StudentAide Project Plan

CMPT 276 Team 4

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Date of Issue: Oct. 14, 2020

Project Manager:

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Team:

Richard Swann

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Approval

Approved by: Herbert Tsang CMPT 276 Professor

Approved by: Richard Swann Project Manager

1. Table of Contents

2. Revision History

This section documents the revisions to the Project Plan.

Revision Number	Date of Issue	Author(s)	Brief Description of Change
1.0	Oct. 13, 2020	Team 04	Initial release

3. Summary

StudentAide

Connect, Learn, Excel

To help students maintain good study habits in isolation and assist educators to better connect and support their students during the COVID-19 pandemic and in any future emergencies.

StudentAide is an Android based application designed with students and teachers in all levels of education in mind. In these difference circumstances, many teachers may find it difficult to monitor the progress of their students from a distance. Students, on the other hand, may find it hard to concentrate on studying with all the distractions and comforts at home. With these issues in mind, we designed StudentAide with two main features.

For teachers, the application will provide a way to monitor and track student progress, as well as support struggling individuals. The application will be able to track how students are allocating their time by using the onboard GPS and gyroscope systems. This data will be reported back to the teacher, who can then decide whether the student is in fact studying during their recorded times. It will also be possible to administer quizzes in order to directly assess student understanding.

With the app, students will be able to plan their study times. The app will allow students to decide on when they are studying, and at these times, the app will record the device's location and orientation. At the end of the designated times, the student will be able to see how long they spent using their phone while they studied.

With StudentAide, we set out to solve the problems distance learning presents, and with this application we hope that students will be able to connect, learn, and excel.

4. Overview

The primary issue the project seeks to solve is the fact that students and teachers generally do not interact the same amount in distance learning as opposed to in-person instruction. In normal circumstances, an educator plays both the role of the instructor and provides the necessary pressure for a student to actively study. These roles are possible since the teacher and student have a in-person connection and interact on a daily basis, and this interaction is important for a teacher to gauge student success. However, this is very difficult in an online scenario due to technical factors such as connectivity. According to Croxton [3], interactivity is a critical factor in a student's success, and as such it is important that this activity is promoted as much as possible. A secondary issue is one of distraction. When students are at home for the entirety of their education, it is often difficult to focus due to the comfort they feel. The phone is often a major distraction in this environment, as it provides access to the internet and can receive messages. Often, this distraction is eliminated by institutions that restrict devices during instruction, and this increases student achievement [1] [2]. To resolve these issues, our main objective is to close the gap between distance education and in-person education. We aim to simulate the supervision and drive a student would typically experience from a teacher. Our secondary objective is to help students, and all people trying to learn, avoid distractions by showing them the time they used being distracted.

With these in mind, we intend for the users of this application to be students and teachers in all levels of education. We are assuming that the users have access to an Android device, an internet connection, and are comfortable allowing the application to monitor their device while it is running. We are also assuming these users are actively trying to improve upon their academics, or the app is being used as a tool by instructors. However, even though this application is designed to be used by people currently in schools, it can be used for anyone who is attempting to learn a new skill.

During the development of this project, there are four main stakeholders: the project manager, team members, end users, and the instructor team, which is the professor and T.A.'s.

The project is intended to have two main features with multiple sub-features. Firstly, the application will monitor phone activity at designated times. These times will be decided by the user. It will also be possible for the user to decide what they will study; chosen from a list of courses that they are enrolled in in the app. During these periods, the application will record the GPS location of the device, the gyroscope orientation, and what applications are active in the fore and background. With these three factors, it is possible to determine whether the student is sitting at a desk, not using the device, or if they are constantly moving around the device. This data will then be submitted to designated teacher accounts at the end of each session. The second feature of the application will be progress tracking. This mainly entails analysis of the data from the application, and the instructor will be able to decide how well their students are using their time while studying. The instructor will also be able to administer quizzes from the application, these can be used to visualize which students are struggling and can bring these students to the instructor's attention. This combination is intended to allow students to work at their own pace, as not all require the same amount of work to be successful.

We intend for the architecture of the project to utilize the REST format, with a server database that contains the login information, tracked data, and quiz results from user accounts. The application will be android based and run client side on devices. This architecture was chosen for its simplicity, as the service will not need many requests and responses to operate effectively. The application will only need to get information from the server and needs to be able to update information on the server.

