

Dr.Health

Advance Health Management Application

Team 14

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NEED

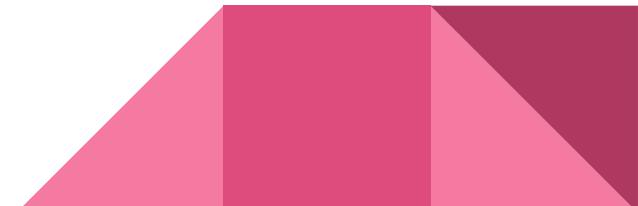
- The need for the application arises as people find it difficult to self manage their health.
- A digital assistance is needed to help users track their health and improve their treatment experience if any.
- To make users manage their health in a long term and easily contact physicians.

USER GOALS

- Set reminders to consume medication.
- Contact doctors upon medical queries and alert hospital, ambulance, doctor or family in case of emergency.
- Record pre-existing diseases and allergies.
- Refill medication alert

USABILITY GOALS

- Safe
- Visibility
- Learnability
- Memorability
- Efficiency
- Satisfying



DESIGN GOALS

- Provide efficient emergency and medical contact facility
- Track various health parameters, medical record and preferences of users.
- Allow users to set reminders for medical consumption and record them.
- Tablet replacement notification.

DESIGN CONCEPTS

1. Website with Smart Watch
2. Smart Pill box with touch interface
3. Mobile Application with NFC technology

DESIGN CONCEPT - 1

Smart Pill Box with Touch Interface



FEATURES

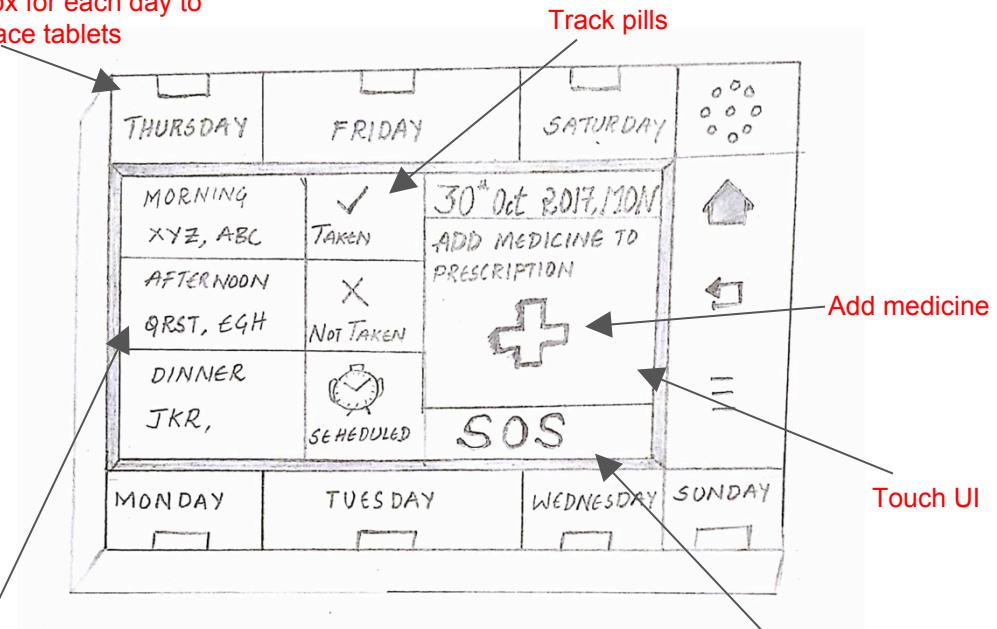
- Smart PillBox is a standalone device which can work without mobile application. It has Wi-Fi capability.
- Reminds user about medication using sound (recording or some call or notification tone)
- Smart PillBox keeps track of medicine using sensors placed in pill box and lets user know when he is going to run out of medicine and shows user what medication and dosage for that time of the day.
- Users can add emergency contact numbers to their profile and the mentioned mobile numbers will be notified or dialed when user clicks on the SOS.

HOW IT WORKS

- User is notified to take the medicine at a particular time.
- Pillbox beeps or plays notification sound until user opens the pillbox.
- When the PillBox is opened at the medicine interval time, it is recorded as “Taken” in the PillBox.
- Medicines to be taken for the day is displayed on the screen of the PillBox.
- Smart pillbox will have option to add and remove medicines and edit the time to take the pill.
- Additional functionalities- Overdosage alert and alarm snooze options.

