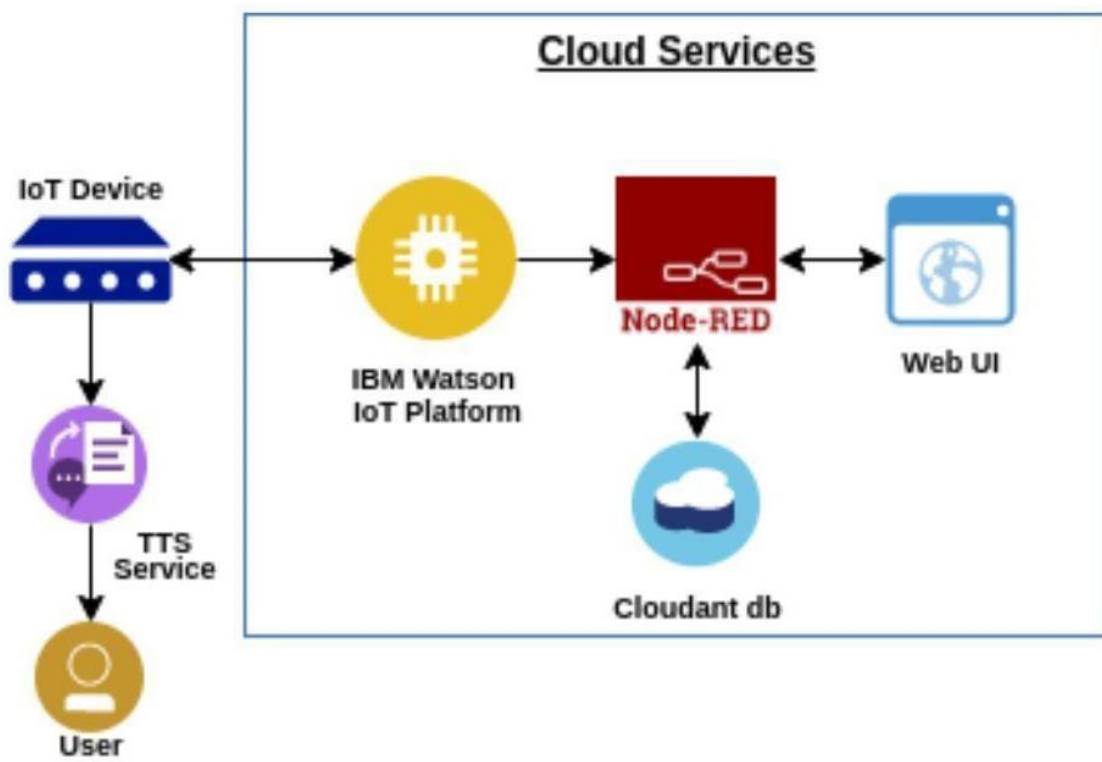
3.2 IDEATION & BRAINSTROMING :

SOLUTION ARCHITECTURE:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

❖ Medicine Reminders serve as good way to stay on track and uphold appropriate schedule.

SOLUTION ARCHITECTURE DIAGRAM:



3.3

PROPOSED SOLUTION:

TABLE : 3.3 Proposed solution

S. No.	Parameter	Description
1	Problem Statement (Problem to be solved)	<p>Aging cannot be prevented and old age is a sensitive phase. 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.</p> <p>And it is difficult for doctors/caretakers to monitor the patients around the clock. An application need to be built for the users which enables them to set the desired time to take medicines.</p>

2	Idea / Solution description	The user details will be stored in the cloud database. If the medicine time arrives the web application will send the medicine name to the IoT Device through the IoT platform. The device will receive the medicine name and notify the user with voice commands.
3	Novelty / Uniqueness	The use of Text To Speech service to speak out the medicine name through the IoT device after receiving it from the web application makes this app unique from other existing apps.
4	Social Impact / Customer Satisfaction	This app is a medication intake remainder system for people who are self-reliant. Using this

		app the user can avoid health issues that arise due to improper consumption of medications. This app is flexible for illiterates too as it provides voice services.
5	Business Model (Revenue Model)	The app revenue model is an integral part of a business concept. Many users may show willingness to this app as it replace the role of high paid caretakers. And also it can be easily used.
6	Scalability of the Solution	Since it is a cloud based IoT application, it serves a large number of users which makes the application to be highly reliable. Hence, it will have high scalability.

