PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF-RELIANT

PROJECT REPORT – PNT2022TMID39929

INTRODUCTION

Project Overview

- To set the desired time and medicine, an app is built for the user. These details will be stored in the IBM Cloudant DB.
- When the time arrives the app will send the medicine details to the IOT Device through the Node-Red.
- After receiving the medicine details, the device will notify the user.

Objectives

- Most of the time elderly people forget to take their medicine at the correct time.
- Sometimes also forget which medicine should be taken at particular time.
- In order to avoid this problem, this Medicine Remainder system is developed.

LITERATURE SURVEY

Problem Statement

Elderly people sometimes slip their medicines at correct time. Many existing solutions for this problem was developed. But the efficiency was not satisfiable. The solution given in this system is more efficient.

References

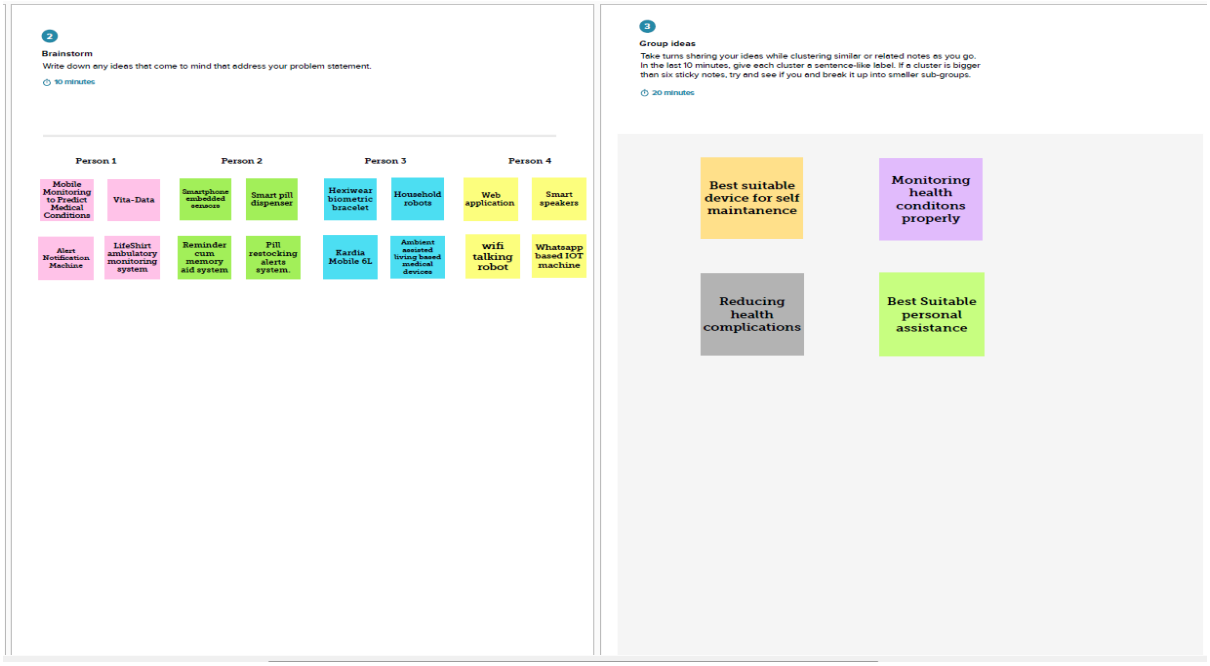
[1] A Design of IOT- based medicine case for the Multi-User medication management using drone in elderly centre: JIE LI, WEI W. GOH*, N. Z. JHANJHI.

[2] Personal Assistance Device for Independent Senior Citizens/ Patients: A. Yuvaraj K, B. N. Gunasekhar Reddy, C. V. Saritha

