

PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF RELIANT

Submitted by

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*In partial fulfilment for the award of the
degree Of*

**BACHELOR OF ENGINEERING IN COMPUTER
SCIENCE AND ENGINEERING**



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NOVEMBER 2022

ACKNOWLEDMENT

We wish to express our sincere thanks to our **FOUNDER AND CHAIRMAN, Dr. K.VASUDEVAN, M.A., B.Ed., Ph.D.**, for his endeavor in educating us in his premier institution.

We would like to extend our heartfelt gratitude and sincere thanks to our **VICE-CHAIRMAN, Dr. V. VISHNU KARTHIK, M.D.**, for his keen interest in our studies and the facilities offered in this premier institution.

We would like to express our deep gratitude and sincere thanks to industrymentor(s) , **MR.BHARADWAJ** , for his valuable support.

We wish to express our sincere thanks to our **HONOURABLE PRINCIPAL, Dr. T.SUNDER SELWYN, M.E., Ph.D.**, for permitting to access various resources in the college to complete the project work.

We would like to express our sincere thanks to SPOC **Mrs.M.ANITHA Department of Computer Science and Engineering** who motivated and encouraged us for the completion of our project successfully.

We wish to express our great deal of gratitude to our Project Coordinator **Mrs.M.BIRUNTHA Department of Computer Science and Engineering** for his guidance given throughout this project.

We would like to extend our thanks to all teaching and non-teaching staff of **Department of Computer Science and Engineering** for their continuous support.

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1.INTRODUCTION

1.1 PROJECT OVERVIEW

The system can be said to be divided into two categories: hardware and software. The software portion will do the reminder part of the task, which is to remind patients to take their medicines along with how many spoons or pills they are supposed to take. The reminder can be set in two ways: using the web application, or by using the mobile app. Both the applications require users to login, so that their medications can be synced with their calendar. To improve this process further, we will assign a color to each medicine (since it has been proved that visual cues such as colors are easier to remember than names [7]) and when it's time for the reminder, an LED of that color will be switched on signifying that it's time to take that medicine.

1.2 PURPOSE

A personal assistant serves as your eyes and ears when you cannot be with mom or dad. Your personal assistant becomes thoroughly familiar with the needs, wants, and personal preferences of your parent, and they can alert you when mom or dad isn't feeling well, or is experiencing a change in condition. This aspect of personal assistance services is often the most valued by family members.

If you think a personal assistant could be a bonus for you and your loved one, but you're not sure how it would work with your schedule, don't worry. Home care services are flexible, so you can schedule help when you or your loved one need it most. At The Legacy at Home, we customize our services to provide you and your loved one comfort, well-being, and peace of mind—on your terms and your schedule.

2.LITERATURE SURVEY

A Medicine Dose Controller of Ubiquitous Home Environment (2009), Home automation and wireless sensor network which have enhancing the quality of life by providing security, information and comfort. Here had discuss a centric home server with three main roles: use of existing Interfaces on registered systems for remote monitoring and Control, serving the surrounding system as a data gateway and Providing content adaptive user interfaces enhanced by Belongings of end-user client devices, the ubipill device had implemented to remind people for elder and for monitoring purposes ubipill and home server have been design to reliably monitor the medicine box activity by web browser. Kliem et al⁵ proposed Security and communication architecture for networked medical devices in mobilityaware eHealth environments (2012), Telemedicine concept is cost efficient and location autonomous monitoring system, the suitable and secured medical data can be transferred with different devices with attention towards security and privacy issue. Emergency situations need on the flutter network integration and data transmission fluctuating from domains like patients home, medical practices, ambulances and, hospitals, where each domain may parallel to a different authority so, mobility aware approach allowing out of the box medical device integration and authentication, and simultaneously fulfilling the typical security and privacy requirements of ehealth environments. Parida et al³ proposed Application of RFID Technology for In-House

Drug Management System (2012), RFID based technology have used to make drug management system, in this tracking of medicine can be done including emergency or regular medicine with or without RFID tag .the HF tag have assigning the user and by employing RFID reader along with camera and web based system to track the user.The real time monitoring can be possible through IOT which helps in development of low cost medical sensing, communication and analytic devices.

2.1 EXISTING SYSTEM

After observing all the literature, the following technologies are identified which can prove beneficial for designing of Medicine Reminder and Monitoring System for Secure Health Using IOT.After observing all the literature, the following technologies are identified which can prove beneficial for designing of Medicine Reminder and Monitoring System for Secure Health Using IOT.Control system comprising sensors for monitoring and reporting the state of the environment and its associated control software, which regularly check the medicine taken by patient or not .(Internet of Things) has evolved from the convergence of wireless technologies, microelectromechanical systems (MEMS) and the Internet. The concept may also be referred to as the Internet of Everything. to exchange data of things or physical object, this is embedded with electronics, related software, sensors and network connectivity.Which allow to sensed and collect data remotely, it generate opportunity to direct integration between physical world and computer based system have economic, accuracy and efficiency benefits.

2.2 REFERENCES

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2.3 PROBLEM STATEMENT DEFINITION

A problem statement is a concise description of the problem or issues a project seeks to address. The problem statement identifies the current state, the desired future state and any gaps between the two. A problem statement is an important communication tool that can help ensure everyone working on a project knows what the problem they need to address is and why the project is important.

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. Its parental feature distinguishes it from other apps on the market, allowing you to keep track of and remotely assist your loved ones who find it difficult to utilize such an app with their reminders. The device will receive the medicine name and modify the user with voice command.

CUSTOMER PROBLEM STATEMENT:

❖ I am muthu - age 50 :

I have low sugar and high blood pressure.

❖ I am trying to:

Remind to take injectable glucagon for low sugar And enalapril, lisinopril, perindopril and ramipril for high bp

❖ But :

lifestyle challenges, patient incompatibility, forgetting of medicine use, and nonexpert advice.

❖ Because:

Due to patient Forgot, it will risk health of patient .