3.4 PROBLEM SOLUTION FIT:

TABLE :3.4 Problem solution fit

Problem-Solution fit canvas 2.0		Purpose / Vision	
Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Seniors who are self-reliant.	6. CUSTOMER CC Afraid of cost and service.	5. AVAILABLE SOLUTIONS AS Usage of sensors in medication box. It's costly & medication names were unknown to the user.
Focus on J&P, map into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS J&P When the appropriate time arrives the medicine name will be voiced out to the user through the TTS(Text-To-Speech) service.	9. PROBLEM ROOT CAUSE RC Aging is the major factor. And also, the user takes of those seniors were unable to remember all the medication names and the exact time at which they have to be given.	7. BEHAVIOUR BE The user just needs to enter their details and their medication details with proper timing. They need to register to access the application. Once this is done, the next time, alerts helps for medication which can be turned off by the user and can take their medication.
Identify strong TR & EM	3. TRIGGERS TR Low cost and user friendly application to take care and maintain one's physical and mental health properly.	10. YOUR SOLUTION SL As a solution for this problem, we are developing a cloud based IoT application which will help the senior people and their care takers by voicing out the correct medication name at the right time. This will definitely help them to take the medicines properly and to maintain their health in a balanced state without getting side effects either by not taking the correct medicine or by missing to take the medicine. The Text-To-Speech service will be very useful when compared to text output.	8. CHANNELS of BEHAVIOUR CH 8.1 ONLINE Registration and uploading the medication details with correct timing. 8.2 OFFLINE Can turn off the alerts.
	4. EMOTIONS: BEFORE / AFTER EM Before – Feeling bad and worry for always depending on someone to give proper medication at the right time. After – Feeling relaxed and doesn't depend on anyone to their medications on time.		

4.REQUIREMENT ANALYSIS:

4.1 FUNCTIONAL REQUIREMENTS:

Following are the functional requirements of the proposed solution.

Table: 4.1 Functional requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Access Cloud services	Access the cloud service with correct credentials Store the details in the database Retrieve needed information for the user's operation
FR-4	IOT configuration	Fine Tuning the IOT device based on preference

		Access the Cloud DB via device Manage the request and response effectively
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4.2 NON-FUNCTIONAL REQUIREMENTS:

Following are the non-functional requirements of the proposed solution.

Table: 4.2 Non-Functional requirements

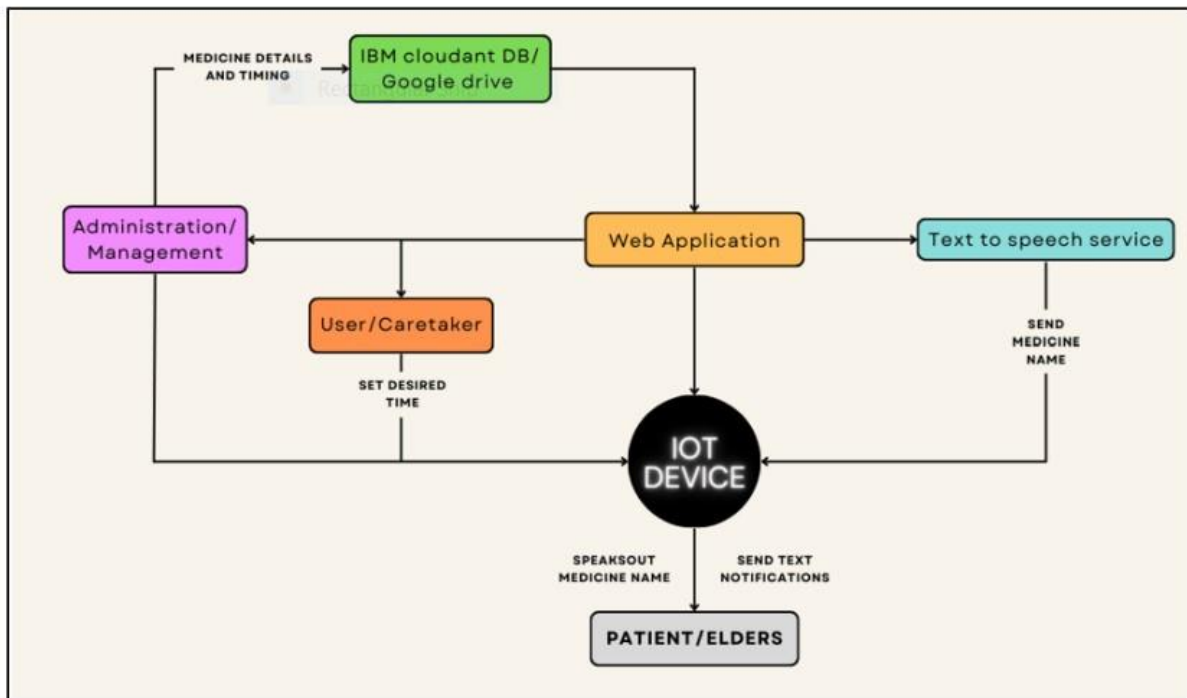
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	App can be used by anyone who has operational knowledge about internet and computer.
NFR-2	Security	For security, TFA is enabled and biometrics are also added for user safety.
NFR-3	Reliability	Highly reliable since, It uses Trusted cloud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

		compared to other market products.
NFR-5	Availability	Available on mobile app. Web version is getting ready for next release.
NFR-6	Scalability	Using Cloud services, makes the scalability higher the using traditional database.

5. PROJECT DESIGN:

5.1 DATA FLOW DIAGRAMS:

Data flow diagram:



5.2 SOLUTION & TECHNICAL ARCHITECTURE :

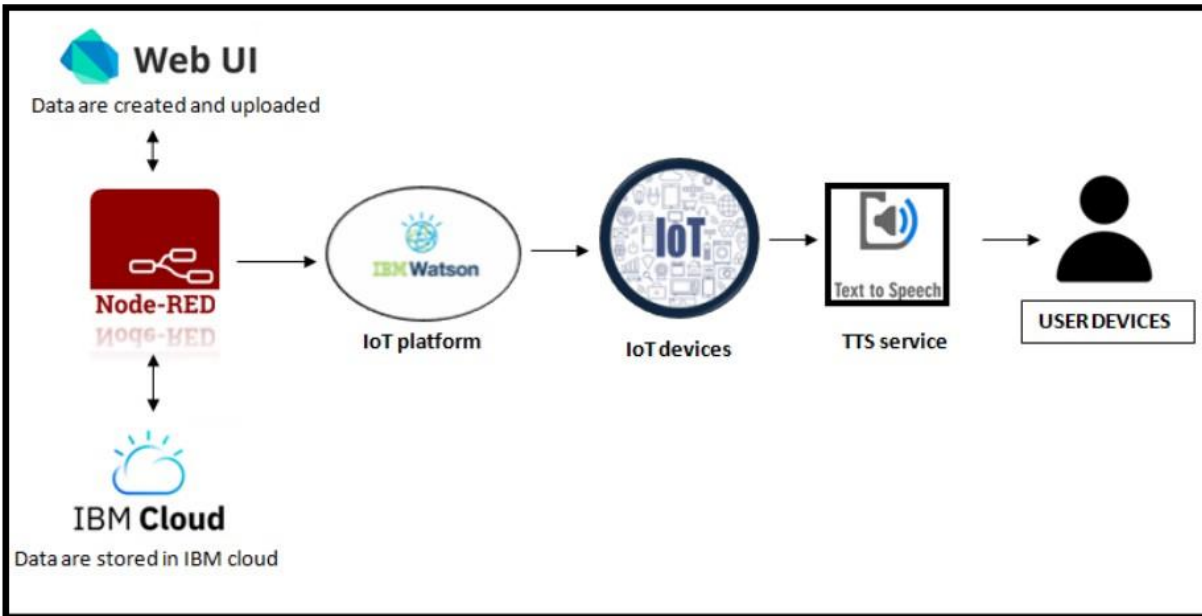
SOLUTION ARCHITECTURE:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are

to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Example - Solution Architecture Diagram:

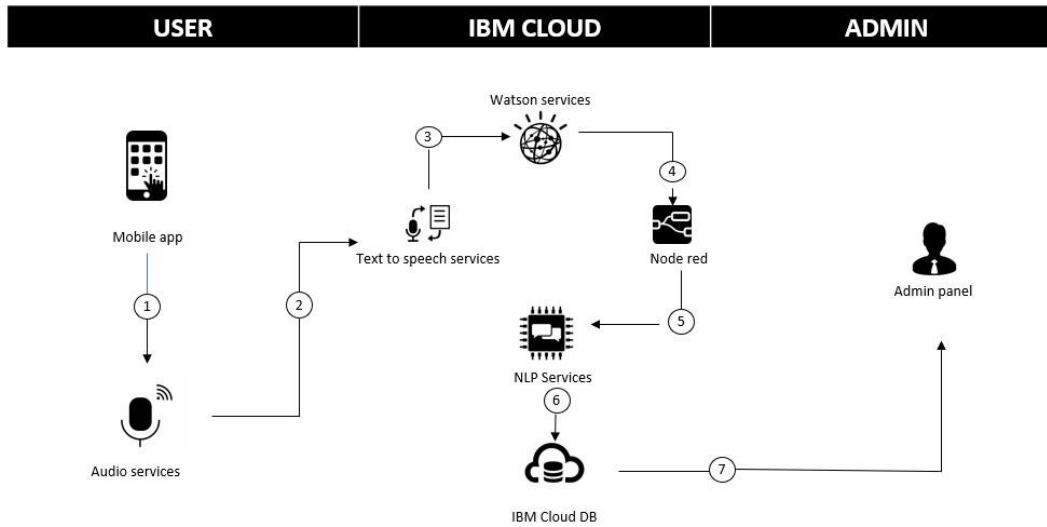


TECHNICAL ARCHITECTURE:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

REFERENCE

<https://ieeexplore.ieee.org/document/9640866>



5.3 USER STORIES

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	Mobile App	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	Mango DB
6.	Cloud Database	Database Service on Cloud	IBM Cloudant

7.	File Storage	File storage requirements	IBM Block Storage
8.	External API-1	Getting latest medical tips	Rapid API
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local, Cloud Foundry.

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Open Cloud, Angular JS.
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Discretionary Access Control (DAC)
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	SOA + EDA
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Classic and VPC Load balancers
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	We are now using Lite plan, 5 request per second.

6.PROJECT PLANNING & SCHEDULING :

6.1 Sprint planning and estimation

6.2 Sprint delivery schedule

6.3 Reports from JIRA

6.1 SPRINT & PLANNING ESTIMATION:

Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

Table: 6.1 sprint & planning estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1		US-1	Create the IBM Cloud services which are being used in this project.	6	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S

Sprint-1		US-2	Configure the IBM Cloud services which are being used in completing this project.	4	Medium	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-1		US-3	IBM Watson IoT platform acts as the mediator to connect the web application to IoT devices, so create the IBM Watson IoT platform.	5	Medium	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-1		US-4	In order to connect the IoT device to the IBM cloud, create a device in the IBM Watson IoT platform and get the device credentials.	5	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J

						Kiruthiga. S
Sprint-2		US-1	Configure the connection security and create API keys that are used in the Node-RED service for accessing the IBM IoT Platform.	10	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-2		US-2	Create a Node-RED service.	10	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-3		US-1	Develop a APPLICATION that reminds elders to take their medicines.	7	High	Hemalatha. K Karthika. B Pradeesha.

						E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-3		US-2	After that upload the information to the device that reminds them to take their medicine	5	Medium	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-3		US-3	Publish Data to The IBM Cloud	8	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S

Sprint-4		US-1	Create Web UI in Node- Red	10	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S
Sprint-4		US-2	Configure the NodeRED flow to receive data from the IBM IoT platform and also use Cloudant DB nodes to store the received sensor data in the cloudant DB	10	High	Hemalatha. K Karthika. B Pradeesha. E, Zibiah Nathasha. G. J Kiruthiga. S

6.2 SPRINT DELIVERY SCHEDULE:

Table: 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	24 Oct 2022	29 Oct 2022	20	29 Oct 2022

Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	31 Oct 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	07 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	14 Nov 2022

Velocity:

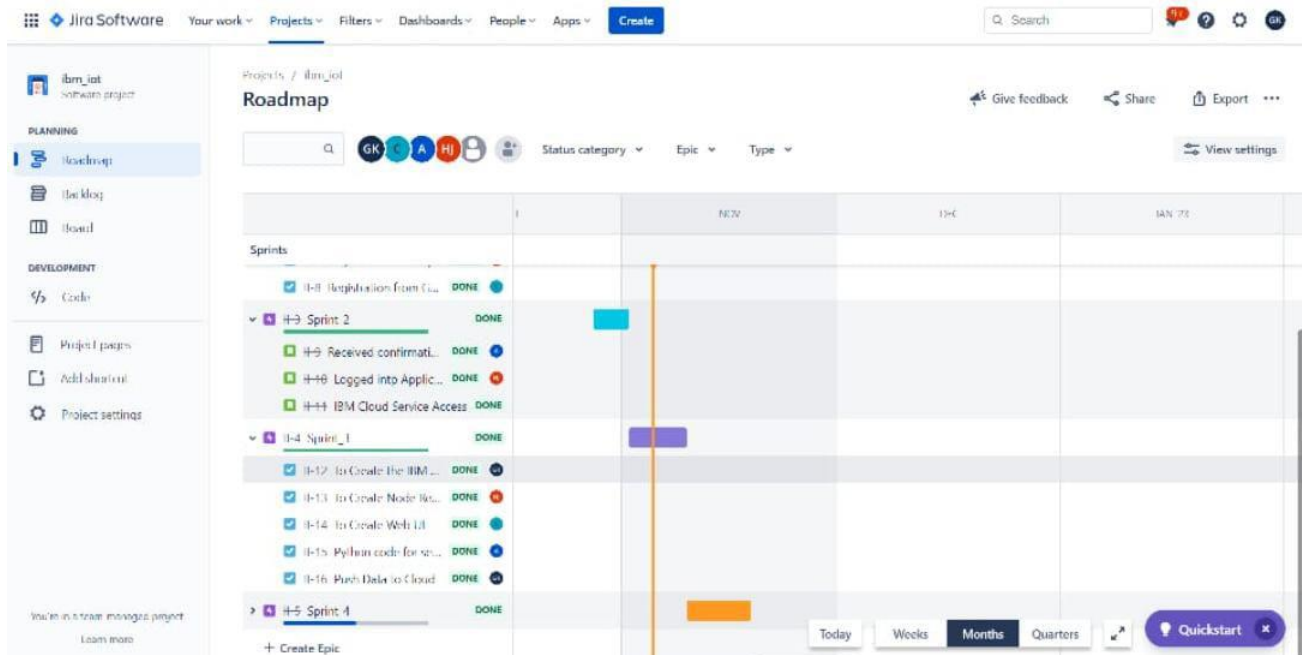
Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