IDEATION AND PROPOSED SOLUTION

EMPATHY MAP CANVAS

IDEATION AND BRAINSTORMING



PROPOSED SOLUTION

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	In modern society, busy life has made people forget many things in day to day life. The older adults and the people victims of chronicle diseases who need to take the medicines timely without missing have dementia, forgetting things in their daily routine. This application is used to remind tablets on time.
2.	Idea / Solution description	The Medicine reminder system consists of a pillbox provided with a set of Compartments. It is designed in such a way that normal people can use it easily for their medication. The pill box's control system consists of LEDs for giving visual alerts to the patient for medicine. There is a Speaker in the system which alerts the patient in audio form. The alert will be given in the form of SMS to the patient's caretaker.
3.	Novelty / Uniqueness	Going across many reviews on this project, we can conclude that no technology can replace a personal care taker. Still the technologies are trying to invent a system that replaces a personal care taker by providing friendly relationship with patients.
4.	Social Impact / Customer Satisfaction	Need for the special care taker to aging, ill people & physically and mentally challenged people. Health monitoring and health care of people can be improved.
5.	Business Model (Revenue Model)	This application can be given to people who are in need to take care of elderly people by giving medicines on time. It can also be given in subscription bases.
6.	Scalability of the Solution	Since the IOT technology is in improving stage, emerging new technology can be easily implemented in this project. This technology provides communication between care taker, Doctor and family members.

PROBLEM SOLUTION FIT

REQUIREMENT ANALYSIS

[1] Functional Requirements

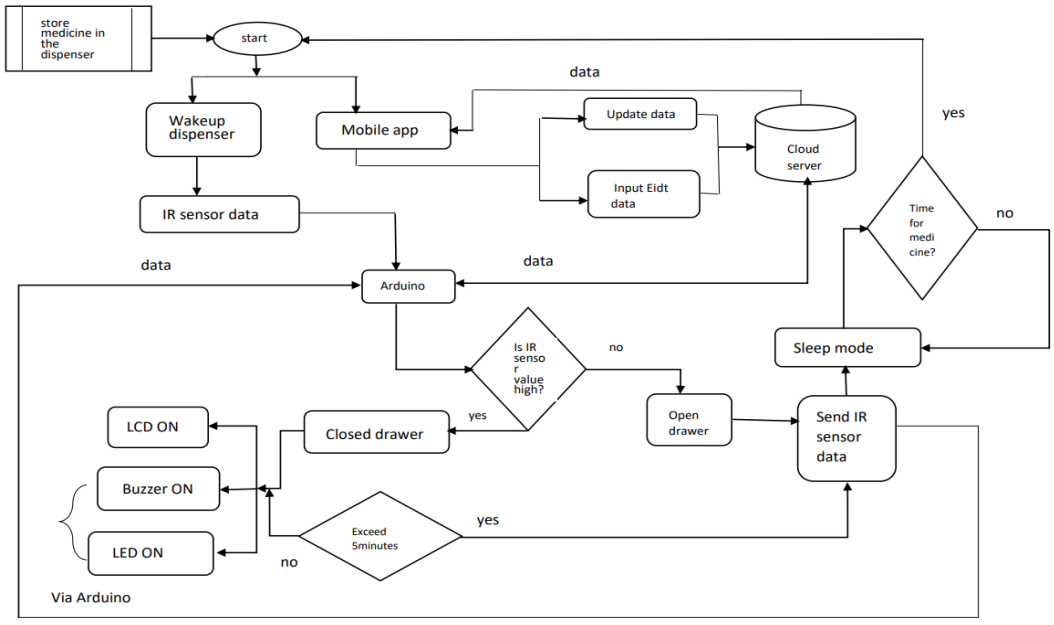
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Customer Registration	Registration through Email.
FR-2	Authorization	Get confirmation mail once registration complete.
FR-3	User interface Requirement	Mobile installed with web application.
FR-4	System design Requirement	Interaction to the IOT system with other system.
FR-5	Input Data	Store the data about patient in database.
FR-6	Output Data	Alarm, medicine.

