Date	**18 November 2022**
Team ID	**PNT2022TMID49546**
Project Name	**Project - Personal Assistance for Seniors Who Are Self-reliant.**
Maximum Marks	**4 Marks**

PersonalAssistance forSeniorsWhoAreSelf-Reliant - Project Report

1. Introduction

ProjectOverview

- Anappisbuiltfortheuser(caretaker)whichenableshimtosetthedesiredtimeandmedicine. ThesedetailswillbestoredintheIBMCloudantDB.
- IfthemedicinetimearrivesthewebapplicationwillsendthemedicinenametotheIoTDevi cethroughtheIBMIoTplatform.
- ThedevicewillreceivethemedicinenameandnotifytheuserwithvoicecommandsS.

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 is problem,this medicine reminder system is developed.

2. Literature Survey

Existing Problem

Elderlypeopleletslipthemedicationsatthecorrecttimeandtheexistingsolutionsfor 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 more efficient.

References

1) Visual Health Reminder: A Reminder for Medication Intake and Measuring

BloodPressure to Support Elderly People ; René Baranyi; Sascha Rainer; StefanSchlossarek;NadjaLederer;ThomasGrechenig

2) Cloud Computing based Medical Assistance & Pill Reminder ; A. Chinnasamy; RamPrasadJ;SyedRafeeqAhmed;AkashS

Problem Statement Definition

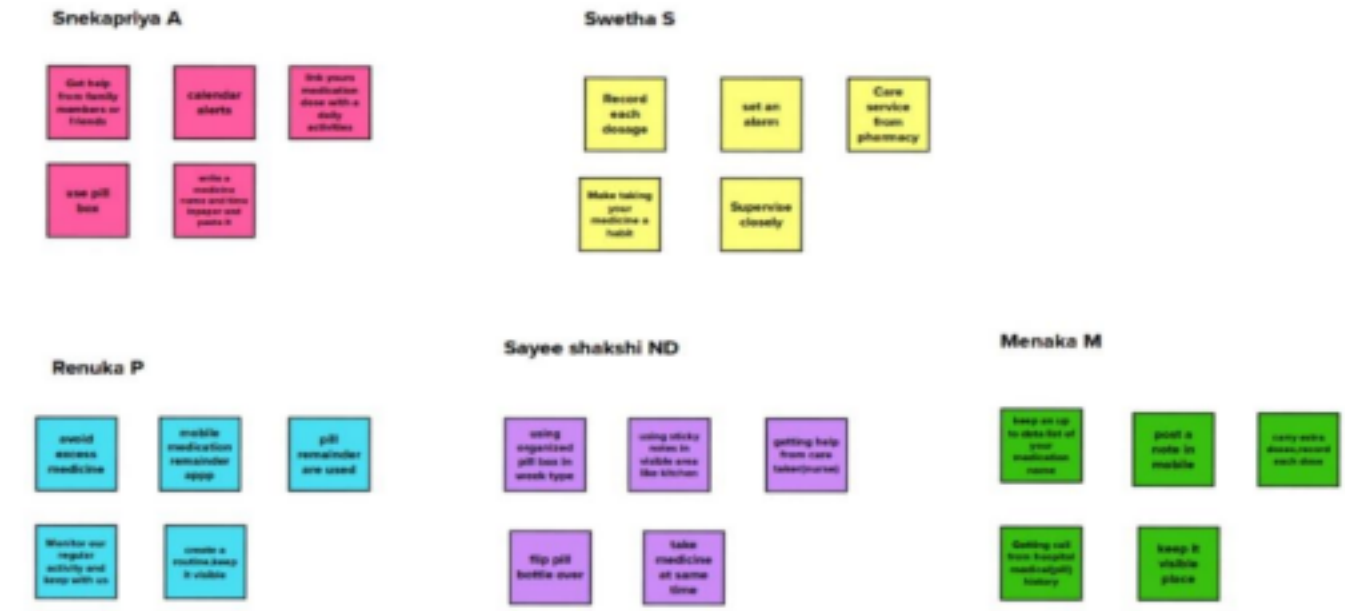
Who needs Sometimes forget to intake their medicine at prescription time Because life threatening mistakes can be prevented.

