PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF - RELIANT

USING IOT

A Project report submitted in partial fulfilment of 7th semester

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

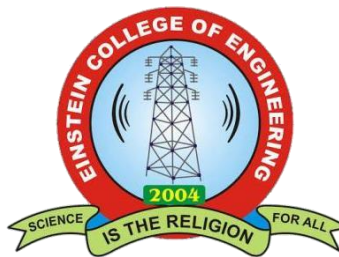**Submitted by**

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BONAFIDE CERTIFICATE

Certified this Report "**PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF-RELIANT**", for the project, is the bonafide work of **Ms S.NARMATHA(950619104044**) ,Ms **K.PRIYA (9506191 04051) ,Ms R.RAGAVI(950619104052)**,and Ms **A.SANTHIYA (950619104057)** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was co-offered on theearlier occasion on this or any other candidate.

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ACKNOWLEDGEMENT

We have successfully completed the project with blessings showered onus by god, the almight, A project of thisnature needs cooperation and support frommany for successful completion.

We express our heartfelt thanks to **Mr.A.MATHIVANAN,BE.,M.sc.,(Agri),** Managing Trustee of Einstein college of Engineering, Tirunelveli, for his mortal support and device.

Our thanks to **Prof.A.AMUTHAVANAN, BE., M.S (USA).B.L,**Chairman of our college for making necessary arrangementstodot his project.

Our heartly thanks to **Prof.A.EZHILVANAN,MBA.,** Secretary of our college

Form a king necessary arrangements to do this project.

We wish to expres sour gratitude to **Dr.VELAYUTHAM,M.E,Ph.D.,FIE.** Principal for the support he provide dust carry out this project successfully.

We are very much thankful to **Dr. T.SURESH THANGAKRISHNAN**, Head of theDepartment, Computer Science & Engineering who is always a constant of inspiringus.

We are extend our sincere thanks to all teaching and non-teaching staff member sand our family members, friends for their help in completing this project.

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CHAPTER 1

INTRODUCTION

In modern society, most of the time people remain busy in their daily life schedule. It is true that they give more dreference to their work than taking care of their health.Several diseases like diabetes,blood pressure is nowadays very common.Maintaining daily medication become very difficult for old people.Sometimesvounqer is faced with the same problem.There are many people in our family Who need constant help mav it be our elderly people,younger or others.But it is not always possible for us to remind them of their medicine's dosages every time. For this purpose,there needs to be some facility for us Which monitoring patient and take care. Nowadays we are all used to living Technology-based life.We can use this technology in a way that will be beneficial for us. Cell phones aren't best utilized for calling but now maybe used as an ensemble of embedded sensors that together allow new packages including human services.healthcare,socialnetworks,environmental tracking etc.

1.1 PROJECT OVERVIEW

Sometimes elderly people forget to take their medicine at correct time.Andits difficult to maintain correct time for take this medicine.An app is bulit to set desired time and medicine and data is stored in cloudantDB.If the medicine time arrives the web application send remainder to iot device through iotplatform.The device receive the medicine remainder.

1.2 PURPOSE

In the contemporary day 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.Their 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..The proposed outcome of the project is to give proper and efficient medical services to patients by remiding them when to take medicines .

CHAPTER 2

LITERATURE SURVEY

REVIEW- 1

Title Of The Paper:

IoT Based Pill Reminder and Monitoring System

Name Of The Author:

Sultan Ahmad.

Problem Description:

We have demonstrated a mobile application thatgeneratesalarm signals to remind a patient to take medication. Wefocus on helps patients and improving the monitoring. The application Medicare is easily accessible.Combination of a sensing system with android applicationhelps us to measure how well a patient cantake their dailyreal-time. The availability of sensors andmedicinal (IoT) work better inconsideration of patients. It allows realtimemonitoring.Bettercompliance in terms of the taking of medicine canwith the use of our proposed framework. This framework assures the security of the patient, preventdosages, support medication adherence. As a futureframework by presenting extra highlights utilizingportable application and incorporate other medicalA data-sharing feature between patient and healthprofessionals would also be developed. Voice-alert notification is being considered as part of the future

REVIEW -2

Title Of The Paper:

An IoT System for Remote Health Monitoring in Elderly Adults through a Wearable Device and Mobile Application

Name Of The Author:

LuisA.Durán-Vega,Pedrosantana-vancilla,RaymundoBuenrostroMariscal,Juan Contreras-Castillo,Luis E. Anido-Rifón,Miguel A. García-Ruiz,Osval A. Montesinos-López, andFermín Estrada-González

Problem Description:

As future work, a long-term evaluation in geriatric residences is planned, to validate directly with potential users the benefit that this system can bring to them when implementing This paper presents the design and development of an IoT system for the remote monitoring of elderly people living in nursing homes, through a mobile application and a wearable device.The design was based on a contextual study in geriatric residences, in which semi-structured interviews were applied to the personnel responsible for the care of the elderly.The development of the prototype showed that it is feasible to carry out and implement the proposal of this research. In addition, it is low-cost and aligned to the IoT paradigm; the most important characteristics are: Real time tracking of the general conditions

of the patients, the fact that it allows interaction between caregivers and family, that it is accessible remotely, and that the highest cost is the wearable device, which costs less than $100 US.The results of the usability evaluation were very promising and positive, showing that Abuelómetro was well received by the users, providing initial evidence that our proposal could improve the quality of the adult's healthcare, and additionally, it provided valuable information that can be used to correct the usability problems that may affect the acceptance of the technology by end users.it with their patients.

