# Sprint Assignment 2 Report

By Team D

COEN/ELEC 390
Department of Electrical & Computer Engineering
Concordia University

March 11th, 2018

# Table of Contents

# List of Tables

# List of Figures

# Introduction

As it was concluded in Milestone 2, our team decided to continue with the idea of a mobile application for seniors that will remind and warn them to take their medicine on time using notifications

The application will be connected wirelessly to a set of sensors that will be located in a pill box, and will keep notifying the user until the sensors detect activity. The application will also notify a caregiver or a guardian if no activity is detected for a predefined period of time. The application will also educate the patients about the medication taken by providing valuable information to them about the medicines. Those information will contain an illustration of the medication, the recommended intake frequency, the ingredients, the side-effects, what diseases it treats, etc.

We believe that our project will increase the effectiveness of pharmaceutical treatments by resolving the recurring problem of patients that forget to intake medications and by educating them at the same time.

The next step in the development of our mobile application will be the second sprint in which we plan to improve the first version of our software, improve the hardware and establish a connection between both. The software will be the skeleton of our application and will contain basic options such as a login page, a settings page and a reminder scheduler. For the hardware, we plan to create the best possible pillbox that will include two hall-effect sensors. The hardware will be able to detect if the box is open and communicate it to the mobile app through bluetooth.

# Product Backlog

| Story ID | Story Title | Card | Story Points | Sprint | Status | Conversation | Confirmation |
|---|---|---|---|---|---|---|---|
| BK-1 | sensor and microcontroller | As a senior person, I want the medication box to be able to detect when I open the pill box, so that I be reminded to take the medication | 8 | Sprint 1 | Sprint 1 | 1. The sensors used are hall sensors 2. There will be an Arduino Uno 3. There will be two sensors | 1. The sensors can detect a magnetic field 2. The microcontroller can take data from the sensors 3. The sensors are in sync |
| BK-2 | skeleton | As a senior, i want to be able to log into the Medication Taking Reminder app, check the information about my medication, allow my nurse to set the medication intake schedule, and input guardian contact information, so that I may reduce any possibility of missing my medication intake. | 13 | Sprint 1 | Sprint 1 | 1. It is a prototype of our application. 2. it should have several button for those functions. | 1. Does it have a login button? 2. Does it have a check schedule button? 3. Does it have a set medicaction schedule interface? 4.Does it have set guardian information button? 5.Does each button take the user to a different page? |
| BK-3 | open box detection | As a senior person, I want the medication box to be able to detect when I open the pill box, so that I can get a notification when I miss the time to take my medicine. | 8 | Sprint 2 | Sprint 2 | 1. Hall sensors are used in the detection 2. A magnet will be used for sensing 3. The box is a common pill box 4. The miss rate for detection needs to be less than 5% | 1. Does the sensor successfully detect the "open box" action? 2. Is the miss rate less than 5%? |
| BK-4 | bluetooth connection | As a user of the application, I want the medication box to be connect to my smart device so that I can have real-time updates on my device | 3 | Sprint 2 | Sprint 2 | 1. There will be a Bluetooth slave chip on the sensor module 2. The version is Bluetooth 4.0 3. Sensor data sent via Bluetooth | 1. The Bluetooth chip connects to the phone 2. The sensor data is successively transmitted to the phone |
| BK-5 | schedule setting | As a nurse, I want the application to allow me to set a reminder schedule on my patient's cellphone for medication intake, so that I don't need to remind them personally every time for pills. | 5 | Sprint 2 | Sprint 2 | 1. There will be a schedule planner 2. The guardian will be in charge of schedule planning 3. There will be a form of backup to prevent schedule to be accidentally erased | 1. The schedule can be set within 5 minutes 2. Schedule setting is not ambiguous 2. The schedule can be reset 4. The schedule can be updated 5. The schedule has a log to keep track of changes |
| BK-6 | notification setting | As a senior person, I want the application to send me an alert when I don't open the medication box on time, so that I will not miss the chance to take medicine in proper time. | 5 | Sprint 2 | Sprint 2 | 1. The notification is a message 2. The notification is a sound 3. The notification can be set to have different sounds 4. The user can set the notification frequency and time | 1. The notification message needs to include the time to intake, the time of intake, the medication to take and the quantity 2. It is possible to change the notification frequency and times |
| BK-7 | audible notification | As a senior person, I want the notification to be loud enough so that I can be sure not to miss it | 5 | Sprint 3 | Sprint 3 | Having this feature will eliminate some of the risks that the notification will not be heard | 1. Is the users information only obtainable by specific individuals? (i.e Nurse, Doctor, Guardian, User) |
| BK-8 | notification for guardian | As a guardian, I want the application be able to inform me if my senior does not take their medicine a period time pass the schedule, so that I can contact them and get more detail of why they miss the right time to take pills. | 13 | Sprint 3 | Sprint 3 | 1. What is the period be we send the notification to the guardian, if the senior does not take their medicine? 2. How can we store the information of guardian? 3. How can the application automatically send the notification to the guardian phone when the senior does not take the pill pass a period of time? | 1. Does the notification send when the sensor does not detect a action passing a certain of time? 2. Does the notification sucessfully send to a particular phone? |
| BK-9 | educative interface | As a senior person, I want to be able to have access to information concerning the medication I take so that I know the benefits, dosage and secondary effects of the medication I'm intaking. | 20 | Future | Not in sprint | Having this feature will allow the user to be better informed on the benefits, dosage and secondary effects of the medication, thus allowing him/her to make better choices and to encourage him/her to take the medication | 1. Can the user understand clearly the information provided? 2. Is the information up-to-date with current research and development? 3. Is the information stated in a way which invites the user to read and does not bore them? |
| BK-10 | privacy protection | As a senior, I want to be able to have protected access to the application so that I can preserve my confidentiality | 13 | Future | Not in sprint | 1. What technology are we using to complete this function? 2. Who can access the data? | 1. Is the users information only obtainable by specific individuals? (i.e Nurse, Doctor, Guardian, User) |
| BK-11 | multi-box interface | As a senior, I want to be able to monitor my activity when I have more than one medication box so that I do no mix up and can be more organized | 20 | Future | Not in sprint | 1. There will be a page to add, drop and modify box and box content 2. There will be buttons to access these pages on the main page | 1. Check if add/drop/modify takes less than 5 minutes to do 2. Check if the buttons get to the different section within 3 clicks |
| BK-12 | multi-sensor detection | As a senior, I want to have a redundant system using multiple sensors to detect my medication activities so that I can be sure I took the medication | 40 | Future | Not in sprint | 1. The suggested sensors are motion sensors, contact sensors, vibration sensors 2. The sensors will complement each other | 1. Check sensor data output 2. Check if the controller can handle all the data 3. Check how sensors can complement one another |
| BK-13 | user database | As a guardian, I want to have access to the information concerning the senior from my own mobile device so that I can monitor their activity from any location | 20 | Future | Not in sprint | 1. There will be a database that can be updated through servers 2. The database will hold using information 3. Authorized user can access assigned database | 1. Check if updating database is simple 2. Check if authorized users can access theirs but not others 3. Check if servers can process data quickly |