Who needs Due to memory loss Because She needs to cure his illness.

3. Ideation And Proposed Solution

EmpathyMapCanvas

IdeationandBrainstorming



Proposedsolution

S.No.	Parameter	Description

1.	Problem Statement (Problemtobesolved)	Elderly People forget to take there medicine at correct time.
2.	Idea/Solutiondescription	➢ Amedicineremindersystemisdeveloped. An app is built for theuser (caretaker) which enables him to set the desired time and medicine .
3.	Novelty/Uniqueness	➢ This device can remind tell the name of medicine at correct time.
4.	SocialImpact/Customer Satisfaction	The Quality of life, health issues can be reduced.
5.	Business Model(Revenue Model)	App and device offered for the customers Elder peoples is our target By selling our device with app the revenue is generated.
6.	ScalabilityoftheSolution	Elder people are the key target for medicine reminder app and device.

ProblemSolutionfit

4. Requirement analysis

FunctionalRequirements:

FR No.	FunctionalRequirement(Epic)	SubRequirement(Story/Sub-Task)
FR-1	Flexible Scheduling	Ability to schedule reminders to occurs on a non-daily or monthly basis to schedule medications with stop dates.
FR-2	Time zone support	Ability to change time zone to ensure medication is taken at the right time when traveling.
FR-3	Customizable alert sounds	Availability of different types of notification sounds.

FR-4	Visual aids	Availability of icons (eg: tablets, syringe, drops)
FR-5	Data Security	The App deceloper ensure data security

Non-functionalRequirements:

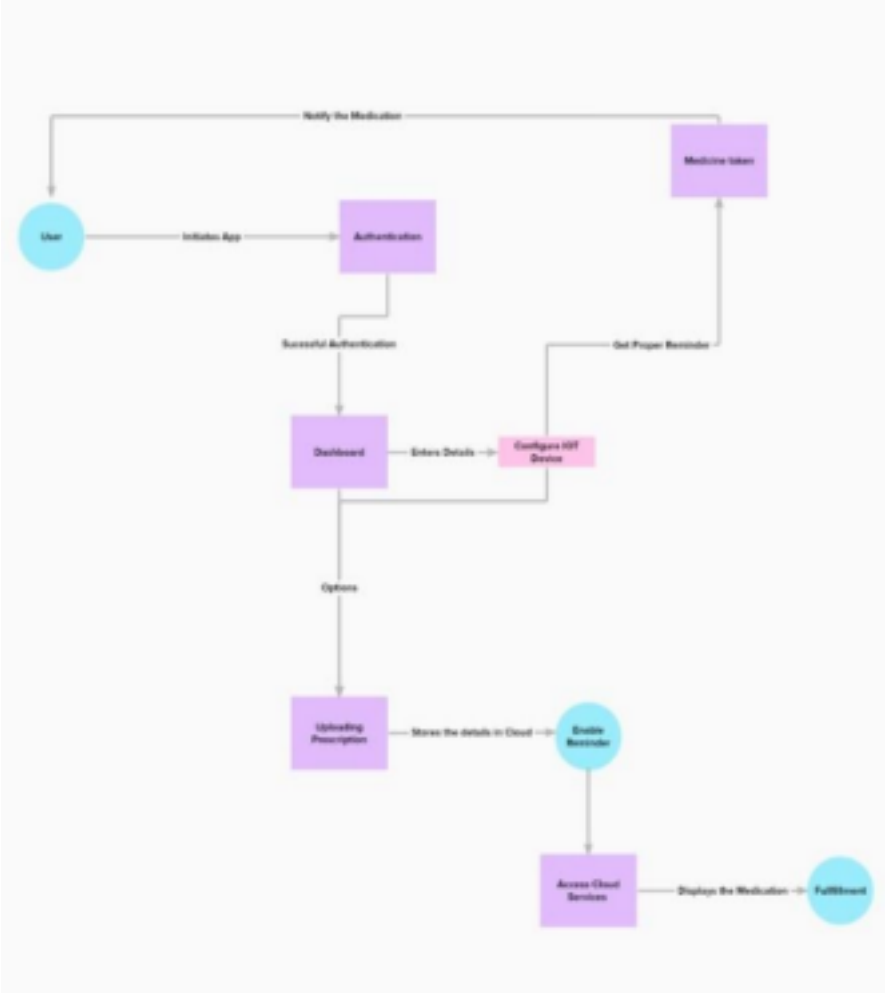
FR No.	Non Functional Requirement	Description
NFR 1	**Usability**	Usability Evaluation of a Smartphone Medication Reminder Application.
NFR 2	**Security**	This Application was more secure for the appropriate medication.
NFR 3	**Reliability**	Received a reminder device (pill bottle, strip with toggles etc.)
NFR 4	**Performance**	Despite a broad market proposition, the potential for medication reminder app development is still very high.
NFR 5	**Availability**	The technologies of home health care which are currently used for improving this situation by reminding the scheduled.

