# Aprima: Using Apple Watch to Transfer Personal Health Data to an EHR

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Tyler Huning

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# Abstract

Our project is to take the health information gathered from an Apple watch and to send it to Aprima’s REST API for use in Electronic Health Records (EHR). There is a lot of information that new technology is allowing us to keep track of (daily step count, how well the user is sleeping, etc.) that doctors do not currently have an easy way to access. Our goal is to make an app that will make transferring that data easier.

# Executive Summary

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This proposal due on **February 26th by 1 PM**. Bring a **printed/signed copy to class and** submit the **electronic version (scanned) on elearning**. *Please talk to your faculty mentor (and industry contact if applicable) to determine the final format and content.*

**Include a Page with:**

· Project TITLE: “**Sponsor Company: Project Title**”

· Team Members

· Short Abstract (Max 150 Words. Answering at least the following: What? Why? How? So What?)

**TABLE OF CONTENTS**

EXECUTIVE SUMMARY (one page clearly describing what this project is about, including what is out there and what is your project’s advantage/difference)

I. **INTRODUCTION** (Project description, objective of this project, what similar solutions exist, and what you plan to do differently)

Aprima produces software for the healthcare market focused on electronic health records (EHR) and practice management. One of the fastest growing companies in North Texas with over 1700 clients. The objective of this project is to collect health data from an Apple Watch with an Apple iPhone and transmit the data to Aprima’s EHR via the REST API. What is available is the Apple Health app and Healthkit built into each apple product. Users can use the apps to track their own records of their daily activity. These include steps, calories burned, meals, heart rate and much more. What we plan to do is gather this data and send it to an online EHR for doctors to view and use. We must build a working app to communicate with not only an Apple Watch but the online EHR. We also plan to create a simple UI for the app for the expected broad user base.

II. **DISCUSSION** (How you plan to solve the problem or enhance current solutions (if any), what you expect as a result, what you will do that makes your solution unique)

III. **RESOURCES** (people, material, pc’s, laptops, specialized software, facilities, etc.)

1. People
   1. Matt Spradley - Company mentor
   2. Devon Gilbert - Primary Technical Contact
   3. Jeff Lott - Secondary Technical Contact
   4. Balakrishnan Prabhakaran - Faculty Mentor
2. Hardware
   1. Personal Windows PC (4)
   2. Apple Watch (2)
   3. Apple iPhone (2)
3. Software
   1. VMWare
   2. Mac OS X 10.11
   3. Xcode 7.2

IV. **KEY** **ROLES** (Who will do what? Who will be the Point-Of-Contact with company mentor? Note taker and minutes? Anyone on the front end? Back end?) Include who is responsible for minutes, meeting organizer, POC, etc

1. Point of Contact, Team Captain, GUI Developer
   1. David Nguyen
2. Meeting Organizer, Lead Researcher, Data Conversion
   1. Henry Dinh
3. Github Manager, Healthkit Integrator
   1. Tyler Huning
4. Team Mediator, Rest API Integrator
   1. Timmy Nguyen

V. **Communication Plan**: How do you plan to interact with your teammates? Sponsor? Faculty Advisor? Include your meeting schedule with sponsor and with your team.

1. Weekly Skype Meetings
   1. Monday 9pm
   2. Tuesday 9pm
2. Weekly In Person Meetings With Sponsors
   1. Thursday 1:30pm
   2. Friday 1:30pm
3. Group Chat
   1. Team is setup with a group chat to be used and checked frequently daily

VI. **Risk analysis/Contingency plan** (What if something goes wrong? some team member gets sick? the software/equipment you need does not arrive?, please consider the lessons learned during project management session)

1. Contingency Plan for When a Team Member is Sick
   1. Meet with remaining members
   2. Discuss workload
   3. Split evenly amongst remaining members to their strengths
   4. Alert faculty sponsor and company mentor of changes
2. Contingency Plan for When Something Inevitably Goes Wrong
   1. Evaluate what went wrong
   2. Physical group meeting to discuss options to move forward
   3. Notify Company Mentor
   4. Advise situation
   5. Determine the risk of the problem not being solved
   6. Evaluate a solution
3. Contingency Plan for When Products Do Not Arrive in Time
   1. Get accurate ETA
   2. Alert Company Mentor of setbacks
   3. Work around problem as much as possible
4. Contingency Plan for Disagreements
   1. Address all point of views of the issue
   2. Initiate a vote
   3. In case of tie readdress points again
   4. Initiate a vote
   5. Team captain may advise with company mentors
   6. Team captain votes count as two.