5. Planning

5.1 Master Schedule

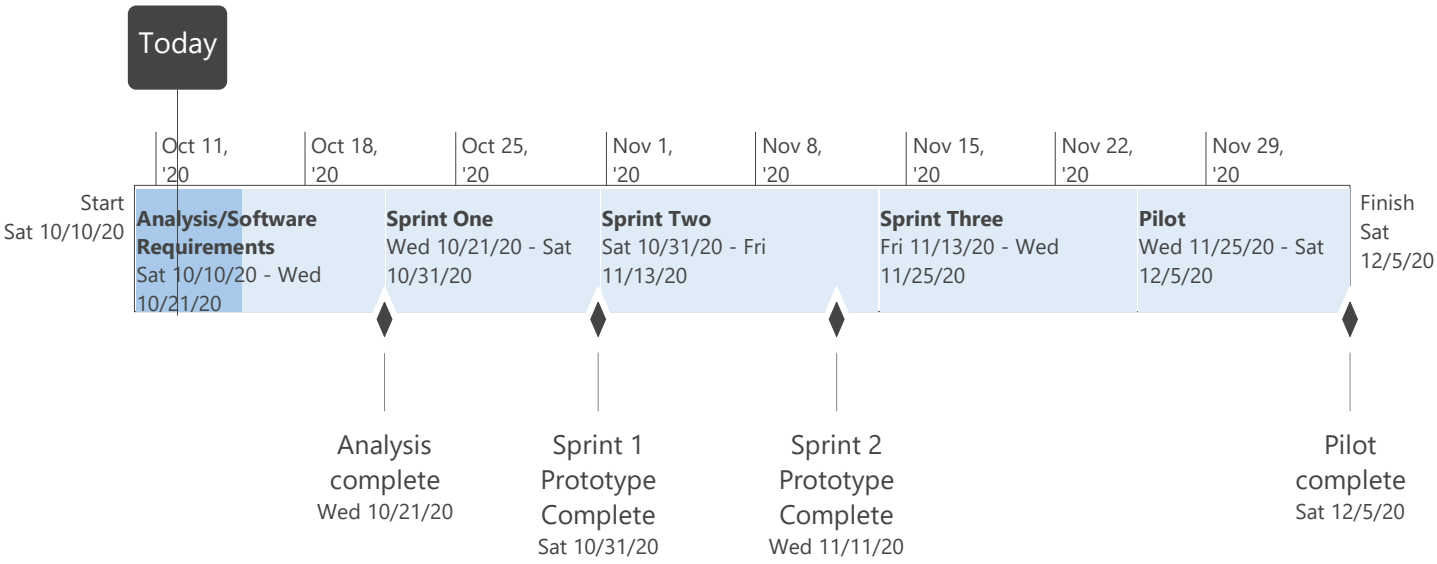


Figure 5.1 Master Schedule

5.2 Project Web Sites

English - https://sites.google.com/view/studentaide/home

Spanish - https://sites.google.com/view/studentaid-spanish/p%C3%A1gina-principal

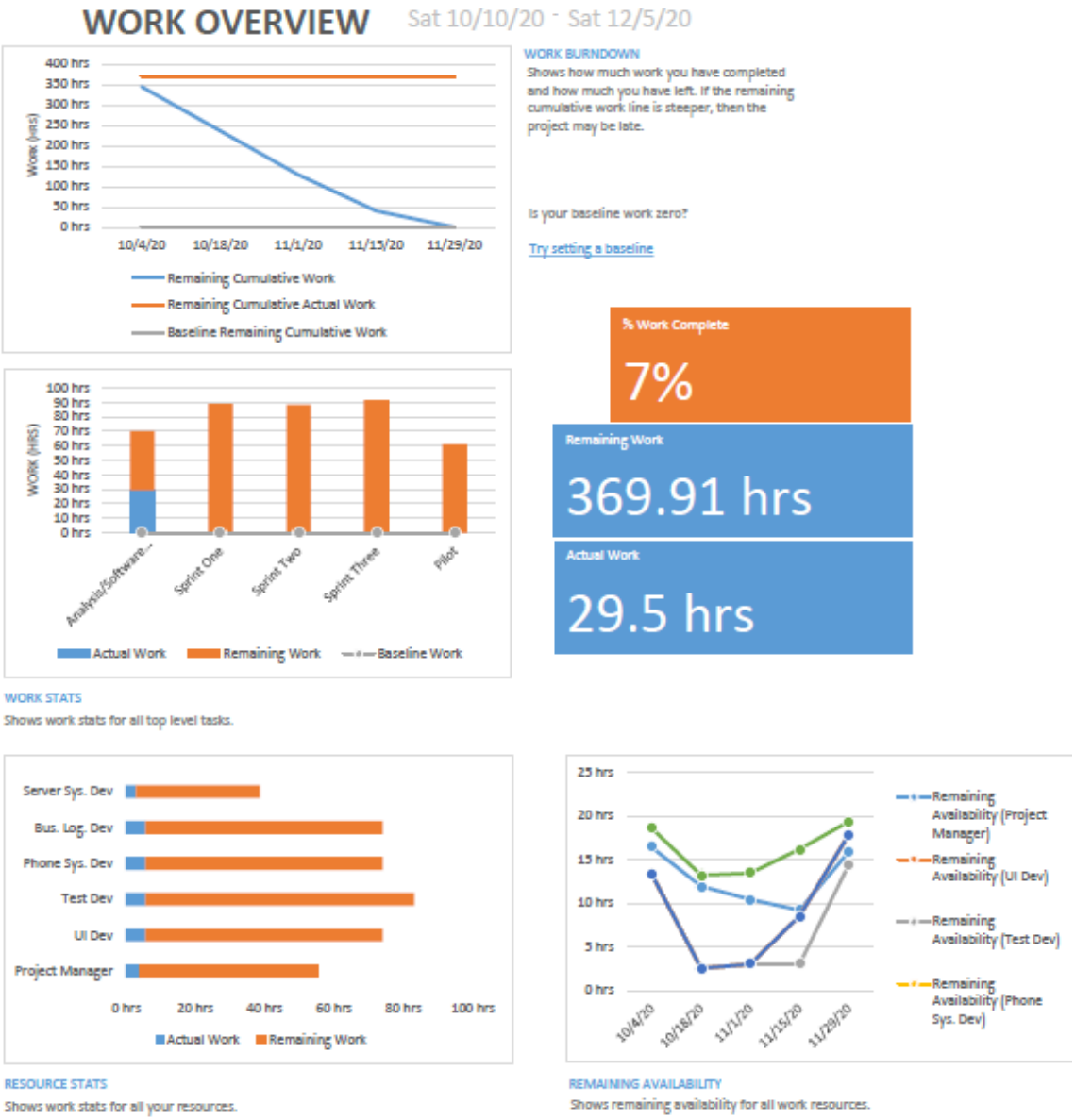
5.3 Communication Plan

Frequent communication with Subject Matter Experts (SMEs) is critical to the development of an effective product. The amount of time the SMEs are able / willing to devote the project is going to be limited. We will focus on short meetings with a pre-agreed agenda. In conjunction with the SMEs the precise meeting schedules and agenda will be defined. It is expected that these will occur during the Analysis Phase, at the end of each Sprint and in the Pilot.

In an Agile Development maintaining a meeting rhythm is crucial and typically involves a daily "Scrum". However, since the team members cannot work on this project exclusively daily meetings are not an effective use of time. During the Analysis Phase meeting will be somewhat adhoc and will depend on the availability of SMEs. During the Sprints the team will have short Scrums Monday and Wednesday to review progress, bottlenecks, etc. and more through Progress Reviews on Saturdays.

5.4 Progress Monitoring

Microsoft Project will be used to track progress and monitor milestone completion.



5.5 Configuration Management

The team will use GitHub to control configuration.