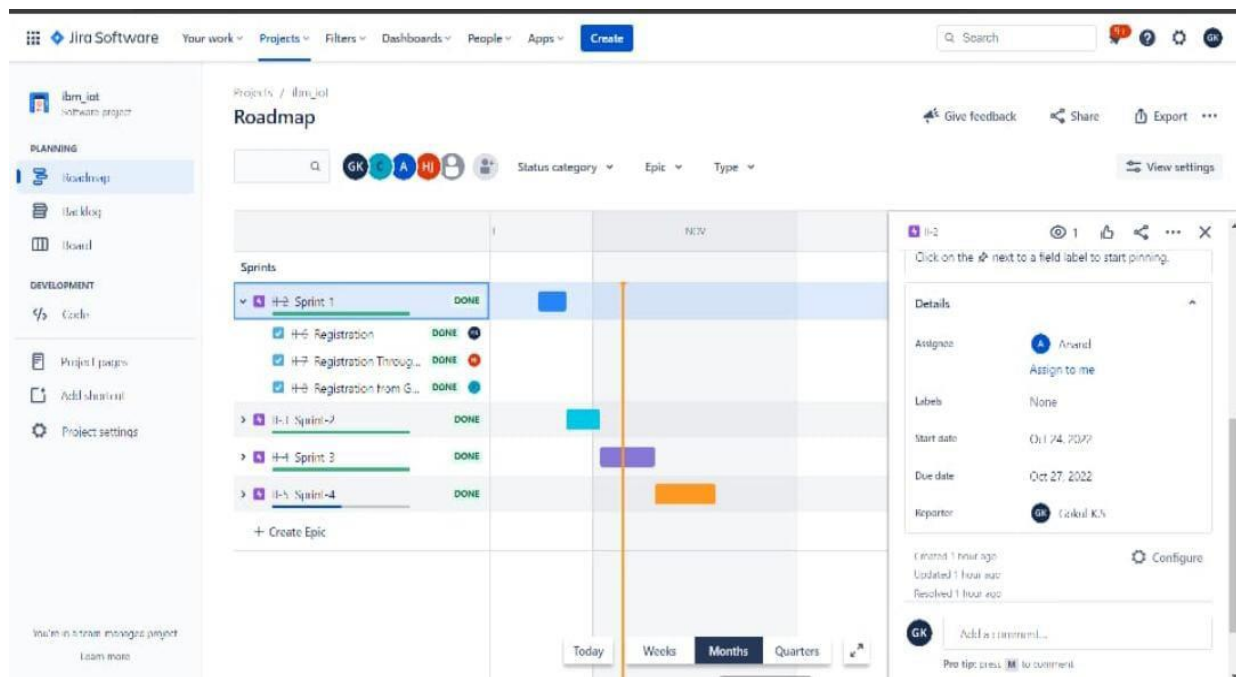
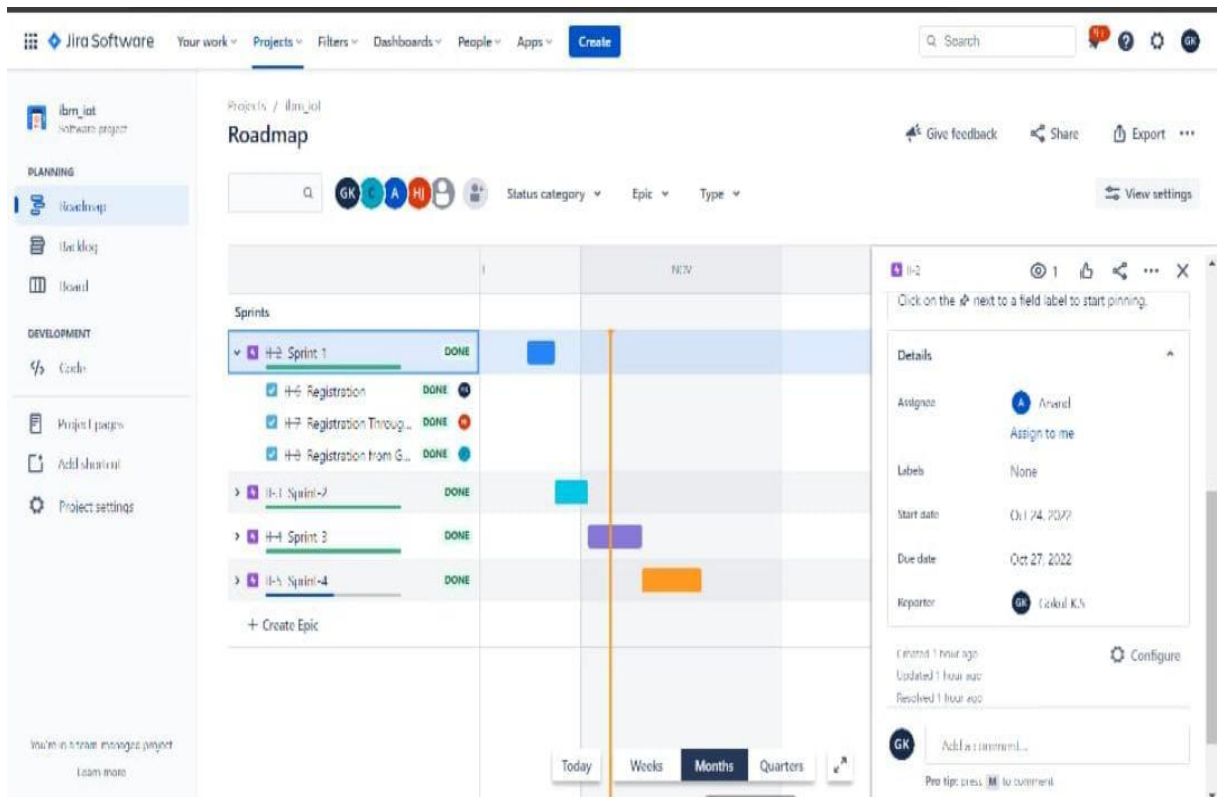
$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

