Therefore, we developed a mobile caregiving application, called Carebit, that uses the Fitbit application protocol interface (API) to share pertinent health data from a patient with his or her caregiver.

A major concern of elderly patients is being unattended in the event of an accident [4].

More than half of patients do not mind sharing their data with peers and clinicians, but after a year patients’ concerns about privacy and security increased [2] [3].

The Fitbit was deemed reliable in measurement and it also contains an accelerometer that can estimate activity levels [3] [4].

A solution to privacy is to place control and ownership of personal data in the hands of the patient by allowing the patient to restrict some access from their caregiver [3].

Developed a mobile application using Android Studio and the Fitbit API

Created a working prototype to authenticate to Fitbit and show a patient’s data from the last 24 hours:

1) Last recorded activity, 2) Most recent heart rate reading, 3) Number of steps taken, and 4) Activity Levels

Conducted a pilot study with 21 users to get feedback on the initial prototype. Participants were asked the questions shown to the right.

Introduction

Methods

User Study Questions

Usefulness

Intelligent Notifications

“Blue Sky” Exploration

Perceived Usefulness

- 18 participants thought Carebit would be useful either now or in the future. Why?
  - Capability of patient to live independently
  - Monitoring loved ones from afar
  - Integration of technology & health to improve wellbeing
- 3 participants did not find Carebit useful. Why Not?
  - Emergency devices like LifeAlert already exist
  - Complexity of technology with elderly patients
  - No need if patient is severely prone to emergencies

Notifications Wanted

- Irregular heart rate, Low activity levels, Goal achieved, and Falls

“Blue Sky” Features

- Monitor blood sugar and/or sleep; Collect, save, and summarize previous data; Goal setting function; Alert medical response

Future Work

- Research the feasibility of the features suggested by participants (e.g., Fitbit’s ability to detect a fall)
- Complete application development, including implementing notifications
- Run a full user study having family caregivers use Carebit to monitor a loved one

References


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