1. Overview

1.1 Project Summary

The Software Project Management Plan (SPMP) aims to plan and define the details of the management plan for the Know&Vote Spring 2020 team. This document is consisting of the development cycle, organization, specific roles, projected timelines and testing protocols.

1.1.1 Purpose, Scope, and Objective

The software project management plan is designed to relay all the details of this software development plan and the development cycle. It will assign each member roles and duties regarding the development, and how and what kind of methodology they will be using to finish their assigned tasks. It will also assign deadlines so that the project could be developed on time. This document is based on and will follow the specifications/requirements that declared in our current version of the SRS**. Iteration 1** will be focusing on the new version of the user interface design, such as scroll feed and home screen features. **Iteration 2** will focus on implementing new APIs which our client instructed us to use as well as some bug fixes and remove some of the unwanted functions.

This objective of this project is designed to make voting easier & unbiased. This project aims to offer a better and easier way for our users/voters to learn about candidates (in this case, we will mainly focus on Trump and Biden), track their voting records, and learn which corporation are contributing to them. Know what is on the ballot in local, state, national elections, polling information, donor information, government spending tracking etc. Fix and switch our previous team's APIs is a major task for us to implement, since our client only wants some designated APIs.

1.1.2 Assumptions and Constraints

The list of all Assumptions and Constraints:

- Team members will attend all meetings
- Team members will meet all deadlines
- Team members will follow the requirements specified in SRS
- Team members will actively communicate with each other as well as responding to PM and APM's message in time.
- Extra works outside the lab session will be needed, since there are lots of new features we have to implement.

1.1.3 Project Deliverables

The project will deliver the following items:

- SRS, SPMP, Design, Test Plan and Documented source code
- A working program which meets the requirements of our client

1.1.4 Schedule and Budget Summaries

There is no current budget for this program. **Iteration 1** will be delivered as on 5/18, and **Iteration 2** will be delivered during the final week of this class.

1.2 Evolution of the Plan

The project manager and his assistant will contact the client around April 14th, 2020 to discuss and find out the expectations for the project. When the team is familiar with the client's expectations, the first iteration of the prototype will be initiated. All team members will follow their respective roles and finish their works on time. The Coyote Quest SPMP was used as a reference for writing this document.

2. References

[1] IEEE Software Engineering Standard Committee, "IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications", October 20, 1998.

[2] Xcode & Tutorials https://developer.apple.com/xcode/

[3] Previous prototype from the CSE455 Spring 2019 team.

[4] CoyoteQuest SMPP https://mobileappdev.academic.csusb.edu/wp-content/uploads/2020/04/CoyoteQuest-SPMP-Revision-5-6-19.pdf

3. Definitions

Project Manager (PM): An occupation in the software development team which responsible for the overseeing the entire project. The PM in charge of the planning, the preparation, the communication (both internal and external) and the guidance for the entire project.

Assistant Project Manager: An occupation in the software development team which responsible for coordinate team members (primarily internal communications) and shadow and help the PM to finish its work.

Software Engineer: A software engineer is a person who applies the principles of software engineering to the design, development, maintenance, testing, and evaluation of computer software.

Quality Assurance (QA): Quality assurance is a way of preventing mistakes and defects in manufactured products and avoiding problems when delivering products or services to customers.

Software Requirements Specification (SRS): Software requirements specification is a documentation which establishes the ground rules and specifications for an agreement between customers and contractors or suppliers on how the software product should function..

SPMP: A project management plan is a document used to describe every phase of a project.

Documented Source Code: This is a documentation that describes what a particular software's functions. It is used throughout development to communicate how the software functions or how it is intended to operate. It is also used as an agreement or as the foundation for agreement on what the software will do.

software operates or how to use it,and may mean different things to people in different roles.

Activity: A single face or screen that users can interact with.

Fragment: A piece of an activity that contains its own layouts.

Database: A structured set of data held in a computer.

SQL (Structured Query Language): Database language used to store and query data.

Google Maps: GPS technology.

Client: A computer that obtains information from a server.

Server: A computer that manages access to a centralized resource or service.

User Interface: The visual components of an application that users can interact with.

Machine Learning: A subset of artificial intelligence where algorithms can learn without being explicitly programmed.

OS (Operating System): Software that supports a computer's basic functions.

IDE (Internal Development Environment): A software application that provides comprehensive facilities to programmers for software development.

iOS (iPhone Operating System): Mobile operating system created by Apple inc. used only for Apple hardware.