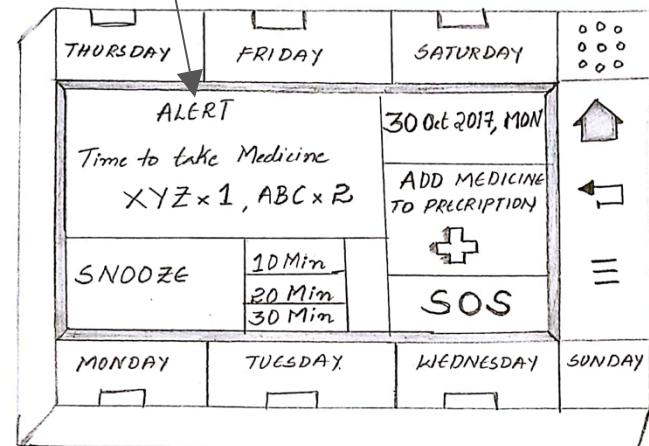
WIREFRAMES

Box for each day to place tablets



Smart Pillbox with touch Interface

Pill Alert with snooze option

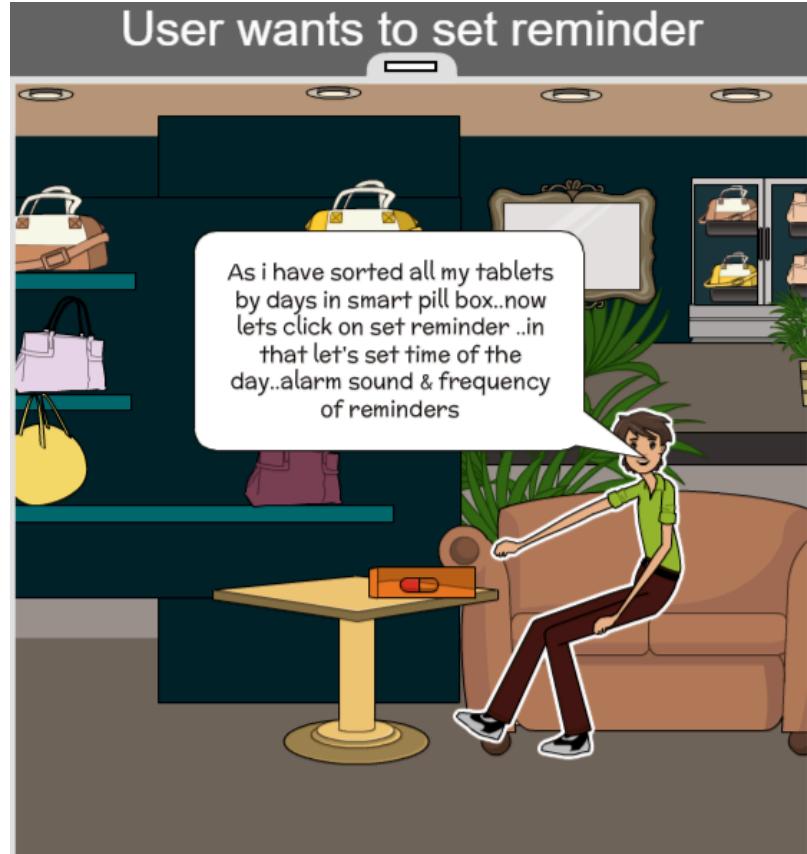


STORYBOARD

User wants to setup smart pill box



User wants to set reminder



STORYBOARD

Alerting the user



User carrying the pill box



PROS

- Less margin of error compared to manually entering whether the medicine is consumed or not.
- Can work without the need of a smartphone.
- Overdosage tracking ability- If the pillbox is opened at the wrong time, notification is triggered.
- Snooze alarm option.

CONS

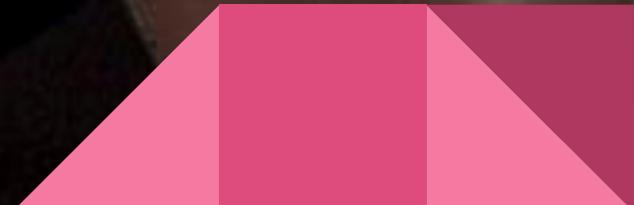
- Smart pillbox needs power in terms of rechargeable or replaceable battery.
- The pillbox has to be connected to the WiFi to send emergency notifications to family and doctors.
- User should invest money in buying a hardware oriented pill box.

SUMMARY

| Feature | Why | How | When |
|---|--|---|---|
| Auto updates that the medication had been taken | Helps users not to worry about updating each time a medicine is consumed | Once the PillBox is opened at the time when the tablet needs to be consumed, the medicine is updated as “taken” | When the user takes a pill. |
| Alarm/sound notification from the pillbox | Reminds user to take the medicine | A notification light and an alarm will sound when it is time to take the pill. | At the time the pill needs to be taken. |
| Overdosage alert | Reminds user of overdosing | When the pillbox is opened in the window outside the notification frame. | Tries to take already consumed pill. |

DESIGN CONCEPT - 2

Mobile Application with NFC technology



FEATURES

- The pillbox is not integrated using wireless communication instead it has a NFC tag and a bar-code.
- The NFC technology enables the user to easily record their medical consumption which reflects in the mobile application.
- The NFC technology enables the users to physically record the consumption and gives medicine purchase notification.
- Cheaper initial cost as compared to smart pillbox design.

HOW IT WORKS

- User is notified by the mobile application and starts to alert user.
- User takes the medication and tap on the NFC tag or scans barcode. (Barcode works on phone without NFC support)
- The notification is cleared when the Mobile Application receives signal from the NFC tag.