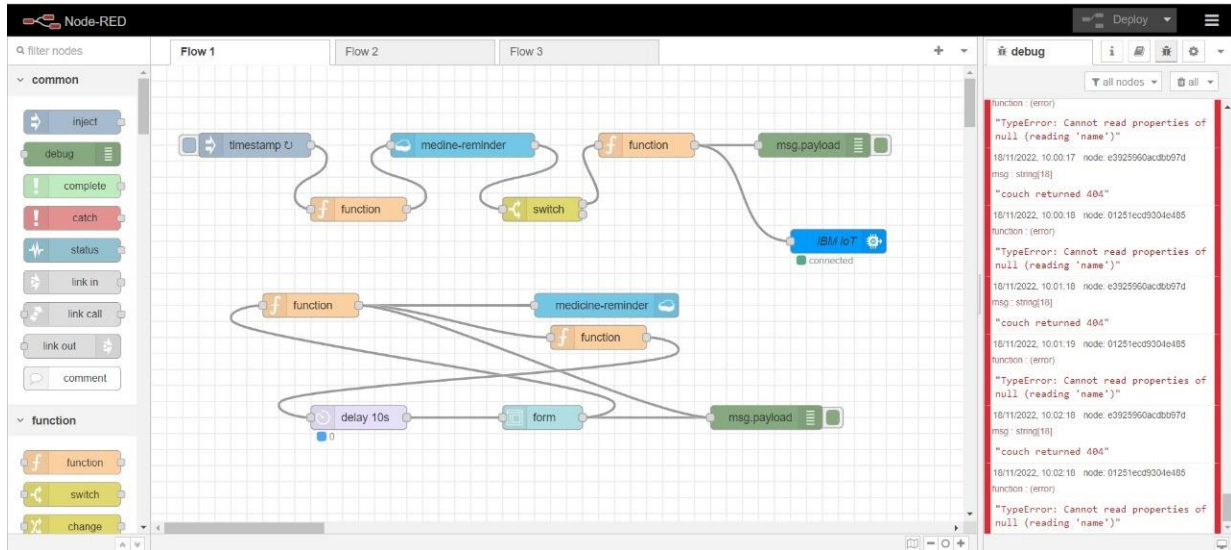
6.3 Report from JIRA:





7.CODING & SCHEDULING:

7.1 FEATURES 1



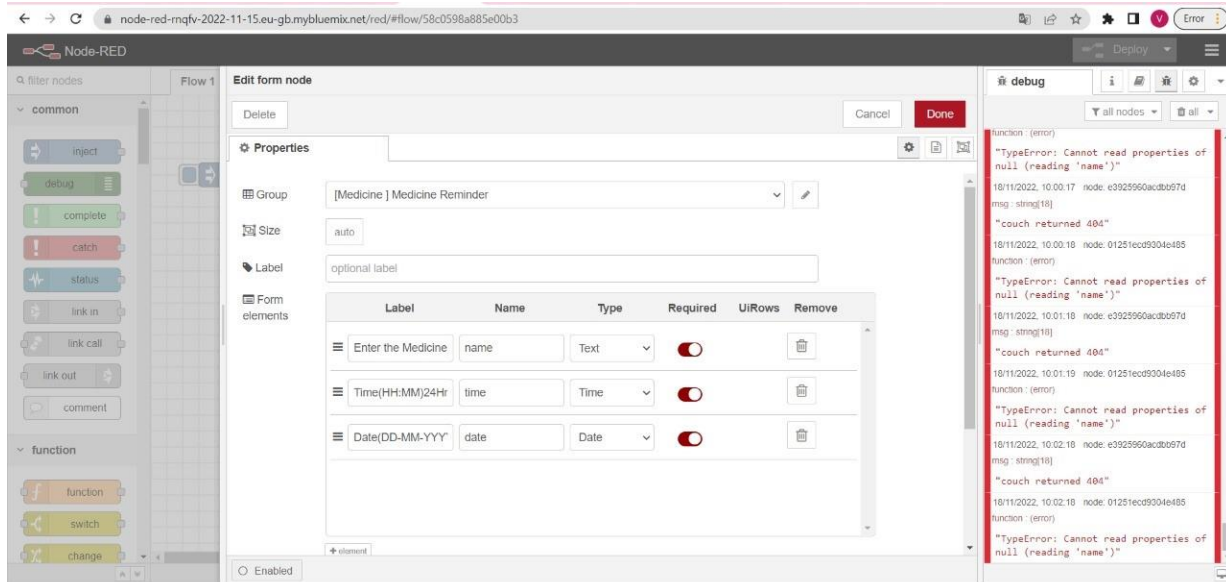
The screenshot shows the Node-RED web interface with the 'Edit form node' dialog open. The dialog has a 'Delete' button, a 'Cancel' button, and a 'Done' button. The 'Properties' section shows the following settings:

- Group: [Medicine] Medicine Reminder
- Size: auto
- Label: optional label

The 'Form elements' table is as follows:

Label	Name	Type	Required	UI Rows	Remove
Enter the Medicine	name	Text	<input checked="" type="checkbox"/>		
Time(HH-MM)/24Hr	time	Time	<input checked="" type="checkbox"/>		
Date(DD-MM-YYY)	date	Date	<input checked="" type="checkbox"/>		

At the bottom of the dialog, there is a '+ element' button and a radio button labeled 'Enabled'. On the right, the 'debug' console shows the same error messages as the first screenshot: 'TypeError: Cannot read properties of null (reading 'name')' and 'couch returned 404'.