Swift: An object-oriented programming language developed by Apple inc. used to develop software for iOS.

XML: A scripting language used to describe the structure of an application.

Midterm Elections: An election where the people can elect their representatives in the middle of the term of executive members.

Ballot: A process of voting, in writing.

Polls: The process of voting in an election.

ZIP: A code established to identify locations, initially for routing mail.

API (Application Programming Interface): A set of subroutine definitions, communication protocols, and tools for building software.

CKAN: An API that allows developers to harvest data from public databases to use for their application

Data.gov: Public database of government data

Census.gov: Public database regarding US citizen data, geographic data, and education.

AWS (Amazon Web Services): A subsidiary of Amazon that provides on demand-cloud computing.

Google Civic Information API: An API that allows developers to retrieve civic information from Google's servers

Caucus: A meeting at which local members of a political party register their preference among candidates running for office or select delegates to attend a convention

Primary: A preliminary election to appoint delegates to a party conference or to select the candidates for a principal, especially presidential, election (in this case, we will mainly focus on the Trump and **Biden preliminary election).**

Convention: An agreement between countries covering particular matters, especially one less formal than a treaty

DNC: Democratic National Committee, the principal campaign and fund-raising organization affiliated with the United States Democratic Party.

GOP: The term "Grand Old Party" is a traditional nickname for the Republican Party and the abbreviation "GOP" is a commonly used designation. The term originated in 1875 in the Congressional Record, referring to the party associated with the successful military defense of the Union as "this gallant old party".

RNC: Republican National Committee, the principal campaign and fund-raising organization affiliated with the United States Republican Party. Republican National Convention, the nominating convention for the United States Republican Party.

Bipartisan: A cooperative effort by two political parties

Bleeding Heart: A term describing people whose hearts "bleed" with sympathy for the downtrodden; used to criticize liberals who favor government spending for social programs

Bully Pulpit: The Presidency, when used by the President to inspire or moralize. Whenever the President seeks to rouse the American people, he is said to be speaking from the bully pulpit. When the term first came into use, "bully" was slang for "first rate" or "admirable."

Campaign: An organized effort to win an election to strive for elected office

Checks and Balances: The system of dividing power among the three branches of government (executive, legislative, and judicial) to prevent anyone from having too much power. Each branch has some authority to check the power of the others, thereby maintaining a balance among the three.

Coattails: The power of a popular candidate to gather support for other candidates in his or her party. Winning candidates are said to have coattails when they drag candidates for lower office along with them to victory.

Delegate: A representative to a party's national convention chosen by local voters to vote for a candidate. Each state is assigned a certain number of delegates based on its population.

Demagogue: A leader whose impassioned rhetoric appeals to greed, fear, and hatred, and who often spreads lies. Former U.S. Sen. Joseph McCarthy (see McCarthyism) is often cited as a classic demagogue.

Fence Mending: What politicians do when they visit their electoral districts to explain an unpopular action. The term originated in 1879,

when Ohio Senator John Sherman made a trip home that most people considered a political visit. Sherman insisted, however, that he was home "only to repair my fences."

Filibuster: An attempt by a Senator or group of Senators to obstruct the passage of a bill, favored by the majority, by talking continuously. Because there is no rule in the Senate over how long a member can speak, a Senator can prevent a bill from coming up for a vote by talking endlessly. Senator Strom Thurmond of South Carolina set the record in 1957 by speaking for more than 24 hours without stopping.

Fishing Expedition: An investigation with no defined purpose, often by one party seeking damaging information about another. Such inquiries are likened to fishing because they pull up whatever they happen to catch.

Front Burner: Where an issue is placed when it must be dealt with immediately

Gerrymander: The reorganization of voting districts by the party in power to insure more votes for their candidates. The term originated in 1811, when Governor Elbridge Gerry of Massachusetts signed a bill that changed districts to favor the Democrats. The shape of one new district supposedly resembled a salamander, provoking a Boston newspaper editor to say, "Salamander? Call it a Gerrymander!"

Grass Roots: Political activity that originates locally, or arises from ground level

Ideology: An integrated system of ideas about politics, values, and culture. Those who espouse an ideology are sometimes criticized as rigid and narrow-minded.