*Table 1: Product Backlog*

# Sprint 1 Backlog

| Sprint 1 Goal(s): | | | 1. Build sensors and microcontroller circuit and collect data | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | 2. Build the skeleton of the application | | | |
| Story ID | Task ID | Task Title | Task Description | Ideal Hours | Status | Comments |
| BK-1 | 1,1 | Brainstorming | | | | |
| | 1.1.1 | Brainstorming I | Research about possible sensors that could be possibly used in this application | 3 hours | Completed | Motion sensor, vibration sensor, contact sensor, potentiometer, hall effect sensor |
| | 1.1.2 | Brainstorming II | Discuss the complexity of implementation associated with the sensor | 3 hours | Completed | We finally decided to use the hall effect sensor |
| | 1.1.3 | Brainstorming III | Discuss the connectivity to be used between the devices | 2 hours | Completed | Bluetooth 4.0 connection |
| | 1,2 | Sensor Position | Find out the best position for the sensor | 3 hours | Completed | 3 at most on the front of the box |
| | 1,3 | Obtaining sensors | Research information about different kind of sensors, decide which one is needed, find where the sensors are sold and buy them | 2 hours | Completed | Bought them from ABRA electronics, 2 for the moment |
| | 1,4 | Circuit design | Design the circuit that will connect the sensors to the microcontroller and allow interfacing with them | 4 hours | Completed | A circuit was found on a hobbyist website and it was modified to fit our needs |
| | 1,5 | Arduino code | Write the Arduino code that will allow retrieval of data from the sensors | 3 hours | Completed | A simple code was written to turn on an led and display closed when the Hall sensor senses a magnet |
| | 1,6 | Build/interface sensors | Build the circuit and use the Arduino code to collect data from the sensors | 4 hours | Completed | The circuit was built on a bread board and was successfully interfaced with |
| | | | | | | |
| BK-2 | 2,1 | Login Page | Creation of a login page and links to its related activities | 5 hours | Completed | |
| | 2,2 | User Information input Activity | user can input their name, guardian's name and guardian's phone number. | 5 hours | Completed | |
| | 2,3 | User pofile Activity | This activity contains four buttons, which are create remider, view remider, edit pofile, and backward button | 5 hours | Completed | |
| | 2,3 | Schedule Activity | | | | |
| | 2.3.1 | schedule checking activity | Creation of the reading mode of this activity | 5 hours | Completed | only allow to read the schedule |
| | 2.3.2 | schedule setting activity | Creation of the edit mode of this activity | 5 hours | Completed | enables the edition of information |
| | 2,4 | User information edit Activity | An activity allows user to change their information. | 5 hours | Completed | |
| | 2,5 | Action bar | An action bar for those two Schedule activity and edit Activity | 5 hours | Completed | |
| | | | | | | |
| | 2,6 | Testing | | | | |
| | 2.6.1 | Buttons | Test and check that each button in the application meet their respective requirements | 5 hours | Completed | |
| | 2.6.2 | Schedule Activity | Test and check the schedule activity working well | 5 hours | Completed | |
| | 2.6.3 | User information edit Activity | Test and check the component in this activity working well | 5 hours | Completed | |
| | | | | | | |
| | 2,7 | Integration testing | Test the entire application | 5 hours | Completed | Involves unit and component testings |
| | 2,8 | Defect correction | This is reserved for solving any error that may arise due to task/feature malfunction | 5 hours | Completed | |
| | | | | | | |
| | | Documentation | | 6 hours | Completed | |
| | | Product Backlog groom | | 5 hours | Completed | |