Mobile Application Wireframe

WELCOME PAGE

Log in with Facebook

Log in with Google +

Keep me signed in

OR

Sign up with email or phone number

Skip

Login via FB

SIGN UP PAGE

Personal Information

First Name

Last Name

email - id

Contact Number

DOB

Address

Blood Group

Password

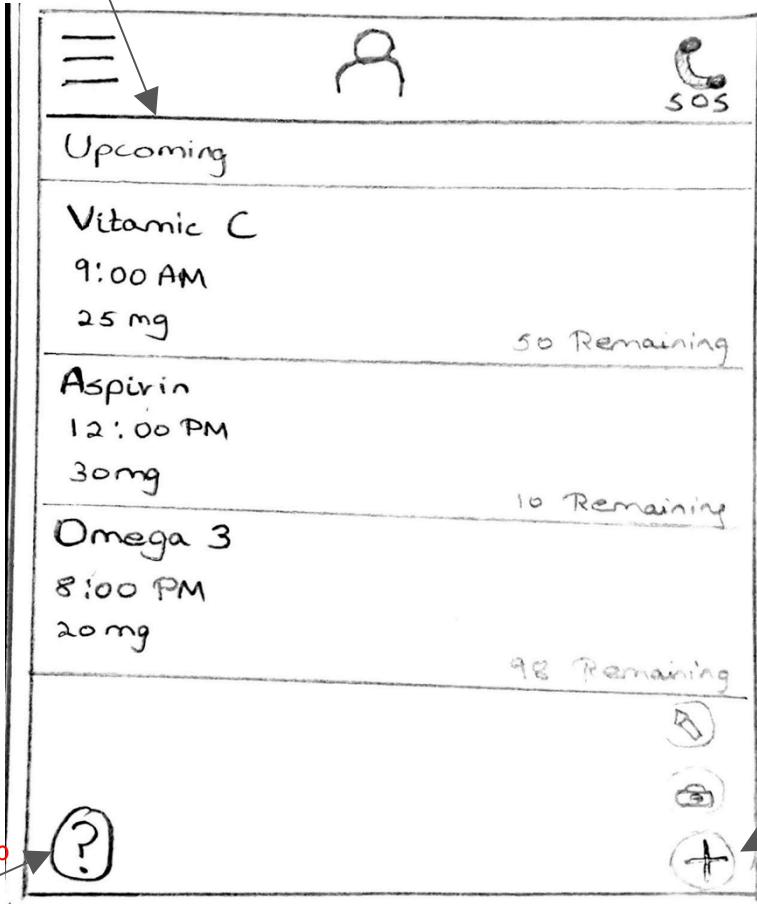
Confirm password

SUBMIT

Click to login manually

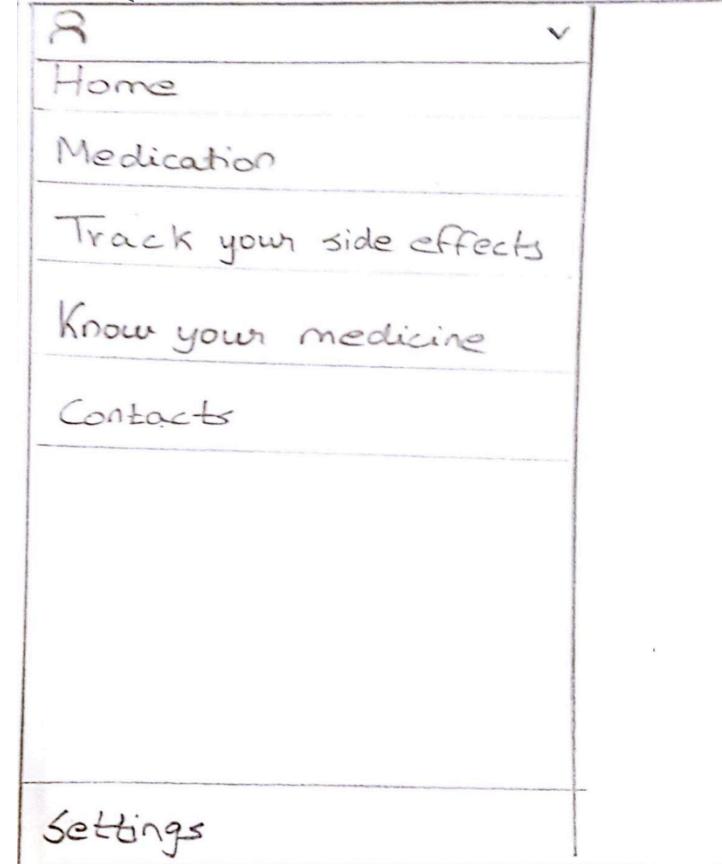
Upcoming
medication

HOME PAGE



Side scroll
bar

MENU



Edit info about
pills

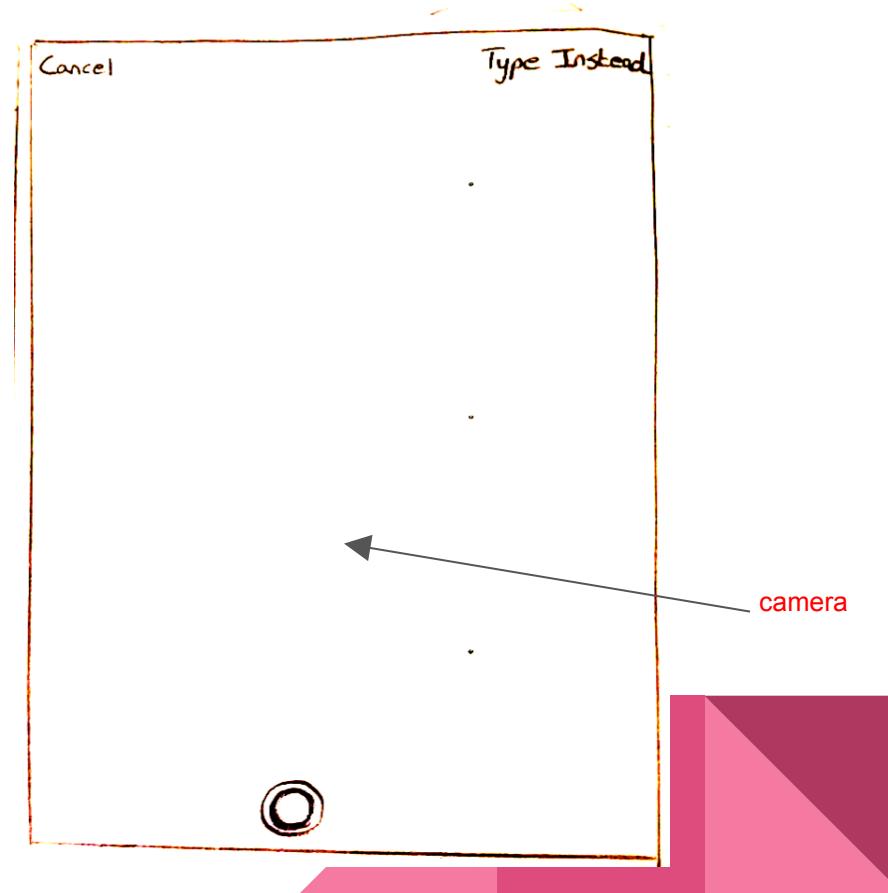
MEDICATIONS

A hand-drawn sketch of a mobile application interface titled "MEDICATIONS". The interface features a top navigation bar with three horizontal lines, a user profile icon, and a phone icon. Below the title is a section labeled "Medications" containing a list of five items: "Vitamin C", "Aspirin", "Omega 3", "Metoprolol", and "Linsinopril". Each item has a checkmark to its right. At the bottom of the screen are two circular icons: a question mark on the left and a plus sign on the right.

| Medication | Status |
|-------------|--------|
| Vitamin C | ✓ |
| Aspirin | ✓ |
| Omega 3 | ✓ |
| Metoprolol | ✓ |
| Linsinopril | ✓ |

Emergency
contact

