Application Proposal: "MyCare"

Author	Olga Yerushalimov (320595606) Noy Jacob (305078297) Daniel Akua (203974571)
Version	1
Created	6.4.2018
Current Status	Finished product

Table of Contents

Introduction

1.1 Overview

How many times did you hear about an old person who fell, or even worse, and no one noticed? No one was there to help until it was too late? MyCare is an app designed to solve this situation in the least invasive way. MyCare is a monitoring app designed to ensure the well-being of the elderly.
The main goals of the app:

- Enabling independence.
- Fast reaction to distress calls.
- Real-time updates of personal history database in the cloud.
- Remote access to the database of a person.
- Informing the care-takers in emergency situations.

1.2 The Market

The app is suitable for the elder community and their care givers.

1.2.1 Users

The app will serve the general public. Mostly the elderly and their care givers.

1.2.2 Needs

- As we get older we become more and more dependent upon our surroundings. The daily life can be a bit challenging however we still want to maintain our independence. MyCare can become the ultimate tool for ensuring an elderly person's freedom wouldn't be compromised and in the same time be in good, loving hands.
- Family, close people, nurses, doctors- they can all be sure they will be informed in any case of emergency and certain their loved one's doing well at any time.

1.2.3 Competition

The competition offers the services we provide as extra packages for a price. Also our App runs on the user's private cellphones and doesn't require expensive specialized equipment. MyCare is designed to be friendly and easy to use by people of any age.

1.3 Design Goals and Non-Goals

1.3.1 Goals

As mentioned above, the goal of the application is to create a simple and convenient system that can monitor the well-being of elder people with minimal invasion of privacy and discomfort. The application offers several features:

patient side:

- adding multiple caretakers.
- monitoring of heart rate.

- monitoring of movement.
- alerting caretakers in case of emergency.
- easy UI with big buttons.

caretaker side:

- adding multiple patients.
- monitor heart rate and usage of patient.
- receive emails in emergency situations.

Usage:

1. Make sure both the caretaker and patient has internet connection.
2. The patient makes a user.
3. The patient adds caretakers to the list of people allowed to monitor (existing or non-existing).
4. The patient connects the band to the phone.
5. The caretaker makes a user.
6. The caretaker adds patients to the list of people under his care (only patients that added the caretaker).
7. The patient starts the monitoring and the caretakers are informed in real time of his heart rate and suspicious movements.

1.3.2 Non-Goals

Sometimes there are false positives (when the band falls for example). To counter these situations we installed a timer for the fall handling mechanism that allows to disregard the fall. The app itself does not provide any kind of actual help, only monitoring. As such, it is up to the caretaker to handle the situation as he see best.

1.4 Dependencies

- Azure database – The cloud will be used to store:
  - Per caretaker:
    - holds his login data and patients list.
  - Per patient:
    - holds his login data and caretakers as well as his personal data such as age and ID number.
    - holds his last readings of heart rate and the time of his last readings.
- Azure email service – sends emails to care giver on real time basis in case of emergencies.
- Azure function app - in charge of updating the databases in real time.

1.5 Assumptions and Design Constraints List

The application depends on a connection between a patient's phone and a band as well as a patient to a caretaker. If the patient doesn't have a band connected, the measurements can't be taken. If the measurements can be taken but there is no caretaker monitoring, emails won't be sent.

Another dependency of the application is an active internet connection. In order for the application to work as advertised it must be connected to the cloud. Hence, we assume the user has a data connection.

1.6 Issues List (Risks)

1. The band has a short battery life resulting in a problem monitoring for 24/7.
2. Internet connection must be active at all times or else the database can't be updated and emails can't be sent.
3. the patient should keep his phone close for the Bluetooth to work properly (as in don't leave the house without your phone).

2 Application Design

2.1 Logical Architecture

Azure cloud:

- databases
- email services
- function apps

Patient's phone:
falling detection algorithm

Caretaker's Phone:
email notifications and monitoring

Band:

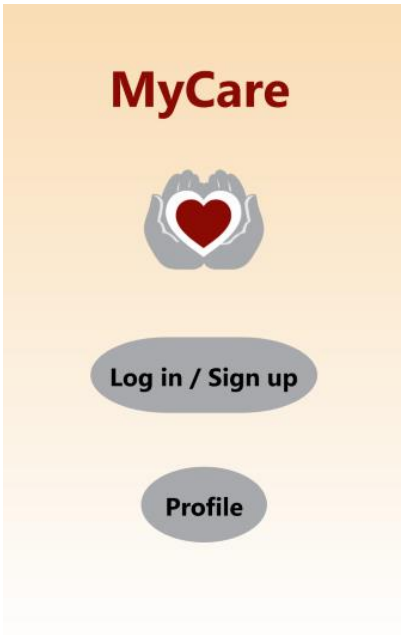
- heart rate
- accelerometer

2.2 Screens - Functionality

Below is a generic representation of the apps' various screens

- Patient app screens:

Main screen:



Here you can move to login or move to your profile if you are already logged in.