NFR 6	**Scalability**	Medication tracker app development is currently very popular sector.

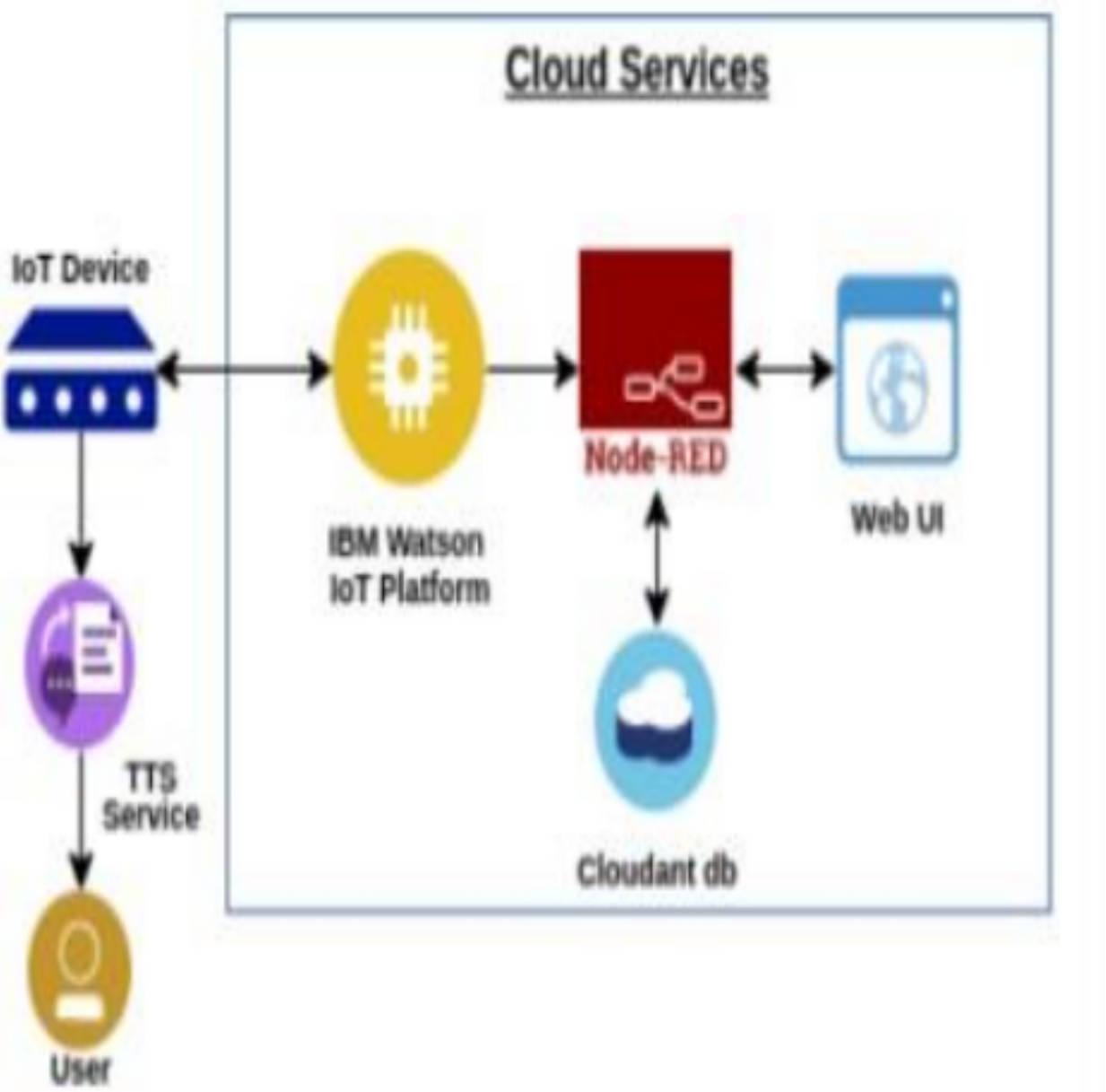
Performance	Performance is better compared to other market products.
Availability	Available on mobile app.
Scalability	Using Cloud services, makes The scalability higher the Using traditional locally stored database.