VII. **COSTS** ($$$ if you defined resources that require investment for this project. Please take a look at<http://www.utdallas.edu/utdesign/files/UTDesign-purchase-process.pdf>, basically what you need is:

1. Justify your purchase, discuss with mentor/adviser,
2. Find the product(provide the link, description and cost),
3. Complete the form(requires your adviser signature and may require CS-UTDesign director’s signature),
4. Submit the form to Nancy Finch <(nxf120530@utdallas.edu>), she will follow up.
5. Costs
   1. Apple Watch $xxx.xx

VIII. **TIMETABLE** (Milestones, deliverables clearly defined). You are welcome to define more phases/springs, but you should have minimum 3 phases. Feel free to adjust the deadlines if necessary.

a. Phase I: due \_\_\_\_\_: List of deliverables( or short explanation of milestone)

* Working iPhone app with user friendly interface that provides a demo of how the final app will be presented.

b. Phase II: due \_\_\_\_\_ : List of deliverables( or short explanation of milestone)

* App now has functionality and is able to transfer health data gathered from iPhone to an EHR automatically.

c. Phase III: due \_\_\_\_\_: List of deliverables( or short explanation of milestone)

* App now works in sync with Apple iWatch and is able to pull health data from the iWatch to automatically send to an EHR.

IX. **EVALUATION** (How do you know that the project was successful? On time? How do you plan to control your project? Earned value? Burnout Charts? Defect Tracking?, include test plans)

a. **[FOR FINAL REPORT ONLY]** **Performance Metric** – any form of quatitative and qualitative feedback (i.e. survey, user experience, mentor feedback)

X. **CONCLUSION** (Why this is a good project, what is the usability? Is there any?)

This project will help people easily send information to their doctors so that they can make better informed decisions regarding their health.

XI. **CONTACT INFORMATION** (Your contact information and short bios are good enough)

1. David Nguyen
   1. Contact
      1. Email
         1. ddn051000@utdallas.edu
      2. Cell
         1. (214) - 215 - 3792
   2. Biography
      1. Attended UTD from 2005-2009 for a bachelor’s in Biology. Second bachelor's senior in Computer Science.
2. Henry Dinh
   1. Contact
      1. Email
         1. hxd130130@utdallas.edu
      2. Cell
         1. (214) - 208 -2950
   2. Biography
      1. Senior studying computer science at UTD. Currently in fast track program and will pursue masters in computer science Fall 2016.
3. Tyler Huning
   1. Contact
      1. Email
         1. tsh130130@utdallas.edu
      2. Cell
         1. (832) - 407 - 0312
   2. Biography
      1. Senior Computer Science major at University of Texas at Dallas with plans of getting masters in Computer Science after graduating.
4. Timmy Nguyen
   1. Contact
      1. Email
         1. txn120830@utdallas.edu
      2. Cell
         1. (313) - 231 - 1858
   2. Biography
      1. Timmy’s Biography

XII. **SOURCES** (REFERENCES, BIBLIOGRAPHY)

1. <https://developer.apple.com/healthkit/>

XIII. APPENDIX (references, and all extra documents that you may need to consult)

XIV. **[FOR FINAL REPORT ONLY]** INDIVIDUAL CONTRIBUTION (Completed task/pending tasks, including deadlines)

XV. **[FOR FINAL REPORT ONLY]** ISSUES AND LESSONS LEARNT (An individual summary of issues you had to face, how you overcome those issues, things you learnt, extend the appendix to add references that you found useful, add step by step instructions to install, use, extend any feature (iff any), etc.)

XVI. **[FOR FINAL REPORT ONLY]** FUTURE WORK (Features and updates that you might suggest, if you had more time what would you do to improve the project?)

XVII. **[FOR FINAL REPORT ONLY]** Ethics discussion (Ask the instructor before submission)

**XVIII.** **Printed Name/Signatures/Date**: **Company mentor, faculty advisor, and each team member should read and agree by signing this document**. **The printed copy will be collected at the beginning of class the day the proposal is due. You should also submit an electronic version (PDF/DOC) through elearning.**

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| --- | --- |
| Print Name: David Nguyen | Print Name: Henry Dinh |
| Print Name: Tyler Huning | Print Name: Timmy Nguyen |
| Company Mentor: Matt Spradley | Faculty Advisor: Balakrishnan Prabhakaran |