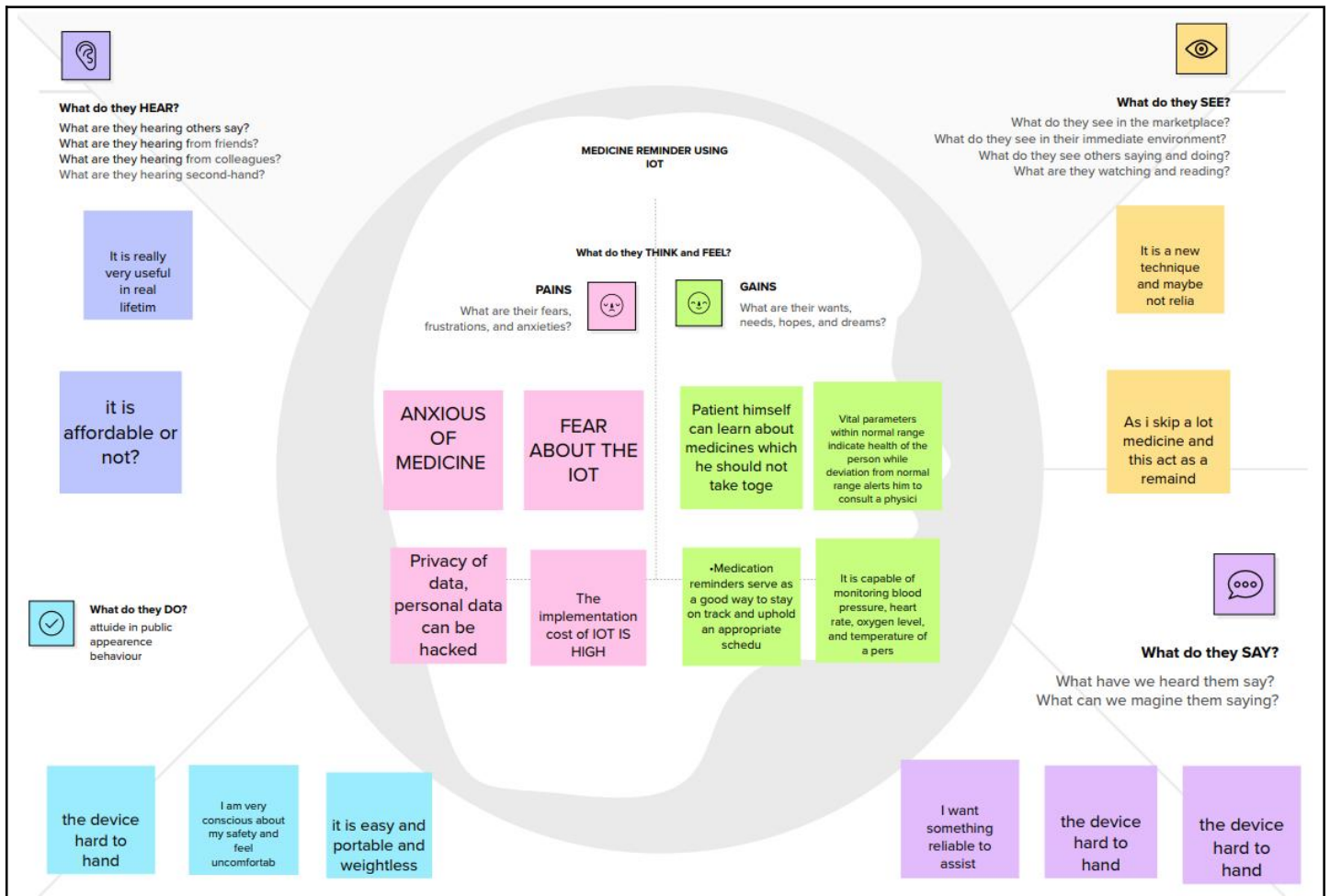
❖ Which makes me feel:

Worry about patients health for careless of taking medicine due to forgotten .

3.IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors and attitudes. It is a useful tool to help teams better understand their users. Empathy mapping is a simple workshop activity that can be done with stakeholders, marketing and sales, product development, or creative teams to build empathy for end users. Empathy maps are most useful at the beginning of the design process after user research but before requirements and concepting.



3.2 IDEATION & BRAINSTORMING

Ideation is often closely related to the practice of brainstorming, a specific technique that is utilized to generate new ideas. A principal difference between ideation and brainstorming is that ideation is commonly more thought of as being an individual pursuit, while brainstorming is almost always a group activity. Brainstorming is usually conducted by getting a group of people together to come up with either general new ideas or ideas for solving a specific problem or dealing with a specific situation.

Devices or Apps to be simple to use

BALAJI M

Medicine name, strength, dose should be displayed

"Medi-wear" IoT device should be implemented

Reminding of expiry date of particular medicine

It should be implemented in smart watch or other wearable device

KARTHIKEYAN V

It should also remind to take water, to rest, to walk, etc.

Reminding of medicine before or after food

In abnormal health situation smart watch should auto-dial emergency contact

It should also contain audio via reminder (for blind people)

HARIBALAJI S

Medicine should have QR codes which should have medicine information

Application should alert to refill the medicine

It should remind the time to take medicine

To keep track of their medication regimen or appointments

GOKUL S C

Customer requirements should full filled

It should operated in offline mode also

Application should be customizable

It should also contain audio via reminder (for blind people)

Reminding of medicine to take before or after food

Reminding of expiry date of the particular medicine

Medicine should have QR codes which should have medicine informations

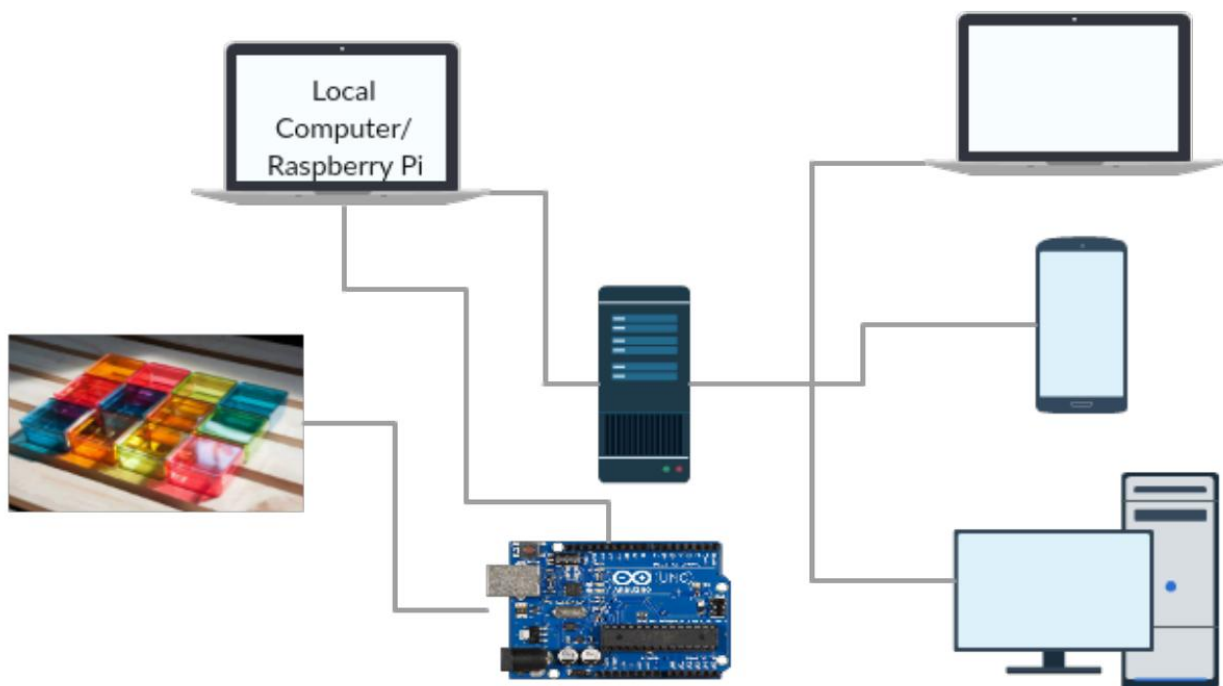
It should operated in offline mode also

Customer requirements should full filled

3.3 PROPOSED SOLUTION

The medicine reminder system will have one duty and that would be to remind the user that he is due for taking the medicine. We are trying to make sure that the user never forgets to take the medicine and hence we do the reminder in three ways. One is that we create a IoT device using Aurduino Uno board with the alarm sensor . And also create a web based application using node red that will store tha patient details to tha cloudant . We create a application for Android mobile users to set reminder using tha mit app inventor and also I will TTS service also provide to take the medicine.