ProjectDesign

DataFlowDiagrams



Technical Architecture



UserStories

User Type	Functional Requirement(Epic)	User Story Number	UserStory/Task	Acceptance Criteria	Priority	Release
Customer (Mobile user)	Caretaker	USN 1	Asauser,Iwant to take Medicines on time and monitor my health.	I Want to take Medicines on time and	High	Sprint-1

				monitor my health.		
Customer(Alzheimer patients)	Smart Medicine Box	USN 2	As a user, I want to take my tablets on time by voice command.	Need to take my tablets on time by voice command.	High	Sprint-1
Customer(Mentally idle Patients)	Caretaker	USN 3	Asauser,my patients needs to take medicine on time and monitor the activity.	My patients needs to take medicines on time.	Medium	Sprint-2
Customer (Handicap ped Patients)	Smart Medicine Box	USN 4	Asauser,. I need to take my medicine in nearby places with the light notification.	I need to take my medicine in nearby places.	Medium	
Customer (paralysed Patients)	Caretaker	USN 5	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.	Low	Sprint-4

5. ProjectPlanningandScheduling

SprintPlanningandEstimation

	Functional uiremen (Epic)	**UserStoryNumber**	**UserStory/Task**	**Story Points**	**Prioriy**	**TeamMembers**

Sprint 1	Caretaker	USN-1	Asauser,Iwant to take Medicines on time and monitor my health.	2	High	Shenakpriya .A SayeeShakshi.N.D
Sprint 2	Smart Medicine Box	USN-2	As a user, I want to take my tablets on time by voice command.	2	High	Renuka.P SayeeShakshi.N.D
Sprint 3	Caretaker	USN-3	Asauser,my patients need to take medicine on time and monitor the activity.	2	Medium	Swetha.S Snekapriya.A
Sprint-4	Caretaker	USN-4	Asauser,Elder Medication time and prescription should load in the database for the upcoming week.	2	Low	Renuka.P Menaka.KP
Sprint-5	Smart Medicine Box	USN-5	As a User, I need to take my medicine in nearby places with the light notification.	2	Medium	Menaka.K.P Swetha.S

SprintDeliverySchedule

Sprint	**Total Story Points**	**DurationSprintStartDate** **Sprint EndDate(Planned)**	**Story PointsCompleted (as on Planned EndDate)**	**Sprint ReleaseDate (Actual)**
Sprint-1	20	6 Days:25 Oct 2022-30 Oct 2022	20	30 Oct2022
Sprint-2	20	6 Days:1Nov2022-06Nov2022	20	06 Nov2022
Sprint-3	20	6 Days:8 Nov2022-13Nov2022	20	13 Nov2022
Sprint-4	20	6 Days:15Nov2022-20Nov2022	20	20 Nov2022

6. CodingandSolutioning

Feature1

Themobileapplicationdevelopedhasafeatureofindividualloginbydifferentusers.

Feature2

Themobileapplicationalsohasthefeatureofuploadingmedicinenamesinthecloud.

7.3.Feature3

The project includes a cloud database system.

7. Testing

Test Cases

Testcase	Precondition	Teststeps	Testdata	Expected result
Verifyloginwith valid credentials	User should have a network connection	1. Launch URL 2. Enter valid username. 3. Enter valid password. 4. Click on the “Login” button.	Username: Maxie Password: 12345	Users should be able to login successfully.
Verify login with invalid credentials	User should have a network connection	1. Launch URL 2. Enter valid username. 3. Enter invalid password. 4. Click on the “Login” button.	Username: Maxie Password: 12346	Users should not be able to login.

Update the medicine name with the time.	User should have a network connection	1. Enter valid medicine name. 2. Enter the time when the medicine has to be consumed. 3. Click on the “Submit” button.	Medicine Name: Paracetamol Medicine Time: 22:03	Users should be able to update it successfully.

User acceptance testing

Loginpagetesting

Medicinepagetesting

8. Results

PerformanceMetrics

S.NO	Parameter	Performance
1.	ResponseTime	0.2s(Average of 10trials)
2.	Workload	500 users (Calculated based on Cloud Space)
3.	Revenue	Individual users and pharmaceutical industries.
4.	Efficiency	Simple and straight forward workflow,whichmakesthepro cessefficient.
5.	DownTime	Almost no down time due to IBM Cloud Enabled solution.

9. Advantages and

DisadvantagesAdvantages

- ➢ Helptheelderlypeopletotaketheirmedicineatthecorrecttime.
- ➢ Avoidpersonalassistantsorcaretakersneededformedicallysickpeople.
- ➢ Cost efficient.

➢ Canstoremultipledataandmanynotificationscanbegenerated.
➢ Sinceitincludesvoiceassistance,evenblindpeoplecanuseourdevice.

Disadvantages

➢ Makespeoplelethargicandmakesthemdependentalwaysonothers.
➢ Requires as table internet connection.

10. Conclusion

The project offers the elderly or medically sick people a personal assistant which reminds them of the medicines to be consumed at the particular time. Skipping tablets may lead to serious problems if the person has a severe illness and this can be avoided. Since the cloud is integrated with the mobile application, numerous data can be fed into the database and notifications can be generated. The mobile application developed is highly customisable by the user and easy to use.

11. FutureScope

The project can be further developed by bringing into the feature of informing themedicinenameduringthenotification.Thevoiceassistancewhichisgivencanbecustomizedbyaddingtheuser'svoiceorthecaretaker’svoice.Furtherthemobileapplicationcanupdatemedicinesby taking voice commands as input from the user.

12. Appendix

SourceCode:

```
import json
import pygame
import sys
import ibmiotf.application # IBM IoT Watson Platform Module
import ibmiotf.device
import time
import random
from threading import Thread
pygame.mixer.init()
pygame.mixer.music.load('C:/Users/ELCOT/Downloads/medicine.mp3')
pygame.mixer.music.play()


#provide your IBM watson device credential
organization="cfdgac"
deviceType="rasberry"
```

```
deviceId="2409"
authMethod="token"
authToken="87654321"

for i in range(0,20):
time=["22:03","12:04","01:05","05:06"]
medicine name=["paracetamol","aspirin","azithral","sinarest"]
name="mani"
medicine=random.choice(medicine name)
medicine time=random.choice(time)


defpublisher_thread():
thread=Thread(target=publish_data)
thread.start()
defpublish_data():
# Exception Handling
try:
deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method":
authMethod,
"auth-token": authToken}
deviceCli = ibmiotf.device.Client(deviceOptions)
# .....

except Exception as e:
print("Caught exception connecting device: %s" % str(e))
sys.exit()

deviceCli.connect() # Connect to IBM Watson IoT Platform
while True:
pygame.mixer.music.play()
mydata={"patintname":name,"medicine name":medicine name,"time":time}


defmyOnPublishCallback():
print("Data published to IBM Platform:",mydata)

success = deviceCli.publishEvent("event", "json", mydata, qos=0,
on_publish=myOnPublishCallback)
time.sleep(1)
if not success:
print("Not connected to IoTF")
```

publisher_thread()

Github link: https://github.com/IBM-EPBL/IBM-Project-20786-1659763117

Project Demolink:
https://drive.google.com/file/d/1qdlQa8C1oUSUk9Rfwiey--PVxKa8eiXc/view?usp=drivesdk