Incumbent: A current officeholder

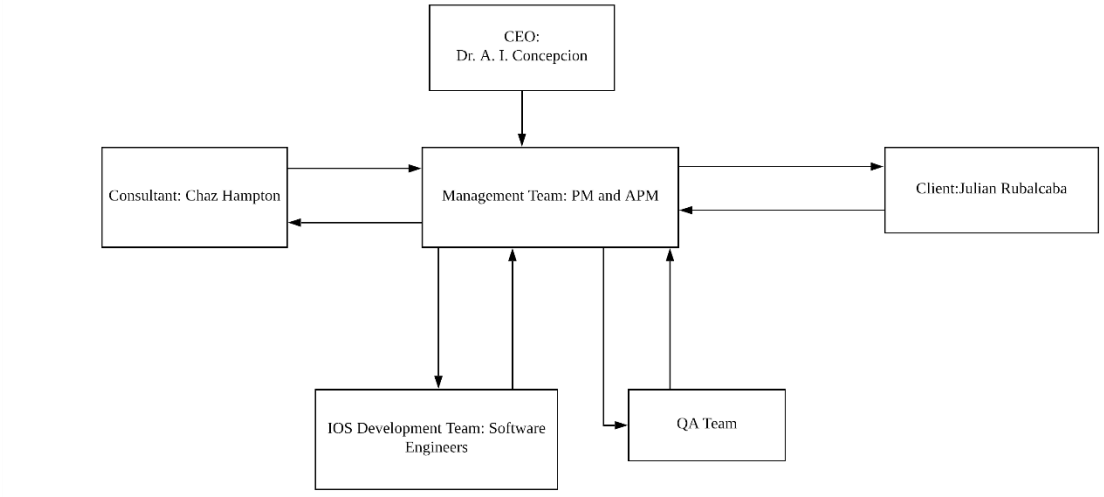
Inside the Beltway: The area inside the Capital Beltway, a highway that encircles Washington, D.C. An issue described as "inside the Beltway" is believed to be of concern only to the people who work in and with the federal government and of little interest to the nation at large.

Lame Duck: An officeholder whose term has expired or cannot be continued, who thus has lessened power

Left-wing: Liberal. The labeling system originated from the seating pattern of the French National Assembly, which put liberals on the left, moderates in the middle, and conservatives on the right.

Lobby: A group seeking to influence an elected official, or the act of doing so. The term originated in the seventeenth century, when people waiting to speak with legislators at the English House of Commons waited in a large atrium outside the legislators' hall, called the lobby.

4. Project Organization



4.1 External Interfaces

Dr. Concepcion (CEO): Monitors performance of the development team and provides guidance to the project managers

Julian Rubalcaba (Client): Communicates to Project Manager the requirements of the mobile app and gives feedback on presented prototypes

Chaz Hampton (Consultant): Technical consultant for this IOS project.

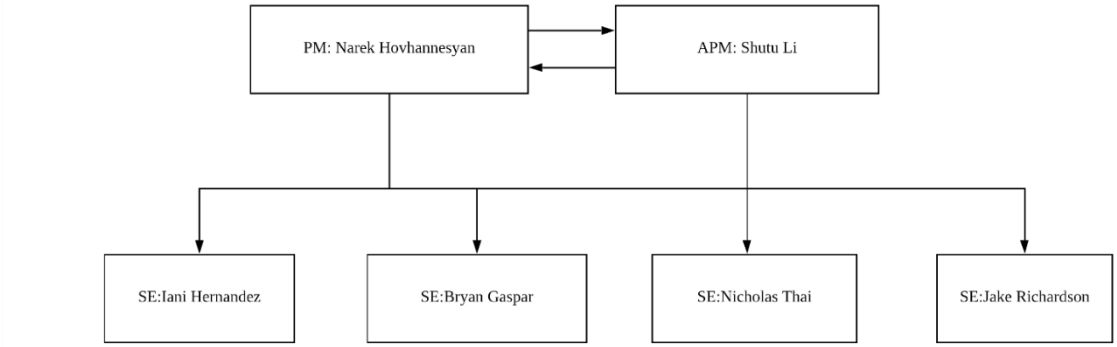
Narek Hovhannesyan (Project Manager): Responsible for communications between the client and the team. Provide both explain nation and guidance for the entire project.

Shutu Li (Assistant Project Manager): Provide help for the project manager, responsible for coordinating team members.

Development Team: Responsible for the coding part of the project.