*Table 2: Sprint 1 Backlog*

# Design Document

## Android Application Wireframe

      The wireframe shown in figure 1 is the skeleton of the application. It best interests the needs of seniors since they will occupy the majority of the user base. The user interface will have many big buttons and easy to read text. The creation interfaces only hold 3-4 types of data, that way the user is not overwhelmed with unnecessary options. Also, the user will be able to navigate to any page within two button presses (after the user select screen), this way the user will be able to navigate back to the splash screen with ease. Expect the final application to have similar features to those shown in figure 1.
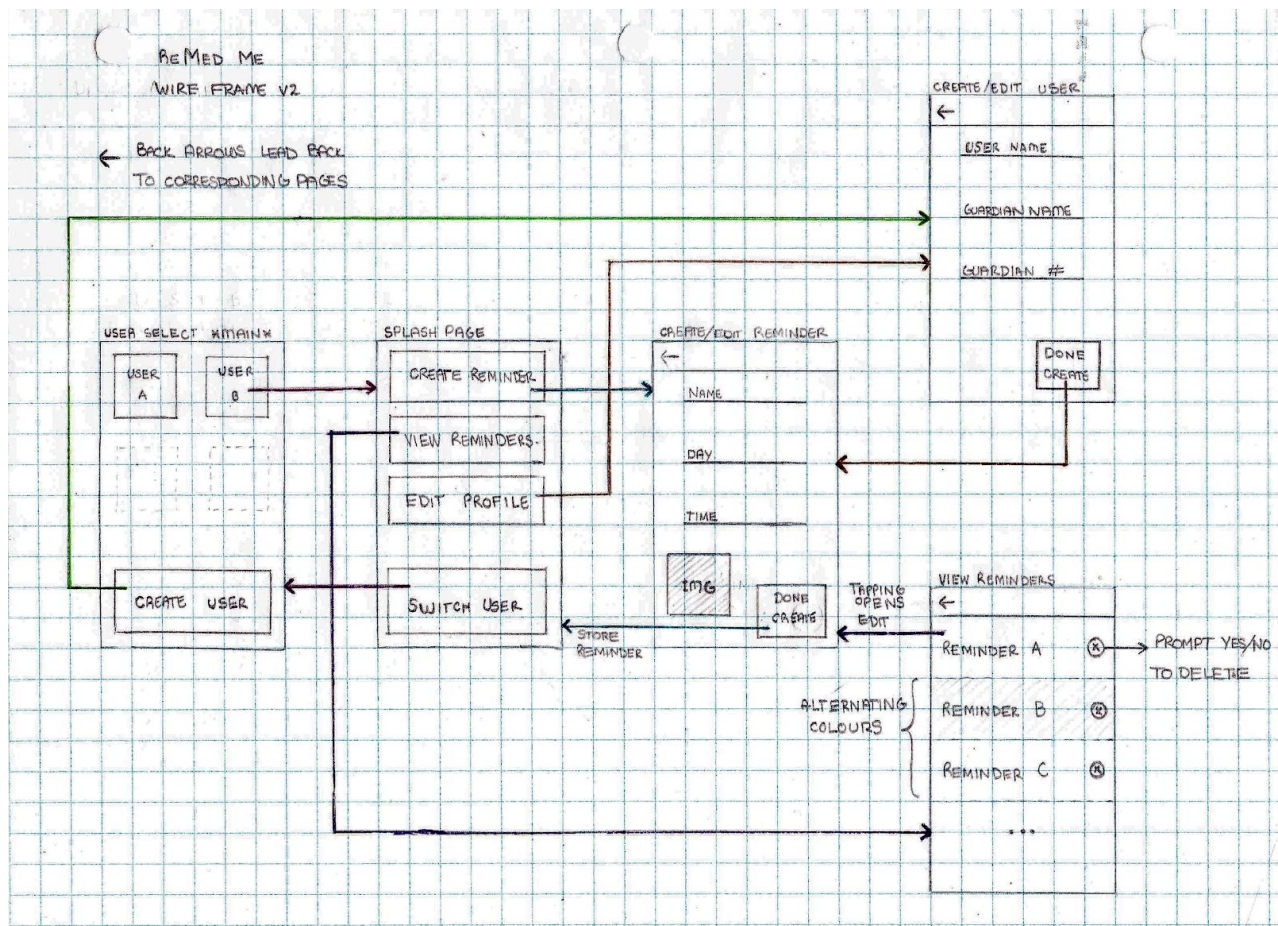