[2] Non-functional Requirements

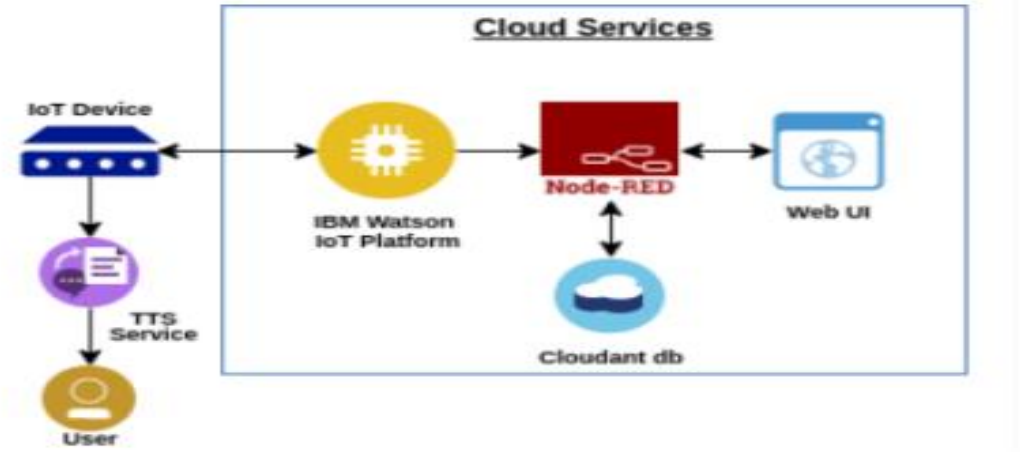
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Caretaker can easily know status (medicine taken) of patience.
NFR-2	Security	Data (health Condition) about patient's are store in secure server.
NFR-3	Reliability	Medicine reminder will ring Alarm as per time set in app .
NFR-4	Performance	Remind patient to take tablet's in proper time.
NFR-5	Availability	Patient health condition will definitely improve.
NFR-6	Scalability	High scalability rate because we can change the settings easily

PROJECT DESIGN

DATA FLOW DIAGRAM



TECHNICAL ARCHITECTURE



USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	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
		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
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard with Gmail.	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can use the credential using my email and password	High	Sprint-1
Administrator	security	USN-6	As a administrator, I can provide security	I can provide security using some anti-attacking mechanisms	High	Sprint-1

PROJECT PLANNING AND SCHEDULING

SPRINT PLANNING AND ESTIMATION

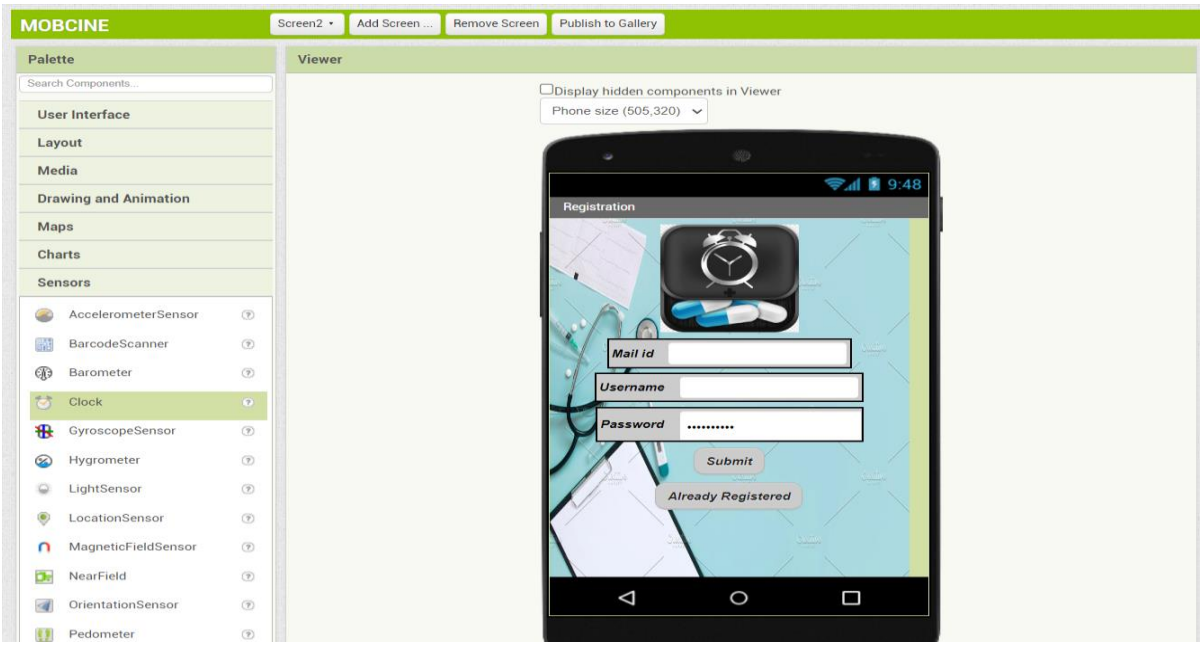
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	CUSTOMER REGISTRATION	USN-1	As a User, I can register for the application by entering my mail, password and confirming my password.	3	High	Gurram Thejaswi & Jananipriya
Sprint-2	AUTHORIZATION	USN-2	As a user, I will receive confirmation email once I have registered for the application	2	Medium	Keerthika & Deepalakshmi
Sprint-3	USER INTERFACE	USN-3	Using Mobile application it is easy receive an alert when the medicine is missed to take and also giving correct medicines at correct time.	3	High	Deepalakshmi & Jananipriya
Sprint-4	SYSTEM DESIGN	USN-4	Uses cloud database to store medicinal reports. Connecting API to the cloud and mobile application. Connecting an IOT device to the cloud.	3	High	Gurram Thejaswi, Keerthika, Deepalakshmi, Jananipriya

