Pillbox: Bringing Patient Experiences into the 21st Century

Carlos Santana, Cesar Santana, Madeeha Khan, Ridha Khedri†
{khanm57, santanca, santanjc}@mcmaster.ca
†Department of Computing and Software, McMaster University

December 5, 2018

Introduction

The idea behind Pillbox is to build an application which will help patients and pharmacists better keep track of medication dispensary and usage. The application is mainly geared towards patients, and will serve a wide range of users, including the elderly and children.
Nowadays, pharmacies have high-tech methods of dispensing, counting, and keeping track of medications and prescriptions. However, the user experience for patients has remained stagnant. Patients still need to count their own remaining medication, set various alarms, and communicating with healthcare professionals is more cumbersome than it should be.
Pillbox will use the latest technology available to make the patient experience as secure, efficient, and user-friendly as possible.

Target User Base

The target audience of the application are people who use medication regularly. It is directed especially to those who experience chronic illnesses, the elderly and/or anyone who may need assistance taking medication. The goal for the application is to be easily accessible and effortless to use, as well as low in data, storage.

Use Case UML Diagram

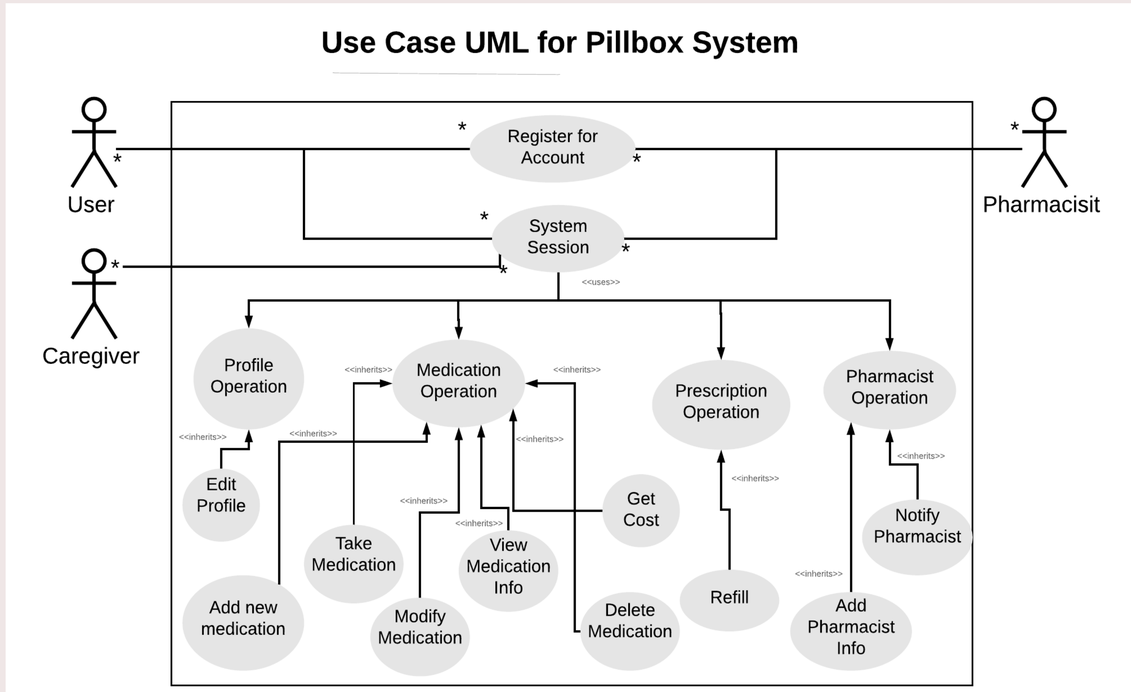

Figure 1: Use Case Diagram for the Pillbox system.

The above diagram illustrates the three actors and their role with interacting with the system. An actor is a role played by one of three users: the user, the caregiver, and the pharmacist. The different actors will interact with the system to conduct a number of operations. The user role is able to view their medication information, adding new prescriptions, receive reminders to take medication and add pharmacy information.
Pillbox aims to make the experience of taking regular medications, which patients can find isolating, confusing, and stigmatizing, and incorporate more guidance and support. The caregiver and pharmacist are new additions into the workflow of medication management.
The messaging will make it so the user can build a trusting relationship with their pharmacist, and can easily ask any questions and bring up any concerns they may have. This, we think, is essential, as patients who have a follow-up with their healthcare professional discontinue medication a little less that 50% [**?**] less often that patients who do not.

Competitive Analysis for Pillbox

The Medisafe and MyTherapy apps have over 1 million downloads each on the Play Store. While these apps may be simple and easy to use they lack some key features that would be needed by many who use medication on a daily basis. The chart below illustrates some of these key features.

	Pill box	Medisafe	MyTherapy
Pill Reminders	✔	✔	✔
Medication Refills	✔	✔	
Contact Doctor/Pharmacist	✔	✔	✔
Medication History and Schedule	✔	✔	
Caregiver Functionality	✔		
Automated Medication Entry	✔		
Accessibility Features	✔		
Pharmacist/Doctor Monitoring	✔		

Patients who fill their prescriptions often have a difficult time understanding prescription instructions, keeping track of their intake, and integrating their medication into their lives with the least amount of intrusion.
Pillbox has integrated features to solve many of the problems that result in discontinuity of medication by the patient.

Conclusions & Future Work

The design allows for medication users, the pharmacist, and caregivers to be involved in the medication process. Pillbox intends on sending out a survery to ensure that nothing was missed in during our requirements gathering. Pillbox is ready to start designing and implementing the solution. We intend on creating the mobile application and having it ready for testing by early 2019. There is always room to improve and we always want to integrate features that would be beneficial for users.

Acknowledgements

The Pillbox team would like to thank Dr. Kehdri for all his help and guidance.

References