In the case that patient is outside, we have a mobile reminder app which will remind using mobile notifications for that time. The mobile application can be installed in the android devices. It will add recurring events to the mobile's calendar and will alert the user when he has to take the medicine with the list of medicines and it's prescribed dosage.



3.4 PROBLEM SOLUTION FIT

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem

THE PROBLEM SOLUTION FIT FOR PERSONAL ASSISSTANCE FOR SENIORS WHO ARE SELF RELIANT :



4. REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS

Functional requirements may involve calculations, technical details, data manipulation and processing, and other specific functionality that define what a system is supposed to accomplish. Behavioral requirements describe all the cases where the system uses the functional requirements, these are captured in use cases. Functional requirements are supported by non-functional requirements (also known as "quality requirements"), which impose constraints on the design or implementation (such as performance requirements, security, or reliability).

Following are the functional requirements of the proposed solution.

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

4.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional Requirements (NFRs) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. They serve as constraints or restrictions on the design of the system across the different backlogs.

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

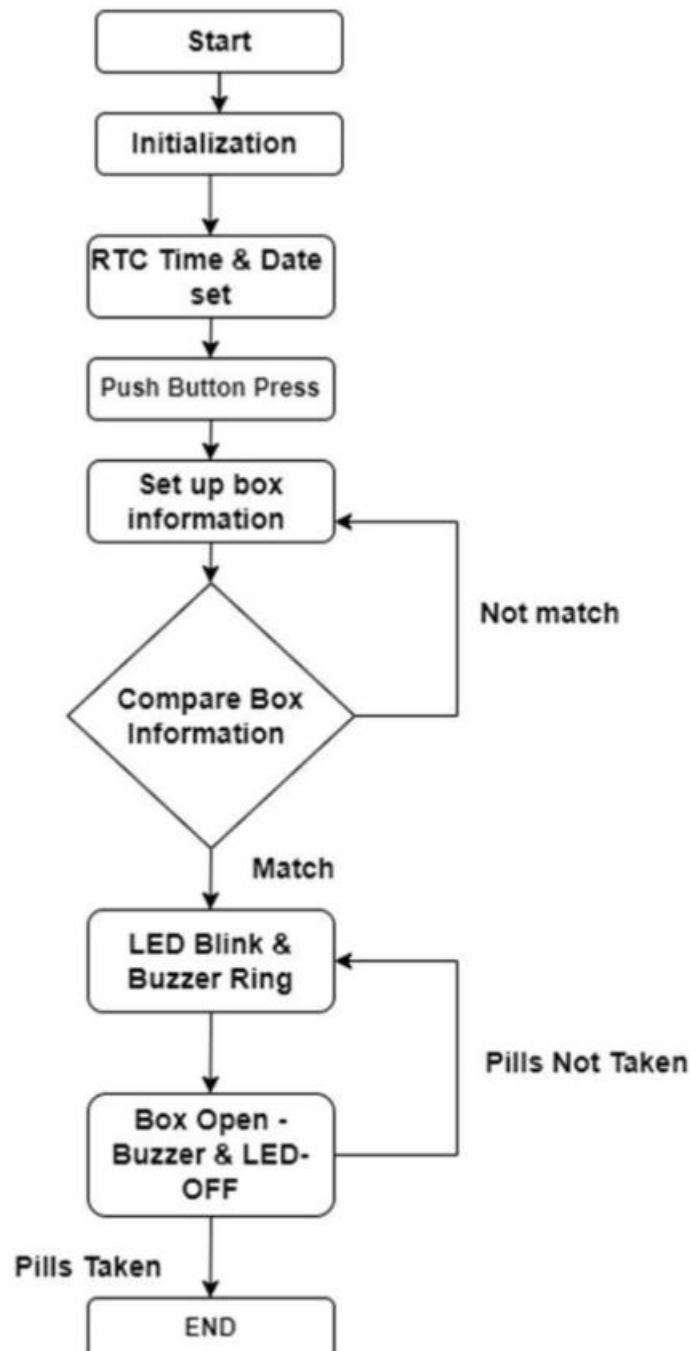
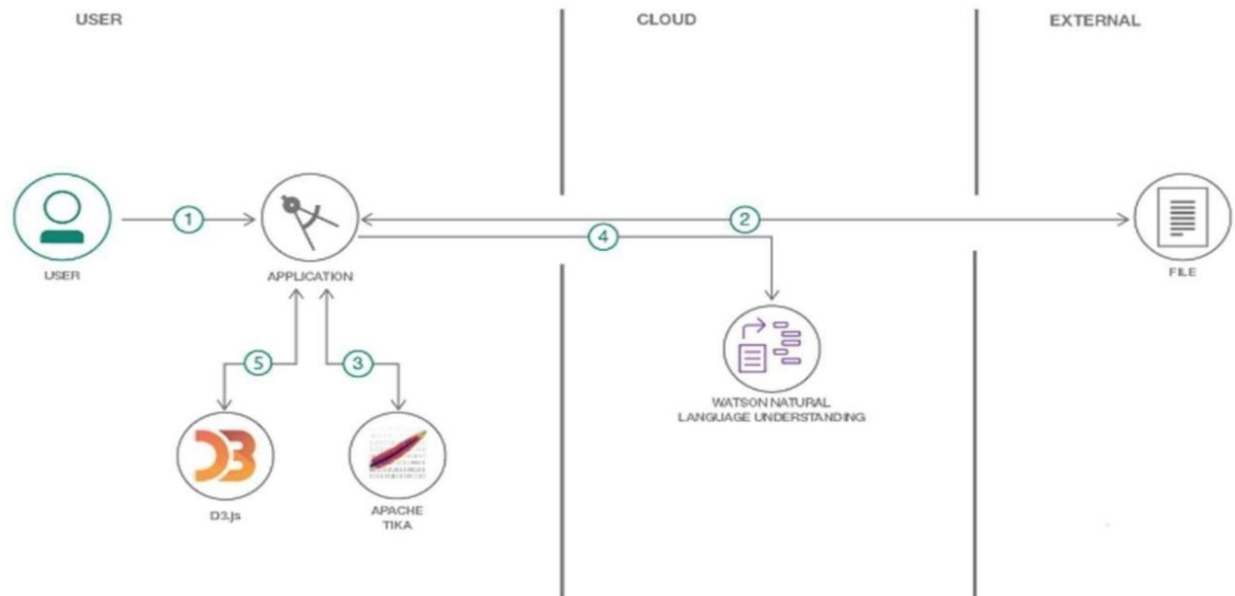
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	App can be used by anyone who has operational knowledge about internet and computer.
NFR-2	Security	For security, TFA is enabled and biometrics are also added for user safety.
NFR-3	Reliability	Highly reliable since, It uses Trusted cloud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

5. PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS

A data flow diagram shows the way information flows through a process or system. It includes data inputs and outputs, data stores, and the various subprocesses the data moves through. DFDs are built using standardized symbols and notation to describe various entities and their relationships.

