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

The Survivors

Project: Sight By Touch

Team Members:   
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Gerardo Guevara

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# General Organization

## Project Manager

The project manager and team leader for the Sight by Touch system is Gerardo Guevara. Gerardo’s main responsibility is to be in charge of the integration when it comes to putting together the sections of our documents as well as overseeing the entirety of the project. Gerardo is also primarily in charge of planning our schedule and handles most of the scheduling on MS Project. He will set deadlines, assign tasks, and make sure everyone is focused on his or her task.

Gerardo is a Software Engineer and has much experience in planning from his software classes as well as from his previous job. With his experience in management and organization, he was chosen to be our team leader.

## Project Oversight

The team has partitioned project management into two sections: internal control and external control.

### Internal Control

* **Microsoft Project Plan**

Gerardo Guevara overseas most of the project plan on MS Project. While the rest of the team does have the ability to make changes and corrections, only the project manager will make the final change. Gerardo has broken down each task into smaller sections and has assigned each team member a task. With each task we have set a start date and an end date so team members are able to stay on track by keeping these dates in mind.

* **Team Meetings**

The team meets every Monday, Wednesday, and Saturday for about an hour during each of these days to update on each team member’s progress and to go over anything on the team agenda that our team historian, Henry Loh, has created. The meetings on Monday and Wednesday occur at 10:00 a.m. and on Saturday at 9:00 a.m. we use the web server AnyMeeting to chat online. Our team also will meet on Friday during lab if we are given time. Our meetings are recorded and our team historian will write out a summary of each meeting and put up the recordings on Google Drive so the rest of the team has a reference and can be up-to-date with their engineering notebooks.

* **Google Drive**

The team uses Google Drive to upload documents and files. On Google Drive, there are several folders created to organize the documents. With the use of Google Drive the team is able to stay organized and have a centralized place to store and view documents made.

### External Control

* **Individual Status Reports**

Every few weeks, individual status reports are due during lab and reported to Mike O’Dell. The individual status reports allow Mike O’Dell to see our individual progress and allow each team member to reflect on what he or she has done and what needs to be worked on in the future.

* **Team Status Reports**

Every few weeks, each team has to report in lab what they have accomplished and what will be planned for in the future. Through team status reports, Mike O’Dell and the rest of the teams are able to view our team’s progress as a whole.

* **Gate Review**

For the Gate Review, the team will formally present a major deliverable. In the presentation we will discuss major sections and receive feedback for what we have done.

## Roles and Responsibilities

The team has assigned roles and responsibilities to each team member based on skill and preference. Each role has been assigned as evenly as possible with each team member’s strengths and weaknesses taken into account. Below is a table that lists each team member and his or her responsibilities as well as our major stakeholders.

**Table 1-1: Roles and Responsibilities**

|  |  |  |
| --- | --- | --- |
| **Team Member** | **Role** | **Responsibilities** |
| **Mike O'Dell** | Team Supervisor | -Oversees project. Checks status of teams. |
| **Paul Sassaman** | Project Sponsor | -Provides team with feedback. |
| **Jennifer Svelan** | Project Sponsor | -Provides team with feedback,  especially concerning the visually impaired. |
| **Gerardo Guevara** | Team Leader  Integration Coordinator Product Designer | -Keeps track of schedule, assigns tasks. -Integrates all the sections in major deliverables. -Concerned with overall design of product and helps where is needed. |
| **Victor Rodriguez** | Disciplinary Officer Team Representative Software Architect | -Makes sure everyone is on task. -Represents team during meetings with sponsors. -Makes high level design choices including code and tools. |
| **Margaret Floeter** | Reviewer Schedule Manager Software Engineer | -Checks for grammar, syntax, and format at the end for all documents. -Helps in planning the schedule. -Designs and writes programs and will be responsible for the algorithms. |
| **Henry Loh** | Team Historian Hardware Architect  Treasurer  Risk Manager | -Writes down notes of each meeting and keeps track of major decisions. -Responsible for the hardware used by the system.  -Keeps track of budget  -Manages and identifies risks to project |
| **Kevin Tran** | Software Q&A Engineer System Architect | -Tests the quality and assurance of the system. -Deals with the basic structure of the system and focuses on the design. |

## Project Constraints

The team has identified project constraints that will influence timing, cost, resources, and the quality for our project.

* The amount of time to complete the project is limited. The scope of the project is about 6-8 months and must be fully completed by May 2014.
* The budget of the project is $800. Resources must be used wisely and there must be thorough research of an item before it is purchased.
* Each team member either has major obligations or work that puts a constraint on each team member’s time. There will be conflicts with schedules; therefore, time management will be of the utmost importance.
* Our major sponsor, Jennifer Svelan, is located in Dallas, so contacting her is difficult.

## Project Assumptions

The project assumptions identified by the team are listed as follows:

* Each team member will put in the appropriate time and effort for this project.
* Each team member will complete his or her assigned section or task. If conflicts arise, the team member with the conflict must notify the rest of the team if an assignment cannot be done on time or he or she requires aide.
* The team will meet at least three times a week.
* Communication between team members must be done in a timely manner.
* The Sight by Touch system focuses mainly on detecting objects in front of a user.
* The Sight by Touch system will be used by visually impaired users.

## Preliminary Schedule and Cost Estimates

**Table 1-2: Project Milestones**

|  |  |
| --- | --- |
| **Project Milestone** | **Due Date** |
| Final Project Assignments, Project Start Date | 9/9/2013 |
| First draft of System Requirements Specification | 10/9/2013 |
| First draft of Project Plan Documents | 10/16/2013 |
| Project Plan Reviews | 10/23/2013 |
| Requirements Gate Reviews | 10/30/2013 |
| Baseline System Requirements Specification | 11/6/2013 |
| Draft Architecture Design Specification | 12/2/2013 |
| Baseline Project Charter | 12/4/2013 |
| Baseline MS Project File | 12/4/2013 |
| Architecture Gate Reviews | 12/11/2013 |
| Final (Gate Review) Version of Architecture Design Specification | 12/11/2013 |

**Table 1-3: Phase 1 Deliverables**

|  |  |
| --- | --- |
| **Phase 1 Deliverable** | **Preliminary Cost (hours)** |
| **System Requirements Specification** | 56 |
| **Project Charter & Project Plan** | 82 |
| **Architecture Design Specification** | 53.5 |

**Table 1-4: Phase 2 Deliverables**

|  |  |
| --- | --- |
| **Phase 2 Deliverable** | **Preliminary Cost (hours)** |
| **Architecture Design Specification** | 13 |
| **Detailed Design Specification** | 27 |
| **System Test Plan** | 32 |
| **Implementation** | 350 |

# Scope Statement

The scope of the Sight By Touch system is to create a wearable system that can detect objects at a distance and provide vibration feedback to the user. The Sight By Touch system will provide an interface where the user can control the system’s sensitivity and power. Each sensor component will house a distance sensor and a vibration motor.

In order for the system to detect objects, the sensor component will first send a pulse out and it will receive a reflection. The sensor component will then send the reading to the controller box and the controller box will process the information. Finally, the controller box will send a signal out back to the sensor component to produce the vibration feedback.

# Cost Management Plan

## Introduction

This section covers how the team will produce a successful system while staying within its limited budget of time and resources.

## Project Budget

The team is given approximately 6-8 calendar months to complete the project, which equates to about 500 person-hours per team member. Since the team is composed of five members, there are about 2500 person-hours total for the entire duration of the project. The team is also given a financial budget of $800 for the purchase of any required components for the project.

## Cost Management Approach

To manage the cost of calendar time and labor, a Work Breakdown Schedule (WBS) will be modeled in Microsoft Project to track the necessary discrete tasks including the team member(s) responsible for completion, the associated deadlines, and the associated planned and earned values. The Project Leader will be primarily responsible for managing this WBS. However, it is expected that the other team members contribute if necessary. To manage financial costs, the team has a Treasurer who shall keep track of all financial transactions made during the duration of the project.

## Calendar Time and Labor Management

Using the WBS, the team will be able to develop a work schedule for all aspects of the project by taking into consideration the limited calendar time. In addition, the WBS will also manage the labor of work for each team member to ensure some team members are not more burdened than others. The team will also be able to monitor progress made overtime. It is expected that problems will arise over the time span of the project. As a result, the WBS will be continually refined to manage these issues. Refinements include reassigning tasks to team members and readjusting deadlines of discrete tasks.

## Financial Management

The Treasurer of the team will be primarily responsible for constantly monitoring the financial budget so that the team can stay within the budget. Before actual financial transactions are made, the team will consider how the costs of product components will impact the $800 budget. If a financial transaction is made, the team will report it to the Treasurer. The Treasurer will keep a record of the transaction and recalculate the remaining budget. Afterwards, whenever the team is considering another financial transaction, the process will be repeated again using the recalculated available budget.

# Earned Value Management

## Earned Value

Earned value management will help the team make sure that the project stays on track by monitoring the planned accomplishments to the completed accomplishments. We will use the CPI and SPI as our main progress indicators. In order to calculate the CPI and SPI, we will keep track of the Earned Value Components.

## Earned Value Components

* **ACWP – Actual Cost**

The actual amount of work (in hours) spent at any given point in time.

* **BCWS – Planned Value**

The planned amount of work (in hours) that should be spent at any given point in time. This will be derived from the Project Breakdown.

* **BCWP – Earned Value**

The value (in hours) in terms of our base budget of what we have accomplished at any given point in time.

## Performance Indices

* CPI – Cost Performance Index

* SPI – Schedule Performance Index

**Conclusions**:

* If CPI > 1.0, Excellent (Ahead of schedule at this point in time)
* If CPI = 1.0, Good (Right on Schedule)
* If CPI < 1.0, Bad (Possibly Behind schedule at this point in time)
* Similar for SPI

## Report

The team meets 3 times a week, on Monday, Wednesday, and Saturday, but to break the week evenly we are going to use the Monday and Saturday meetings for reporting our progress. Each member will take a few minutes to present an individual status report to the rest of the team, and if we find an issue then we will try to solve that issue immediately or it will become part of the agenda for the next meeting. After everyone is done presenting, the status report will be emailed to the team leader so that he can enter and update the team’s plan. The team will also submit team status reports as well as the individual status reports.

# Scope Management Plan

## Introduction

The scope management plan will manage the scope of the entire project and will cover how scope change will be integrated in our system, as well as avoid additional features that may negatively affect the system. This section will include an introduction to the scope definition, management plan and control.

## Scope Definition

The team decided that our scope and goal is to complete a system that is wearable, and can detect an object and alert the user, through vibrations, about that object. The additional features: full body suit, multiple sensor modules (different directions), and GPS will be considered as future items. The goal of this system is to aid the visually impaired. Therefore, we will be primarily focusing on providing the user with a better sense of their surroundings and full use of the hands.

## Scope Management Methodology

The methodology we have decided to use is an inside out approach. We are going to make sure we complete the most critical requirements first then build on it as we move along. We listed these requirements with ratings from 1 to 5 with 1 being the most critical and 5 being the least.

## Scope Control

To maintain and control the scope of the project, the entire team will be working together to ensure that the scope is defined correctly. We will be using Microsoft Project to define tasks and assign them to each team member. This will allow us to track the progress of the project. Each member will report directly to the team leader to avoid unexpected changes. Project files will be kept up to date and uploaded onto Google Drive.

# Work Breakdown Structure

This section will show the Work Breakdown Structure for the project. The project will be broken into 2 main phases, which are Senior Design I and II. For the complete Work Breakdown Structure, a MS Project file will be provided.

**WBS Level 1**

|  |  |  |
| --- | --- | --- |
| Task ID | Task Name | Planned Work (in Hours) |
| **1** | **Phase I (Senior Design I)** | **493** |
| **1.1** | **Team Organization** | **301.5** |
| **1.2** | **System Requirements Specification (SRS)** | **56** |
| **1.3** | **Project Plan Document** | **82** |
| **1.4** | **Architecture Design Specification (ADS)** | **53.5** |
| **2** | **Phase II Winter Intersession** | **13** |
| **2.1** | **ADS Baseline** | **13** |
| **3** | **Phase III (Senior Design II)** | **692** |
| **3.1** | **Team Organization** | **73** |
| 3.2 | ADS Baseline | 0 |
| **3.3** | **Detail Design Document** | **27** |
| **3.4** | **Test Plan** | **32** |
| 3.5 | Prototype Implementation | 350 |
| 3.6 | Prototype Testing | 200 |
| 3.7 | Early Prototype Demonstration | 5 |
| 3.8 | Prototype Demonstration | 3 |
| 3.9 | Project Wrap-up | 2 |

**WBS Level 2**

|  |  |  |
| --- | --- | --- |
| Task ID | Task Name | Planned Work (in Hours) |
| **1** | **Phase I (Senior Design I)** | **493** |
| **1.1** | **Team Organization** | **301.5** |
| **1.1.1** | **Meetings** | **32.5** |
| **1.1.2** | **Sponsor Communication** | **4** |
| **1.1.3** | **Team Status Reports** | **5** |
| **1.1.4** | **Research** | **250** |
| **1.1.5** | **ink3D SRS Review** | **10** |
| **1.2** | **System Requirements Specification (SRS)** | **56** |
| **1.2.1** | **First SRS Draft** | **45.75** |
| **1.2.2** | **Requirements Gate Review** | **4.5** |
| **1.2.3** | **SRS Baseline** | **5.75** |
| **1.3** | **Project Plan Document** | **82** |
| **1.3.1** | **First Project Charter Draft** | **62.5** |
| 1.3.2 | **First MS Project File Draft** | 4 |
| **1.3.3** | **Project Plan Review** | **4** |
| **1.3.4** | **Baseline Project Charter** | **11.5** |
| **1.4** | **Architecture Design Specification (ADS)** | **53.5** |
| **1.4.1** | **First ADS Draft** | **44.5** |
| **1.4.2** | **Architecture Gate Review** | **9** |
| **2** | **Phase II Winter Intersession** | **13** |
| **2.1** | **ADS Baseline** | **13** |
| 2.1.1 | Evaluate Feedback | 5 |
| 2.1.2 | Review ADS Document | 8 |
| 2.1.3 | ADS Syntax Review | 0 |
| **3** | **Phase III (Senior Design II)** | **692** |
| **3.1** | **Team Organization** | **73** |
| **3.1.1** | **Meetings** | **73** |
| 3.2 | ADS Baseline | 0 |
| **3.3** | **Detail Design Document** | **27** |
| 3.3.1 | Introduction | 1 |
| 3.3.2 | Architecture Overview | 5 |
| 3.3.3 | Component Design | 10 |
| **3.3.4** | **Quality Assurance** | **5** |
| 3.3.5 | Requirements Traceability Matrix | 2 |
| **3.3.6** | **Acceptance Plan** | **3** |
| 3.3.7 | Appendices | 1 |
| **3.4** | **Test Plan** | **32** |
| 3.4.1 | Introduction | 1 |
| 3.4.2 | References | 2 |
| 3.4.3 | Test Items | 4 |
| 3.4.4 | Risks | 3 |
| 3.4.5 | Features to be Tested | 3 |
| 3.4.6 | Features NOT to be Tested | 3 |
| 3.4.7 | Approach | 5 |
| 3.4.8 | Item Pass/Fail Criteria | 3 |
| 3.4.9 | Test Deliverables | 3 |
| 3.4.10 | Test Schedule | 3 |
| 3.4.11 | Approvals | 2 |
| 3.5 | Prototype Implementation | 350 |
| 3.6 | Prototype Testing | 200 |
| 3.7 | Early Prototype Demonstration | 5 |
| 3.8 | Prototype Demonstration | 3 |
| 3.9 | Project Wrap-up | 2 |

**WBS Level 3**

|  |  |  |
| --- | --- | --- |
| Task ID | Task Name | Planned Work (in Hours) |
| **1** | **Phase I (Senior Design I)** | **493** |
| **1.1** | **Team Organization** | **301.5** |
| **1.1.1** | **Meetings** | **32.5** |
| 1.1.1.1 | Meeting 1 | 1 |
| 1.1.1.2 | Meeting 2 | 0.75 |
| 1.1.1.3 | Meeting 3 | 0.75 |
| 1.1.1.4 | Meeting 4 | 1 |
| 1.1.1.5 | Meeting 5 | 0.75 |
| 1.1.1.6 | Meeting 6 | 0.75 |
| 1.1.1.7 | Meeting 7 | 1 |
| 1.1.1.8 | Meeting 8 | 1 |
| 1.1.1.9 | Meeting 9 | 0.75 |
| 1.1.1.10 | Meeting 10 | 1 |
| 1.1.1.11 | Meeting 11 | 1 |
| 1.1.1.12 | Meeting 12 | 0.75 |
| 1.1.1.13 | Meeting 13 | 0.75 |
| 1.1.1.14 | Meeting 14 | 1.5 |
| 1.1.1.15 | Meeting 15 | 0.75 |
| 1.1.1.16 | Meeting 16 | 0.75 |
| 1.1.1.17 | Meeting 17 | 1.5 |
| 1.1.1.18 | Meeting 18 | 0.75 |
| 1.1.1.19 | Meeting 19 | 0.75 |
| 1.1.1.20 | Meeting 20 | 1.5 |
| 1.1.1.21 | Meeting 21 | 0.75 |
| 1.1.1.22 | Meeting 22 | 0.75 |
| 1.1.1.23 | Meeting 23 | 1 |
| 1.1.1.24 | Meeting 24 | 0.75 |
| 1.1.1.25 | Meeting 25 | 0.75 |
| 1.1.1.26 | Meeting 26 | 1 |
| 1.1.1.27 | Meeting 27 | 0.75 |
| 1.1.1.28 | Meeting 28 | 0.75 |
| 1.1.1.29 | Meeting 29 | 1 |
| 1.1.1.30 | Meeting 30 | 0.75 |
| 1.1.1.31 | Meeting 31 | 0.75 |
| 1.1.1.32 | Meeting 32 | 1 |
| 1.1.1.33 | Meeting 33 | 0.75 |
| 1.1.1.34 | Meeting 34 | 0.75 |
| 1.1.1.35 | Meeting 35 | 0.75 |
| **1.1.2** | **Sponsor Communication** | **4** |
| 1.1.2.1 | Sponsor Identification | 2 |
| 1.1.2.2 | First Sponsor Meeting | 2 |
| **1.1.3** | **Team Status Reports** | **5** |
| 1.1.3.1 | Report 1 | 1 |
| 1.1.3.2 | Report 2 | 1 |
| 1.1.3.3 | Report 3 | 1 |
| 1.1.3.4 | Report 4 | 2 |
| **1.1.4** | **Research** | **250** |
| 1.1.4.1 | Sensing system | 50 |
| 1.1.4.2 | Vibration Motors | 50 |
| 1.1.4.3 | Micro-controllers | 50 |
| 1.1.4.4 | Sensors | 50 |
| 1.1.4.5 | Batteries | 50 |
| **1.1.5** | **ink3D SRS Review** | **10** |
| 1.1.5.1 | Review SRS | 2 |
| 1.1.5.2 | Review SRS | 2 |
| 1.1.5.3 | Review SRS | 2 |
| 1.1.5.4 | Review SRS | 2 |
| 1.1.5.5 | Review SRS | 2 |
| **1.2** | **System Requirements Specification (SRS)** | **56** |
| **1.2.1** | **First SRS Draft** | **45.75** |
| **1.2.1.1** | **Product Concept** | **1.5** |
| **1.2.1.2** | **Product Description and Functional Overview** | **5.75** |
| 1.2.1.3 | Customer Requirements | 2 |
| 1.2.1.4 | Packaging Requirements | 2 |
| 1.2.1.5 | Performance Requirements | 3 |
| 1.2.1.6 | Safety Requirements | 3 |
| 1.2.1.7 | Maintenance and Support Requirements | 2 |
| 1.2.1.8 | Other Requirements | 1 |
| 1.2.1.9 | Acceptance Criteria | 2 |
| 1.2.1.10 | Use Cases | 3 |
| **1.2.1.11** | **Feasibility Assessment** | **13.5** |
| 1.2.1.12 | Future Items | 1 |
| 1.2.1.13 | First Draft Semantics Review | 4 |
| 1.2.1.14 | First Draft Syntax Review | 2 |
| **1.2.2** | **Requirements Gate Review** | **4.5** |
| 1.2.2.1 | Sections 1-3 Review | 0.75 |
| 1.2.2.2 | Sections 4-9 Review | 2 |
| 1.2.2.3 | Sections 10-12 Review | 0.75 |
| 1.2.2.4 | SRS Presentation | 1 |
| **1.2.3** | **SRS Baseline** | **5.75** |
| 1.2.3.1 | Sections 1-3 Review | 2 |
| 1.2.3.2 | Sections 4-9 Review | 2 |
| 1.2.3.3 | Sections 10-12 Review | 1.75 |
| **1.3** | **Project Plan Document** | **82** |
| **1.3.1** | **First Project Charter Draft** | **62.5** |
| **1.3.1.1** | **General Organization** | **6.5** |
| 1.3.1.2 | Scope Statement | 2 |
| 1.3.1.3 | Cost Management Plan | 3 |
| 1.3.1.4 | Earn value Management Plan | 2 |
| 1.3.1.5 | Scope Management Plan | 2 |
| 1.3.1.6 | Work Breakdown Structure | 6 |
| 1.3.1.7 | Quality Management Plan | 2 |
| 1.3.1.8 | Communication Management Plan | 2 |
| **1.3.1.9** | **Change Management Plan** | **6** |
| **1.3.1.10** | **Risk Management Plan** | **12** |
| **1.3.1.11** | **Procurement Management Plan** | **5** |
| **1.3.1.12** | **Project Closeout Report** | **8** |
| 1.3.1.13 | First Draft Semantics Review | 4 |
| 1.3.1.14 | First Draft Syntax Review | 2 |
| 1.3.2 | **First MS Project File Draft** | 4 |
| **1.3.3** | **Project Plan Review** | **4** |
| 1.3.3.1 | Sections 1-3 Review | 0.75 |
| 1.3.3.2 | Sections 4-9 Review | 1.5 |
| 1.3.3.3 | Sections 10-12 Review | 0.75 |
| 1.3.3.4 | Project Plan Presentation | 1 |
| **1.3.4** | **Baseline Project Charter** | **11.5** |
| 1.3.4.1 | Sections 1-5 Review | 1.5 |
| 1.3.4.2 | Microsoft Project Plan Senior Design 1 | 4 |
| 1.3.4.3 | Microsoft Project Plan Senior Design 2 | 4 |
| 1.3.4.4 | Section 6 Review | 2 |
| **1.4** | **Architecture Design Specification (ADS)** | **53.5** |
| **1.4.1** | **First ADS Draft** | **44.5** |
| **1.4.1.1** | **Introduction** | **5** |
| **1.4.1.2** | **Meta Architecture** | **3** |
| 1.4.1.3 | Layer Definition Section | 1.5 |
| **1.4.1.4** | **Layer Description** | **20** |
| 1.4.1.5 | Inter-Subsystem Data Flow Section | 6 |
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| **1.4.1.7** | **Testing Consideration** | **3** |
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# Quality Management Plan

## Introduction

The quality management plan will be used to define the acceptable level of quality. This section will describe how we will ensure this level of quality in our deliverables and work processes. The system will be built to meet accepted standards and requirements. We will also ensure that work processes are performed efficiently and as documented.

## Documentation

The documentation for the Sight By Touch system will be accurate, up-to-date, concise, and accessible. To ensure the quality of each document, the team will follow a spiral approach that will generate a draft at the end of each iteration. The iteration will consist of brainstorming, discussing, drafting, and revising each document. The documents will be stored and managed by version control software that allows public access, but only team members are able to commit drafts.

## Software

The software for the Sight By Touch system will be designed, well documented, and tested to the best of our abilities. The code will be written in the following manner:

* Requirements definition
* Software design
* Coding
* Source code control
* Code reviews
* Change management
* Testing
* System integration

## Hardware

The hardware for the Sight By Touch system will be purchased after discussion with the entire team about that component’s importance and quality. The discussion is required to ensure that we find the best component that will allow our system to perform at its highest standard. After the component is obtained, we will test it thoroughly to ensure the component’s quality.

## Test Plan

We will test our product according to the following:

* **Unit testing**

We will test each individual unit.

* **System and Integration testing**

We will test our software with our hardware.

* **Performance testing**

We will test our system’s responsiveness and stability.

* **User Acceptance testing**

We will test the system to ensure it meets our requirements.

# Communications Plan

## Introduction

In order to ensure good communication, we have made a plan that gives the details on how we are going to communicate internally and externally. Internal is communication among our team members. External is communication with our Sponsors: Jennifer Svelan and Paul Sassaman, and our Team Supervisor: Mike O'Dell. This will ensure that everyone is on the same page throughout the life of our project.

## Internal Communication

* **Team Meetings**

The team will have mandatory team meetings three times a week. One is on Mondays at 10:00AM. The second meeting is on Wednesdays at 10:00AM. The last meeting is on Saturdays at 9:00AM. In the case that we need to meet in person to finish a task, our team leader will schedule an extra meeting so we can get the job done. In the case that we cannot meet in person, we will use web services such as AnyMeeting and Google Hangout. These services will allow us to see each other through a web camera, speak through a microphone, and share screens.

* **GroupMe**

In order to send quick messages back and forth we will use a phone application called GroupMe. It allows all of the team members to be able to send and receive any message that any member sends. For example, if one member sends a message, everyone will receive it and everyone will be able to respond in real time.

* **Google Drive**

In order to be able to view and share everyone's documents, we will use Google Drive to share a folder. All team documents will be uploaded to this folder so that every team member has access to them.

* **Other**

Other means of communication that are also available but will be used less frequently include: email, phone calls, and text messages. If needed, we will use them, but for the most part we will use GroupMe, in person meetings, and video meetings.

## 

## External Communication

* **Sponsor Meetings**

In order to keep good communication with our sponsor, we will plan in person meetings whenever both our sponsor and our team are available. In person meetings are best because they offer real time visual and audio feedback. Although they are best, we will only use them when absolutely necessary because of the difficulty of having them. This is due to our sponsor's office being in Dallas, TX. So it is challenging to schedule in person meetings on a regular basis. In the case we cannot meet in person, we will use web services such as AnyMeeting and Google Hangout.

* **Email**

Email will be the most used means of communication because it is the most convenient for both our team and our sponsor.

* **Phone Calls**

In the case that we need a quick response from our sponsor and we do not have time to wait for an email, we will use phone calls.

# Change Management Plan

## Purpose of Integrated Change Management Plan

The purpose of the Integrated Change Management Plan is to ensure we know how to deal with change so that we are prepared when it is necessary. Since projects are dynamic efforts, change is inevitable. If we deal with change properly, the probability of success for our project will be greater.

## Roles and Responsibilities

* **Project Sponsor**

The project sponsors will be the principal source for proposed changes to the project. They are the ones who advise us on what features the system should and should not have. They will let us know in person or by email of any changes they would like us to make. They will also have the authority to approve or reject any changes we present to them.

* **Project Manager**

The project manager will be in charge of coordinating meetings with the other team members and our sponsor in order to discuss potential changes. The project manager will be able to suggest changes if he believes that it will have a positive impact on the success of the project. He will also take into account suggested changes from the other team members and the sponsor.

* **Project Team**

At any time, any team member will have the right to suggest possible changes to the project if he or she believes that the change is necessary. In order to propose a change, the member requesting the change must follow the Review and Approval Process.

* **Other Stakeholders**

Other stakeholders include our Team Supervisor Mike O'Dell and people who are visually impaired who will use our system. Mike O'Dell will have the right to suggest changes if necessary. People who are visually impaired might also suggest changes since they will be the main users of the system.

## 

## Review and Approval Process

When a team member or the sponsor requests a change to the project, the change process should be done in the following order:

* **Fill out Change Request Form**
* **Present Change Request to the team**

Person requesting the change must present to the team the reason for the change, why it is necessary and how it will impact our project/schedule. If team sees potential in the change request then the change request will be further discussed. If denied, the change request will be revoked but the person requesting the change may restart the process.

* **Team Discussion**

The team will discuss the reason for the change, feasibility, why it is necessary and how it will impact our project/schedule more in depth. A voting will be conducted and the change request must win the majority vote in order to move on to the next step. If denied, the change request will be revoked but the person requesting the change may restart the process.

* **Project Manager approval**

The Project Manager will have the final word on the change request. If needed, sponsors’ approval will be required depending on the change requested before the Project Manager makes the final decision. If denied, the change request will be revoked but the person requesting the change may restart the process.

## Change Identification, Documentation, Implementation and Reporting

The Change Request Form will be available to all team members, our sponsors, and team supervisor. It requires information such as:

* Who is requesting the change
* Date
* Description of the change being requested
* Reason for change
* What will be impacted by the change
* The Authorization Signatures of all team members and sponsors.

Change Request Form

Who is requesting the change: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Description of the change being requested:

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Reason for change:

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What will be impacted by the change?

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Authorization Signatures:

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| Name | Signature | Date |
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# Risk Management Plan

## Purpose of Risk Management Plan

In this project, "Risks" will be defined as events that might put our project behind schedule, put the project over budget, or cause the project to fail. The purpose of the risk management plan is to identify risks, analyze them, and to have a plan to be able to deal with them when they come up.

