CS342/MED253 Building for Digital Health
BeatHeartDisease

Welcome!

https://cs342.stanford.edu

cardinalkit.slack.com
About Us

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Project Background

- The goal of the project is to leverage digital health technology to create a platform for management of a range of cardiovascular diseases, from prevention to disease management.

- The project comprises a patient-facing app to encourage engagement through a mobile platform.

- Bluetooth-enabled blood pressure cuffs and bluetooth-enabled scales are used to record relevant vitals for cardiovascular disease management.

- Provider portal exists to manage patients, including key information, drug intake, and to monitor adherence.
Need Statement

A better way to reduce cardiovascular risk factors in patients with known, or who are at risk of developing, cardiovascular disease in order to improve cardiovascular outcomes including reduced heart attack, stroke, and death.
Architectural Diagram of Project Highlighting Components Used

- **Frontend**
  - CareKit
  - ResearchKit
  - Health Record
  - CoreBluetooth

- **Backend (server/database)**
  - Firebase / Firestore
  - GCP

- **Authentication**
  - Custom email flow

- **Dashboard**
  - ReactJS

- **Peripherals**
  - BT connected BP Cuff
  - BT connected Scale
(We learned from the midterm presentation)
Feedback from Testers

We received feedback from 2 peers:

- Positive Feedback
  - ORKit elements for the 2 surveys are intuitive
  - Clean colorscheme
  - Email authentication process is really smooth and easy
  - Graphs are nice

- Constructive Feedback
  - Align x-axis of both graphs for better comparison
  - Maybe re-order schedule view controller so graphs come first and are next to each other
  - Ideally not needing to re-connect BP monitor once powers down, although this is a bit of a limitation with the Omron BT interface

Communication with PIs:

- Automated drug integration from EHR
- More diary features (adding custom events)
- Richer plotting functionality (time scale, correlation visualisation)
CardinalKit Contributions

- Key original functionality is the Bluetooth connection library; we are happy to make this available to the CardinalKit codebase.
Next Steps/Future Work

- Notifications to keep patient adherence high
- REDCap integration
- Provider portal integration with EHR
  - Launch provider portal from within EHR using SMART on FHIR