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 SOLUTION AND TECHNICAL ARCHITECTURE

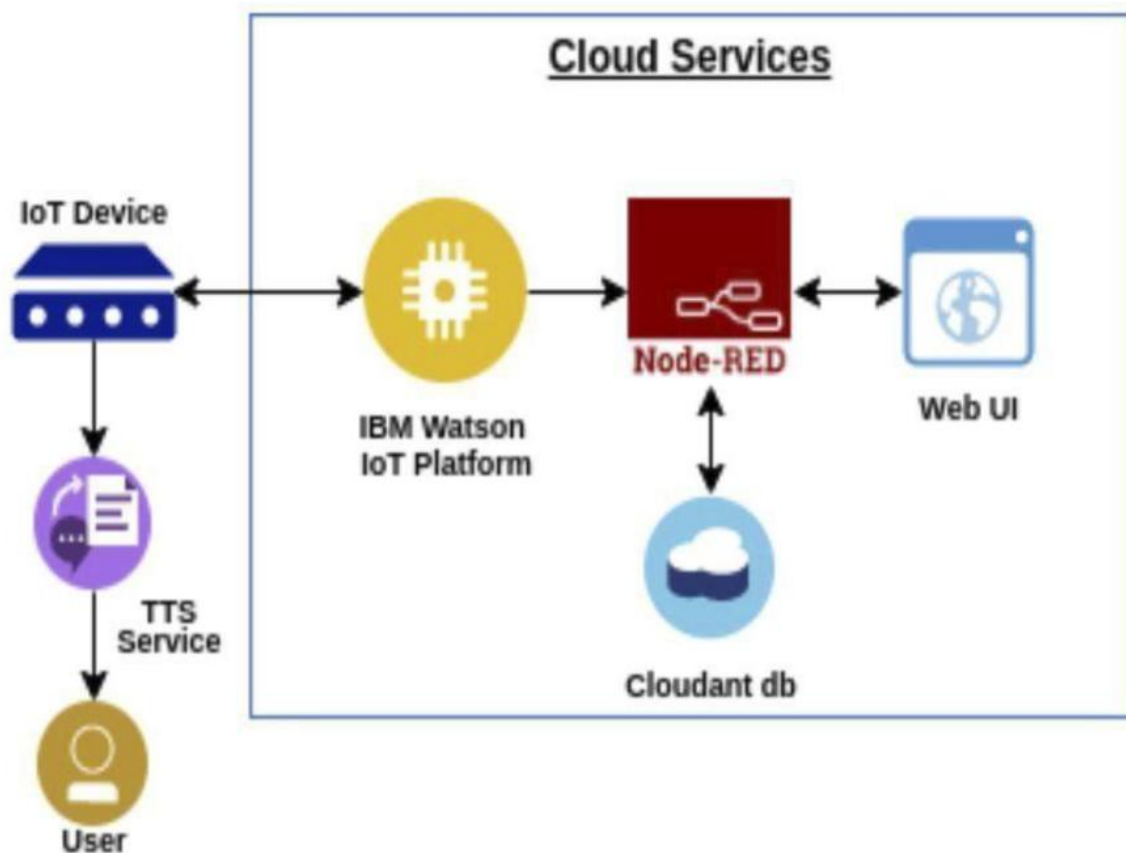
A solution architecture (SA) is an architectural description of a specific solution. SAs combine guidance from different enterprise architecture viewpoints (business, information and technical), as well as from the enterprise solution architecture (ESA).

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.
- It helps in decreasing medication dispensing errors and wrong dosages.

Solution Architecture Diagram:



Technical Architecture (TA) is a **form of IT architecture that is used to design computer systems**. It involves the development of a technical blueprint with regard to the arrangement, interaction, and interdependence of all elements so that system-relevant requirements are met.

Technical Architecture:

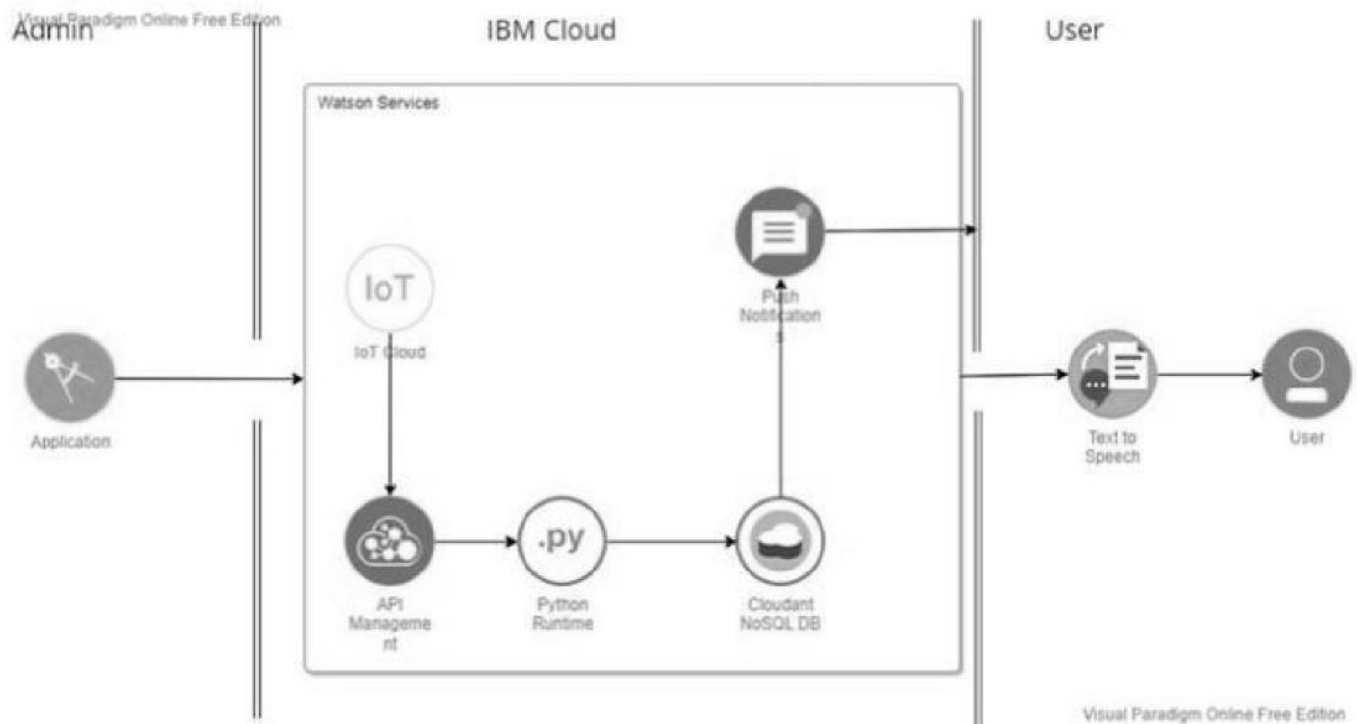


Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Mobile App	HTML, CSS, JavaScript
2.	Application Logic-1	Mobile App to enter the Medicine Details weekly	Python
3.	Application Logic-2	Gets the medication data from database	IBM Watson IoT API Call data
4.	Application Logic-3	Converts the text to speech to pronunciation for the user	IBM Watson Assistant
5.	Database	Medication time and tablets name on daily and	MySQL
6.	Cloud Database	Call the data IBM Cloudant is used and user login credentials	IBM DB2, IBM Cloudant
7.	File Storage	App code and IoT credentials are stored and API keys	IBM Block Storage
8.	External API-1	To get the medicine box status Open or not	IBM box status API
9.	External API-2 IBM DB2	To get the login credentials in	Username and Password API
10.	Machine Learning Model	To convert the text into speech for voice command the tablet details	Text to speech
11.	Infrastructure Foundry, (Server / Cloud)	To host the server and Node Red	Cloud application

Table-2: Application Characteristics:

S.N	Characteristics	Description	Technology
1.	Open-Source Frameworks	To develop the application interface, we use MIT App Inventor To secure the users login credentials and personal information	MIT APP INVENTOR
2.	Security Implementations	To scale the application database To make use the application and data are available 24/7	SHA-256, OWASP
3.	Scalable Architecture Availability	To increase the performance of the application In hosted in the high-performance instance	IBM Auto scaling
4.	Performance		IBM Cloud load balancer
5.			IBM instance

5.3 USER STORIES

A user story is an informal, general explanation of a software feature written from the perspective of the end user or customer. The purpose of a user story is to articulate how a piece of work will deliver a particular value back to the customer.