https://github.com/rbswann/CMPT276P1

6. Schedule

ID	Task Name	Duration	Start	Pred.	Resources
0	System Development	96 hrs	Sat 10/10/20		
1	Analysis	18 hrs	Sat 10/10/20		
2	Needs analysis	3 hrs	Sat 10/10/20		Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
3	Initial software specs	6 hrs	Mon 10/12/20	2	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
4	Resource Plan	2 hrs	Fri 10/16/20	3	Project Manager[50%]
5	Review software specifications	3 hrs	Fri 10/16/20	4	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
6	Project Plan	1 hr	Sat 10/17/20	5	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
7	Sprint One Plan	3 hrs	Mon 10/19/20	6	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
8	Analysis complete	0 days	Wed 10/21/20	7	
9	Sprint One	20 hrs	Wed 10/21/20		
10	Project Mgmt.	15 hrs	Wed 10/21/20	8	Project Manager[50%]
11	User Interface	15 hrs	Wed 10/21/20	8	UI Dev
12	Business Logic	15 hrs	Wed 10/21/20	8	Bus. Log. Dev
13	Phone Monitoring	15 hrs	Wed 10/21/20	8	Phone Sys. Dev
14	Server	15 hrs	Wed 10/21/20	8	Server Sys. Dev[50%]
15	System Test Dev.	15 hrs	Wed 10/21/20	8	Test Dev
16	System Integration and Evaluation	3 hrs	Fri 10/30/20	15	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
17	Sprint 1 Complete	0 hrs	Sat 10/31/20	16	
18	Sprint Two Plan	2 hrs	Sat 10/31/20	16	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
19	Sprint Two	20 hrs	Sat 10/31/20	18	
20	Project Mgmt.	15 hrs	Sat 10/31/20	18	Project Manager[50%]
21	User Interface	15 hrs	Sat 10/31/20	18	UI Dev