REVIEW-3

Title Of The Paper:

How The Internet Of Things (IoT) Can Be Used Monitor The Elderly for medicine remainder.

Name Of The Author:

Ajay Rane

Problem Description :

Operating on a 0G network—which is optimized to frequently transmit small amounts of information over a large distance—IoT-enabled sensors detect conditions and movement from connected devices, and never pick up personal information. Additionally, these devices consume minimal energy on a 0G network and therefore support communications at a very low cost. This means families can receive effective care without a hefty price tag. Devices that run on other networks, like cellular, can also use a 0G network as a backup to ensure device users have constant supervision and those vulnerable individuals are able to communicate their health needs immediately. For example, Vitalbase'sVibby OAK, an automatic fall detector worn on the wrist or neck, connects to a cellular mobile device but uses a 0G network when there is no primary connectivity, either because the user is not near a phone, or there's no cellular network connectivity. At healthcare facilities, the device can interface with all existing nurse call systems to alert medical staff when an issue arises. By optimizing automatic and intuitive fall-detection devices with the IoT, older adults can live more independently and maintain autonomy. The ability to remotely monitor seniors, receive alerts in case of emergencies, predict issues based on early warning signs, and intervene proactively offers peace of mind to both healthcare providers and families of senior citizens. REVIEW-4 Title Of The Paper: Medicine Reminder and Monitoring System for Secure Health Using IO

2.1 EXISTING PROBLEM

Patients may often fail to take their medicine this leads to the patiennts health at risk and cause severe health issues.Intodays lifestyle we are busy at our works so there is no time to properly maintain the health of elderly people so we develop an medicine remainder app to notify the time to take which medicine.so we are able maintain the health of elders and monitor the health of patients this would avoid patients from severe health risks and some times prevent dead.

2.2 REFERENCES

1. A. Sawand, S. Djahel, Z. Zhang, and F. Na. Multidisciplinary Approaches to Achieving Efficient and Trustworthy eHealth Monitoring Systems. Commun. China (ICCC), 2014 IEEE/CIC Int. Conf., pp. 187–192; 2014.

2. D. a. Clifton, D. Wong, L. Clifton, S. Wilson, R. Way, R. Pullinger, and L. Tarassenko. A large-scale clinical validation of an integrated monitoring system in the Emergency Department. IEEE J. Biomed. Heal. Informatics vol. 17, no. 4, pp. 835–842; 2013.

3. M. Parida, H.-C. Yang, S.-W. Jheng, and C.-J. Kuo.Application of RFID Technology for In-House Drug Management System.15th Int. Conf. NetworkBased Inf. Syst., pp. 577–581; 2012.

2.3 PROBLEM SOLUTION DEFINITION

In todays busy we are unable to take care of elder people so built an app to remainds them to take medicine at correct time.The app works store the medicine name and date to take the medicines the data are stored in the database when the time arrives the medicine remainder message is sent to the iot device platform.

CHAPTER 3

IDEATION AND PROPOSSED SOLUTION

Medicine remainder helps people to take their medications the way they are supposed to.The app wants to provide support for medicine refill remainder.It also act as a perfect companion for those who need a mobile organizer for regular medications.
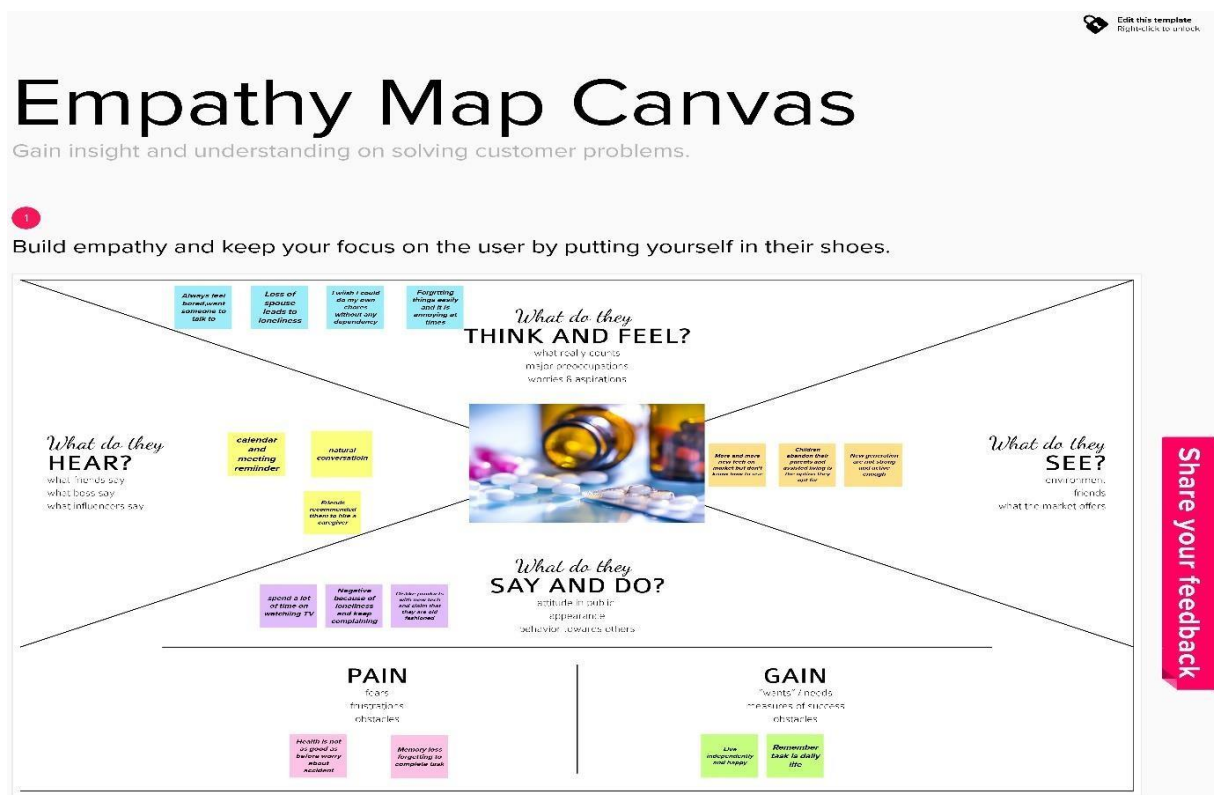
3.1 EMPATHY MAP CANVAS

Fig 3.1.1 Empathy Map canvas

3.2 IDEATION AND BRAINSTROMMING

older adults	who have difficult with such daily activities	bathing grooming,cooking ,eating
iot devices can help	make indepentend senior living safer	now technologies such as
patient tracking and smart home devices	it can automate tasks and processes to support seniors	help willl arrive faster after a fall or illness

tasks of senior need help	mobility	medication
transportation	personal care	nutrition
how do keep seniors happy?	happiness,keep them connected	eat together,health, encourage phhysical activities

what are the best virtual assistents for seniors?	Alexa.Alexa is build into Amazon	Bixby.this is the virtual assistent started by samsung
Cortana.Microsoft is also in the virtual digital assistent	google assistent	Siri
digital assistent	smart speakers,according to voicebot	icombination of louds ,voice commend device

how do you empower an old adult	reframe getting oldert	stay involved in decision making
setset boundaries	keep a routine	set goals
stay active	seek support and connection is a key	and explor options for aged care services

Fig 3.2 .1shows Brainstroming

3.3 PROPOSED SOLUTION:

s.no	Parameter	description
1	Problem Statement (Problem to be solved	Some people are living with cognitive impairment due to some form of dementia and truly cannot remember to take a pill.
2	Idea / Solution description	Medication remainder allows you to take your customizable reminder of when to take your medications
3	Novelty / Uniqueness	The application was designed for appropriate medication administration including time and dosages through data.
4	Social Impact / Customer Satisfaction	This is expected to reduce medication error and improve patient adherence to medical prescriptions.
5	Business Model (Revenue Model)	Medicine reminder app development requires a tech agile team with broad healthcare experience.
6	Scalability of the Solution	The users will get the SMS so it is highly portable and easily manageable.

Table:Proposed Solutiofitn 3.1.1

3.4 PROBLEM SOLUTION FIT:

Project Title: Project Design Phase-I - Solution Fit Template   Team ID: PNT2022TMIDxxxxxx

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Who is your customer? i.e. working parents of 0-5 y.o. kids	6. CUSTOMER CONSTRAINTS CC What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.	5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking	Explore AS, differentiate
Focus on J&P, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.	9. PROBLEM ROOT CAUSE RC What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.	7. BEHAVIOUR BE What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)	Focus on J&P, tap into BE, understand RC
Identify strong TR & EM	3. TRIGGERS TR What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. 4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.	10. YOUR SOLUTION SL If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.	8. CHANNELS of BEHAVIOUR CH 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.	Identify strong TR & EM

Fig 3.4.1 Problem Fit Solution

CHAPTER 4

4.1 FUNCTIONAL REQUIREMENT:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Login	Login through Gmail Login through Email
FR-4	Dashboard	Access through dashboard

Table Functional Requirements 4.1.1

4.2 NON-FUNCTIONAL REQUIREMENT:

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	IoT healthcare devices, wearable technology and data access allow physicians to monitor patients with greater precision and provide better-informed treatment.
NFR-2	Security	The security exposure to hacker lead to the disclosure of patients' personal information, disrupting the works of other systems, undermining patients' personal safety.
NFR-3	Reliability	Medication reminders way to stay on track and uphold an appropriate schedule. Ensuring one is properly taking their medications avoid serious risks .
NFR-4	Performance	One alarm vibrates strong enough when placed inside a pillowcase that it will wake the patient to remind them that they need to take medication
NFR-5	Availability	Medisafe's medication reminder app is number one for a reason. With Medisafe, you get personalized reminders for each of your medications and vital drug interaction warnings.
NFR-6	Scalability	Automated reminders can help you build habits — but it can also help you remember things that are too important to be trusted even to habit.

Table Functional Requirements 4.2.1
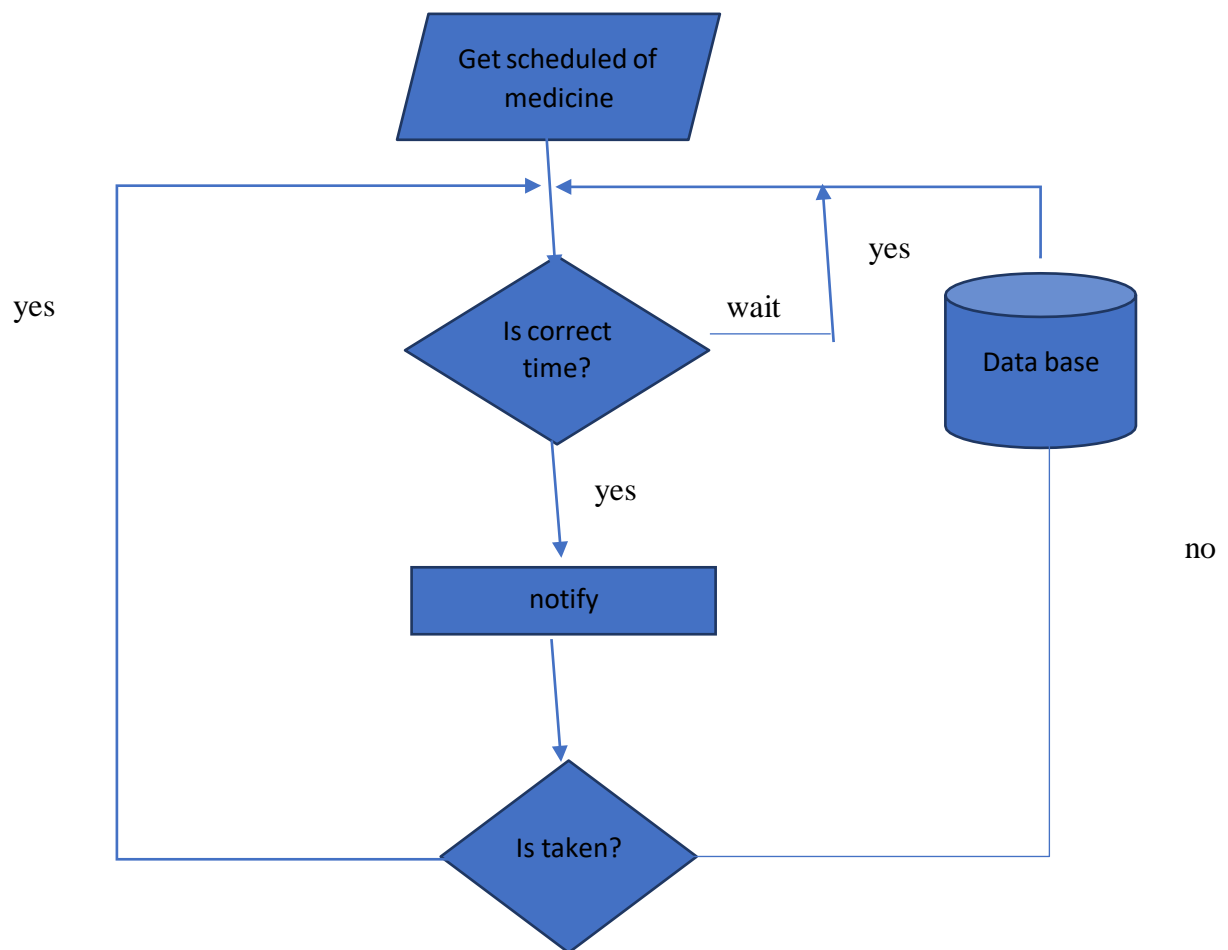
CHAPTER 5

PROJECT DESIGN:

5.1 DATAFLOW DIAGRAMS:

Fig 5.1.1 Data Flow Diagrams

5.2 SOLUTION AND TECHNICAL ARCHITECTURE:
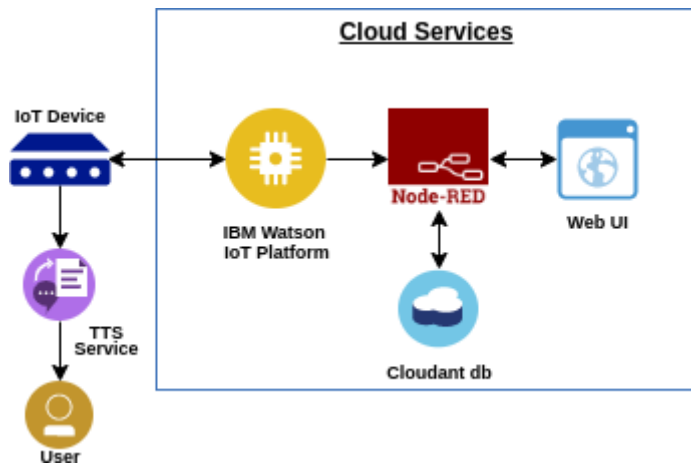
Fig Technical Architecture 5.2.1

5.3 USER STORIES:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	UI	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
Customer (Mobile user)	Login Page	USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1

Customer (Mobile user)	Remainder setting	USN-3	As a user, I can give details when to get remainder as alaram or email or message.	I can view, modify the details	High	Sprint-2
Customer (Webuser)	Alert	User	As a user,I can receive message alerts	I can book tickets and get QR code	High	Sprint-2
Customer (Mobile user)	Dashboard	Users	The details can be stored and retrieved	I can change the informatio n when required		Sprint-3
Customer Care Executive	Connecting the service provider	Customer	Connects with the service by logging in	Can get connected with the server		Sprint-3
Administrat or	Provides the Services	Admin	The data is given by the user	Can add or update the data provided by the user	High	Sprint-1

Table User Stories 5.3.1

CHAPTER 6

6.1 PROJECT PLANNING AND SCHEDULING:

S.NO	ACTIVITY TITLE	ACTIVITY DESCRIPTION	DURATION
1	Project preparation	Assign team members, Create repository in the GitHub, download rocket-chat essentials and join respective project channel.	1 WEEK
2	Attend class	Attend sessions on IBM, team leader assign task to each member of the project, attend quiz , submit assignment.	1 WEEK
3	Working on different phases of project	Ideation phase-literature survey, Project design phase I-proposed solution, solution architecture, project design phase II-customer journey ,data flow ,technical architecture, planning phase-milestones, tasks, sprint schedule.	4WEEK
4	Developing project	Develop the code, test and push it to GitHub, clarify queries.	2WEEK
5	Budget and scope of Project	Analyze and making the project budget and discuss with team for budget prediction .	1 WEEK

Table Sprint planning and estimation 6.1.1

6.2 SPRINT DELIVERY SCHEDULE:

Sprint	Functional Requirement(Epic)	User StoryNumber	UserStory/Task	StoryPoints	Priority	TeamMembers
Sprint-1		US-1	Create the IBMCloud serviceswhich arebeing usedinthisproject.	6	High	Narmatha S Priya K Ragavi R Santhiya A
Sprint-1		US-2	Configure the IBMCloud services whicharebeing used incompletingthisproject.	4	Medium	Narmatha S Priya K Ragavi R Santhiya A
Sprint-1		US-3	IBMWatsonIoTplatformactsasthemediator toconnectthewebapplicationtoIoTdevices,socreatetheIBMWatsonIoT platform.	5	Medium	Narmatha S Priya K Ragavi R Santhiya A
Sprint-1		US-4	In order to connect theIoTdevicetotheIBMcloud, create a device intheIBMWatsonIoTplatformandgetthe devicecredentials.	5	High	Narmatha S Priya K Ragavi R Santhiya A
Sprint-2		US-1	Configure theconnection security andcreateAPI keys that areused in the Node-REDserviceforaccessingthe IBMIoTPlatform.	10	High	Narmatha S Priya K Ragavi R Santhiya A
Sprint-2		US-2	CreateaNode-REDservice.	10	High	Narmatha S Priya K Ragavi R Santhiya A

Sprint	Functional Requirement(Epic)	User Story Number	UserStory/Task	StoryPoints	Priority	TeamMembers
Sprint-3		US-1	Develop a APPLICATION thatremindselderstotake theirmedicines.	7	High	Santhiya A
Sprint-3		US-2	Afterthatuploadthe informationtothedevicethat remindsthemtotakethei rmedicine	5	Medium	Ragavi R
Sprint-3		US-3	PublishDatatoTheIBMCloud	8	High	Narmatha S Priya K Ragavi R Santhiya A
Sprint-4		US-1	CreateWebUIinNode-Red	10	High	Narmatha S Priya K Ragavi R Santhiya A
Sprint-4		US-2	ConfiguretheNode-RED flowtoreceive datafrom the IBMIoTplatform andalso useCloudantDBnodest ostorethereceived sensordatainthecloudant DB	10	High	Narmatha S Priya K

Table Sprint Delivery Schedule 6.2.1

6.3 BURNDOWN CHART:

Sprint	Total Story Point	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Point Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	26 Oct 2022	31 Oct 2022	20	31 Oct 2022
Sprint-2	20	6 Days	1 Nov 2022	6 Nov 2022	20	6 Nov 2022
Sprint-3	20	6 Days	7 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	13 Nov 2022	18 Nov 2022	20	18 Nov 2022

Table Burndown delivery 6.3.1

Velocity:

AV = Sprint duration/velocity

= 20/6 = 3.33

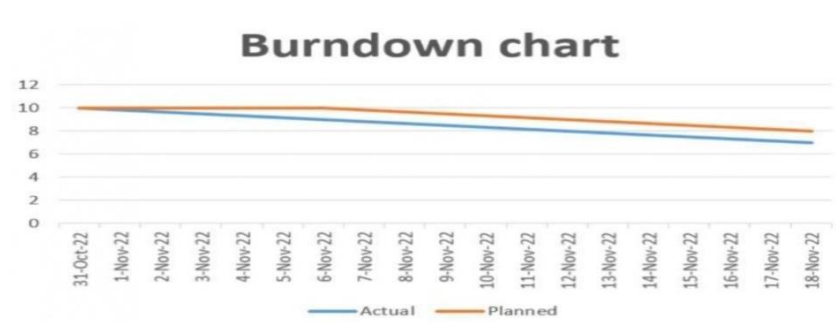Fig 6.3.1 Burndown chart

CHAPTER 7

CODING AND SOLUTION

7.1 FEATURE SOFTWARE REQUIREMENT ANALYSIS

PYTHON

Python is a translated, object-arranged, abnormal state programming language with dynamic semantics. Its abnormal state worked in information structures, joinedwith dynamic composing and dynamic authoritative, make it appealing for RapidApplication Development, just as for use as a scripting or paste language to interfaceexisting segments together. Python's basic, simple to learn language structureunderlines intelligibility and hence decreases the expense of program support. Pythonunderpins modules and bundles, which empowers program seclusion and code reuse. The Python translator and the broad standard library are accessible in source orparallel structure without charge for every single significant stage, and can be openlyappropriated. Frequently, software engineers begin to look all starry at Pythonon account of the expanded efficiency it gives. Since there is no aggregation step, thealter test-troubleshoot cycle is staggeringly quick.

Troubleshooting Python programs is simple: a bug or awful information will nevercause a division blame. Rather, when the mediator finds a blunder, it raises a specialcase. At the point when the program doesn't get the special case, the translator prints astack follow. A source level debugger permits assessment of nearby and worldwidefactors, assessment of discretionary articulations,setting breakpoints, venturingthrough the code a line at any given moment, etc. The debugger is written in Pythonitself, vouching for Python's contemplative power. Then again, frequently thespeediest method to troubleshoot a program is to add a couple of print proclamationsto the source: the quick alter testinvestigate cycle makes this straightforward methodology successful. Python is an item situated, abnormal state programminglanguage with incorporated unique semantics essentially for web and applicationimprovement. It is amazingly alluring in the field of Rapid Application Developmentsince it offers dynamic composing and dynamic restricting alternatives. Python isgenerally basic, so it's anything but difficult to learn since it requires a one of a kindlanguage structure that centers around coherence. Designers can peruse and interpret .Python code a lot simpler than different dialects. Thusly, this decreases the expense ofprogram upkeep and improvement since it enables groups to work cooperativelywithout huge language and experience obstructions. Moreover, Python underpins the utilization of modules and bundles, which implies that projects can be planned in asecluded style and code can be reused over an assortment of tasks. When you've builtup a module or bundle you need, it very well may be scaled for use in different tasks,and it's anything but difficult to import or fare these modules. A standout amongst themost encouraging advantages of Python is that both the standard library and themediator are accessible for nothing out of pocket, in both parallel and sourcestructure. There is no restrictiveness either, as Python and all the importantinstruments are accessible on every single real stage. In this way, it is a temptingalternative for designers who would prefer not to stress over paying highimprovement costs.

CLOUDANTDB

Cloudant is an IBM software product, which is primarily delivered as a cloud-based service. Cloudant is a non-relational, distributed database service of the same name. Cloudant is based on the Apache - backedcouchDbproject and the open source Bigcouch project.

Cloudant's service provides integrated data management, search, and analytics engine designed for webapplicationsCloudant scales databases on the CouchDB framework and provides hosting, administrative tools, analytics and commercial support for CouchDB and BigCouch.Cloudant's distributed ouchDB service is

used the same way as standalone CouchDB, with the added advantage of data being redundantly distributed over multiple machines.

Cloudant was acquired by IBM from the start-up company of the same name. The acquisition was announced on February 24, 2014,The acquisition was completed on March 4 of that year.

7.2 CODING

```
importjson

import wiotp.sdk.deviceimporttime

importrandom

myConfig={"identity":{"orgId
":"dhhnmy",

"typeId":"sadhana",

"deviceId":"ibm"

},

"auth":{

"token":"Nane_Depp_3112"

}

}

client=wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers=None)client.connect()

for i in
    range(0,20):tablet=["Paracetamol","Aspirine","Azithral","Asthalin","Sinarest"]medicinetim
    e=[12.00,1.00,2.00,3.00,5.00,18.00,20.00,7.00]

    name="durga"medicine=random.choice(tablet)medicine
    time=random.choice(medicinetime)

    mydata = {'Patient Name': name, 'Medicine Name': medicine, 'Time':medicinetime}
client.publishEvent("IoTSensor", "json", data=mydata, qos=0,onPublish=None)
print("Data published to IBM IOT platform :", mydata)time.sleep(5)

 client.disconnect()
```

CHAPTER 8.

TESTING

8.1 TESTCASES:

Thisreportshowsthenumberoftestcasesthat havepassed,failed,anduntested

This report shows the number of test cases that have passed, failed, and untested

Section	Total Cases	Not Tested	Fail	Pass
Login Page	5	0	0	5
Node Red Dashboard	32	0	0	32
IBM Watson IOT platform	2	0	0	2

8.2 USERACCEPTANCETESTING:

The main Purpose of UAT is to validate end to end business flow. It does not focus on cosmetic errors,spelling mistakes or system testing. User Acceptance Testing is carried out in a separate testingenvironment with production-like data setup. It is kind of black box testing where two or more end-userswillbe involved.