The user stories for Personal Assistance For Seniors Who Are Self-Reliant

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 ill 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 planning is an event in scrum that kicks off the sprint. The purpose of sprint planning is to define what can be delivered in the sprint and how that work will be achieved. Sprint planning is done in collaboration with the whole scrum team.

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Simulation	USN-1	To Create the Simulation by connecting the sensors by using the Arduino and connect with the code.	2	High	1.BALAJI .m 2.karthikeyan.v 3.gokul.sc
Sprint-2	Software	USN-2	To Create the device on IBM cloud platform and the node red platform to set the iot device workflow	2	High	1.sc gokul 2.haribalaji 3.balaji.m
Sprint-3	Mobile App/Web Application	USN-3	To Develop the Application for Smartfarmer lot enabled smart farming Application project using MIT App Inventor.	2	Medium	1.Balaji.m 2.Haribalaji.s 3.karthikeyan
Sprint-4	Dashboard	USN-4	To Design all the modules and create all the features of the App and test the application.	2	High	1.gokul.sc 2.balaji.m 3.haribalaji.s
Sprint-4	Login/User Interface	USN-4	Using the login make connections with the end users and make them interact with the software	2	High	1.karthikeyan 2.haribalaji.s 3.gokul.sc
Sprint-1	Simulation Processing	USN-1	Simulation by connecting the sensors by using the Arduino and connect with the code and processing the Arduino.	1	Low	1.balaji.m 2.haribalaji.s 3.gokul.sc
Sprint-2	Software Backend Processing	USN-2	Processing Software by using Python language.	1	Medium	1.balaji.m 2.karthikaeyan.v 3.gokul.s.c
Sprint-3	MIT app Workflow	USN-3	Checking the workflow of an MIT app Inventor.	1	Low	1.sc gokul 2.haribalaji 3.balaji.m

6.2 SPRINT DELIVERY SCHEDULE

Sprint is one timeboxed iteration of a continuous development cycle. Within a Sprint, planned amount of work has to be completed by the team and made ready for review. The term is mainly used in Scrum Agile methodology but somewhat basic idea of Kanban continuous delivery is also essence of Sprint Scrum.

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	30 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	06 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	13 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	20 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)

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

7. CODING AND SOLUTIONING:

(A)CODE FOR ARDUINO UNO IOT DEVICE FOR MEDICINE REMINDER

```
#include <LiquidCrystal.h>
#define D4 5
#define D5 4
#define D6 3
#define D7 2
#define E 11
#define RS 12
int buzz= 13;
int led = 13;
const int rs =12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2 ;
LiquidCrystal LCD( 12, 11, 5, 4, 3, 2);
void setup()
{
  LCD.begin(16, 2);
  Serial.begin(9600);
  pinMode(buzz, OUTPUT);
  // set up the LCD's number of columns and rows:
  LCD.begin(16, 2);
```

```
pinMode(9,OUTPUT);
pinMode(8,OUTPUT);
pinMode(7,INPUT);
pinMode(2, INPUT);
pinMode(13, OUTPUT);
}
void loop()
{
  digitalWrite(9,0);
  digitalWrite(8,1);
  delay(2000);
  LCD.print(" HI! STAY SAFE");
  delay(3000);
  LCD.clear();
  delay(5000);
  digitalWrite(9,0);
  digitalWrite(8,1);
  LCD.setCursor(4, 0);
  tone(buzz,1500,3000);
  LCD.print("TAKE CROCIN");
  LCD.setCursor(2, 1);
  LCD.print("QUANTITY:'1");
  digitalWrite(led, HIGH);
  delay(2000);
  digitalWrite(led, LOW);
  delay(2000);
  //digitalWrite(buzz, HIGH);
  delay(2000);
  //digitalWrite(buzz, LOW);
  LCD.clear();
  delay(5000);
  digitalWrite(9,1);
  digitalWrite(8,0);
  delay(2000);
  digitalWrite(9,0);
  digitalWrite(8,1);
  LCD.setCursor(4, 0);
  tone(buzz,1500,3000);
  LCD.print("TAKE XANAX ");
  LCD.setCursor(2, 1);
  LCD.print("Quantity: 3");
  digitalWrite(led, HIGH);
  delay(3000);
  digitalWrite(led, LOW);
  delay(2000);
  //digitalWrite(buzz, HIGH);
  delay(5000);
  //digitalWrite(buzz, LOW);
```



```

LCD.clear();
delay(5000);
digitalWrite(9,1);
digitalWrite(8,0);
delay(5000);
digitalWrite(9,0);
digitalWrite(8,1);
LCD.setCursor(4, 0);
tone(buzz,1500,3000);
LCD.print("TAKE COCAIN ");
LCD.setCursor(2, 1);
LCD.print("Quantity: 5 G");
digitalWrite(led, HIGH);
delay(5000);
digitalWrite(led, LOW);
delay(2000);
//digitalWrite(buzz, HIGH);
delay(3000);
// digitalWrite(buzz, LOW);
LCD.clear();
delay(8000);

}

```

(B) WRITE A FUNCTION IN NODE RED USING (JSON) TO COMPARE THE TIME :

```

var d=msg.payload.date; var t=msg.payload.time;
var date = d.slice(0,16)
var time=t.slice(10,25)
var hit new Date(date time)
hit.setDate(hit.getDate() + 1);
var utc-hit.getTime()+(hit.getTimezoneoffset()*60000);
var offset 5.5
newDate new Date(utc+(1600000 offset));
var n-newDate.toTSOString()
var da n.slice(0,10)
var ti-n.slice(116)
msg-payload
id" darti, "name": msg payload.name
return msg;

```

(C) USING HTML CODE FOR USER INTERFCE IN NODE-RED :

```

<!DOCTYPE html>
<html>
<head>
<style>

```

```

body {
  background-image: url('https://play-lh.googleusercontent.com/ZnhgCkZjxp0PWurlgFOO-
xro9GmC3X9qImaPc6_wHTqqtVCh6FyiSeLUnDxOviw3N=w2560-h1440-rw');
  background-repeat: no-repeat;
  background-attachment: cover;
  background-size: 100% 100%;
  background-color:white;
}
h1 {text-align: center;}
h2 {text-align: left;}
</style>
</head>
<body >
<h1> Project Name      Personal Assistant For Seniors Who Are Self Reliant </h1><br>
<h2>
Team ID      :PNT2022TMID38119<br>
Team leader   : BALAJI M S<br>
Team member   : HARIBALAJI S<br>
Team member   : KARTHIKEYAN V<br>
Team member   : GOKUL SC<br>
</h2>
</body>
</html>