QA Team: Test and evaluates our prototypes, make sure they meet out client's standards.

4.2 Internal Structure



4.3 Roles and Responsibilities

Narek Hovhannesyan (Project Manager): Responsible for communications between the client and the team. Provide both explain nation and guidance for the entire project.

Shutu Li (Assistant Project Manager): Provide help for the project manager, responsible for coordinating team members.

Iani Hernandez (Software Engineer): Implement new APIs for the project, responsible for the News, Ballots, Congress and Candidates information etc.

Bryan Gaspar (UI designer/Software Engineer): Implement new UI designs as the client specially required, and bug fixes when the whole project is completed.

Nicholas Thai (Software Engineer): Program functions for user login /account creation, home page directory, local political news, and petition sign display.

Jake Richardson (Software Engineer): Program functions for poster information viewing, upvote/downvote posts, election information (ballots, polling information, voting record, local races) viewing, zip code filtration and representatives information/news display (in this case, we will be focusing on President Donald Trump and democratic candidate Joe Biden as client required).

5. Managerial Process Plans

5.1 Start-up Plan

5.1.1 Estimation Plan

- Contact client to ascertain their vision of the project and develop the technical specifications for the application.
- Learn the ins and outs of the application in order to implement the client's desired changes as seamlessly as possible.
- Maintain lines of communications with team members and schedule weekly meetings to track the progress of the project.
- Create guidelines for Iteration 1 and Iteration 2 of the rollout of new/updated features for the application.

5.1.2 Staffing Plan

A skills survey was used to organize the class into teams with assigned projects. While the project manager and assistant project manager

positions were filled by the professor/TAs, the rest of the team was free to pick and choose the portions of the project they were most comfortable working on.

5.1.3 Resource Acquisition Plan

Each Know&Vote team member will be given access to the same set of resources including a Mac Laptop for iOS application development. Team members will be using personal computers for Windows applications while the Mac computers for iOS applications were provided by the CEO.

5.1.4 Project Staff Training Plan

All group members will complete a set of both Android Studio and iOS tutorials provided by the CSE 455 TAs during the first three weeks of class. The tutorials provided included Android and iOS development, Asynchronous Android and iOS development. On top of the tutorials, all staff members are required to familiarize themselves with current version of the Know&Vote application.

5.2 Work Plan

5.2.1 Work activities

- **Iteration 1:**
    - Update User Interface
        - Scroll Feed
            - Be able to scroll up and down the feed in each category
        - Home Screen
            - Toggle between News, Petitions, Location, and Representatives
            - Navigation Bar
            - Update color scheme to meet client's new specifications
- **Iteration 2:**

    - Improve and Implement APIs
        - News APIs
        - Ballots APIs
        - Congress APIs
        - Candidates APIs
        - Polling Information APIs
        - Voting Record APIs
        - Candidate Platform APIs

- Documentation: All members will make sure that all the code that they write is properly documented.

5.2.2 Schedule Allocation

4/13/2020 - 4/17/2020	Android Studio/iOS Staff Training
4/20/2020 - 4/24/2020	Android Studio/iOS Staff Training SRS Development
4/27/2020 - 5/1/2020	Current Know&Vote Staff Familiarization Resource Acquisition
5/4/2020 - 5/8/2020	Development of Iteration 1 Updates
5/11/2020 - 5/15/2020	Rollout of Phase 1 Updates
5/18/2020 - 5/22/2020	Delivery and QA testing of Iteration 1 Updates
5/25/2020 - 5/29/2020	Development of Iteration 2 Updates
6/1/2020 - 6/5/2020	Rollout and QA testing of Iteration 2 Updates
6/8/2020 - 6/12/2020	Iteration 2 Delivery and Presentation