7.2 FEATURES 2

PYTHON OUTPUT :

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Latha\Desktop\name.py =====
2022-11-17 19:55:27,940 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:qq2hy2:VSVS_DEVICETYPE:vsvs7501
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Vicks', 'Time': 2.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Aspirine', 'Time': 18.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Paracetamol', 'Time': 20.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Dolo 650', 'Time': 7.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Insulin', 'Time': 2.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Dolo 650', 'Time': 12.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Paracetamol', 'Time': 18.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Paracetamol', 'Time': 20.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Aspirine', 'Time': 18.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Vicks', 'Time': 2.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Insulin', 'Time': 12.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Aspirine', 'Time': 7.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Paracetamol', 'Time': 12.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Vicks', 'Time': 3.0}
Data published to IBM IOT platform : {'Patient Name': 'Madhu', 'Medicine Name': 'Paracetamol', 'Time': 12.0}
```

```

import json
import wiotp.sdk.device
import time
import random

myConfig = {
    "identity": {
        "orgId": "qq2hy2",
        "typeId": "VSVS_DEVICETYPE",
        "deviceId": "vsvs7501"
    },
    "auth": {
        "token": "UHBu-JRqfLL_pqOb4r"
    }
}

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()
```

8.TESTING

8.1 TEST CASES:

Table: 8.1 Test cases

This report shows the number of test cases that have passed, failed, and untested Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

8.2 USER ACCEPTANCE TESTING:

1.Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the project-personal assistance for senior citizen who are self-reliant at the time of the release to User Acceptance Testing (UAT)

.

2.Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved. Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	24	14	13	26	a.

9.RESULTS:

The medicine reminder system serves reliable reminders, has a good and easy to use user interface and supports a lot of features adhering to medicines. The details are not at all confusing and can be easily understood by the user. The best part of the application is that the details only have to be entered one time. On submitting the details once, the data is synced on all the user's devices on which he/she is logged in. This allows for easy reminders no matter what device the user is using. The reviews on the system are overall positive and it addresses most of the flaws in the current reminder systems. However, there are a few issues which we intend to address further:

- we can only remind the person but not make him take the medicine forcefully
- we are not on alarms so if the user skips the alarm, we don't bug him continuously

9.1 PERFORMANCE METRICES

Table: 9.1 Performance metrics

S.No	Project Name	Scope/feature	Functional Changes	Hardware Changes	Software Changes	Impact of Downtime	Load/Volume Changes	Risk Score
1	Personal Assistance For Seniors who are Self-Reliant	Existing	Low	Moderate	No Changes	Causes delay in runtime	>10 to 30%	ORANGE

10.ADVANTAGES & DISADVANTAGES:

ADVANTAGES:

- 1.It Alerts patients to take medicine.
- 2.Effortless functions.
- 3.Backup supply.

DISADVANTAGES:

- 1.Arduino is costly.
- 2.Possibilities of technical problems.
- 3.Need additional skill to operate the reminder system.

11. CONCLUSION:

Hence an attempt was made to build a medicine reminder kit which gives indication at proper time and also an alert to pre-guardian about tablet consumption status. In addition to it we also have heart rate monitor which calculates our heart rate and upload it to online website. The medicine reminder system is a useful resource for those who need technological help in completing or need help in working through day-to-day tasks and taking care of their health. It is a smart and organized system that is designed with helping the elderly people in our homes, but we have not put any restrictions that stop an everyday user from using the system. Anyone can need medical attention and normal people forget taking their prescriptions as well. The feature will help them out in regulating their medications. It can also help a working person with a busy schedule by sending him a notification on the device he uses full day, his laptop. Thus there is no restriction on the user base for our system.

12. FUTURE SCOPE:

For the future work we have decided to add a confirmation from the user whether they have taken the medicine or not. If they haven't taken the medicine the information will be send to the doctor and he can they reschedule the further

medicine reminders according to the new schedule. Overall, It is a much needed system by the elderly people in our homes. It helps them in taking their medications in the prescribed quantity and at the prescribed time

1.This project would help to decrease the number of deaths due to human error.

2.It is specially designed for old age patients who suffer from diseases like Alzheimer's, Diabetes etc..

13. APPENDIX:

Source code

GitHub & Project demo link

SOURCE CODE :

<https://github.com/IBM-EPBL/IBM-Project-53806-1661497682>

```
import json
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity": {
        "orgId": "qq2hy2",
        "typeId": "VSVS_DEVICETYPE",
```

```

"deviceId": "vsvs7501"
},
"auth": {
"token": "UHBu-JRqfLL_pqOb4r"
}
}
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
for i in range(0,20):
    tablet=["Paracetamol","Aspirine","Dolo 650","Insulin","Vicks"]
    med icine time=[12.00,1.00,2.00,3.00,5.00,18.00,20.00,7.00]
    name = "Madhu"
    medicine=random.choice(tablet)
    med icine time=random.choice(medic ine time)
    mydata = {'Patient Name': name, 'Medicine Name': medicine, 'Time':
med icine time}
    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 & PROJECT DEMO LINK :

https://drive.google.com/file/d/1aT-IAGnMcRFQ2MxAvw8MPLBXhLxeOwjs/view?usp=share_link