```

(D) Python code for random medicine and time generating :

```

import json
import otp.sdk.device
import time
import random
myConfig = {
  "identity": {
    "orgId": " y2eaa1",
    "typeId": " IBM-IOT-PROJECT",
    "deviceId": " IBM-IOT-PROJECT"
  },
  "auth": " use-token-auth" {
    "token": " bsc+zfc35MxBY?d_ts "
  }
}
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
for i in range(0,20):
  tablet=["Paracetamol","crosin","Azithral"]
  medicinetime=[8.00,12.00,7.00]
  name = "muthu"
  medicine=random.choice(tablet)
  medicinetime=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()
```

export of node red Jason :

```
[{"id":"5ae2c324e0c80bb0","type":"tab","label":"Flow
2","disabled":false,"info":"","env":[]},{id:"a1cca3cc8f89fe95","type":"ui_template","z":"5a
e2c324e0c80bb0","group":"d82327c63a03f9e0","name":"","order":1,"width":8,"height":7,"fo
rmat":"<!DOCTYPE html>\n<html>\n<head>\n  \n<style>\nbody {\n  background-image:
url('https://play-lh.googleusercontent.com/ZnhgCkZjxp0PWurlgFOO-
xro9GmC3X9qImaPc6_wHTqqtVCh6FyiSeLUnDxOviw3N=w2560-h1440-rw');\n
background-repeat: no-repeat;\n  background-attachment: cover;\n  background-size: 100%
100%; \n  background-color:white;\n}\n\n  \nh1 {text-align: center;\n}\nh2 {text-align:
left;\n}\n</style>\n\n</head>\n<body >\n<h1> Project Name\tPersonal Assistant For Seniors
Who Are Self Reliant </h1><br>\n<h2>\nTeam ID      :PNT2022TMID38119<br>\nTeam
leader   : BALAJI M S<br>\nTeam member   : HARIBALAJI S<br>\nTeam member   :
KARTHIKEYAN V<br>\nTeam member   : GOKUL SC<br>\n\n</h2>\n
\n</body>\n</html>\n","storeOutMessages":true,"fwdInMessages":true,"resendOnRefresh":tr
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ame":"Default","tab":"b464776a93ff5e18","order":1,"disp":true,"width":8,"collapse":false,"cl
assName":"","},{id:"b464776a93ff5e18","type":"ui_tab","name":"HOME","icon":"dashboar
d","disabled":false,"hidden":false}]
```

7.1 Feature 1

The medicine reminder application spaces of very loser friendly interface design using the note red with work flow it will give easy and understandable interface for the users they can easily understand the UI. The process of simulation is using the ARDUINO UNO-3 iot device using tinkercard website with the help of c programming we can use and connect the simulation through the medicine reminder with alarm system so it is easy to uses to get automatically alarm as per time schedule for to take and give allert message to the required patient for the correct time .

7.2 Feature 2

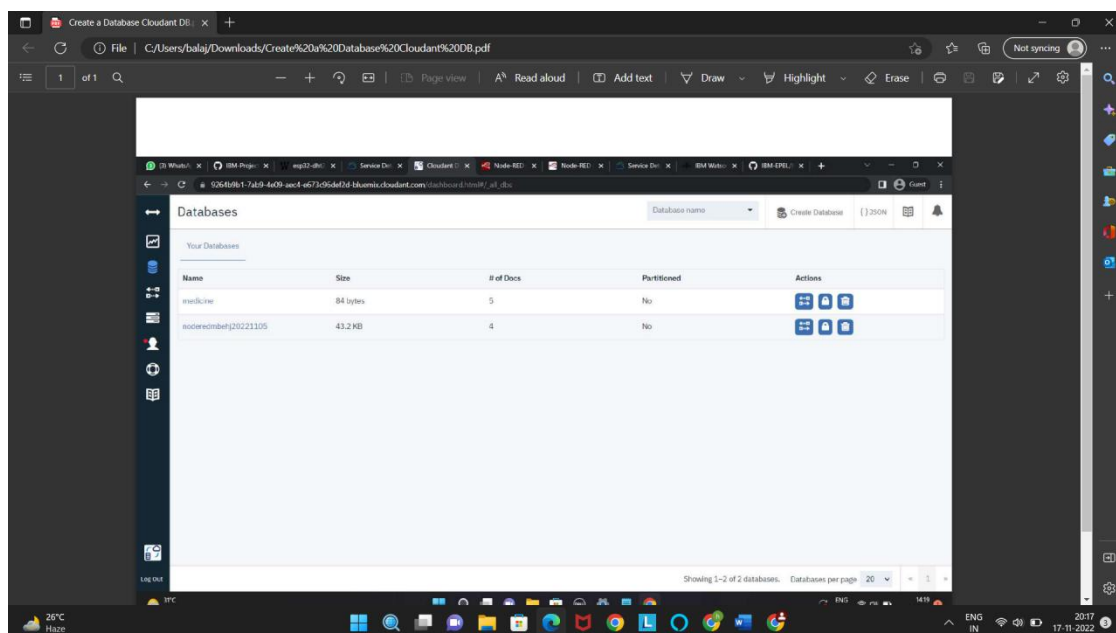
Using the patient details and patient medicine we will store the data using the IBM cloudant and for the required time it will send the required medicine to the patient with correct and alarm time and also we use it takes to speech to easily understandable through voice over using the application we built. The application is build using MIT app inventor using this we create the application for the uses .

FOR EXAMPLE:

IF THE PATIENT NAME IS MUTHU YOU HAVE TO TAKE THE TABLET OF CROCIN FOR THE TIME OF 12:00 P.M. IN OUR APP WITH THE ALARM IS AUTOMATICALLY SET THE 12:00 P.M. AND RING THE ALARM AND ALLOT MESSAGE TAKE THE CROSIN MEDICINE MUTHU.

7.3 Database Schema

In our project the IBM will provide the IBM cloud using the service of IBM cloud and database we use the python code to store and retrieve data from the you sir from the no dress flow user interface to store the data in cloud and database.