ADD MEDICATION THROUGH CAMERA



camera

ADD MEDICATION MANUALLY

Cancel Edit Info Save

Medication Name

Dosage (eg : 25 mg)

Instructions

What it's for

Remark

Reminders + Add a Reminder

Quantity

Set time

SET REMINDER

Cancel Edit Info Done

Remind at

8:00 AM

On the following days

Every day >

Set
reminder for
pills

TRACK EFFECTS

☰ Track your side effects

Blood Glucose



Click here

Blood Pressure



Pain



Headache



Mood



Body Temperature



Sleep



Nausea



Seizure



RECORD BLOOD GLUCOSE LEVEL



Blood Glucose

Date

Oct 29, 2017

Time

7:49 PM

mg/dL

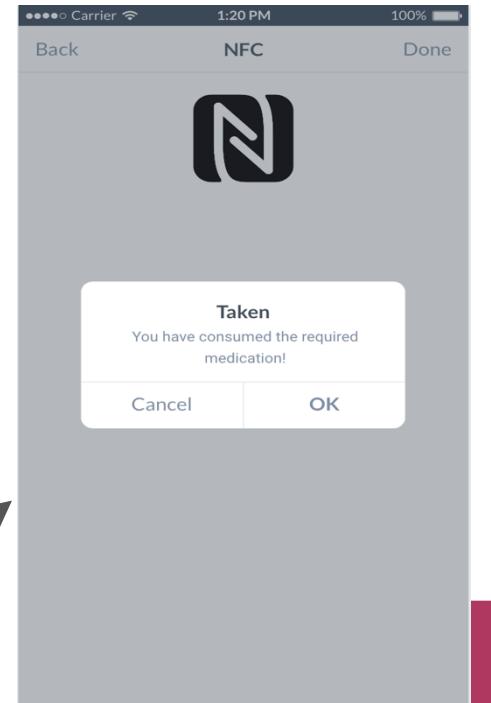
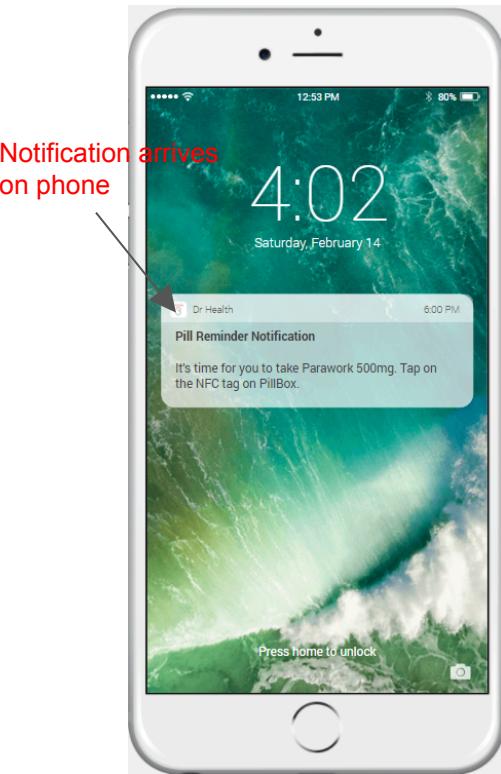
Record and track
medication for
possible side-
effects

STORE CONTACTS

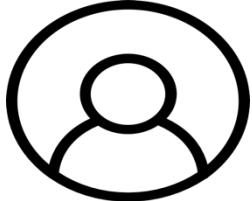
Add
emergency
contacts

| < A | | Done |
|--|--|------|
| Emergency Contact + | | |
| Full name | | |
| Vignesh Ganesh | | |
| Phone (Cell) | | |
| 87544 27977 Edit Remove | | |
| Medical Contact + | | |
| Full name | | |
| John Watson | | |
| Phone (cell) | | |
| 947560030 | | |
| Organization | | |
| Saint Mount Hospital Edit Remove | | |

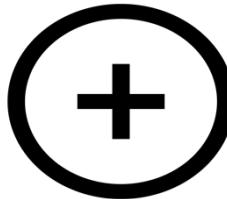
Pictorial representation of how it works



