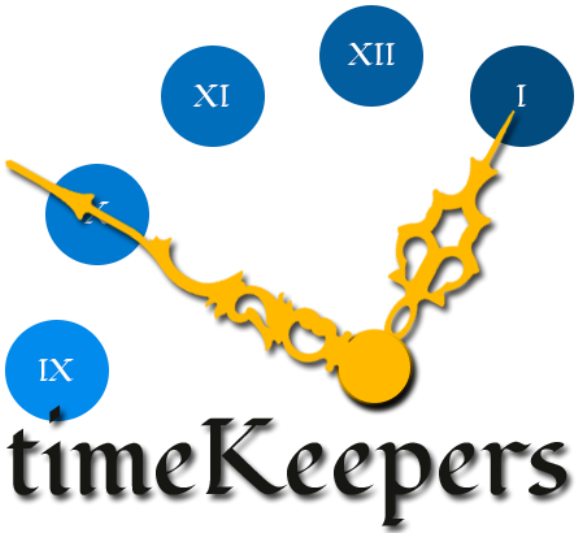
Department of Computer Science and Engineering
The University of Texas at Arlington



Team: TimeKeepers

Project: Volunteer Tracking System

Team Members:

Dineth Hettiarachchi
Damber Khadka
Devkishan Sisodia
Samir Shrestha
Tasneem Devani

Late Updated: 3 December 2014 @ 11:48:00 PM

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1 General Organization

1.1 Project Manager

The Project Manager for team TimeKeepers is Dineth Hettiarachchi. He is a Computer Engineering major with a solid background in web development. He also has real world project management experience through his affiliation with the Department of Earth and Environmental Sciences. He has also worked on multiple web/mobile development projects for numerous clients. It is because of all these qualities that the team has unanimously chosen him as the project manager. As a project manager he will be responsible for developing the project plan, setting up meeting agendas, communicating with the sponsor and keeping the team members on track to complete the project in time.

1.2 Project Oversight

1.2.1 Internal Controls

The Project Manager will maintain internal control by assigning different responsibilities to each team member. The Project Manager will also set standards for each responsibility. Informal team meetings will be held every Tuesdays and/or Thursdays to update the Project Manager about the progress on assigned tasks. Prior to each team meeting the Project Manager will set an agenda and inform the team members in advance. The Project Manager will make sure that the agenda has been achieved for a particular meeting.

Apart from informal meetings, the team will also hold a formal meeting bi-weekly on Mondays to review all the deliverables. This meeting is to make sure that everybody is in sync. Also this meeting will provide team members the opportunity to review the work of other team members. This feedback will help to improve the quality of our documentation and also help mitigate any inconsistencies.

1.2.2 External Controls

The Project Supervisor will be responsible maintain external control of the project. The team will adhere to the standards set by the Project Supervisor based on various measures. These measures will help the team to assess their progress and identify their weaknesses. These measures will also help the team follow the course guidelines. The following are the measures that the supervisor will use to maintain external control:

Team Status Reports: The team will present team status reports according to the course schedule. These presentations will focus on updating the Project Supervisor regarding the achievements throughout the work period as well as addressing any issues that the team is facing. It will also be a means of letting the supervisor know about what the team's plan to work on the next work period and whether the team is on track to meet its deadline for the deliverables.

Individual Status Reports: Each team member will submit a printed hard copy of individual status report at the times stated in the course schedule. This report is to include any work that a team member has completed as well as the work that is planned for the next period. It will also include the earned value of each work stated.

Gate Reviews: Several gate reviews will be held throughout the semester. The gate review will be held in the presence of the Project Supervisor and other teams. These gate reviews will give an opportunity for the team to showcase their achievements and demonstrate their completeness of the scheduled deliverable for that time period. Each gate review needs to be passed in order to move on to the next phase of the project. The Project Supervisor will have the final say on whether the team has successfully passed their gate review.

1.3 Roles and Responsibilities

Role	Member	Description
Team Lead/Project Manager	Dineth Hettiarachchi	Assign tasks, create project plan, and communicate with external stakeholders.
Test Lead	Damber Khadka	Design and implement system test plan
Document Master	Tasneem Devani	Document integration and review, create presentation slides
Design Lead/Risk Manager	Devkishen Sisodia	Design high level system architecture and algorithms, creates the risk management plan and ensure that it is folllowed
Database Specialist	Samir Shrestha	Design and manage system database.
Sponsor	Dr. Linda McCalla	Provide customer requirements and feedback
Project Supervisor	Mr. Mike O'Dell	Provide guidance to the team

1.4 Project Constraints

Currently our team has identified three major constraints. The first constraint we have identified is schedule conflict. All of our team members have different class schedules that have resulted in meeting time conflicts. Other than that some of our team members work as well so it is really hard to agree upon meeting schedules that works for everyone.

The second constraint we have identified is the lack of time. We have until May to complete the whole project but due to course work from other classes we might not be able to allocate time for our project as planned in the project plan which might put us behind the schedule.

The third constraint we have identified is the lack of development experience. Although, some of our team members are experienced developers, other members do not have any real world development experience other than previous course projects. Lack of knowledge in AJAX, JQuery, JavaScript and Android development is a significant concern for us also.

1.5 Project Assumptions

We have made two assumptions for our project. The first assumption is that all the team meetings will go as planned and we will not have to reschedule any meetings. The second assumption we have made is that once we complete our System Requirements Specification and pass the Requirements Gate Review, no changes will be made to the requirements.

1.6 Preliminary Schedule and Cost Estimates

Task	Due Date	Cost (Hours)
Draft SRS	10/08/2014	59.25
Project Plan Draft	10/15/2014	10
Project Charter Draft	10/15/2014	33.25
SRS Gate Review	10/27/2014	17
ADS Draft	12/01/2014	75
ADS Gate Review	12/08/2014	16.5
Detailed Design Specification	TBD	82
System Test Plan	TBD	21
Release Prototype	1/19/2014	114

2 Scope Statement

2.1 Introduction

The purpose of the Volunteer Tracking System is to provide the Maverick Volunteers an efficient and interactive way to log their volunteer hours as well as to keep track of their volunteer activities. The volunteers will be able to keep themselves updated about the upcoming volunteer opportunities and periodically view their progress report. The system will also provide a means to the facilitators to track volunteer participation and use it as a means to determine strategy for increasing volunteer participation.

2.2 Product Definition

The system will consist of a web interface and an Android app. The web interface will act as the primary means of interacting with the system whereas the Android app will provide users a secondary means to access the system whenever accessing it through a computer is not possible. Based on our current analysis the system will have three levels of users, which include admin, facilitator and volunteers. The facilitators will be able to add new events to inform the volunteers and the volunteers will be able to log their time, signup for an event and view their progress. The admin will be able to manage all the users as well as make changes to the system content.

2.3 Intended Audience

The intended audience for this system is the UTA College of Engineering Board Members. Currently, the Maverick Volunteers consist of members from the College of Engineering Board only; but in future there is a possibility of students or other faculty and staff to be involved in the volunteering opportunities. Therefore, the system will be designed in such a way that a regular user with a minimum experience in accessing the internet can easily use it. Since, most of the students will prefer an Android app over a web interface, equal importance will be given to the Android app and its functionality will be made comparable to the web interface.

3 Cost Management Plan

3.1 Introduction

This section describes how the team will manage the material cost and resource cost as described in the System Requirements Specification and Project Plan documents.

3.2 Financial Costs

Since our project is primarily software based there are no major hardware costs associated with our project. All the tools and components required to complete the project are listed in the SRS document. Our major cost would be the Android development phone and publishing the app in Google Play store. Currently, we are planning on running our website on UTA server so it will help reduce our cost for hosting. Also, most of the software tools that we will be using are available for free to use as long as we do not use it for commercial purposes. Therefore, considering all these facts we are confident that we will be able to complete the project well under our allocated budget of $800. As the project progresses, we will keep on monitoring our cost and updating our project plan as needed to keep our budget under the allowed limit.

3.3 Labor Costs

Using COCOMO and Jone's first order estimation, we estimated our project to be completed within 7 man-months or 1,320 man-hours. Since, we have 5 members in our team, each member will have to put in 264 hours. In order to accomplish this, each team member will have to put in roughly 12 – 15 hours per week. The team will review the project plan in every bi-weekly meeting to keep track of work assigned to each member and also the amount of hours that they have spent as well as the earned value for the work assigned. The Project Manager will actively keep track of the earned value for each work assigned and alert the members if they are falling behind the schedule according to the Project Plan. The Project Manager will also actively track the risk management plan and inform the members of any possible risks that might delay the schedule.

4 Earned Value Management

4.1 Introduction

This section will discuss how the team will be keep track of work and performance using the earned value management concept. It demonstrates the scheduled dates, actual work done, assigned human resources as well as some measurements for each of the tasks. It is critical for us to determine if we're performing well in the schedule or falling behind. Therefore, the team can determine the actions to get back on the schedule.

4.2 Components of Earned Value Management

Each task needed to be done to complete the project will be included in the Microsoft Project Plan along with the following values that are needed to compute the earned value.

- % Complete
- BCWS (Budgeted Cost of Work Scheduled)
- ACWP (Actual Cost of Work Performed)
- BCWP (Budgeted Cost of Work Performed)

For each individual task, the percentage completed will be entered as the '% Complete.' BCWS will be assigned in man-hours and will be based on the past experience and the similar projects. ACWP will be entered in man-hours and will be the total hours to complete the particular task. BCWP is computed by the following formula:

BCWP = [% Complete * ACWP / 100] hrs

4.3 Performance Indices

The team will use two different performance indices to measure the performance. Those include: Cost Performance Index (CPI) and the Schedule Performance Index (SPI). Both metrics will require the input in man-hours.

$$\text{CPI} = \frac{\text{BCWP}}{\text{ACWP}} \qquad \text{SPI} = \frac{\text{BCWP}}{\text{BCWS}}$$

- If CPI $\geq$ 1, the team is within the budget.
- If CPI < 1, the team is over the budget.
- If SPI $\geq$ 1, the team is ahead of the schedule.
- If SPI < 1, the team is behind the schedule.

If either of the ratios are identified as less than 1, the team will reallocate the resources and reassess the schedule to get back on the schedule.

4.4 Reporting Earned Value

At the beginning of the each team meeting, the team leader will collect the percentages of the tasks completed and the actual start/finish dates which will be entered in the MS Project file. The percentage completed can be vary between 0% and 100%. BCWP, CPI and SPI will be computed automatically.

4.5 Status Reports

Each team member will inspect the Microsoft Project file and use the information on the assigned tasks for the individual to complete the individual status reports. The metrics for the current period as well as the next period will be based upon the project plan (Microsoft Project file). In addition, the information in the project plan will be used to determine the topics to discuss during the team status reports for the current period.

5 Scope Management Plan

5.1 Introduction

This section illustrates scope management plan that will be used to handle project's feature set. The plan includes building a clear definition of the product features as listed in the System Requirement Specification and avoiding any additional features that might delay the project due to insufficient time and other constraints. The plan will layout guidelines that minimize feature creep, satisfy customer requirements, and get the product ready by early May 2015.

5.2 Scope Definition

The scope of the product will be defined by requirements listed in System Requirement Specification and acceptance criteria given by the customer. The future requirements like social aspect as stated in System Requirement Specification 3.12 and mobile browser compatibility (SRS, 8.5) will be done only after the higher priority requirements are completed. The team has rated requirements priority from 1 to 5 with 1 being critical and 5 being least important. Team will complete higher priority requirements first and follow gradually by decreasing priority.

5.3 Scope Management

Team TimeKeepers have divided the entire project into three phases, which is reflected in the MS Project plan. The phases include Phase I (Senior Design I) that will be used to set up System Requirement Specification and Architectural Design Specification. The early prototypes will be built in Phase II (Winter Break) upon customer's request, which needs to be ready by the first week of January. Phase III (Senior Design II) will be used to define the Detailed Design Specification, the Test Plan and to implement the final product. The team will strictly follow the guidelines stated in MS Project plan and work on the next deliverable only after the approval of baseline documentation in each phase by all team members and Project Supervisor. Weekly team meetings will be conducted to review each other's progress and assign new task by team consensus. The team will also let other teams review documents and receive feedback.

5.4 Scope Change Control

Any additional features suggested by the customer or team members after final requirements will only be adjusted in the project after analyzing time required, priority, impact and other constraints. A change request form should be filled to suggest any additional features or edit or removal of already existing features. Team will analyze the probable risk, feasibility and also get input from the customer and Project Supervisor before deciding on making any changes.

6 Work Breakdown Structure

WBS	Task Name	Planned Start	Planned Finish
1	**Phase 1 (Senior Design 1)**	**Sun 9/7/14**	**Mon 12/8/14**
1.1	**Project Inception**	**Fri 9/5/14**	**Mon 9/8/14**
1.1.1	Project selection	Fri 9/5/14	Tue 9/9/14
1.1.2	Setup communication tools	Fri 9/5/14	Fri 9/5/14
1.1.3	Setup shared storage space	Mon 9/8/14	Mon 9/8/14
1.1.4	Secure Sponsorship	Mon 9/8/14	Mon 9/8/14
1.2	**Requirements Specification**	**Mon 9/8/14**	**Mon 10/27/14**
1.2.1	**SRS initial briefing**	**Mon 9/8/14**	**Thu 9/18/14**
1.2.2	**SRS Draft**	**Thu 9/18/14**	**Wed 10/8/14**
1.2.3	**Document Revisions**	**Wed 10/8/14**	**Wed 12/3/14**
1.3	**Project Plan**	Fri 9/26/14	Wed 12/3/14
1.3.1	Project Plan Discussion	Fri 9/26/14	Wed 10/15/14
1.3.2	MS Project Plan Draft	Fri 9/26/14	Wed 10/15/14
1.3.3	**Plan Revisions**	**Thu 10/16/14**	**Wed 12/3/14**
1.4	**Project Charter**	**Wed 10/1/14**	**Wed 10/15/14**
1.4.1	**Charter Draft**	**NA**	**NA**
1.4.2	**Document Revisions**	**Thu 10/16/14**	**Wed 12/3/14**
1.5	**Architecture Design Specification**	**Mon 10/20/14**	**Wed 12/10/14**
1.5.1	**ADS Draft**	**NA**	**NA**
1.5.2	**Document Revisions**	**NA**	**NA**

1.6	**Team Meetings**	**Sun 9/7/14**	**Wed 12/10/14**
1.6.1	**Meeting Agenda**	**Sun 9/7/14**	**Thu 9/25/14**
1.6.2	**Meetings**	Tue 12/2/14	Tue 12/2/14
1.7	**Sponsor Meetings**	**Fri 9/12/14**	**Wed 12/10/14**
1.7.1	Meeting #1	Fri 9/12/14	Fri 9/12/14
1.7.2	Meeting #2	Wed 10/1/14	Wed 10/1/14
1.7.3	Meeting #3	Wed 11/5/14	Wed 11/5/14
1.8	**Team Status Reports**	**Fri 9/12/14**	**Tue 11/4/14**
1.8.1	**Team Status Reports - Presentations**	**Fri 9/12/14**	**Tue 11/4/14**
1.8.2	**Team Status Reports - PowerPoint Slides**	**Fri 9/12/14**	**Fri 11/14/14**
1.9	**Misc. Meetings**	**Tue 10/21/14**	**Tue 10/21/14**
1.9.1	Meeting w/ COE Webmaster	Tue 10/21/14	Tue 10/21/14
1.10	**Reviews/Gate Reviews**	**Fri 10/17/14**	**Fri 12/19/14**
1.10.1	**Project Charter/Plan Review**	**Fri 10/17/14**	**Fri 10/24/14**
1.10.2	**SRS Gate Review**	**Thu 10/23/14**	**Mon 10/27/14**
1.10.3	**ADS Review**	**Mon 12/1/14**	**Wed 12/10/14**
2	**Phase 2 (Winter Break)**	**Thu 12/11/14**	**Mon 1/19/15**
2.1	**Prototype Implementation**	**NA**	**NA**
2.1.1	**Web App**	**Thu 12/11/14**	**Mon 1/19/15**
2.1.2	Web Components Merging	Mon 12/29/14	Fri 1/9/15
2.1.3	**Testing**	**Mon 1/12/15**	**Mon 1/19/15**
2.2	Bug Fixes	Mon 1/12/15	Thu 1/15/15
2.3	**Detailed Design Specification**	**Thu 12/11/14**	**Mon 1/19/15**
2.3.1	Research	Thu 12/11/14	Mon 1/19/15
2.4	**Team Meetings**	**NA**	**NA**
2.4.1	**Meetings**	**NA**	**NA**

2.4.2	**Training Sessions**	**NA**	**NA**
2.5	**Architecture Design Specification**	**Thu 1/1/15**	**Mon 1/19/15**
2.5.1	ADS Team Review	Thu 1/1/15	Mon 1/19/15
3	**Phase 3 (Senior Design 2)**	**Tue 1/20/15**	**Fri 5/15/15**
3.1	**Getting Started**	**Tue 1/20/15**	**Fri 1/23/15**
3.1.1	Lessons Learned Presentation	Tue 1/20/15	Fri 1/23/15
3.2	**Architecture Design Specification**	**Tue 1/20/15**	**Thu 1/29/15**
3.2.1	Baseline ADS [Milestone]	Thu 1/29/15	Thu 1/29/15
3.2.2	**Document Revisions**	**Tue 1/20/15**	**Thu 1/29/15**
3.3	**Detailed Design Specification**	**Tue 1/20/15**	**Fri 3/6/15**
3.3.1	**Components**	**Tue 1/20/15**	**Mon 2/23/15**
3.3.2	**Reviews**	**Fri 2/6/15**	**Tue 2/24/15**
3.3.3	**Document Revisions**	**Fri 3/6/15**	**Fri 3/6/15**
3.4	**System Test Plan**	**Sat 3/7/15**	**Thu 4/2/15**
3.4.1	**Components**	**Sat 3/7/15**	**Fri 3/27/15**
3.4.2	**Reviews**	**Fri 3/27/15**	**Thu 4/2/15**
3.4.3	**Document Revisions**	**NA**	**NA**
3.5	**Prototype Implementation**	**Fri 3/6/15**	**Mon 4/20/15**
3.5.1	**Stage 1**	**Fri 3/6/15**	**Mon 4/20/15**
3.5.2	Prototype Testing	Fri 4/17/15	Fri 5/1/15
3.5.3	Feasibility Assessment for Stage 2	Sat 4/18/15	Sat 4/18/15
3.5.4	**Stage 2**	**Sun 4/19/15**	**Fri 5/1/15**
3.5.5	Prototype Testing	Tue 4/21/15	Fri 5/1/15
3.6	Early Prototype Preview	Fri 4/17/15	Fri 4/17/15
3.7	**Team Status Reports**	**Thu 1/29/15**	**Fri 5/1/15**
3.7.1	**Team Status Reports - Presentations**	**Thu 1/29/15**	**Thu 4/30/15**

3.7.2	**Team Status Reports - PowerPoint Slides**	**Fri 1/30/15**	**Fri 5/1/15**
3.8	**Individual Status Reports**	**Fri 2/27/15**	**Fri 4/17/15**
3.8.1	ISR 2/27	Fri 2/27/15	Fri 2/27/15
3.8.2	ISR 3/20	Fri 3/20/15	Fri 3/20/15
3.8.3	ISR 3/27	Fri 3/27/15	Fri 3/27/15
3.8.4	ISR 4/17	Fri 4/17/15	Fri 4/17/15
3.9	**ENB Reviews**	**Fri 1/30/15**	**Fri 5/1/15**
3.9.1	ENB Review 1/30	Fri 1/30/15	Fri 1/30/15
3.9.2	ENB Review 2/20	Fri 2/20/15	Fri 2/20/15
3.9.3	ENB Review 5/1	Fri 5/1/15	Fri 5/1/15
3.10	**Team Meetings**	**Tue 1/20/15**	**Tue 4/28/15**
3.10.1	**Meeting Agenda**	**Tue 1/20/15**	**Tue 4/28/15**
3.10.2	**Meetings**	**Tue 1/20/15**	**Tue 4/28/15**
3.11	**Sponsor Meetings**	**Tue 1/20/15**	**Fri 5/15/15**
3.11.1	SM #1	NA	NA
3.11.2	SM #2	NA	NA
3.12	Peer Review	Tue 5/5/15	Tue 5/5/15
3.13	**Final Presentations/Prototype Delivery**	**Tue 4/21/15**	**Fri 5/8/15**
3.13.1	PPP Design	Tue 4/21/15	Fri 5/8/15
3.13.2	Banner Design	Tue 4/21/15	Fri 5/8/15
3.13.3	**Rehearsals**	**Fri 5/1/15**	**Thu 5/7/15**
3.13.4	Final Presentation/Demo	Fri 5/8/15	Fri 5/8/15

7 Quality Management Plan

7.1 Introduction

This section describes the plans and action of the team to ensure the quality of product. The quality management plan defines the guidelines and the actions that will be taken by the team to meet the requirements listed in System Requirement Specification and acceptance criteria set forth by team and customer as well as to preserve the quality of all components of the product.

7.2 Documentation

The team will assign each team member to work on certain section of each document and complete it by at least one week prior to deliverable. All the documents will be uploaded in team's document folder in Dropbox. The Documentation Master will combine all the components of the document and combine into a single document. The initial official document prepared by the Documentation Master will be thoroughly reviewed by team members in team meetings. Each team member can suggest and make changes in the document upon team consensus. The final copy of document will be sent to the Project Supervisor (Mr. O'Dell). The team's individual engineering notebook will be used to record information about the details related to the project.

7.3 Software

The Volunteer Tracking System is an entirely a software-based project. Therefore, the quality of software has to be maintained. The product software will be thoroughly documented and tested. The software will be divided into modules and each module will be created and tested before integrating into the final product. The code will be tested and debugged in each step to prevent system error and malfunction. The source code will be well commented with meaningful variables and function names to ensure the maintenance of code. Each file will be committed to Git in order to maintain the versions.

7.4 Test Plan

Test plan will be developed for each software component of the Volunteer Tracking System. Each component will be tested to ensure that the customer, safety, performance, and other requirements listed in the System Requirement Specification are met. Each software module will be tested before and after integration to ensure the overall quality of the product and prevent any system error or malfunction. The tests conducted will be detailed in System Test Plan. The team will use the following four main testing methods to ensure the quality of product.

7.4.1 Regression Testing

Regression Testing will be used to test the system and uncover new bugs when changes are made in the software.

7.4.2 Unit Testing

Unit Testing will be performed in each unit and module of the software to test the function and prevent any system errors and malfunction before integrating all the modules to the product.

7.4.3 Integration Testing

Integration Testing will be performed to ensure the overall system is functioning after integrating all the sub modules and components of the system.

7.4.4 Performance Testing

Performance Testing will be used to determine the performance and reliability of the product.

7.4.5 System Validation Testing

System Validation Testing will be performed to ensure that the requirements stated in the System Requirement Specification are met and the acceptance criteria formulated by team and customer are also met.

8 Communications Plan

8.1 Introduction

A successful team needs an applicable communication plan. The Communication Plan sets a guideline and standard that the team follows to work together effectively. This standard was set as a team and it includes both internal and external forms of communication.

8.2 Internal Communication

8.2.1 Team Meetings

The team has agreed to meet two times each week in the Engineering Library from 5 PM to 7 PM. At these team meetings, the team leader sets the agenda beforehand to ensure all members are prepared for the meeting.

8.2.2 Google+

The team leader has setup a Google+ Community and the team has agreed to use this resource to inform the other members of any pressing issues, announcements or to conduct an informal discussion. It is the most convenient method of communication as it is easily accessible by all team members.

8.2.3 Email

Email is our secondary form of communication. As assignments are finalized or sent to our customer for feedback, every member is copied on the emails.

8.3 External Communication

8.3.1 Customer Relations

Meetings with the sponsor occur twice a month in person in the ERB conference rooms. Meetings are scheduled based on customer availability and team's schedule. Meeting reports from each meeting are sent to the customer via email. All documentation related to the project is also submitted to the customer for their understanding and feedback.

8.3.2 Project Supervisor

The team will constantly communicate with the Project Supervisor (Mr. Mike O'Dell). Updates will be provided in forms such as team status reports, individual status reports, gate reviews or any other form that the Project Supervisor requires.

8.3.3 Email

The team will use Email to communicate with the customer and the Project Supervisor. Any clarification questions or request for feedback will be submitted through Email.

9 Change Management Plan

9.1 Purpose of Integrated Change Management Plan

The purpose of having a Change Management Plan is to have a defined procedure for any changes that may arise during any phase of the project lifecycle. Change is inevitable but a control plan is needed in order to define all processes and tools to manage and access the impact of that change.

There could be several reasons and sources for changes in our project. While analyzing the product and based the meetings we have had with the sponsor and team members, one of the reason could arise from a change in requirements. We are anticipating that at some point near the implementation, we will want to add new requirements or the sponsor may feel the need to change the requirements. Along with changing requirements, we feel that a change in our project plan might also occur at any time. Although we have a clearly defined schedule to fulfill the customer's request for a product prototype in January, we still feel that a change in schedule might be a possible risk. For now, we foresee these as possible changes but others may be added as we move along the project.

The following sections describe our process for mitigating these issues or risks. The Customer, Project Manager, and each team member has an established role regarding the change management process.

9.2 Roles and Responsibilities

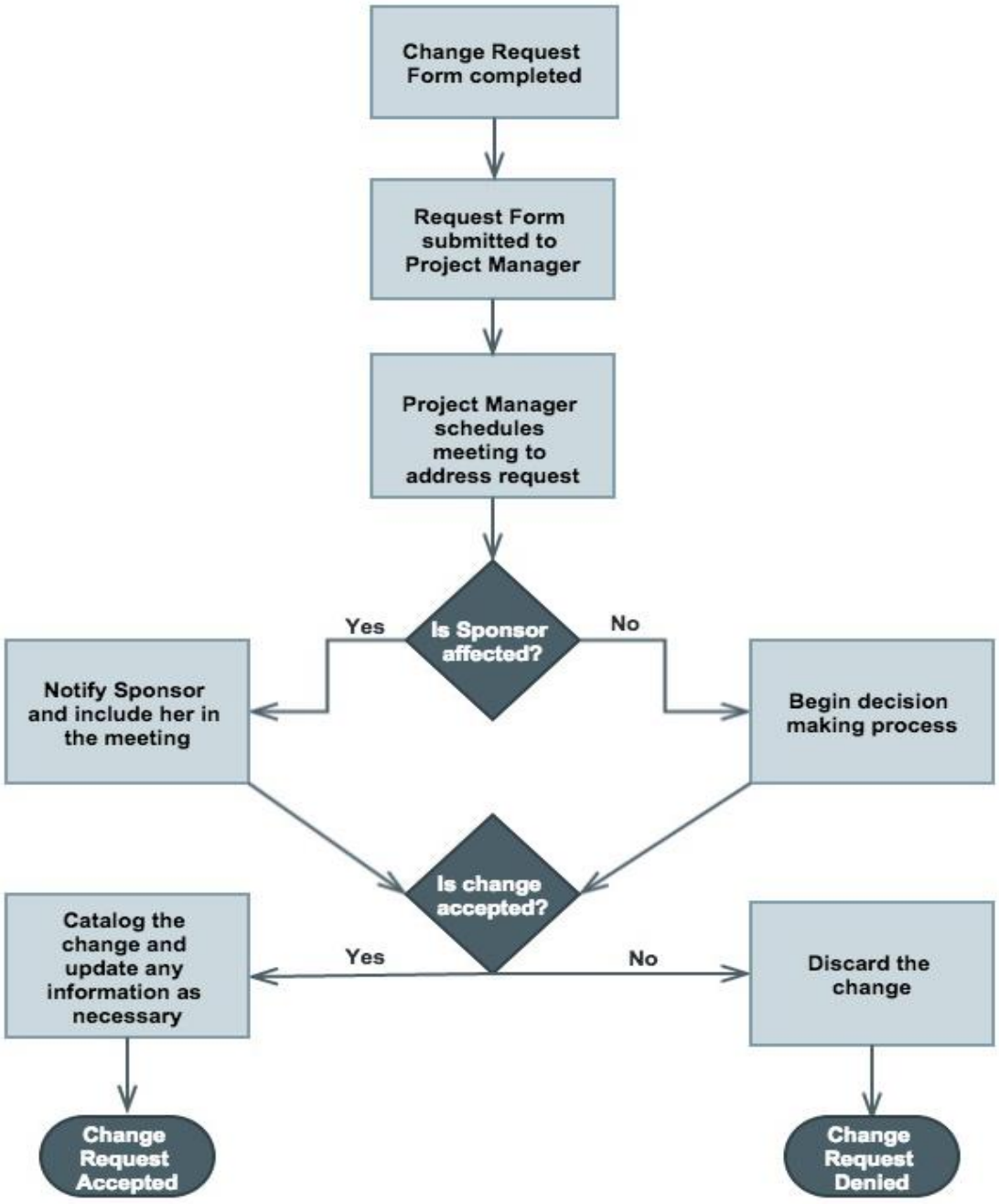
Project Sponsor – Dr. Linda McCalla, as the sponsor for this project, she will have an active role in our change management plan. She will be the main point of contact in our requirements specifications. If there are any proposed changes that impact the project, the sponsor will review and approve or deny it.

Project Manager – The Project Manager will have a critical role in the change management process. The Project Manager will schedule a review meeting to discuss the change and analyze possible impacts. The Project Manager and the Risk Manager will analyze the possible risks as a result of the change and assure the project is on track. The Project Manager will also acting accordingly based on the recommendations received from the team, Sponsor, and Project Supervisor.

Project Team – Team TimeKeepers will report any anticipated changes to the rest of the team so the process in place can begin. All members will be an integral part of the all the meetings that place with respect to the change management process. Team members can also propose changes. These changes will also follow the same process.

Project Stakeholders – The Project Supervisor, Mr. Mike O'Dell will be a key stakeholder in this project. Mr. O'Dell may introduce new changes to the deadlines, course structure or project deliverables to his discretion. If these changes have an impact on the project, the team will consult with him.

9.3 Review and Approval Process



As shown in the flowchart above, there are several paths that a change request can take. Once a change request form is filled out, the Project Manager (PM) will analyze it and schedule a Change Advisory Board Meeting. If only our team is affected by this change, our sponsor will not be included in the meeting. However, if the impact is directly related to our sponsor, she will join us in the meeting. The team will then analyze all aspects of the change request. If a change is accepted, the Documentation Master will update the documentation as necessary. If the change is denied, the request is disregarded but the change request documentation is updated to reflect this decision.

9.4 Change Identification, Documentation, Implementation and Reporting

The change control form contains the following critical information: change requestor, change category, description of the change, reason for the change and the risks associated with the change. The form must be validated by the Project Manager and then finally presented to the Stakeholders.

If a proposed change is accepted, any documents, schedule, or budget items affected will be documented in detail by the members of the team. The Document Master will make sure all documentation is up to date. The Risk Officer will then catalog all approved change requests for the length of the project. Below is a sample of the change request form (next page):

Change Request Form *Document of Record for a project change request*			
Project Name		**Project Manager**	
Project Sponsor		**Date of Request**	
Created by	Person submitting the change request		

Change Request Detail - *The Change Request form is the document of record for a change request. It provides the business reasons and justification for the change and assesses the risk and impact of the change.*

Type of Change	**Description of the change requested with rationale**
☐ Business Change or Need	
☐ Funding Source Plan Change	
☐ Scope Change or Need	
☐ Schedule Change	
☐ Error Correction	
☐ Regulatory Requirement	
☐ Other	
Priority	☐ **1 – *Critical*:** "I can't move forward until this change is resolved." ☐ **2 – *High***: "I'm fine for right now, but unless this change is resolved by the due date, I won't be able to move forward." ☐ **3 – *Normal***: "I'm fine for the right now, but this may impact my ability to move forward in the near future." ☐ **4 – *Low***: "This change is not impacting my ability to move forward."
Benefits of Proposed Changed	The additional benefits the proposed change would have.
Alternatives	List any alternatives/work-around to the change that exist.
Impact Severity	☐ ***1 - Critical Impact***: Threatens the success of the program ☐ ***2 - High Impact***: Significant disruption to program schedule, cost, or quality ☐ ***3 - Normal Impact***: Progress disrupted with manageable extensions to short-term schedule and cost ☐ **4 - *Low Impact***: Exposure is slight
List of Impacted Deliverables	
Financial Impact ($) *Estimated Cost of the Change*	
Schedule Impact (days) *Time Required for the Change*	
Resources Required for Change	

Authorization		
Change Requests Status	☐ Change Request Open	
	☐ Change Request Approved	
	☐ Change Request Rejected	
	☐ Change Request Closed	
	☐ Deferred for review at later date	Date:
Fiscal Reviewed and Approved by If funding is sourced separately by a department		Date:
Authorizing Signature		Date:
Project Manager Signature		Date:

10 Risk Management Plan

10.1 Purpose of Risk Management Plan

Risk is defined as something that is considered with respect to the possibility of incurring loss. In this section, the team's risk management plan will be described. Through identification and analysis, this plan will assess the specific risks of this project. These risks will also be controlled or resolved by risk response planning and continuous monitoring throughout the project's lifetime.

10.2 Roles and Responsibilities

Project Sponsor – If a major risk is encountered, the Project Sponsor will be notified. The Project Sponsor will also be able to help the team understand the risks involved in the project and give insight on how these risks can be managed.

Project Manager – The Project Manager will oversee the project's progress throughout its lifetime. The Project Manager will also assess the team's risk management plan and, whenever necessary, make sure that it is being followed.

Project Team – The Project Team will create the risk management plan. The team will also be responsible for using this plan to manage and control the risks that are encountered during entire lifetime of the project.

Risk Manager – The Risk Manager will be responsible for ensuring that the team follows the risk management plan. Also, the Risk Manager will document and report risks whenever encountered throughout the life of the project.

10.3 Risk Identification

Every team member is responsible for identifying risks encountered throughout the project. Once a team member identifies a risk, she or he will report the risk to the Risk Manager. The Risk Manager will then report the risk to the entire team and the risk management plan will be used to manage the risk.

10.4 Risk Triggers

The following are events or performance characteristics that can trigger the occurrence of a risk:

- The introduction of a new requirement
- Failing to complete deliverables by the internal deadlines
- Low priority requirements are delaying higher priority requirements
- Failing to learn necessary skills or how to use tools and technologies vital for the project
- Failing to update the sponsor as the project moves along

10.5 Risk Analysis

The table below shows the major risks identified by the team, the probability of each risk occurring, the cost of each risk if failed to be managed, and the exposure of each risk.

Risk	Probability (%)	Cost (Hours)	Exposure (Hours)
Overly optimistic schedule for the early prototype	25	114	28.5
Feature creep due to the flexible and modular nature of the project	75	10	7.5
Requirements gold plating in terms of customer requirements	25	10	7.5
Short changed upstream activities due to the early prototype	10	60	6.0
Lack of automated source code control due to limited experience	10	60	6.0
Total			**55.5**

10.6 Risk Severity

This section ranks each risk described in section 10.5 by severity. The triggers that may cause the risks and a plan to resolve them are also listed.