8. TESTING

8.1 TEST CASES

5	Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
6	IBMCloud_TC_001	Functional	Dashboard	User can able to get resources while accessing the IBM catalog features.	Creating IBM cloud dashboard	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Signup popup displayed or not	https://cloud.ibm.com/	Login/Signup popup should display after user can see dashboard	Working as expected	Pass	This steps used get IBM dashboard gor user expected .	No	No	Executed By all who required username and password.
7	IBMWatson_TC_002	IOT platform	Devices	Verify the UI elements in Login/Signup popup	User can able to create device which is connected to nodered.	1.Enter URL and click go 2.Click on Sign button. 3.Verify login/Signup popup with below UI elements: a.email test box b.password test box c.Login button d. click to --fsm0tp ID: fsm0tp Bluemix Free	https://fsm0tp.internetofthings.ibmcloud.com/dashboard/devices/browse	Application should show below UI elements: a.email test box b.password test box c.Login button with bluecolour d.click to --fsm0tp ID: fsm0tp Bluemix Free	Working as expected	Pass	Steps are clear to follow	No	No	Executed By only for user
8	Nodered_TC_003	Functional	Flows	There is no verify for node red.	On Creating different flows to get web UI	1.Enter URL(https://node-red-fldb-2022-11-04.eu-gb.mpb.ibmcloud.com/flows/0ca006545ca9b62) 2.Click on My Account dropdown button 3.Connect required parts to EPS32 4.parts like LED light,Resistor,DHT22 Sensor	https://node-red-fldb-2022-11-04.eu-gb.mpb.ibmcloud.com/flows/0ca006545ca9b62	User should navigate to user account homepage	Working as expected	Pass	Directly we can able to access	No	No	Executed By only for user
9	Vokwi_TC_004	Functional	Simulation	Connection on some sensor	Creating working simulation of light control	1.Enter URL(https://vokwi.com/projects/new?esp32) and click go 2.Click on My Account dropdown button 3.Connect required parts to EPS32 4.parts like LED light,Resistor,DHT22 Sensor	https://vokwi.com/projects/new?esp32	Simulation should connect with IBM Watson IOT platform	Working as expected	Pass	User can able to control light connections	No	No	Executed By only for user
10	MITApp_TC_004	Application	Monitor	Monitoring the features like Temperature ,Humidity,Soilmolcuture	Controlling the required need .	1.Enter URL(http://ai2.appinventor.mit.edu/#5400238249345024) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email test box	http://ai2.appinventor.mit.edu/#5400238249345024 password: https://www.ibm.com/docs/itg/Testing/0236738367388738	Application should show correct email or password	Working as expected	Pass	User can monitor thorough mobile devices	No	No	Executed By only for user
11	UI_TC_005	UI	Home Page	showing the user interface	Displaying the UI	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter Invalid username/email in Email test box 4.Enter Invalid password in password test box 5.Click on login button	Username: 411619104015@smartinternz.com password: Cloudsmks@2842	Application should show 'Incorrect email or password' validation message.	Working as expected	Pass		No	No	Executed By only for user

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 PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF RELIANT application project 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

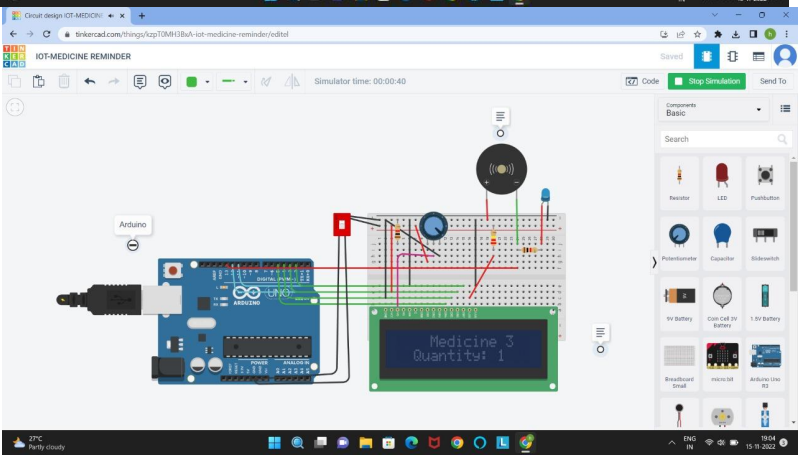
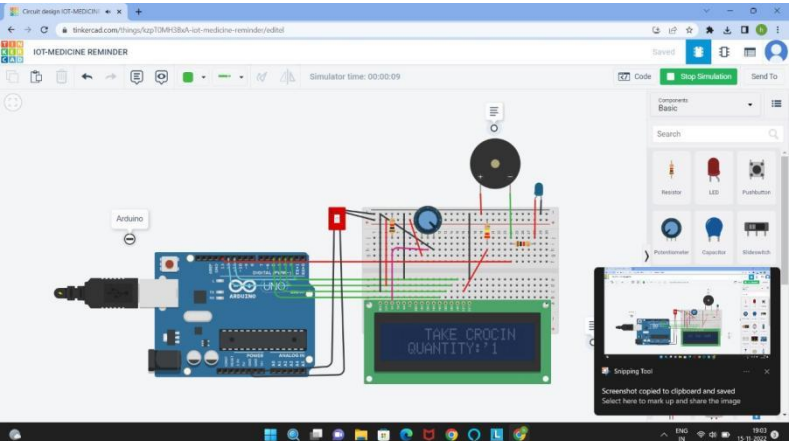
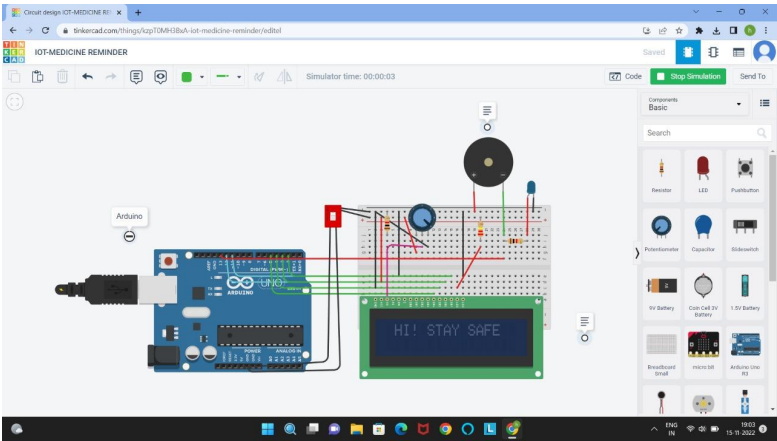
Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	24	14	13	26	77

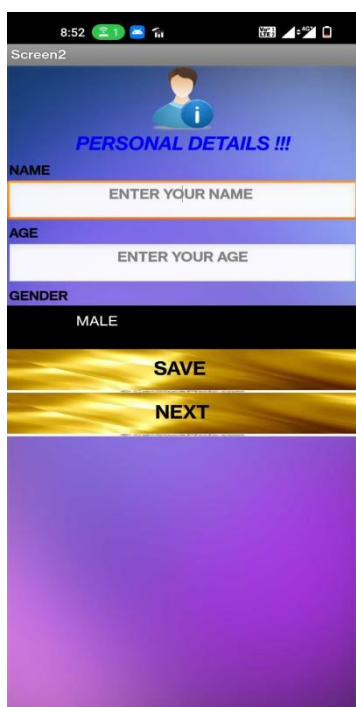
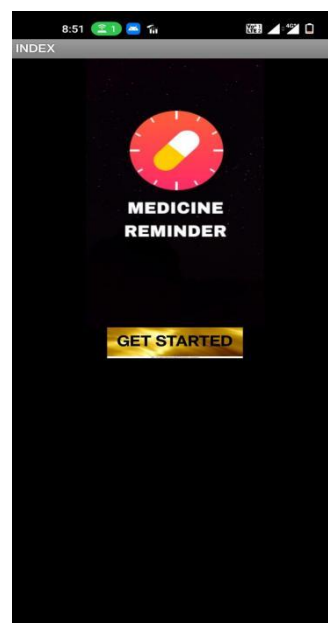
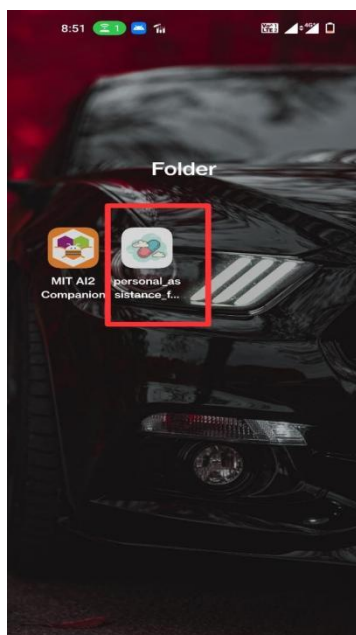
3. Test Case Analysis