*Figure 1: Application Wireframe v2*

# System Architecture

This system architecture will be as shown in figure 2. The hall effect sensors will receive an input from the user and send a signal to the microcontroller which will then send a signal via bluetooth to the device. Once the signal is received, the device will process the signal and shut off the alarm if the correct signal is received. Optionally, the device can send a text message to a guardian if the notification has yet to be disabled for *X* amount of time. User profiles will be stored in an SQLite table, as well as the reminders which will be held in their own SQLite table per user.
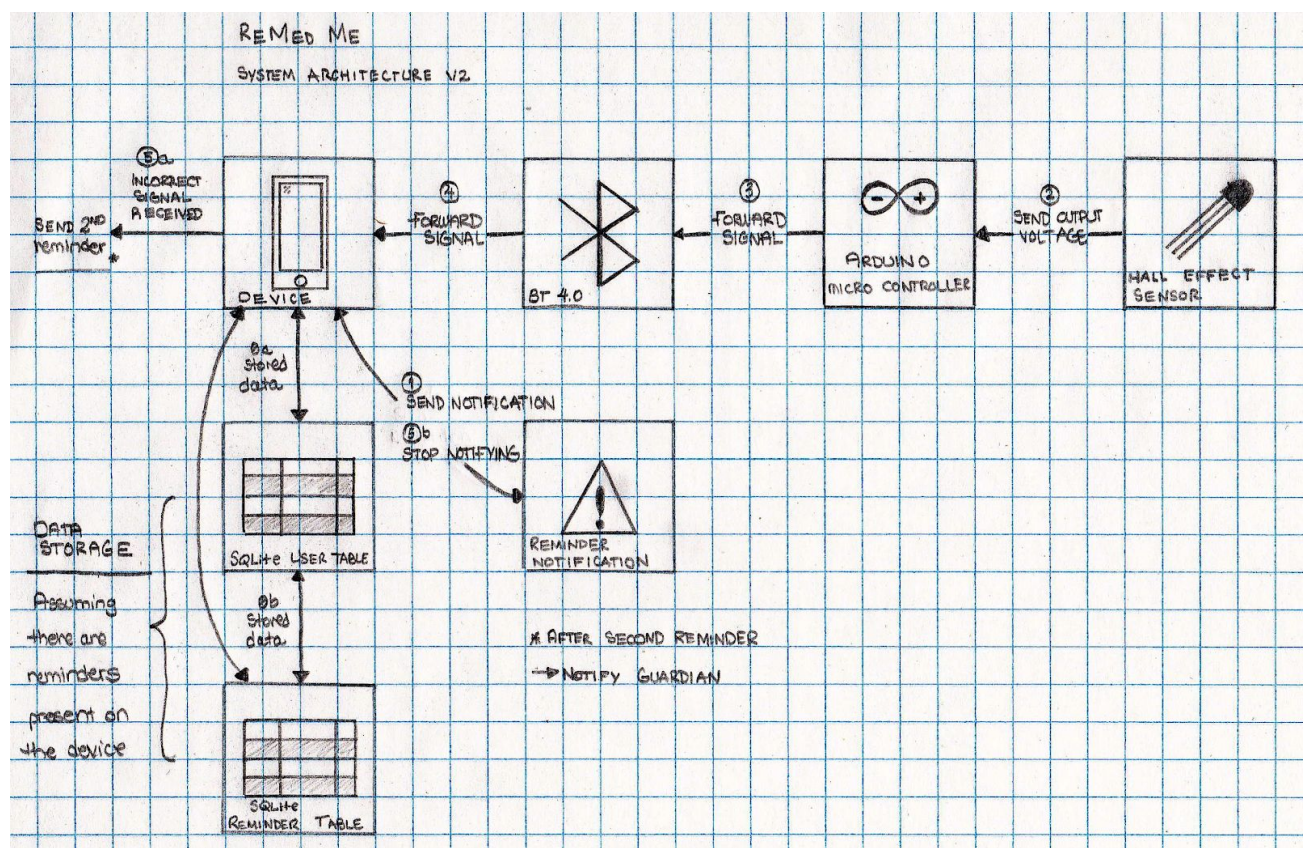


*Figure 2: System Architecture v2*

# Hardware Architecture

The system will be using two hall effect sensors on either end of the front of the lid of the box. There will be two magnets on the front of the base of the box. The sensors and magnets will line up when the box is closed. Hall effect sensors are used for proximity switching. When the box is closed, the sensor will be next to the magnet, the sensor will respond to the magnetic field and output a certain voltage. Opening the move the sensors away from the magnets, thus changing the output voltage. The two different output voltages will be classified as the box being either opened or closed. When a reminder initiates on the device, it will search for an open signal from the microcontroller, when the lid is opened and the signal is received, the application will cease to notify the user of the reminder.