Know&Vote	START DATE	END DATE	DURATION (WORK DAYS)	TEAM MEMBER	PERCENT COMPLETE	4/27/2020 - 5/1/2020					5/4/2020 - 5/8/2020					5/11/2020 - 5/15/2020					5/18/2020 - 5/22/2020					5/25/2020 - 5/29/2020					6/1/2020 - 6/5/2020					6/8/2020 - 6/12/2020				
						M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F
Iteration 1																																						
Update User Interface	4/27	5/22	18	Li	40%																																	
Update Scroll Feed	4/27	5/22	18	Hernandez	40%																																	
Update Home Screen Colors	4/27	5/22	18	Richardson	40%																																	
Update Home Screen Navigation Bar	5/4	5/22	13	Thai	40%																																	
Update Home Screen Fragments	5/4	5/22	13	Gaspar	40%																																	
Iteration 2																																						
Implement News API	5/25	6/1	6	Li	0%																																	
Implement Ballots API	5/25	6/1	6	Hernandez	0%																																	
Implement Congress API	5/25	6/1	6	Gaspar	0%																																	
Implement Candidates API	5/25	6/1	6	Hovhannesyan	0%																																	
Implement Polling Information API	5/25	6/1	6	Thai	0%																																	
Implement Voting Record API	5/25	6/1	6	Richardson	0%																																	
Implement Candidate Donor API	6/1	6/8	6	Hernandez/Li	0%																																	
Implement Nonprofits API	6/1	6/8	6	Gaspar/Thai	0%																																	
Implement Government Spending API	6/1	6/8	6	Richardson	0%																																	

5.2.3 Resource Allocation
We will be using the following APIs in order to acquire and present the information in the Know&Vote application: RSS feeder APIs, Ballotpedia API, ProPublica Congress API, Turbovote API, Vote Smart API, GovTrack API, OpenSecrets API, GuideStar API, and FollowTheMoney API.

5.2.4 Budget Allocation
No budget has been allocated for this project.

5.3 Control Plan

5.3.1 Requirements Control Plan
Every Know&Vote team member is required to attend a biweekly online Slack meeting where they will deliver progress updates on their assignments. Each member is required to document their code and submit their assignments in a timely manner as dictated by the SRS and SPMP documentation for this project. Any unexpected issues, technical difficulties or requests by the clients will be assessed by the Managing team and decided upon.

5.3.2 Schedule Control Plan
Outside of the regular biweekly assigned lab time, the team members might be required to attend additional online meetings in order to coordinate the compilation and delivery of the product. The team Manager and Assistant Manager will coordinate with the Know&Vote team members in order to ensure the timely development and delivery of the project.

5.3.3 Budget Control Plan
There is no budget allocated to the Know&Vote team.

5.3.4 Quality Control Plan

The management and development team will perform weekly quality checks on the application to ensure the continued successful development of the application in accordance to the client's expectations. The management team will stay in contact with the client during the development process to ensure the project reflects their vision.

5.3.5 Reporting Plan

The managing team will notify Dr. Concepcion of the weekly meetings and group participation. The project manager will send an attendance report and a project development report after said meetings.

5.3.6 Metrics Collection Plan

The managing team will make sure that every developer stays on track for their weekly progress report. The management team will do so by collect two metrics: # of faults/1 K LOC and Total LOC/Hr for the team.

5.4 Risk Management Plan

Development

- The team will attend a weekly Slack meeting to ensure the timely development of the project.
- The team will conform to scheduled delivery deadlines for each stage of the project.
- All team members will be informed of their responsibilities for the week, project deadlines, and deliver their progress reports during the weekly Slack meetings.
- The source code for Know&Vote iOS application will be updated as new features are tested and implemented.
- Know&Vote team members that fail to meet their weekly deadlines without sufficient justification will be reported to the CSE 455 teaching staff.
- If a team member is struggling with an assigned task they are encouraged to ask for help immediately so as not to delay the project.

5.5 Colseout Plan

The Know&Vote team will submit all deliverables on BitBucket along with a maintenance manual. The team will present a demonstration of the Know&Vote application on finals day.

The Following will be stored in BitBucket:

☐SRS

☐SPMP

☐SQAP

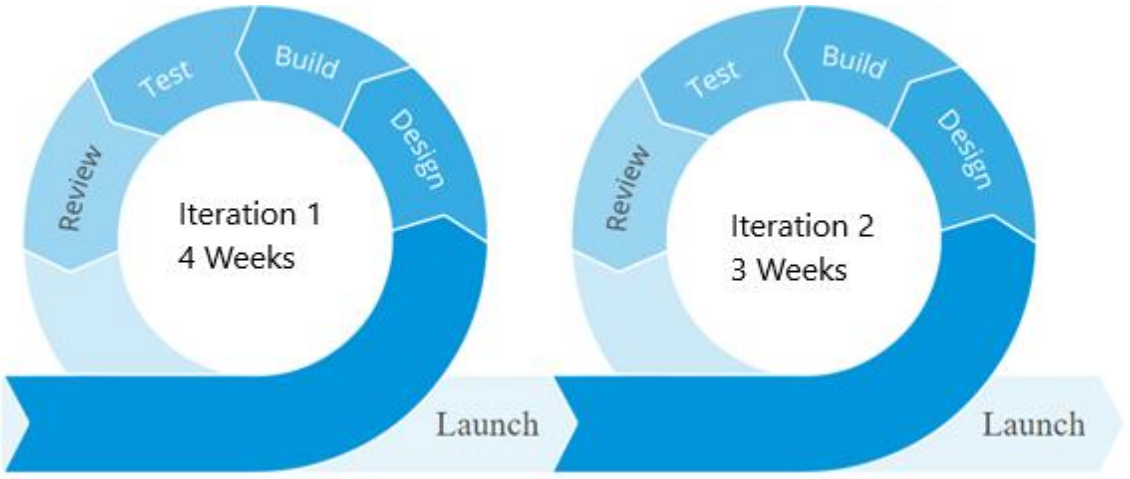
☐SAD

☐Documented Source Code

☐Maintenance Manual

6. Technical process plans

6.1 Process Model



Scrum is a framework within which people can address complex adaptive problems, while productively and creatively delivering

products of the highest possible value. Scrum itself is a simple framework for effective team collaboration on complex products. Scrum co-creators Ken Schwaber and Jeff Sutherland have written The Scrum Guide to explain Scrum clearly and succinctly. Team Know&Vote plans to complete two 3-week cycles for the Know&Vote application update consisting of the rollouts of Iteration 1 and Iteration 2 updates.

6.2 Method, tools, and techniques

- Method:
  - Scrum Development Model
- Tools:
  - Xcode
  - Bitbucket
  - Slack
  - Google Drive
  - Lucidchart
- Techniques
  - Weekly meetings with client
  - Weekly meetings and progress reports with development team

6.3 Infrastructure Plan

There is currently no need for an infrastructure plan as the features that require a server are not yet implemented and are not the in the purview of the current development Iteration.

6.4 Product Acceptance Plan

The Know&Vote team managers will be in contact with the client throughout the development of the Know&Vote application. Once the requested updates are completed, the application will be handed off to the QA team that will rigorously test the application to ensure that it meets all the criteria set in the SRS.

7. Supporting Process Plans

7.1 Configuration Management Plan

The Know&Vote team will be using Bitbucket to manage the development of the Know&Vote application for the duration of the project.

7.2 Verification and Validation Plan

The verification and validation for the Know&Vote application will be done in three stages.

- **Stage 1: Unit Testing**
  - Each software developer will test their own code as they develop their assigned software component. Most major bugs should be resolved at this stage.
- **Stage 2: Integration Testing**
  - Once a software developer submits their software component, it will be integrated into the Know&Vote application and testing by the whole team.
- **Stage 3: System Testing**
  - Once the protype software is completed, the application will be tested by the project manager, assistant project manager, the QA team and the client. All remaining bugs should be caught and resolved by the end of this stage of test.

7.3 Documentation Plan

The Know&Vote project manager and assistant manager will prepare the SRS and SPMP. The development team will write the documentation for the design and architecture.

7.4 Quality Assurance Plan

The QA team will ensure that the Know&Vote application performs to spec as detailed in the SRS.

7.5 Reviews and Audits

Every member of the Know&Vote team will participate in testing the Know&Vote application throughout the development process. Any

bugs or deficiencies found in the application will be documented, reported, and fixed as soon as possible.

7.6 Problem Resolution Plan

All members of team Know&Vote are required to report any issues that will in any way hamper development to the management team as soon as they come up. Once the management team is made aware of the issue, they will decide on the appropriate course of action and reassign tasks as necessary.

7.7 Subcontractor Management Plan

There is no plan to hire subcontractors currently.

7.8 Process Improvement Plan

A detailed, accurate, and up-to-date documentation of the source code will be produced as the project is worked on. By preemptively writing a comprehensive documentation of the source code and a maintenance manual, implementing any further changes and improvements into the application will be significantly easier. The same documents can also be used to keep the client aware of what changes are being made to the application in a timely manner. Every member of the Know&Vote team will be required to create and submit the documentation for all their work to the team managers during the weekly Slack meetings. Should a member fall behind in their work, a team manager will work closely with them to remedy the situation as soon as possible. All team members will be evaluated based on their contributions to the project by 6/10/2020.