UATisperformedby:

• Client

• Enduse

8.3 DefectAnalysis

This report shows the number of resolved or closed bugs at each severity level, and how theywere resolved.

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	4	3	2	1	10
Duplicate	1	0	3	0	4
External	2	2	1	1	6
Fixed	4	3	5	19	31
Not Reproduced	1	0	1	1	3
Skipped	0	0	1	1	2

CHAPTER 9
RESULTS

9.1 Performance Metrics

In this world that we live today,and there is no time to take care of elderly people to take medicine at a correct time.so we built the app to remainds them to take medicine it reminds to take specific medicine at specific time so we prevent elder people from serious risks on their health and take care our loved ones.This is developed only to remainds them to take medicine to take care of their health.

CHAPTER 10

ADVANTAGES AND DISADVANTAGES

10.1 ADVANTAGES

Reminds Your Senior to Take Their Medication :

Once your senior gets up and begins their day, they may get distracted by the hustle and bustle of daily life. This means they may forget to take their meds. With the Alert 1 Medication Reminder and Organizer, your loved one is reminded to take their pills. No more forgetting important dosages.

Prevent Errors:

It is easy for seniors to take the wrong meds or even skip doses. Medication reminders prevent this from happening. There is nothing your senior has to read or figure out. They simply need to take the pills in the compartment after the reminder beeps.Your Medication Reminder and Organizer comes with a 48-hour rechargeable battery backup. If the power ever fails, you will know that your loved one will still be able to take their meds. The back-up battery is also useful for travel, so your senior can safely take their meds on the go.

Easy to Use:

Labels on pill bottles and other medication dispensers are often difficult to read for your senior's aging eyes. A medication dispenser eliminates the need for your loved one to read that small print. It designed with ease of use in mind. It has an extra-large LED display, and is as simple to set as a digital clock. When the reminder beeps, your senior takes the meds inside the compartment. It's as simple as that.

Customization:

With this , you can customize how you use it to suit your needs. You can program up to 4 medication reminders per day. There are 29 pill compartments, one for each dose. That means that each dose can be different. The pill compartments can put a large variety of pills in all shapes and sizes. You can get extra pill trays so that you can have one pre-filled. When it comes time to refill, just unlock the medication dispenser and snap on the pill tray.With all of their pills in one place, it will be easy for your loved one to take the correct medication.

10.2 DISADVANTAGES

Patients may not receive the SMS reminders due to incorrect data entry. Older patients were considerably less likely to own a mobile phone, making them harder to access using reminder technology

People may not be willing to disclose their mobile phone numbers and record them in patient notes. High rate of 10% of clerical errors.

Some clients expressed concern over having received a copy of a referral letter of another patient in 'error'; therefore, negatives associated with this approach include the possible implications for client confidentiality, and the increased cost and time implication. One-third of patients gave incorrect contact details when booking the appointment.

Inner city populations may have less stable contact details (either address or phones) and this may put these patients at a specific disadvantage. A potential disadvantage of the system was that 2–3% of people failed to receive their text reminder as a result of incorrect data entry. Patients with mobile phones are most likely to change their contact number. Use of this emerging technology disadvantages those who do not have a mobile telephone.

CHAPTER 11

CONCLUSION

With the progress of science and technology in modern society, the problem of humanhealth care has gradually become an important part of a family. Due to the limitations of theelderlypopulation(suchasimmobility,memoryloss,etc.),therearemanyproblemswithmedication. Therefore, medication for the elderly needsmore attention fromthe society.Druguse accounts for a large proportion in the elderly population, and many products are designed forthe elderly. However, many products do not fully conform to the usage habits of the elderly. Intoday's society, more than 40 percent of the elderly feel lonely. The data show that the happinessoftheelderlyislargelyduetothesupportandencouragementfromtheirfamilies.Therelationship between the elderly and their adult children has also become an important socialissue. Many times due to not taking the medicines on time it leads to death or severe issues. So toavoidsuch situations thisapplication will beveryhelpful.

CHAPTER 12

FUTURE SCOPE

       With the progress of science and technology in modern society, the problem of humanhealth care has gradually become an important part of a family. Due to the limitations of theelderlypopulation(suchasimmobility,memoryloss,etc.),therearemanyproblemswithmedication. Therefore, medication for the elderly needsmore attention fromthe society.Druguse accounts for a large proportion in the elderly population, and many products are designed forthe elderly. However, many products do not fully conform to the usage habits of the elderly. Intoday's society, more than 40 percent of the elderly feel lonely. The data show that the happinessoftheelderlyislargelyduetothesupportandencouragementfromtheirfamilies.The relationship between the elderly and their adult children has also become an important socialissue. Many times due to not taking the medicines on time it leads to death or severe issues. So toavoidsuch situations thisapplication will beveryhelpful.