## Roles and Responsibilities

* **Project Sponsor**

Since Paul Sassaman was the one who originally came up with our project idea, he will be responsible for giving us some guidance and clarification on exactly how he envisioned our Sight By Touch system. Since Jennifer Svelan has the most experience working with the visually impaired, she will be responsible for giving us advice and answering any questions that we may have. Both the sponsors will be responsible for helping the team clarify and simplify convoluted requirements.

* **Project Manager**

The Project Manager will be responsible for keeping track of the overall project progress in order to see any possible risks, and will make sure that the Risk Manager is performing his duty.

* **Project Team**

Each team member will be responsible for notifying the team of possible risks as soon as he/she becomes aware of them. As soon as a risk is identified we will discuss ways of dealing with them at our scheduled meetings.

* **Project Stakeholders**

Mike O'Dell will be responsible for notifying the entire class of any potential risks that he sees or that have come up in the past. This will help us deal with them.

* **Risk Manager**

The Risk Manager will be in charge of tracking, documenting, and notifying the entire team of possible risks. He will give the team possible ways of dealing with the risks.

## Risk Identification

In the risk identification process, the Risk Manager will be primarily responsible for identifying risks, documenting them with sufficient detail for effective assessment, and recording them into a risk database for team review. The Risk Manager will assess high-level deliverables, the Work Breakdown Structure (WBS), change requests, input from the project team (experiences, lessons learned, etc. throughout the project) and input from the stakeholder for information that may identify possible risks throughout the duration of the project. It is expected for all other members of the project team to assist in the Risk Identification process.

## Risk Triggers

Risk triggers are events or performance characteristics that warn of the occurrence of risk events. The following are risk triggers that the team has identified:

* Project team not keeping up with deadlines specified in the project schedule (schedule slips, missing deadlines, etc.)
* Research consumes more time than anticipated
* Loss of Stakeholders (Team, Sponsors, Project Manager, etc.) interest and motivation
* Negligence in any phase of the project (Architectural Design, Detailed Design, Implementation, etc.)
* Absence of team members (especially at critical stages in the project)
* Components of the system continually not working as expected or failing
* Integration of the system continually not working as expected or failing
* Project documentation and other project records are inaccessible
* System data is inaccessible

## Risk Analysis

This section details the assessment of the risks identified by the team in terms of probability of loss, the size of loss in days, and the risk exposure in days to the project plan.

**Table 10-1: Risk Analysis**

|  |  |  |  |
| --- | --- | --- | --- |
| Risk | Probability of Loss (%) | Size of Loss (days) | Risk Exposure (days) |
| Incompetence of Project Team Members in their roles and responsibilities | 50 | 30 | 15 |
| Optimistic scheduling for the Architectural Design, Detailed Design, and System Implementation | 80 | 18 | 14.4 |
| Implementation of Additional Features that are not necessary to meet Acceptance Criteria | 55 | 16 | 8.8 |
| The ordering and delivering of incorrect components for the Sight By Touch System | 20 | 14 | 2.8 |
| Loss of Data (project documentation, research, source code, etc.) | 15 | 21 | 3.15 |
| **Total** | N/A | 99 | 44.15 |

## Risk Severity

This section details the analysis of the severity of each risk towards the project plan. The risks are given a severity level, an associated trigger event(s) and a strategy necessary to contain the resulting costs.

**Table 10-2: Risk Severity**

|  |  |  |  |
| --- | --- | --- | --- |
| Risk | Severity | Trigger Event(s) | Containment Strategy |
| Incompetence of Project Team Members in their roles and responsibilities | 1 – Critical | Schedule slips, loss of project team member interest and motivation, absence of project team members | A detailed plan that will identify the root of the problems and how to address them. When the trigger event is set off by the majority of the team, an emergency meeting must be scheduled. Otherwise, the project manager and the incompetent member will meet. |
| Optimistic scheduling for the Architectural Design, Detailed Design, and System Implementation | 2 – High | Schedule slips, research consumes more time than anticipated, negligence to process and project plan | A meeting to reanalyze the amount of work associated with each discrete task with the remaining time in the project timeline and to refine project plan. When the trigger event is set off, the next meeting must address this risk |
| Implementation of Additional Features that are not necessary to meet Acceptance Criteria | 2 – High | Schedule slips, research consumes more time than anticipated, components of the system continually not working as expected or failing, integration of the system continually not working as expected or failing | A meeting to discuss which features are required for fulfilling the Acceptance Criteria and to refine the project design to remove features, prioritizing features, etc. When the trigger event is set off, the next meeting must address this risk. |
| The ordering and delivering of incorrect components for the Sight By Touch System | 3 – Medium | Components received, or used in the system are identified as inappropriate for system development | The team will attempt to return bad components and reorder the correct components. When the trigger event is set off, team members must immediately notify the entire team and begin communication with the vendor. |
| Loss of Data (project documentation, research, source code, etc.) | 1 – Critical | Project requirements, project plan, design documents and other project records are inaccessible, system data is inaccessible | A detailed plan to recover from losses and to formulate backup plans for possible losses in the future. When the trigger event is set off, an emergency meeting must be scheduled to draft a plan of action. Regardless of whether the trigger event occurs or not, the team will attempt to keep backups of documentation and data to avoid this risk. |

## Risk Response Planning

For each risk identified and analyzed, there will be a plan that will respond to it. The risk response planning will be a team effort lead by the Risk Manager. The Risk Manager will be responsible for presenting all information relating to a risk and proposing possible strategies for minimizing the effects of the risk to a level where the risk can be controlled and managed to ensure the project objectives are achieved. The other team members will be responsible for proposing other strategies or refining the Risk Manager’s strategies to develop a risk response plan for an associated risk. Once a risk response plan has been created, it will be recorded into the risk database with its associated risk for reference.

