Apple Watch x Physicians

VISION STATEMENT

Team Name: InTouch With My Health

Team Members

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Project Description

The Intouch operating system provides a simple and reliable communication platform between physicians and patients. Although patient data is collected during a session, to further track a patient's health and enhance current methods of life-saving interventions, data should be collected on a regular basis. With the power of modern wearable devices, vitals can be taken much more often and remotely compared to the occasional hospital visits.

With the newest release of the Apple Watch Series 4, specifically the electrocardiography (ECG) capability, wearable devices take a step further in the direction towards medical appliances. This important feature allows more real time and frequent measurements to be collected and provide physicians supplementary data points, leading to a more accurate diagnosis and treatment for the patient.

For our group project, we will leverage apple watch engineering to integrate medical data including heart rate, ECG, and patient symptoms inside a doctor's session to provide further clinical data for diagnostic assessment. This will not only provide live data which can alert medical assistants once measurements reach abnormal rates, but the watch integration will also build a health history for each patient that can later be used by the physician.

Outcome of the project

- Apple watch app
    - capability to send data to InTouch Health platform
    - Able to prompt user to input symptoms
    - Live video display
    - Access to all of apple watch's fitness/health aspects
- IoMT receiving and storage of data

    - Through their backend
    - Improvements on data being connected to the IoMT
- Analysis on ECG and heart rate readings
    - UIUX Visuals in dashboard
    - Potentially some ML for suggestions

Initial Milestones

- Meet with InTouch team to thoroughly understand project needs
- Do research on and understand which technologies will be needed or used
- Complete sprint 1 planning
- Setup project workflow and prioritize backlog tasks
- Create prototype for the Web Application
- Create prototype for IOS app

To jump start our project, we will meet with Intouch on a weekly basis on Fridays at 1pm to discuss project speculations and needs. After getting a more in depth understanding of our milestones, we will start planning technologies we want to use for the development stage as well as figure out any dependencies with Intouch's current system. Before we officially start our first sprint, we will complete a sprint planning which will set priorities for tasks in our backlog. We will also set up a UML diagram containing the system's roles and artifacts. A prototype for the web application that we will be building will also be done as a reference.

Our solution

In the end, we hope to present an application capable of establishing a two way connection our users with the Intouch Health operating system. Our application will be able to prompt user to input their symptoms, either through voice to text or audio. The application will also receive data from Intouch's IoMT.

The data collected from the patient's apple watch will be compiled in a database for health history tabulation and analysis. The patient data, like heart rate readings and ECG, will then be displayed on a beautifully designed web interface for the physician to view.

- Apple watch
    - Xcode
    - Swift
    - Apple's healthkit API

    - Watch kit & watch app bundle
- InTouch Health's IoMT (*internet of medical things*)
    - Provided by Intouch Health
- Analysis on ECG and heart rate readings
    - Python
    - Tensorflow for easy integration
- Web interface for physician
    - React.js
- Workflow
    - Github
    - Trello