METAPHORS USED



User Profile Details



Add Record



Help



Menu Options



Drop Down Options



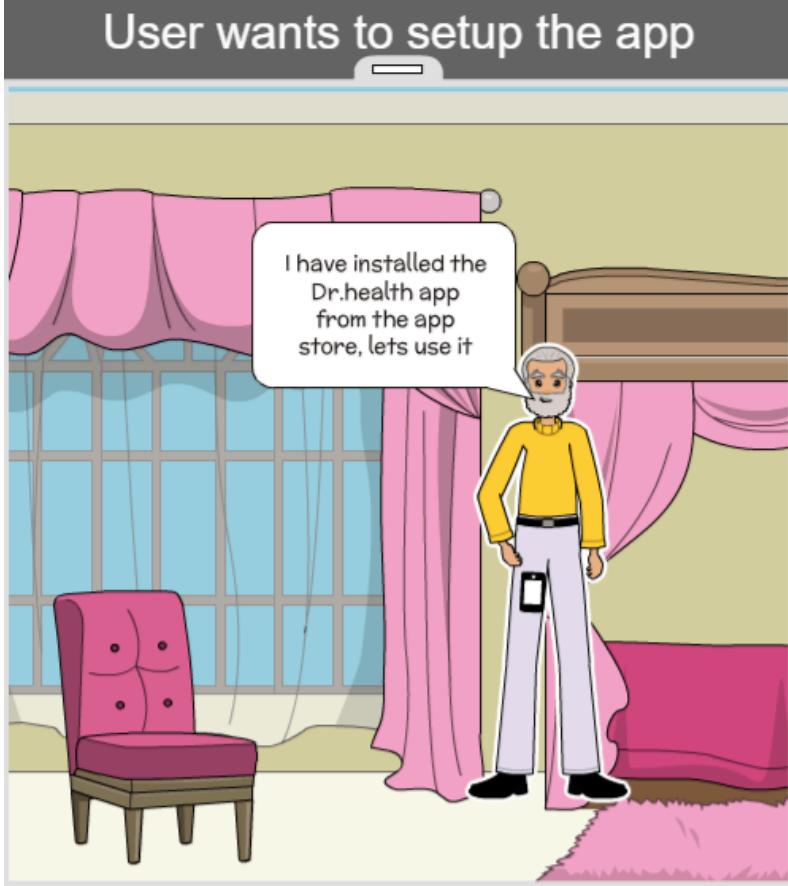
Back



Emergency

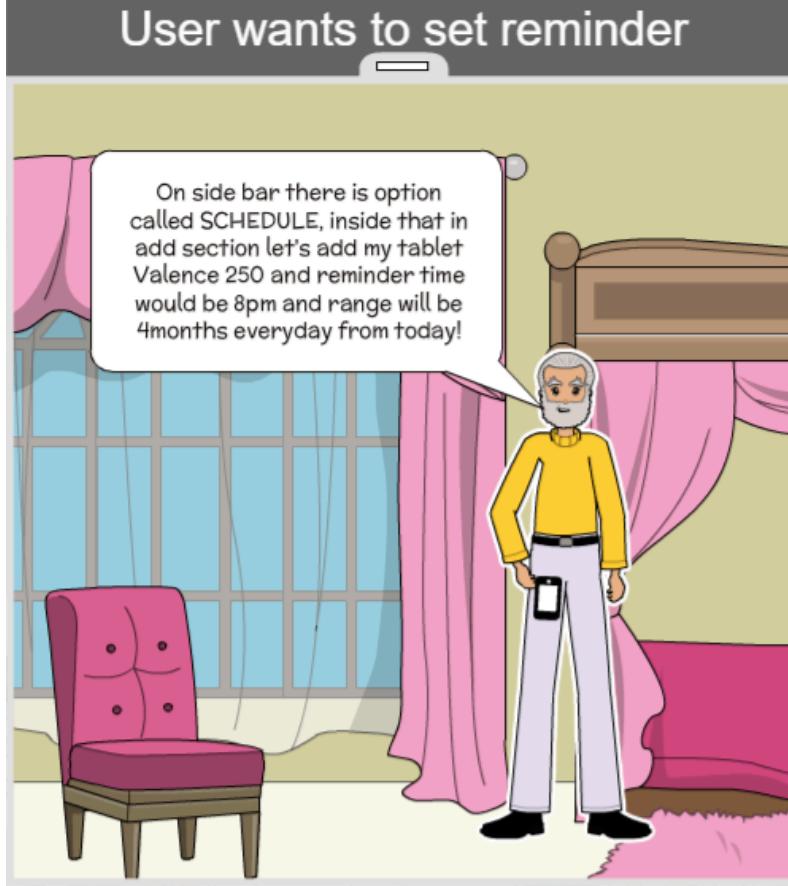
STORYBOARD

User wants to setup the app



I have installed the Dr.health app from the app store, lets use it

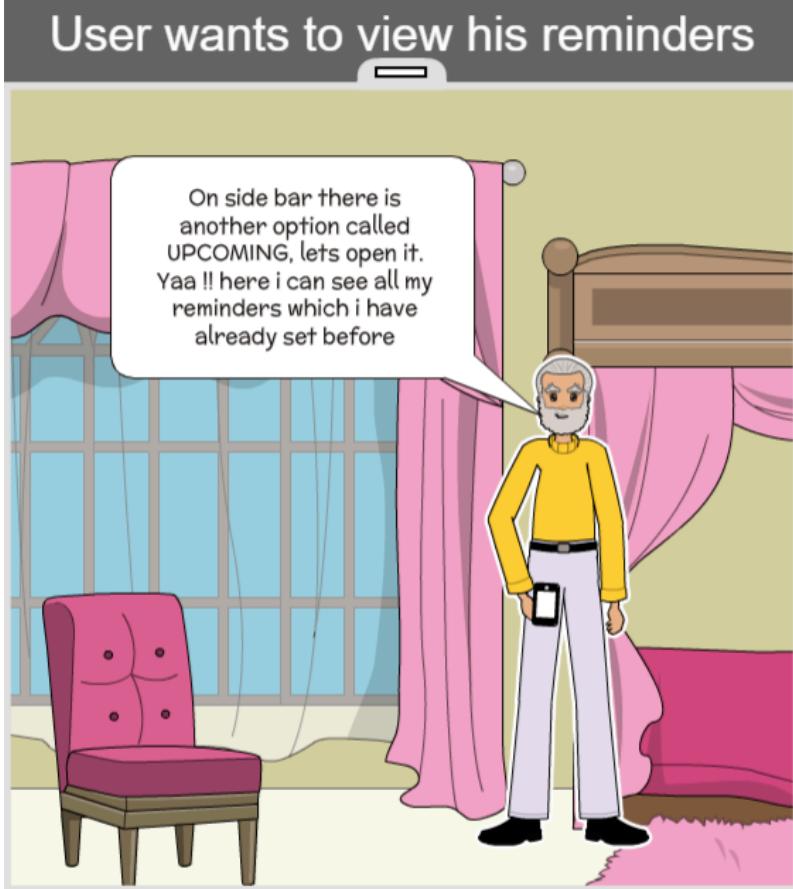
User wants to set reminder



On side bar there is option called SCHEDULE, inside that in add section let's add my tablet Valence 250 and reminder time would be 8pm and range will be 4months everyday from today!

STORYBOARD

User wants to view his reminders

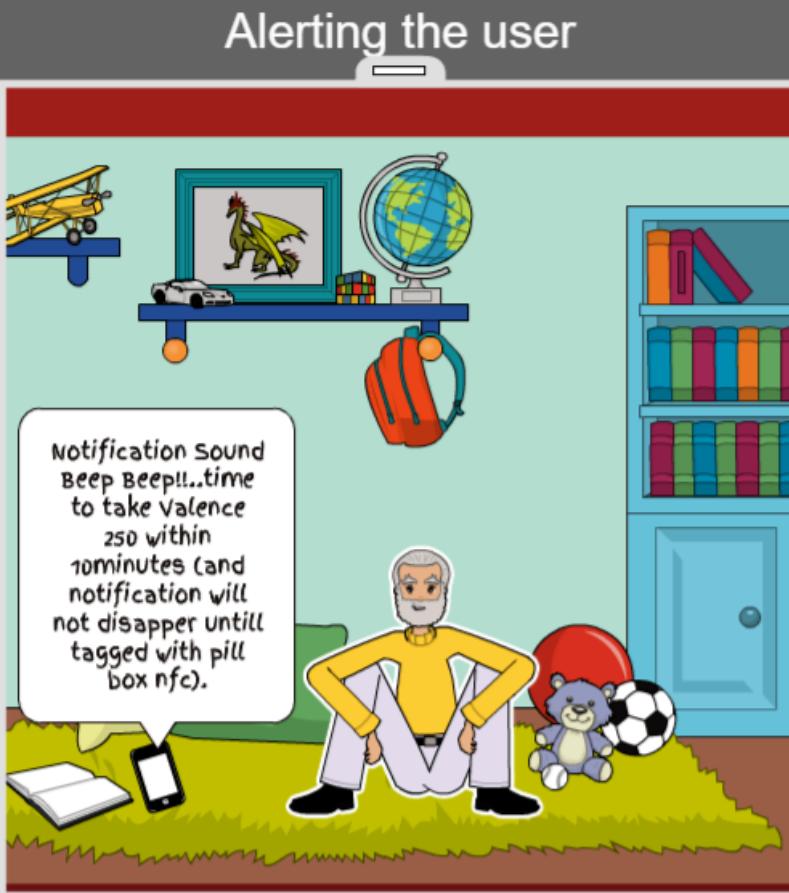


User wants to view past entries



STORYBOARD

Alerting the user

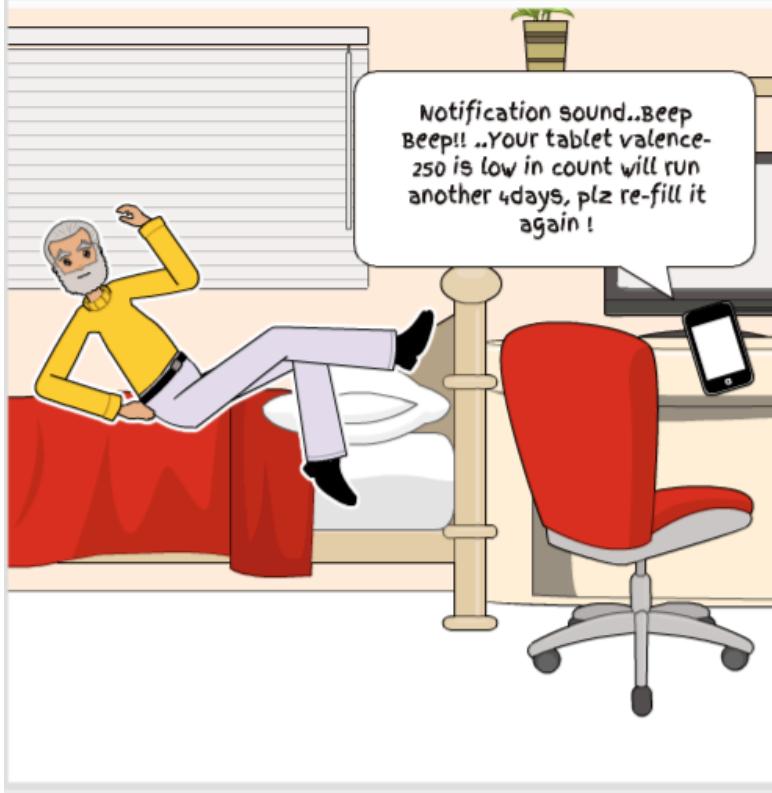


User removing notification



STORYBOARD

Medicine Replacement Notification



User refilling the pill box



PROS

- Pillbox with NFC tag and barcode on the side is more cost effective and more feasible than the smart pillbox.
- Any Pillbox can be made to work with this design concept without need of additional hardware.

CONS

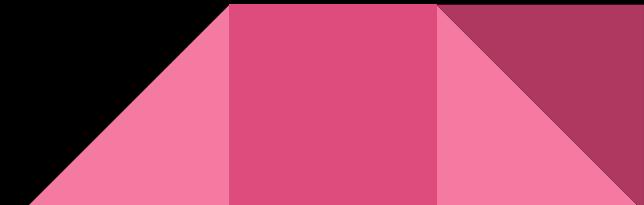
- Users needs to tap on the pillbox (or) scan the bar on the pillbox using mobile application every time they take a pill.
- Need to have the smartphone along with the pillbox. This can't work when the phone battery is dead.

SUMMARY

| Feature | Why | How | When |
|---|--|---|---|
| Tap on NFC tag to record the medication | <ol style="list-style-type: none">1. Auto update the medicine taken.2. Makes the user to take the pill and not just swipe the notification. | User needs to tap on the NFC tag to let the app know that the medicine is consumed. | This will occur at the time the medicine needs to be taken/ at the time of medication notification. |
| Easy installation will smart phone | Easier to integrate NFC tags with a smartphone; many smartphone give this inbuilt functionality. | The NFC tags are readily available. We just need to program NFC tag to the app. | The first time the pillbox is being set up for the application to function. |

DESIGN CONCEPT - 3

Smart Watch with Website



FEATURES

- Smart watch is integrated with the Dr. Health website.
- Wearable device notifies users about reminders through vibration alerts.
- Allows users to organize their consumption through the interface on the watch.
- Best combination for the people who prefer smartwatch over smartphone.

HOW IT WORKS

- Medication information is loaded in the website.
- Smartwatch receives the loaded information.
- Dr.Health notification will be displayed on the smartwatch at the time to take the medication.
- Smartwatch vibrates to let us know that the medication needs to be taken.
- We can accept the notification to let Dr.Health know that the pill is taken or it can be canceled to let Dr. Health know that the pill is not taken.
- There is also option to snooze the notification for certain amount of time.

STORYBOARD

User creating online account

Let's sign up with personal details asked and then login into DrHealth.com website

Welcome USER



User's web account is opened

oh..my profile is displayed... lets click on + button and add my supplement tablets name, how much quantity i have right now & push notification reminder time and it's date.

Profile & Details Displayed



STORYBOARD



WIREFRAMES

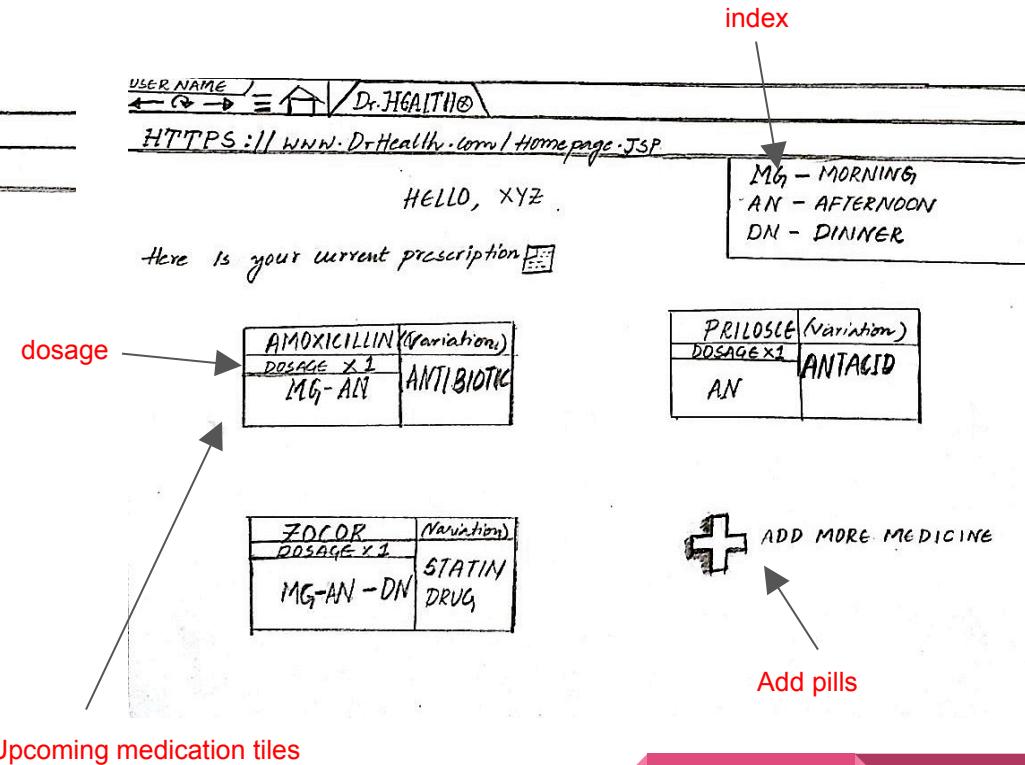
Website

Dr. HEALTH

USERNAME

PASSWORD

Login or signup through Dr.Health website



Wireframes

Add medicine page

USER NAME : Dr HEALTH ⑧

HTTPS://www.Drhealth.com/Homepage/addmedicine.jsp

MEDICINE DETAILS

MEDICINE NAME: AMOXICILIN *

MEDICINE TYPE:- ANTIBIOTIC (Drug Type)

QUANTITY :- 50 *

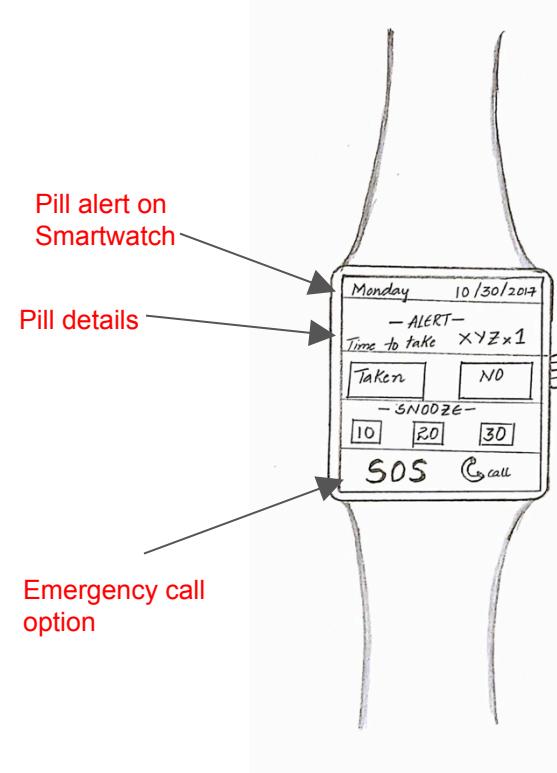
DOSAGE :- Morning [Altnoon] Dinner *

ADD MEDICINE → ADD TO PRESCRIPTION

* → Required

Insert details

This is a hand-drawn wireframe of a web page titled 'Add medicine page'. The page has a header with 'USER NAME : Dr HEALTH ⑧' and a URL 'HTTPS://www.Drhealth.com/Homepage/addmedicine.jsp'. Below the header is a form titled 'MEDICINE DETAILS'. The form includes fields for 'MEDIINE NAME' (AMOXICILIN) with a required indicator (*), 'MEDIINE TYPE' (ANTIBIOTIC) with a note '(Drug Type)', 'QUANTITY' (50) with a required indicator (*), and 'DOSAGE' (Morning, Altnoon, Dinner) with a required indicator (*). At the bottom left is a button 'ADD MEDICINE → ADD TO PRESCRIPTION' and at the bottom right is a note '* → Required'. The entire wireframe is enclosed in a rectangular border.



PROS

- Vibration on the skin is very difficult to ignore.
- Accessibility and usage is easy.
- Fast Access to details.
- Reduces need to use phone.
- Synchronize data with website.

CONS

- Smartwatch is usually costlier alternative for a smartphone.
- Battery power of the watch is limited.
- Users have to manually enter if they have taken the medicine.

SUMMARY

| Feature | Why | How | When |
|------------------------------------|--|--|---|