SPRINT DELIVERY SCHEDULE

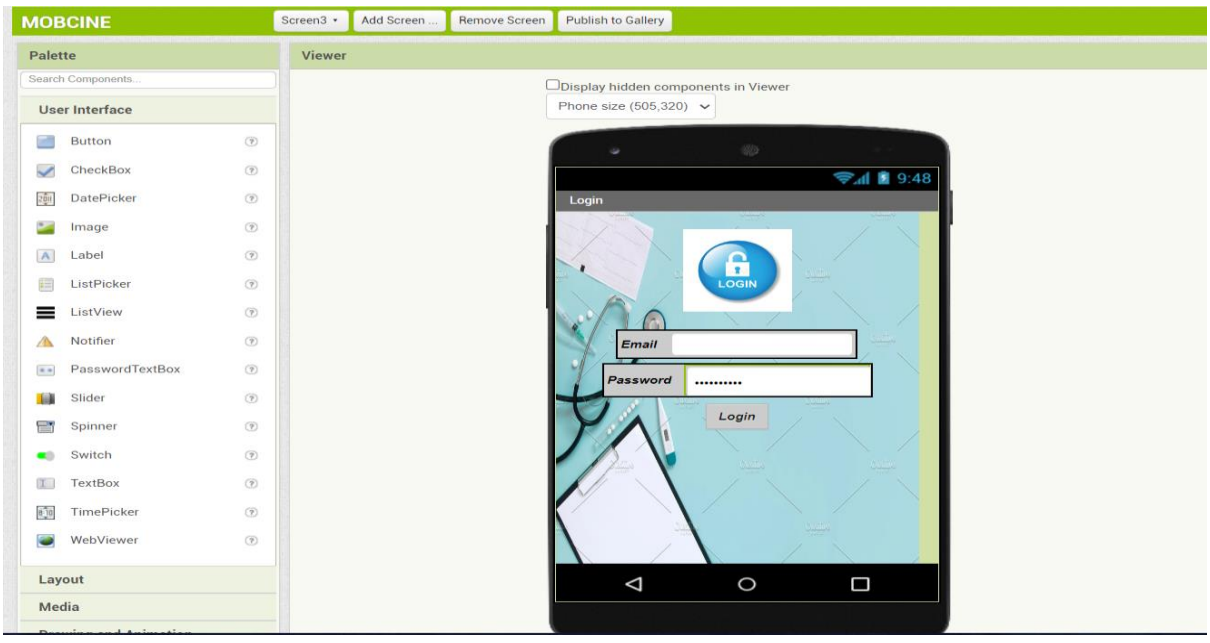
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	15	5 Days	24 Oct 2022	28 Oct 2022	15	28 Oct 2022
Sprint-2	10	4 Days	29 Oct 2022	01 Nov 2022	10	01 Nov 2022
Sprint-3	20	6 Days	02 Nov 2022	07 Nov 2022	20	07 Nov 2022
Sprint-4	25	10 Days	08 Nov 2022	17 Nov 2022	25	17 Nov 2022

CODING AND SOLUTION

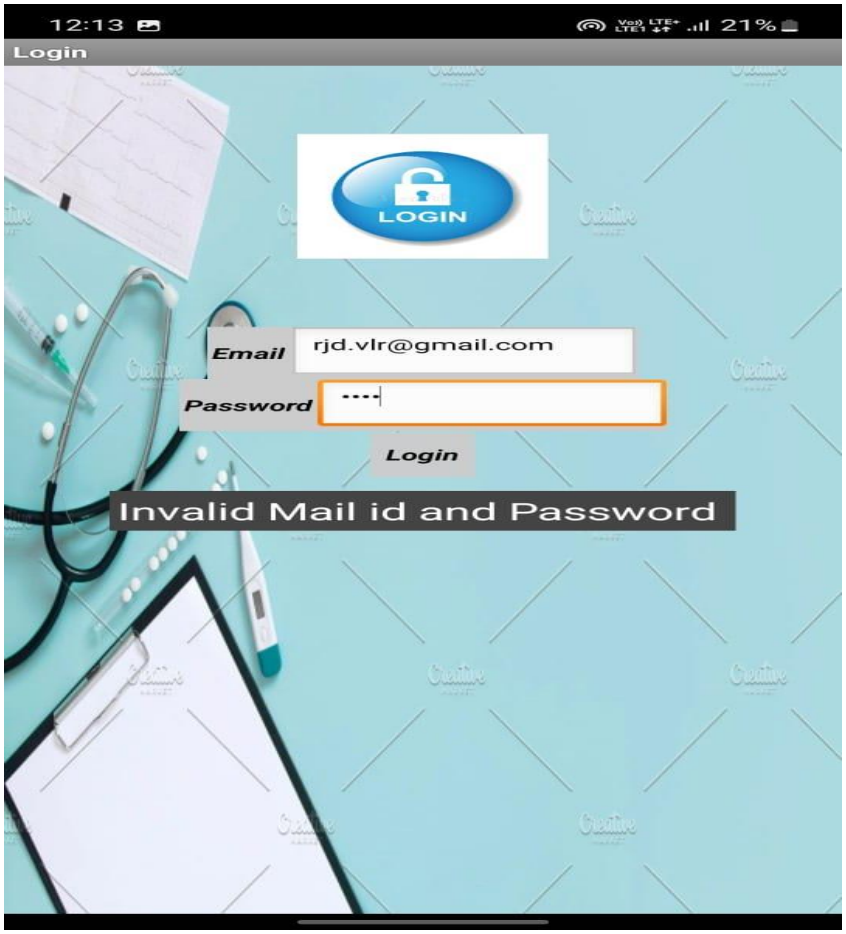
Registration

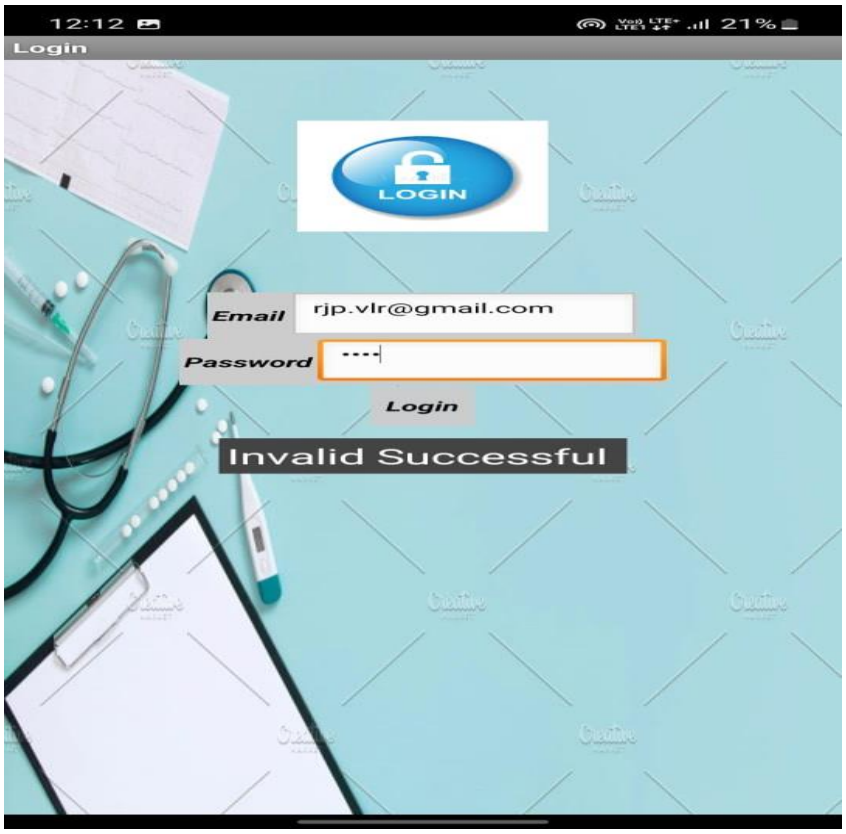


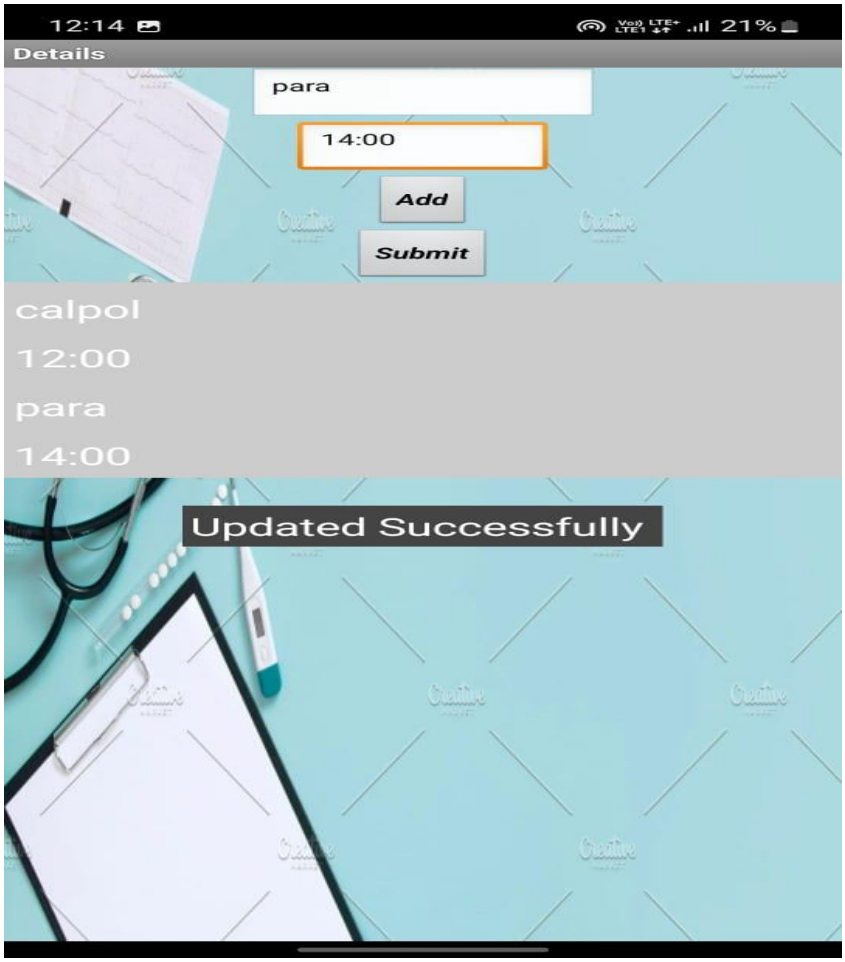
Login



User Acceptance Testing







RESULTS

S.NO	Parameter	Performance
1.	Response Time	0.3s (Average of 7 trials)
2.	Workload	1000 users (Calculated based on Cloud Space)
3.	Revenue	Individual users and pharmaceutical industries
4.	Efficiency	Simple and straightforward workflow, which makes the process efficient.
5.	Down Time	Almost no down time due to IBM Cloud enabled solution.

Advantages

- ✓ Help the elderly people to take their medicine at the correct time.
- ✓ Avoid personal assistants or caretakers needed for medically sick people.
- ✓ Cost efficient.
- ✓ Can store multiple data and many notifications can be generated.
- ✓ Since it includes voice assistance, even blind people can use our device.

Disadvantages

- ✓ Makes people lethargic and makes them dependent always on others.
- ✓ Requires a stable internet connection

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.

Github link : https://github.com/IBM-EPBL/IBM-Project-30618-1660150908