Risk	Priority	Trigger	Resolution
Overly optimistic schedule for the early prototype	High	Failing to complete deliverables by the internal deadlines; The design of the early prototype has not begun by December 15, 2014	Continuously keep track of the project plan and adjust it to mitigate delays
Feature creep due to the flexible and modular nature of the project	High	The introduction of a new requirement	Analyse each feature to determine if it is necessary and only work on the necessary ones
Requirements gold plating in terms of customer requirements	Medium	Low priority requirements are delaying higher priority requirements	Continuously monitor and prioritize each requirement so that high priority requirements are completed before lower priority requirements
Short changed upstream activities due to the early prototype	Low	The Architecture Design Specification is not completed before early prototyping begins	Follow the project plan and make sure the Architecture Design Specification is complete before early prototyping begins
Lack of automated source code control due to limited experience	Low	Failing to learn necessary skills or how to use tools and technologies vital for the project	Research Git and understand how to use it

10.7 Risk Response Planning

A procedure will be put in place to mitigate, if not eliminate, each risk that has been identified (as well as others that may be encountered in the future) as to prevent them from hindering the successful completion of the project. In order for risk response planning to be effective, the entire team must participate. The risk response plan will consist of risk identification and risk control.

10.8 Risk Documentation and Reporting

The risk manager will maintain a risk management document in which risks encountered and steps taken to eliminate those risks are recorded. This document will be located in the team's document repository so that each team member has access to it.

10.9 Risk Control

At each meeting, the risk manager will go over the risks identified and their triggers to make sure a risk has not been encountered. If a risk has been encountered and depending on the severity of the risk, the team will execute the resolution plan. If a new risk is identified then the probability, cost, and exposure of the risk will be analyzed. The severity of the risk will also be decided upon by analyzing its priority, trigger, and resolution. The risk management document will be updated after a risk has been identified and analyzed.

11 Procurement Management Plan

11.1 Purpose of the Procurement Management Plan

This section outlines the procedure followed by the team when purchasing or obtaining any required materials for the project. This procedure will ensure that all materials purchased will be necessary and best suited to meet the project's requirements.

11.2 Roles and Responsibilities

Project Sponsor – The project sponsor will provide suggestions on what materials may need to be bought that will ensure that all of the project's requirements are met.

Project Manager – All requests for purchasing a material will be overseen by the project manager. The project manager will also make the final decision on purchases and will notify the project supervisor that a purchase needs to be made.

Project Team – The project team will do the necessary research into materials that will be needed for the project.

Project Supervisor – The project supervisor will review all requests for procurement and will have the authority to accept or reject those requests. If a request is accepted, the project supervisor will order the materials and deliver them to the team.

11.3 Required Project Procurements and Timing

The procurement phase of this project will begin after the System Requirements Specification Gate Review is complete and the design of the project begins. A delay in purchasing the required tools and materials will result in the delay of necessary deliverables. Because of this, it is important to purchase the required materials as soon as possible, which means all necessary research into the materials needed must be complete before the System Requirements Specification Gate Review.

11.4 Description of Items/ Services to be acquired

The required materials needed, so far, are listed as follows:

- Android Studio/NetBeans ($0)
- Git – Student Edition ($0)
- MySQL, SQLite ($0)
- Google Play Publishing ($25.00)
- Google Nexus 5 ($387.71)

12 Project Closeout Report

12.1 Purpose

This section is intended to provide closure after the completion of the project. The report provides an insight into the challenges and lesson learned through this project. The section also highlights issues in different categories and ensures they are resolved.

12.2 Administrative Closure

12.2.1 Were the objectives of the project met?

Upon the completion of the project, the team will compare the final product to the specified requirements to ensure all specifications have been met. The section will also cover any requirements that the final product did not complete or cover.

12.2.2 Archiving Project Artifacts

All project artifacts will be archived on GitHub and in the Senior Design Document Library for future reference. The drafts and various versions of the documents will be stored and shared on Dropbox. A hard copy of the documents will also be contained in a binder that will be in the Senior Design Lab. The binder will contain the following documents:

- System Requirements Specification
- Project Charter
- Purchase Requests
- Architecture Design Specification
- Detailed Design Document
- MS Project Plan
- Status Reports
- System Test Plan
- Financial Record
- User Manual

12.2.3 Lessons Learned

As the team moves through the project, together we will discuss the lessons learned through the course of this project. We will also discuss any issues we faced and how they have impacted the project. We will analyze the positives and negatives of the project and how we can use the lessons learned on future projects.

12.2.4 Plans for the Post Implementation Review (PIR)

We will compare the final project to the system requirements and analyze if all specifications have been met. We will also discuss if any requirements not covered can be implemented in future versions of the project.

12.2.5 Final Customer Acceptance

In our last meeting with the sponsor, we will go over all customer requirements to validate which ones have been met and which we have not been able to complete. We will also discuss what could be implemented in future implementations. The team will do it's best to do an effective job to meet all the requirements and fulfill the customer's demand.

12.2.6 Final Records

The team will document all purchases. Each transaction will be kept on record so it can be accessed easily. It will also be included in the final documentation for the project.

12.2.7 Final Project Performance Report

Upon the project completion, the team will analyze the performance requirements and also conduct a review of the overall team performance. The team will also meet with the customer to receive any final feedback and to analyze the team's overall performance as well as the end product.