# Software Architecture

The software contains 7 activities. The main activity is the user select, this will be the screen the user sees when they initially launch the app. From the user select screen, the user may proceed into the main functionality of the application by selecting an existing user or create a new user by selecting the create user button. The create user activity currently has three credentials to fill out, username, guardian name, and guardian phone number. When the create/done button is pressed, the credentials will be stored in the user SQLite table, as well as create a new SQLite table for the reminders. When a user is selected, the splash page will appear with 4 options, create reminder, view reminders, edit profile and switch user. The create reminder activity currently has three credentials as well, medication name, day of the week, and time (with future support for an image of the medication). Pressing the create/done button stores the reminder in the current users reminder table and goes back to the splash page. The view reminders activity will show all existing reminders of the current user in a ListView. Pressing an existing reminder will redirect to the edit reminder activity that will function very similarly to the create reminder activity but will instead update the credentials over creating a new row. There will also be an option to delete a reminder from the ListView in the future, which will remove the reminders row from the table. The edit user activity functions very similarly to the create user activity but will instead update the credentials over creating a new row. Finally the switch profile button will redirect back to the main activity to select a new or existing user. If a user profile is deleted, the users table as well as the accompanying reminder table will be deleted.

# Use Cases and Sequence Diagrams

### Use Case 1: Creating/Editing & Viewing Reminders (figure 3)

Starting from the main activity, the user select activity, tapping on user_btn (User 1, 2, 3...) sends the user to the splash page activity. Tapping on create_reminder_btn (Create Reminder) sends the user to the create reminder activity. In this activity there are three credentials to input, a String for the medication name, a String for the day of the week, and an int for the time. There will be future support for a BufferedImage for an image of the medication. When add_reminder_btn (Create) is tapped, the information is stored in the SQLite table with INSERT INTO reminder_table. Alternatively, from the splash page activity, tapping view_reminder_btn (View Reminders) sends the user to the view reminders activity. In this activity, the contents of reminder_table are displayed in ListView format. Tapping a one of the TextViews will prompt the user to edit or delete the reminder. Deleting the reminder calls DELETE FROM reminder_table and removes the specified row from the database. Editing the reminder sends the user to the same page as it would for creating the reminder but instead of inserting into the table, the table is updated with UPDATE reminder_table.
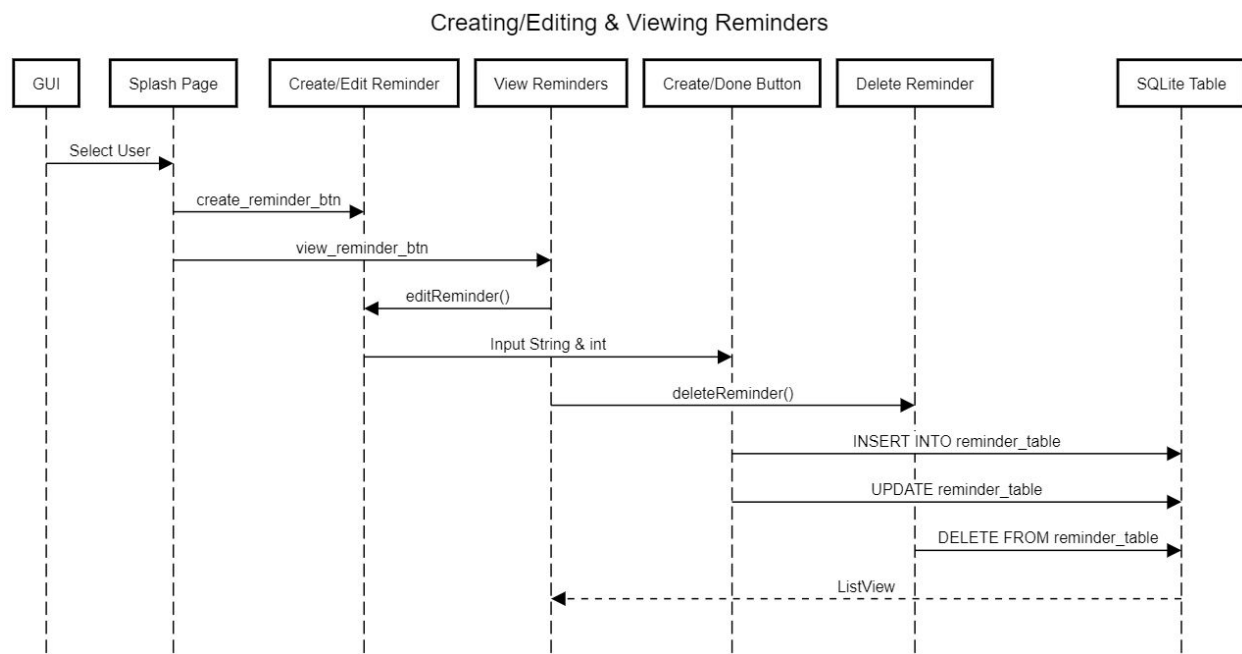