ID	Task Name	Duration	Start	Pred.	Resources
22	Business Logic	15 hrs	Sat 10/31/20	18	Bus. Log. Dev
23	Phone Monitoring	15 hrs	Sat 10/31/20	18	Phone Sys. Dev
24	Server	15 hrs	Sat 10/31/20	18	Server Sys. Dev[50%]
25	System Test Dev.	15 hrs	Sat 10/31/20	18	Test Dev
26	System Integration and Evaluation	3 hrs	Mon 11/9/20	25	Project Manager
27	Sprint 2 Prototype Complete	0 hrs	Wed 11/11/20	26	
28	Sprint Three Plan	2 hrs	Wed 11/11/20	27	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
29	Sprint Three	21 hrs	Fri 11/13/20	28	
30	Project Mgmt.	15 hrs	Fri 11/13/20	28	Project Manager[50%]
31	User Interface	15 hrs	Fri 11/13/20	28	UI Dev
32	Business Logic	15 hrs	Fri 11/13/20	28	Bus. Log. Dev
33	Phone Monitoring	15 hrs	Fri 11/13/20	28	Phone Sys. Dev
34	Server	15 hrs	Fri 11/13/20	28	Server Sys. Dev[50%]
35	System Test Dev.	15 hrs	Fri 11/13/20	28	Test Dev
36	System Integration and Evaluation	6 hrs	Sat 11/21/20	35	Project Manager[50%],Bus. Log. Dev,Phone Sys. Dev,Server Sys. Dev[50%],Test Dev,UI Dev
37	Prototype Complete	0 hrs	Fri 11/13/20	26	
38	Pilot	17 hrs	Wed 11/25/20	36	
39	Install/deploy software	2 hrs	Wed 11/25/20		Bus. Log. Dev,Phone Sys. Dev,Project Manager[50%],Server Sys. Dev[50%],Test Dev,UI
40	User tests	3 days	Fri 11/27/20	39	Test Dev,Project Manager
41	Collect User Feedback	1 day	Wed 12/2/20	40	Bus. Log. Dev,Phone Sys. Dev,Project Manager[50%],Server Sys. Dev[50%],Test Dev,UI
42	Update System as required	3 hrs	Fri 12/4/20	41	Bus. Log. Dev,Phone Sys. Dev,Project Manager,Server Sys. Dev,Test Dev,UI Dev
43	Pilot complete	0 days	Sat 12/5/20	42	

Table 6.1 Task List

7. Risk Management

Risks	Potential Impact	Likelihood of Occurrence	Impact Area	Mitigation Strategy
Inability to deliver according to project schedule	Significant	Moderate	Overall project will be delayed, potential problems linking together modules that are behind schedule	Ensure that each member responsible understands what needs to be done, if assistance is required more help can be assigned
Team Member Leaves / Is no longer able to work	Moderate	Minor	Work would have to be spread amongst the remaining members, potentially causing delays because of increased workload	Email Herbert Tsang and notify him of the situation
Failed to develop a module	Significant	Moderate	Modules in our app would not work as intended, this could cause other areas to fail as well	Clear and concise communication on what is to be expected
Issues with Development Environment	Minor	Minor	Potentially impact project scheduling due to lack of knowledge.	Spend more time learning about areas that are unfamiliar and ask fellow team members for help
Final Version does not meet client's expectations	Moderate	Minor	Time and money wasted because of miscommunications	Review specs with the client, provide updates to client at regular intervals
Budget not large enough to cover total expenses	Significant/Moderate	Minor	Resources required to develop application to it's full specification	Proper, well-thought out planning during project scheduling and project specification phase
Client continuously requests changes to specifications throughout development	Moderate	Minor	The process of development for the overall app which would result in going over budget	In the real world, this likelihood could be much higher but in our current team it should not be

Table 7.1 Risk Matrix

8. Organization and Staffing Plan

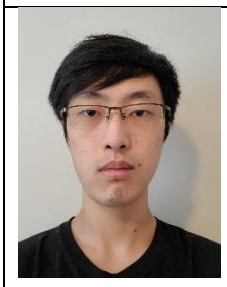
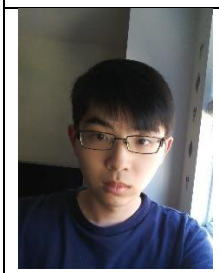
Project Team					
Photo	Name	Email	Role	Skills	Background
	Richard Swann	rswann@sfu.ca	Project Manager and Server System Lead	C/C++ and Assembler Windows Project Management	MBA 30+ Years Executive Mgmt.
	Yufeng Luo	yufeng_luo@sfu.ca	Business Rules Lead	C/C++, Python and Assembler Windows and Linux Web Dev.	Student
	Behrad Bakhshandeh	bbakhsha@sfu.ca	Test Manager	C/C++ and Assembler Windows and Linux	Student
	Alexander Wang	hwa133@sfu.ca	User Interface Lead	C/C++ and Java Various IDEs Windows and Linux	Student Information Retrieval Application in Java.
	Jason Leung	jcl70@sfu.ca	Phone System Lead	C/C++ and Java HTML, CSS, JavaScript Client/server programming	Student

Table 8-1 Team Members

9. References

Electronic Documents

Journal Article

[1] S. Feng, Y. K. Wong, L. Y. Wong, and L. Hossain, "The Internet and Facebook Usage on Academic Distraction of College Students," *Computers & Education*, vol. 134, p. 41-49, June 2019. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S036013151930034X. [Accessed October 10, 2020].

Journal Article

[2] L. V. Fedynich, "Teaching beyond the Classroom Walls: The Pros and Cons of Cyber Learning," *Journal of Instructional Pedagogies*, vol. 13, February 2013. [Online]. Available: https://eric.ed.gov/?id=EJ1060090. [Accessed October 10, 2020].

Journal Article

[3] R. A. Croxton, "The Role of Interactivity in Student Satisfaction and Persistence in Online Learning," *MERLOT Journal of Online Learning and Teaching*, vol. 10, no. 2, June 2014. [Online]. Available: https://jolt.merlot.org/vol10no2/croxton_0614.pdf. [Accessed October 10, 2020].

Journal Article in Scholarly Journal

[4] S. Dietz and C. Henrich, "Texting as a distraction to learning in college students," *Computers in Human Behaviour*, vol. 36, p. 163-167, July 2014. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0747563214001678. [Accessed October 10, 2020].

Journal Article in Scholarly Journal

[5] K. L. Smart and J. J. Cappel, "Students' Perceptions of Online Learning: A Comparative Study," *Journal of Information Technology Education: Research*, vol. 5, no. 1, January 2006. [Online]. Available: https://www.learntechlib.org/p/111541/. [Accessed October 10, 2020].

Journal Article in Scholarly Journal

[6] S. Lee, M. W. Kim, I. M. McDonough, J. S. Mendoza, and M. S. Kim, "The Effects on Cell Phone Use and Emotion-regulation Style on College Students' Learning," *Applied Cognitive Psychology*, vol. 36, no. 3, p. 360-366, May/June 2017. [Online]. Available: https://onlinelibrary-wiley-com.proxy.lib.sfu.ca/doi/full/10.1002/acp.3323. [Accessed October 10, 2020].

Appendix A Team Meeting Minutes

Meeting 1 Minutes

Group #4
Purpose of Meeting: Discuss HW1A
Date/Time: 09/28/2020 at 2:30pm
Chair: Richard Swann?
Attendees: Yufeng Luo, Richard Swann, Alexander Wang, Behrad Bakhshandeh
Absent: Jason Leung due to being moved from a different group on 10/02/2020

Topic	Discussion	Action/Decision	Person Responsible / Due Date
Project Manager assigned	Discussed amongst group the individual who would be most suitable to be Project Manager	Richard Swann was unanimously selected.	All members of Group 4.
Discussion and sharing of project ideas	Came up with general idea of what our app would do and who the target audience is by combining 3 separate ideas that were shared.	Proposal idea created for a study app that utilizes a phones GPS and accelerometer to check student's active studying time and features to help student's stay focused and keep track of time studied for courses. Teachers will have the ability to remotely access data that is logged by students and administer quizzes remotely to students.	All members of Group 4.
Sections of HW1A distributed to group members	Who would be responsible for the writeup of each section.	Richard was responsible for project proposal writeup, Alexander was responsible for Objectives writeup, Yufeng was responsible Results writeup, Behrad was responsible for Users and References writeup.	All members of Group 4.