## Risk Documentation and Reporting

A Risk Management folder maintained on Google Drive and available to all team members will serve as the risk database. Any risk information and mitigation strategies will be held in this location. The Risk Manager will be primarily responsible for maintaining and updating the contents of the risk database. Any new risk identification and analysis, risk reporting and/or updates must be brought to the Risk Manager and reviewed before being added to the risk database.

## Risk Control

Team members will review the risk database periodically for risk information and mitigation strategies in order to understand them and refine them if necessary. The team will compare the information found in the risk database to the current progress of the project in order to identify new risks and/or if a risk trigger has occurred and be able to respond appropriately. Any new risks or updates to existing risks must be reported to the Risk Manager for review before being added to the risk database. This risk control process is a continuous process the team will practice over the duration of the project.

# Procurement Management Plan

## Purpose of the Procurement Management Plan

The purpose of the procurement management plan is to ensure that our team has a well-defined and effective acquisition of goods and consultation from outside the organization that meet the project needs. This plan will guide us on selecting the most suitable goods and consultation that best fit our needs.

## Roles and Responsibilities

* **Project Sponsor**

The Project Sponsors, Jennifer Svelan and Paul Sassaman, will provide suggestions on what type of components we should use for our project.

* **Project Manager**

The Project Manager will be responsible for approving all potential purchases. After approving the request, the Project Manager will then pass that request to Mike O’Dell for the final approval.

* **Project Team**

The team will decide which components need to be purchased based on research and the suggestions from the Sponsors. When the decision is made to purchase a specific component, the team will submit a purchase request to the Project Manager for approval.

## Required Project Procurements and Timing

The procurement phase will begin immediately after the System Requirements Specification Gate Review is passed. During this time period, we expect to obtain all the required components to ensure the implementation of our project. The earlier we start the procurement phase, the more time we will have to deal with complications if any arise.

## Description of Items/ Services to be acquired

The following is a list of components to be purchased that are necessary for the completion of the Sight By Touch system:

* 5-10 x Distance Sensors
* 10-20 x Vibration Motors
* 1-2 x Battery
* 1–3 x Microcontrollers

# Project Closeout Report

## Purpose of Closeout Report

This section will discuss the report that will be generated at the end of the project. The purpose of the report will be to ensure that personnel, contract, administrative, and financial issues are resolved, that documents are archived, and lessons learned are captured.

## Administrative Closure

### Were the objectives of the project met?

The final report integrated in this section will discuss whether the project was a complete success or failure. A success or failure will be determined by comparing the final product with the Systems Requirements Specification document. All requirements will be reviewed individually to determine the success or failure of the requirement.

### Archiving Project Artifacts

All project documentation will be stored on Google Drive. The following documents will be saved for future reference:

* Systems Requirement Specification document
* Project Charter document
* Microsoft Project Plan
* Architecture Design Specification document
* Detailed Design Specification document
* System Test Plan
* Financial Records
* Status Reports
* Meeting Notes
* Risk Assessment document
* Source Code
* Design Sketches
* Project Research
* User Manual

### Lessons Learned

After the submission of the final project, the team will discuss the main lessons learned from this experience. Each individual will discuss which was important to them and the strengths and weaknesses encountered.

### Plans for Post Implementation Review (PIR)

After the demonstration of the system and all the feedback is received, the team will conduct a Post Implementation Review to evaluate if the project objectives were met, to determine how effective the project was implemented, and identify the lessons learned for the future. During this meeting, the team will discuss the gap analysis, stakeholder satisfaction, lessons learned, costs and benefits, and recommendations.

### Final Customer Acceptance

The team and the sponsor will agree on a rubric for the acceptance of the system. The Project Sponsors, and possibly a customer, will use the rubric to guide their decision on whether the system will be accepted or rejected. If the system is accepted, then the sponsor will formally sign the acceptance document. If the system is rejected, then the sponsor will submit an unsigned acceptance document with the reason for the decision. Possible resolution(s) for issue(s) will be discussed during this period.

### Financial Records

The financial records will be tracked and maintained in the same manner as previously described in section 12.2.2. The following documents including invoices, purchase orders, and final cost reporting will be treated as legal documents.

### Final Project Performance Report

Once the system is completed, the team will create a final project performance report that will evaluate the performance of the team throughout the project. The report will cover the following:

* Scope Management
* Schedule Performance
* Quality Achievements
* Risk Containment
* Cost Variance
* Schedule Variance