*Figure 3: Reminders Sequence Diagram*

*Use Case 2: Creating/Editing User Profile (figure 4)*

Starting from the main activity, the user select activity, tapping on create_user_btn (Create New User) sends the user to the create user activity. In this activity there are three credentials to input, a String for the users name, a String for the guardian name, and a String for the guardian phone number. When add_user_btn (Create) is tapped, the information is stored in the SQLite table with INSERT INTO user_table. Alternatively, from the user select activity, the user can select a profile to move the the splash page activity. When edit_user_btn is tapped, the user is sent to the edit user activity which is the same as the create user activity but instead of inserting into the table, the table is updated with UPDATE user_table.
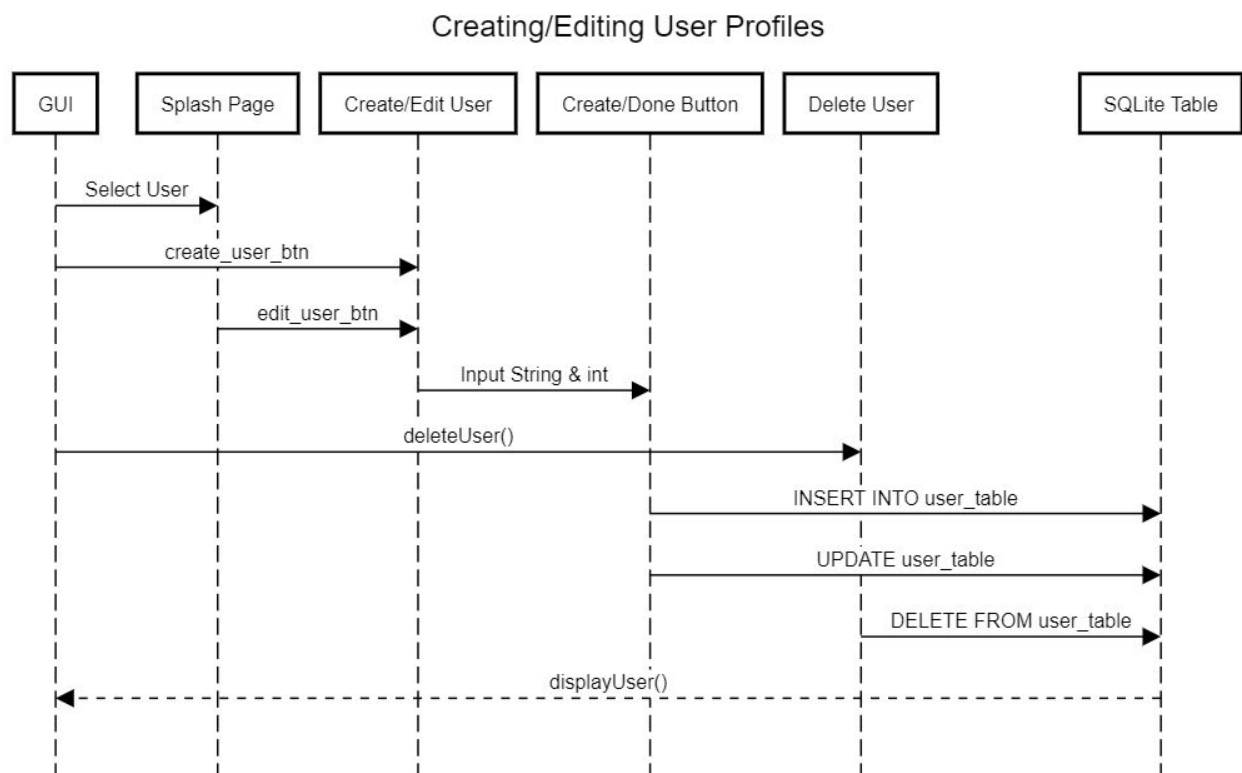


*Figure 4: User Profile Sequence Diagram*

# Test Document

## Test Plan 1: Crash Test

*Summary: BK-2, BK-5*

We are trying to see whether the app will crash while switching activities in quick succession for a moderate period of time. If we are constantly switching activities, the application could potentially crash from too many actions happening in a short period of time.

We are trying to see whether the app will crash if we keep adding items to the reminder table. If we too add many reminders to the database, the application may not be able to hold all of them and throw an error or crash.

| Test Case 1.1: Stress Test | | |
|---|---|---|
| **Pre-Condition:** BK-2: We need a working skeleton to be able to switch between activities. | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Switch to a different activity. | Proper switch through activities | Proper switch through activities |
| 2. Speed up rate of switching to attempt to crash the application. | Application crashes due to too many actions. | Application did not crash. |
| **Pass/Fail:** | | |
| 👍 | | |

| Test Case 1.2: Overflow Test | | |
|---|---|---|
| **Pre-Condition:** BK-2, BK-5: We need a working skeleton and working reminder creation to store reminders | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Navigate to create reminder activity. | Proper switch to correct activity | Proper switch to correct activity |
| 2. Add a reminder to database. | Reminder is added to database. | N/A |
| 3. Continue adding many reminders to the database to crash or generate an error. | Error is generated or crash due to too many insertions to the database. | N/A |

| **Result**: Not enough data is available to generate a result at the moment. |
| --- |