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

9.RESULTS





Screen3



Patient Name
GOKUL

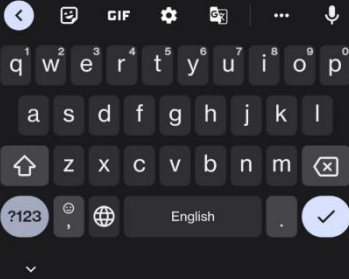
Medicine Name
CROSIN

Medicine Quantity
1- 650g

Type
capsule

SAVE

show data



Screen3



Patient Name
GOKUL

Medicine Name
CROSIN

Medicine Quantity
1- 650g

Type
capsule

SAVE



show data

GOKUL
CROSIN
1- 650g


NEXT

8:58



Clock

TAKE CROSIN   TABLET GOKUL
Thu 8:58 PM

Snooze Dismiss



SET ALERT MESSAGE :

TAKE CROSIN   TABLET GOKUL

20 58

SET REMINDER

10. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

1. It enables users to improve health related risks and reduce health care costs by reminding to take medicines at time,collecting,recording and analyzing data in real time efficiently.
2. Using this application the patient can set the reminder message using Any type of formet and also text-to-speech features also there for the users.
3. This medicine reminder application they use for personal assistant for senior who are self reliant using the alarm Ⓜ system in the both IOT device Aurduino Uno board and Android Mobile application.
4. In this medicine reminder they use iot board or else they in the outside they can use mobile application for the reminder purpose.
5. In the mobile application they can use the application without internet connection .

DISADVANTAGES:

1. It will only remind the medicine name and time not the medicine image.
2. Using this medicine reminder Internet accessibility, the high cost of smart phones, lack of regulatory approval, high cost for in-purchase IOT DEVICE.

11.CONCLUSION:

- ❖ Conclusion and Future Work We have demonstrated a mobile application that generates alarm signals to remind a patient to take medication. We focus on helps patients and improving the monitoring system.
- ❖ The application Medicare is easily accessible. Combination of a sensing system with android application helps us to measure how well a patient can take their daily medication in real-time. The availability of sensors and other medicinal services gadgets (IoT) work better in consideration of patients.
- ❖ It allows real-time monitoring. Better compliance in terms of the taking of medicine can be acquired with the use of our proposed framework. This framework assures the security of the patient, prevent wrong dosages, support medication adherence.
- ❖ As a future work, we are wanting to improve our drug update framework by presenting extra highlights utilizing portable application and incorporate service.
- ❖ A data-sharing feature between patient and health care professionals would also be developed.

12.Future scope:

In future we have your idea to build an application and iot based medicine reminder that will remain fully voice over text to speech with user it is fully voice based on automation. The patient can direct interact with what system and also contact with the respective caretaker or a doctor who knows the patient status using this medicine remainder application.

13. APPENDIX

13.1 SOURCE CODE

NODE RED:

```
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2","disabled":false,"info":"","env":[]},{id:"96226ad180fdd895","type":"tab","label":"Flow
4","disabled":false,"info":" *
","env":[]},{id:"825f354c89aaa250","type":"tab","label":"Flow
1","disabled":false,"info":"","env":[]},{id:"d274ae7022558adc","type":"tab","label":"Flow
1","disabled":false,"info":"","env":[]},{id:"cfa5984fb478babb","type":"group","z":"96226a
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serif","edited":true,"reset":false},"darkTheme":{"default":"#097479","baseColor":"#097479",
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me":"Tablet
database"},{"id":"6699982402b0ef6c","type":"ui_tab","name":"Home","icon":"dashboard","
disabled":false,"hidden":false},{"id":"a1cca3cc8f89fe95","type":"ui_template","z":"5ae2c324
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background-repeat: no-repeat;\n  background-attachment: cover;\n  background-size: 100%
100%;\n  background-color: white;\n}\n\n</style>\n\n</head>\n<body >\n<h1> Project Name\tPersonal Assistant For Seniors
Who Are Self Reliant </h1><br>\n<h2>\nTeam ID      :PNT2022TMID38119<br>\nTeam
leader   : BALAJI M S<br>\nTeam member  : HARIBALAJI S<br>\nTeam member   :
KARTHIKEYAN V<br>\nTeam member   : GOKUL SC<br>\n\n</h2>\n
\n</body>\n</html>\n","storeOutMessages":true,"fwdInMessages":true,"resendOnRefresh":tr
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```

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"wires":[]}]}
```

IOT DEVICE CODE:

```
#include <LiquidCrystal.h>
```

```
#define D4 5
#define D5 4
#define D6 3
#define D7 2
#define E 11
#define RS 12
```

```
int buzz= 13;
int led = 13;
const int rs =12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2 ;
LiquidCrystal LCD( 12, 11, 5, 4, 3, 2);
```

```
void setup()
{
  LCD.begin(16, 2);
  Serial.begin(9600);
  pinMode(buzz, OUTPUT);

  // set up the LCD's number of columns and rows:
  LCD.begin(16, 2);
  pinMode(9,OUTPUT);
  pinMode(8,OUTPUT);
  pinMode(7,INPUT);
  pinMode(2, INPUT);
  pinMode(13, OUTPUT);
}
```

```
void loop()
{
  digitalWrite(9,0);
  digitalWrite(8,1);
  delay(2000);
  LCD.print(" HI! STAY SAFE");
  delay(3000);
  LCD.clear();
  delay(5000);
  digitalWrite(9,0);
  digitalWrite(8,1);
  LCD.setCursor(4, 0);
  tone(buzz,1500,3000);
  LCD.print("TAKE CROCIN");
  LCD.setCursor(2, 1);
  LCD.print("QUANTITY:'1");
  digitalWrite(led, HIGH);
  delay(2000);
  digitalWrite(led, LOW);
  delay(2000);
  //digitalWrite(buzz, HIGH);
  delay(2000);
  //digitalWrite(buzz, LOW);
  LCD.clear();
  delay(5000);
  digitalWrite(9,1);
  digitalWrite(8,0);
  delay(2000);
  digitalWrite(9,0);
  digitalWrite(8,1);
  LCD.setCursor(4, 0);
  tone(buzz,1500,3000);
  LCD.print("TAKE XANAX ");
}
```

```
LCD.setCursor(2, 1);
LCD.print("Quantity: 3");
digitalWrite(led, HIGH);
delay(3000);
digitalWrite(led, LOW);
delay(2000);
//digitalWrite(buzz, HIGH);
delay(5000);
//digitalWrite(buzz, LOW);
LCD.clear();
delay(5000);
digitalWrite(9,1);
digitalWrite(8,0);
delay(5000);
digitalWrite(9,0);
digitalWrite(8,1);
LCD.setCursor(4, 0);
tone(buzz,1500,3000);
LCD.print("TAKE COCAIN ");
LCD.setCursor(2, 1);
LCD.print("Quantity: 5 G");
digitalWrite(led, HIGH);
delay(5000);
digitalWrite(led, LOW);
delay(2000);
//digitalWrite(buzz, HIGH);
delay(3000);
// digitalWrite(buzz, LOW);
LCD.clear();
delay(8000);

}
```

13.2 GITHUB & PROJECT DEMO LINK

GITHUB LINK :<https://github.com/IBM-EPBL/IBM-Project-7942-1658903523>

PROJECT DEMO LINK :<https://youtu.be/pHWrJf1ojB0>