| Vibration alerts on the smartwatch | It is very helpful for people who use smart watches a lot. | It is connected to the website using server. | During the setup of the smartwatch. |
| Track medications on the website | It is usually easier to just use the web application instead of installing the extra application | Tracks using accept/reject choices at the time of notification | When the user logs into Dr. Health website. |

EVALUATING DESIGN CONCEPTS



BASED ON DESIGN GOALS

| Design Goals | Smart Pill Box | NFC Technology | Smart Watch |
|--|---------------------|---------------------|---------------------|
| Record Medications | Extremely Satisfied | Satisfied | Extremely Satisfied |
| Set Reminder | Neutral | Satisfied | Satisfied |
| Track Consumption | Satisfied | Extremely Satisfied | Extremely Satisfied |
| Refill reminder | Extremely Satisfied | Extremely Satisfied | Extremely Satisfied |
| Emergency notification to family/ doctor | Neutral | Satisfied | Extremely Satisfied |

BASED ON USABILITY GOALS

| Usability Goals | Smart Pill Box | NFC Technology | Smart Watch |
|------------------------|-----------------------|-----------------------|--------------------|
| Safe | Mostly | Always | Mostly |
| Visibility | Good | Very Good | Excellent |
| Satisfying | Satisfied | Satisfied | Very Satisfied |
| Efficiency | Moderate | High | Very High |
| Memorability | Very Easy | Easy | Easy |
| Learnability | Moderate | Easy | Easy |

DESIGN CONCEPT CHOSEN

Smartwatch with website

REASON

- Smartwatch is easier to use and compact. It can work without a smartphone.
- The design goals are highly satisfied using smartwatch.
- Visualization of data can be represented better on a web page.
- Web application is cost effective, easy to learn.