# Test plan 2: Skeleton Reliability

*Summary: BK-2*

        We are going to test the performance of the skeleton. Firstly, we are going to test the login page. The login page should have multiple buttons and they will lead us to different user's profile or user creating Activity. Secondly, we are going to test the user information creation Activity. This Activity has three EditText and one button, and it allows us to input information and create a profile. Thirdly, test the user's profile Activity. This Activity contains four button which are "Create Reminder", "View Existing Reminder", "Edit Profile", and "Switch Profile". Also, each button link to an Activity. Fourthly, Reminder Creation Activity allows use to input the information and set the time for taking medication. Fifthly, Schedule check Activity allows us to check the schedule. Finally, the Edit Profile Activity should allow us to reset the user information.

| **Test Case 2.1:** Login page | | |
| --- | --- | --- |
| **Pre-Condition:** Have the application running on a device. | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Click the "Create User" button | Go to User information Activity | Go to User information Activity |
| 2. Click backward icon | Back to login page | Back to login page |
| 3. Click "User 1" button | Go to user' profile Activity | Go to user' profile Activity |
| **Pass/Fail:** | | |
| 👍 | | |

| **Test Case 2.2**: User's Information creation Activity | | |
| --- | --- | --- |
| **Pre-Condition**: Select the "Create User" button on the login page | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Type in the name | Keyboard show up, and allows input characters | Keyboard show up, and allows input characters |
| 2. Type in the phone number | Number keyboard show up and allows input # | Number keyboard show up and allows input # |
| 3. Click "Create" button | A message shows and return to the login page | A message shows and return to the login page |

| Pass/Fail: |
|:---:|
| 👍 |

| Test Case 2.3: User's Profile Activity | | |
|---|---|---|
| **Pre-Condition**: Select the "User #" button on the login page | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Click "Create Reminder" button | Bring us to Reminder Creation Activity | Bring us to Reminder Creation Activity |
| 2. Click backward icon on the action bar | Back to User's Profile Activity | Back to User's Profile Activity |
| 3. Click "View Existing Reminders" button | Go to Schedule Check Activity | Go to Schedule Check Activity |
| 4. Click backward icon on the action bar | Back to User's Profile Activity | Back to User's Profile Activity |
| 5. Click "Edit Profile" button | Go to User's Information creation Activity | Go to User's Information creation Activity |
| 6. Click backward icon on the action bar | Back to User's Profile Activity | Back to User's Profile Activity |
| 7. Click "Switch Profile" button | Return to login page | Return to login page |
| **Pass/Fail:** | | |
| 👍 | | |

| Test Case 2.4: Reminder Creation Activity | | |
|---|---|---|
| **Pre-Condition**: Select the "Create User" button on the login page, then click "Create Reminder" | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Type in the medication name | Keyboard show up, and allows input characters | Keyboard show up, and allows input characters |
| 2. Select the day from menu | A menu which we can choose between Monday and Sunday | A menu which we can choose between Monday and Sunday |
| 3. Type in the time | Number keyboard show up and | Number keyboard show up and |

| | allows input # | allows input # |
|---|---|---|
| 4. Click "Create button" | A message shows and return to User's Profile Activity | A message shows and return to User's Profile Activity |
| **Pass/Fail:** | | |
| 👍 | | |

| **Test Case 2.5**: Schedule Check Activity | | |
|---|---|---|
| **Pre-Condition**: Select the "Create User" button on the login page, then click "View Existing Reminders" | | |
| **Steps** | **Expected Results** | **Actual Result** |
| 1. Observe this Activity | An empty schedule should be exist. | Blank Activity |
| 2. Click backward icon on the action bar | Back to User's Profile Activity | Back to User's Profile Activit |
| **Pass/Fail:** | | |
| 👎 | | |

# Definition of Done

## Definition of Done criteria

After discussing the important criterias that are related to our project, here is the checklist that we decided to use for the validation of each PBI :

- ✓ Produced artifact (code/document) for the PBI
- ✓ Requirements mentioned in PBI are satisfied
- ✓ Acceptance criteria(s) for PBI are satisfied
- ✓ Unit tests performed and passed
- ✓ Integration tests performed and passed
- ✓ Project builds without errors
- ✓ Design Document updated
- ✓ Test Document updated