Meeting 2 Minutes

Group #4
Purpose of Meeting: Compiling and touching up HW1A
Date/Time: 09/29/2020 at 4:30pm
Chair: Richard Swann
Attendees: Yufeng Luo, Richard Swann, Alexander Wang, Behrad Bakhshandeh
Absent: Jason Leung due to being moved from a different group on 10/02/2020

Topic	Discussion	Action/Decision	Person Responsible / Due Date
Proofread HW1A document and discuss if any changes are needed	Finalize write-ups and what will be included before document is submitted.	Richard as Project Manager will be submitting document once it is finalized.	HW1A due date - 09/30/2020

Meeting 3 Minutes

Group #4
Purpose of Meeting: HW1B document and Website creation
Date/Time: 10/05/2020 at 2:30
Chair: Richard Swann
Attendees: Yufeng Luo, Richard Swann, Alexander Wang, Behrad Bakhshandeh, Jason Leung
Absent:

Topic	Discussion	Action/Decision	Person Responsible / Due Date
Website Creation	Discussed what is needed to be displayed on the website	Created initial site and filled in appropriate data	All members of Group 4.
HW1B read-through	Figured out what sections would need to be completed and distributed sections to team members.	Distributed sections to group members. **Behrad** - Table of Contents, Revision History, translation of website to Spanish **Richard** - Project Planning, Project Schedule, Project Organization, proof-read Spanish Website **Alexander** - Project Summary and Overview **Yufeng** - Risk Management, Meeting Minutes **Jason** - References, translation of website to Spanish	All members of Group 4. HW1B due date - 10/13/2020

Meeting 4 Minutes

Group #4
Purpose of Meeting: Finalize structure and architecture that our application will use
Date/Time: 10/07/2020 at 6:00pm
Chair: Richard Swann
Attendees: Yufeng Luo, Richard Swann, Alexander Wang, Behrad Bakhshandeh, Jason Leung
Absent:

Topic	Discussion	Action/Decision	Person Responsible / Due Date
App development methodology that will be used	Programming will be split into 3 sprints with each sprint lasting 2 weeks, meetings scheduled before each sprint to plan what needs to be done.	AGILE chosen	All members of Group 4.
API Architecture	REST architecture chosen.	Server-Client interaction will be done through REST methods — GET, POST, PUT, DELETE	All members of Group 4.

Meeting 5 Minutes

Group #4
Purpose of Meeting: HW1B sections to be completed
Date/Time: 10/11/2020 at 2:00pm
Chair: Richard Swann
Attendees: Yufeng Luo, Richard Swann, Alexander Wang, Behrad Bakhshandeh, Jason Leung
Absent:

Topic	Discussion	Action/Decision	Person Responsible / Due Date
Ideas that will be written in each section of final project proposal	Necessary items to be included in each section, group checkup of what is needed.	Finalized write-ups will be submitted for compilation 10/12/2020 before submission date of HW1B	All members of group 4.
Project Plan and Schedule	Verify that all members are comfortable with the Project Plan and how it is scheduled.	Roles for our app development created. UI/UX, Business Logic, Server, Test, Phone (GPS, Accelerometer, Network)	Richard Swann created Plan and Schedule that is presented.

Meeting 6 Minutes

Group #4
Purpose of Meeting: Finalization of HW1B
Date/Time: 10/12/2020 at 2:30pm
Chair: Richard Swann
Attendees: Yufeng Luo, Richard Swann, Behrad Bakhshandeh, Jason Leung
Absent: Alexander Wang due to personal reasons.

Topic	Discussion	Action/Decision	Person Responsible / Due Date
Write-ups to be finished and proof-read and compiled into HW1B document	Check over different sections and ensure each member approves of what is written.	HW1B to be finalized by Richard Swann.	HW1B due date — 10/13/2020