CHAPTER 13

13.1 SOURCECODE:

1.Pythoncodeforrandommedicineandtimegenerating:

```python
importjson

import wiotp.sdk.deviceimporttime

importrandom

myConfig={"identity":{"orgId ":"dhhnmy",

"typeId":"sadhana",

"deviceId":"ibm"

},

"auth":{

"token":"Nane_Depp_3112"

}

}

client=wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers=None)client.connect()

for i in
    range(0,20):tablet=["Paracetamol","Aspirine","Azithral","Asthalin","Sinarest"]medicinetime=[12.00,1.00,2.00,3.00,5.00,18.00,20.00,7.00]

    name="durga"medicine=random.choice(tablet)medicine time=random.choice(medicinetime)

    mydata = {'Patient Name': name, 'Medicine Name': medicine, 'Time':medicinetime}
client.publishEvent("IoTSensor", "json", data=mydata, qos=0,onPublish=None)
print("Data published to IBM IOT platform :", mydata)time.sleep(5)

 client.disconnect()
```

WOKWISIMULATEDCODE

```c
#include<WiFi.h>//libraryforwifi
```

```cpp
#include<PubSubClient.h>//libraryfor
MQtt#include<LiquidCrystal_I2C.h>

#include"DHT.h"//Libraryfordht11

#defineDHTPIN15// whatpinwe'reconnectedto

#defineDHTTYPE DHT11//definetype
ofsensorDHT 11#defineLED2

DHT(DHTPIN,DHTTYPE);// creatingtheinstancebypassingpinandtypr
ofdhtconnectedvoidcallback(char* subscribetopic,byte* payload,unsigned
intpyloadLength);

//-------credentialsofIBMAccounts------

#defineORG"64yf7x"//IBMORGANITIONID

#defineDEVICE_TYPE"b11m3edevicetype"//DevicetypementionedinibmwatsonIOTP
latform#defineDEVICE_ID"b11m3edeviceid"//DeviceIDmentioned
inibmwatsonIOTPlatform#defineTOKEN "-&EMtr7l-v-Gz2G))e"//Token

String
data3="";intb
uzz= 13;

//--------Customisetheabovevalues--------

charserver[]=ORG".messaging.internetofthings.ibmcloud.com";//ServerName

charpublishTopic[]="iot-
2/evt/Data/fmt/json";//topicnameandtypeofeventperformandformatinwhichdatatobesend

charsubscribetopic[]="iot-
2/cmd/command/fmt/String";//cmdREPRESENTcommandtypeANDCOMMANDISTESTOFF
ORMATSTRING

char authMethod[] = "use-token-auth";// authentication
methodchartoken[]= TOKEN;

charclientId[]="d:"ORG":"DEVICE_TYPE
":"DEVICE_ID;//clientidLiquidCrystal_I2Clcd(0x27,32,2);

//-----------------------------------------------

WiFiClientwifiClient;//creatingtheinstanceforwificlient

PubSubClientclient(server,1883,callback,wifiClient);//callingthepredefinedclientidbypassingparam
eterlike server id,portandwificredential

voidsetup()//configuringtheESP32
{

Serial.begin(115200);d
ht.begin();pinMode(bu
zz,OUTPUT);pinMode
```

```
(LED,OUTPUT);delay
(10);

Serial.println(
);wificonnect(
);mqttconnect
();}

voidloop()//RecursiveFunction

{

if
(!client.loop())
{mqttconnect();

}

}

/*...................................retrievingtoCloud .................. */

void PublishData(float temp, float humid)
{mqttconnect();//functioncallforconnectingt
oibm

}

voidmqttconnect(){

if (!client.connected())
{Serial.print("Reconnectingclient
to");Serial.println(server);

while(!!!client.connect(clientId,authMethod,token)){Serial.
print(".");

delay(500);

}

initManagedDevice();

Serial.println();

}

}

voidwificonnect()//functiondefinationforwificonnect

{

        Serial.println();
```

```
Serial.print("Connectingto");

WiFi.begin("Wokwi-
GUEST","",6);//passingthewificredentialstoestablishtheconnect
ionwhile (WiFi.status() !=WL_CONNECTED) {

}
Serial.p
rintln(""
);Serial.
println(
"WiFi
connect
ed");Se
rial.prin
tln("IP
address:
");Seria
l.println
(WiFi.l
ocalIP()
);

}
voidinitManagedDevice(){

if
(client.subsc
ribe(subscri
betopic))
{Serial.print
ln((subscrib
etopic));Seri
al.println("s
ubscribetoc
mdOK");

}else{Serial.println("subscribetocmdFAILED");

}

}
voidcallback(char*subscribetopic,byte*payload,unsignedintpayloadLength)

{

Serial.print("callbackinvokedfortopic:");

Serial.println(subscribetopic);

for(inti= 13;i<payloadLength-2; i++){
```

```
//Seria
l.print(
(char)
payloa
d[i]);d
ata3+=
(char)
payloa
d[i];

}
Serial.println("
Medicine
Name: "+
data3);if(data3
!= "")
```

13.2 GITHUBLINK:

https://github.com/IBM-EPBL/IBM-Project-47290-1660798025

13.3 DEMO LINK

https://youtube.com/watch?v=v0xdHrNIxfs&feature=share