## Definition of Done validation

| Story ID: BK-1 | |
| --- | --- |
| **User Story: Sensor and Microcontroller** <br> *As a senior person, I want the medication box to be able to detect when I open the pill box, so that I can be reminded to take the medication* | |
| **DoD checklist for this PBI:** | **Status** <br> **Completed** |
| ✓ Produced artifact (code/document) for the PBI | Done |
| ✓ Requirements mentioned in PBI are satisfied | Done |
| ✓ Acceptance criteria(s) for PBI are satisfied | Done |
| ✓ Unit tests performed and passed | Done |
| ✓ Integration tests performed and passed | Done |
| ✓ Project builds without errors | Done |
| ✓ Design Document updated | Done |
| ✓ Test Document updated | Done |

| Story ID: BK-2 | |
| --- | --- |
| **User Story: Skeleton** <br> *As a senior, i want to be able to log into the Medication Taking Reminder app, check the information about my medication, allow my nurse to set the medication intake schedule, and input guardian contact information, so that I may reduce any possibility of missing my medication intake.* | |
| **DoD checklist for this PBI:** | **Status** <br> **Completed** |
| ✓ Produced artifact (code/document) for the PBI | Done |
| ✓ Requirements mentioned in PBI are satisfied | Done |
| ✓ Acceptance criteria(s) for PBI are satisfied | Done |
| ✓ Unit tests performed and passed | Done |
| ✓ Integration tests performed and passed | Done |
| ✓ Project builds without errors | Done |
| ✓ Design Document updated | Done |
| ✓ Test Document updated | Done |

# Sprint 2 Backlog

| Sprint 2 Goal(s): | 1. Successfully detect the "open" action and missing rate should less than 5%. 2. Establish a bluetooth connection between the hardware and the application 3. A notification is sent at a specific time 4. The medicine schedule allows to set, save, and check |
|---|---|

| Story ID | Task ID | Task Title | Task Description | Ideal Hours | Status | Comments |
|---|---|---|---|---|---|---|
| BK-3 | 3,1 | Obtaining the box | Find or purchase a suitable box, ideally a commercially available pill box, as our prototype | 1 hour | Planned | |
| | 3,2 | Box opening action | | | | |
| | 3.2.1 | Open definition | Define what is considered as opened and what is considered as closed, ths subtask is done by brainstorming | 2 hours | Planned | |
| | 3.2.2 | Sensor detection algorithm | Make the application able to use information from the sensors | 5 hours | Planned | |
| | 3,3 | Sensor integration | Create a prototype for the box that will be used for the application by adding the sensors to it | 5 hours | Planned | |
| | 3,4 | Data collection | Collect data from the sensors for opening and closing the box | 2 hours | Planned | |
| | 3,5 | Missing rate | Detemine the miss rate from the data collected | 2 hours | Planned | |
| | 3,6 | Reducing the missing rate | if the missing rate is greater than 5%, adjust the sensor to a better position, and calculate the missing rate | 5 hours | Planned | |
| BK-4 | 4,1 | Pill box and smartphone connection | | | | |
| | 4.1.1 | Bluetooth integration | Integrate a Bluetooth Chip with the microcontroller system | 3 hours | Planned | |
| | 4.1.2 | Wireless sesnor system | Use a battery (9V) to power the sensor/microcontroller system to make the system independent of the computer's usb port | 3 hours | Planned | |
| | 4.1.3 | Bluetooth connection | Write the code that will enable the application to receive Bluetooth signals | 4 hours | Planned | |
| | 4.1.4 | System testing | Test the connection at different distances and in different rooms to verify the connectivity and obtain data | 5 hours | Planned | |
| | 4,2 | Sensor interfacing | Write the code that will enable the application to use the sensor data received from the sensor module | 5 hours | Planned | |
| BK-5 | 5,1 | Schedule table | use the liveview (SQLite) to create a schedule table to "view existing remiders" | 5 hours | Planned | |
| | 5,2 | Menu to create reminder | Create a page that allows the user to create, remove and modify reminders | 4 hours | Planned | |
| | 5.2.1 | Add button | Create a button that will allow creation of a reminder | 3 hours | Planned | |
| | 5.2.2 | Remove button | Create a button that will allow removal of a reminder | 3 hours | Planned | |
| | 5.2.3 | Modify button | Create a button that will allow modification of a reminder | 3 hours | Planned | |

| | | | | | | |
|---|---|---|---|---|---|---|
| BK-6 | 6,1 | **Message notification** | Create a notification message that contains time of intake, time to intake, medicine to take and quantity | 2 hours | Planned | |
| | 6,2 | **Notification sending** | | | | |
| | | 6.2.1 real time function | A function which will get and store the actual time | 5 hours | Planned | |
| | | 6.2.2 get schedule time | A function which will get and store the time from the schedule | 5 hours | Planned | |
| | | 6.2.3 compare function 1 | A function for comparing the real time and the schedule time | 3 hours | Planned | |
| | | 6.2.4 check "open" action | A boolean function to check the pill is opened or not | 2 hours | Planned | |
| | | 6.2.5 **notification send** | If the pill box does not open, the notification will send. Otherwise, the notification will not send. | 3 hours | Planned | |
| | | 6.2.6 **notification resend** | if the pill box does not open 15 mins after the first notification was sent, send the notification again | 5 hours | Planned | |

| | | | |
|---|---|---|---|
| Testing and fix defect | | 10 hours | Planned |
| Potential customer feedback | | 1 hour | Planned |
| **Documentation (the pdf file)** | | 6 hours | Planned |
| Product backlog grooming | | 5 hours | In Progress |