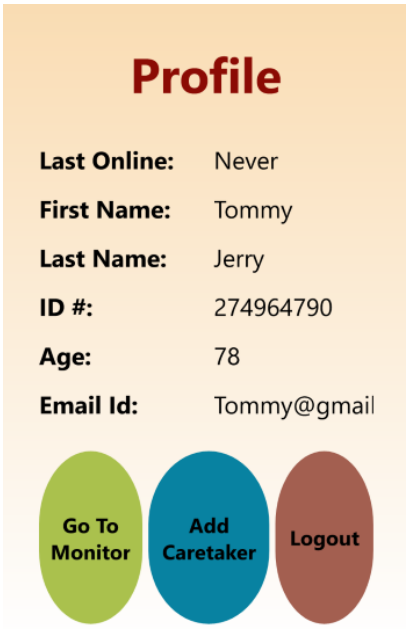
Login screen:

Here you can login if you have a user or move to the register screen.

Register screen:

Here you can register a new patient. After registering, you automatically move to the profile screen.

Profile screen:

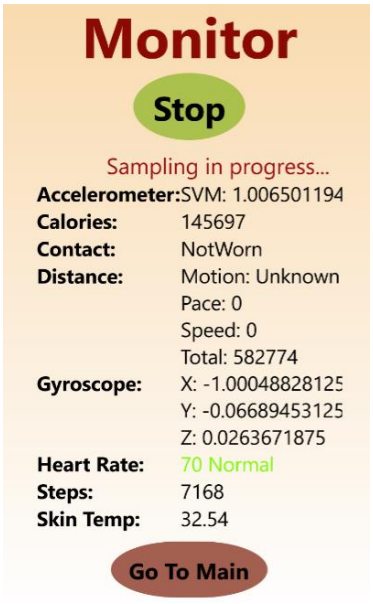


Here you can view all your information and your caretakers list. You can move to monitoring screen or to the add caretaker screen.

Add caretaker screen:

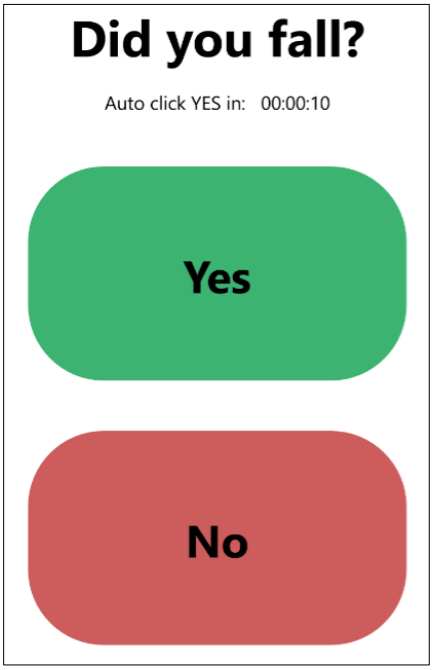
Here you can give permission to a new caretaker to monitor you.

Monitor screen:

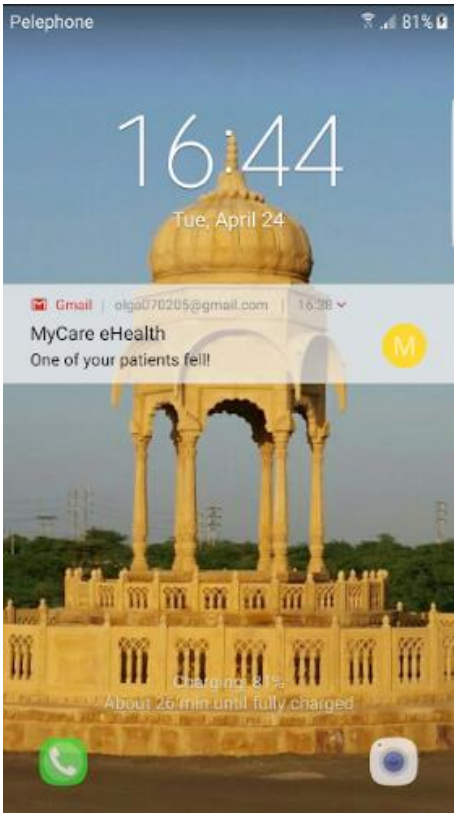


Here you can start monitoring your movements and heart rate. When you fall, you'll be moved automatically to the fall screen.

Falling detection screen:



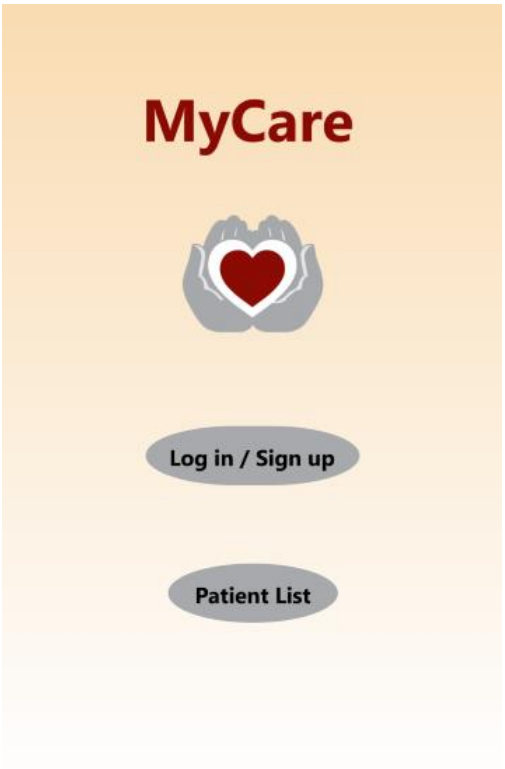
This is the screen you get when you fall. You can either confirm that you fell, sending an email to all your caretakers or dismiss the detection, if you didn't fall. After 15 seconds, if no action was taken, the app concludes that you fell and sends email automatically. Either way you will be moved to the monitoring screen again.



At any step of the flow you can cancel, go back to the main screen and logout.

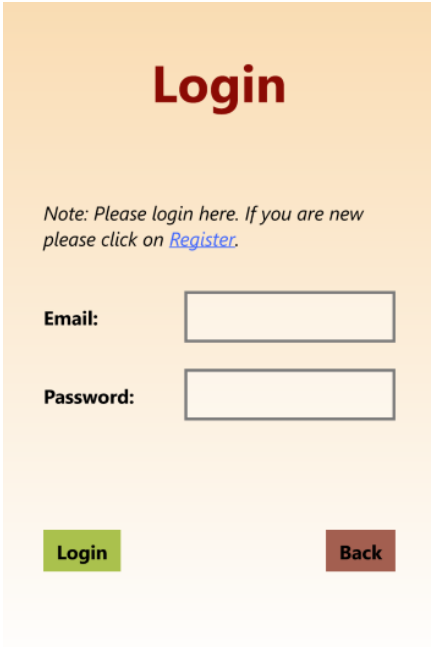
- Caretaker app screens:

Main screen:



Here you can move to login or move to your patient list if you are already logged in.

Login screen:

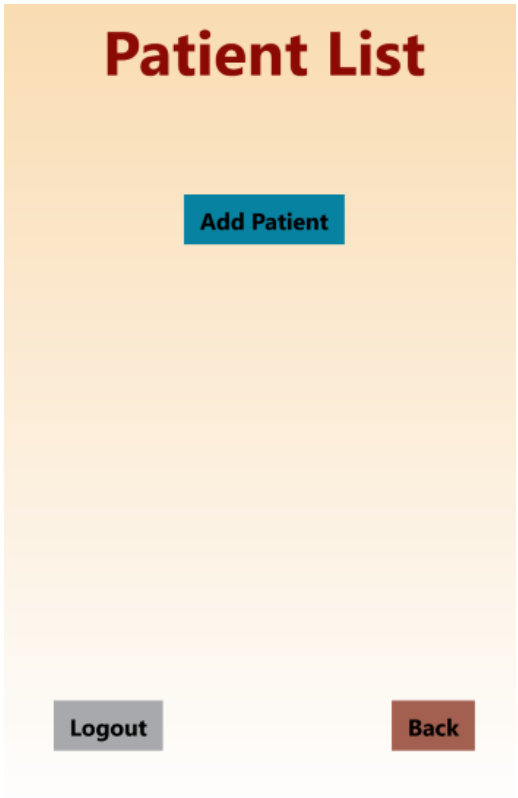


Here you can login if you have a user or move to the register screen.

Register screen:

Here you can register a new caretaker. After registering, you automatically move to the patient list screen.

Patient list screen:



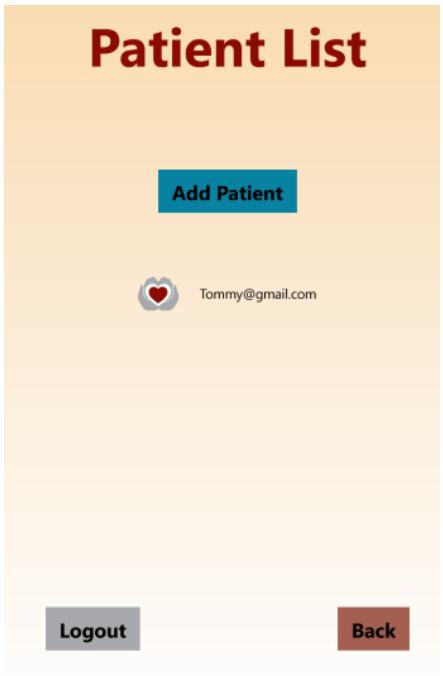
Here you can view the list of all your patients. You can move to any patient's profile screen or to 'Add patient' screen.

Add patient screen:

Here you can add a new patient to monitor only if the patient approved you for monitoring.

At any step of the flow you can cancel, go back to the main screen and logout.

An updated 'Patient List':



By pressing on patient mail you can view the patient's last status (for that case it belongs to Aviva):

Caretaker can get the latest recorded location of any of his patients, from the 'Info Page' or by clicking on the 'Go to Map: Patient's Location' button; which takes to exact location on the map.

If the patient has no records, the following window will appear: