CS 4351: Requirements Engineering

# Process Specifications

Requirements Elicitation

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YouSee 

# Contents

## Revision History

| Date | Version | Description |
|---|---|---|
| 11/28/21 | 1.0 | Process Specification |

# [1] Introduction

## 1.1 Purpose

This document is meant to record the effects of our team in defining the problem domains, goals, requirements, and specifications for the YouSee app. By recording all this information in one document, all stakeholders will share the same understanding of why and how we are developing the YouSee application.

## 1.2 Scope

Blind people should be able to navigate indoors, from one location in a building to another location in the same building or a different building. For example, a blind student or a blind visitor may need to go from one classroom to another classroom, from one office to a lab, from a lab to a classroom or a washroom, etc. To reach the destination location, a blind person may need to figure out what the source (starting) location is, walk in the hallway, turn at the right place, continue to walk, and stop at the destination location. Safety would be an important concern, which implies, for example, detecting obstacles and avoiding collisions. The time that it takes to reach the destination might also be a concern, especially if there isn't much time available to reach the destination. Familiarity with the route to be taken may also be a concern, among other things.

Blind people traditionally have used a dog, a cane, possibly with the help of braille indicators on the wall – oftentimes beside doors. These aids may be used together since they could be complementary to each other. There seems to be a great need for blind people to have some aid that can think, see, hear, and speak.

Our team will build a smartphone app called YouSee. The app will be a way for volunteers to assist blind people navigate indoors using video calls. Users will be able to choose if they are a blind person or willing to volunteer. This will lead to a volunteer and blind person pair being matched to allow the volunteer to help the blind person by acting as their eyes and ears using the phone's camera.

## 1.3 Stakeholders

1. Users – The people who will be using the YouSee application and the partners to assist the blind users.

2. CodeBusters – The team that is responsible in creating the final requirements, developments, design, prototype, and YouSee application.

3. Professor Lawrence Chung – Is responsible for the initial set of requirements for the YouSee software system. The professor provides guidance for the team and consulting for

our NFR and FR.

4. Software Engineers
5. Testing Engineers
6. Requirements Engineers

### 1.4 Definitions, Acronyms, and Abbreviations

- Android OS: An operating system for mobile phones developed by Google.
- iOS: Apple mobile operating system created and developed by Apple Inc.
- App: Application, typically referring to mobile applications.
- UTD: University of Texas
- PIG: Problem Interdependency Graph
- SIG: Softgoal Interdependency Graph
- UML Class Diagram: Unified modeling language, used to structure a software system's classes, attributes, and relationships among objects.
- Sequence Diagram: Depicts the scenario of how objects interact between each other while carrying out their functionality.
- FR: Functional Requirement, a description of the service that the software must offer.
- NFR: Non-Functional Requirements, a description of behaviors that the software must uphold.
- DI: Domain Issues, problem areas that are addressed in the software system.

### 1.5 Overview

This document includes an introduction to the YouSee app, followed by preliminary definitions of the domain, functional, and non-functional requirements. It then contains a list of issues with each element of these three defined fields. Afterwards is a section stating the world surrounding the application and then a section which includes the formal requirements and specifications. There is a short section containing a link to a prototype and then a section of the application mockups. The final section lists the references used in the creation of this document.

### 1.6 References

[1] Dr. Chung's website: http://www.utdallas.edu/~chung/CS4351/syllabus.htm

[2] UTD Campus Map: http://www.utdallas.edu/maps/

[3] UTD Office of Accessibility: http://www.utdallas.edu/studentaccess/

# [2]. Organizational Structure

## 2.1 Vision and Goals

### 2.1.1 Vision

The team vision is to create an organized, professional, and efficient group of individuals that have the goal in mind of developing our YouSee application to help the visually impaired community. By going through the process of developing this application we will improve the functional requirements and non-functional requirements throughout our project phases and continue to provide quality teamwork skill which will be applied throughout the semester. We believe that focusing on the team development aspect that the product will be better by final phase which is not only good for the end user but for the team's reputation.

### 2.1.2 Goals

Organization

- Clear objectives
- Well defined team member roles
- Steady workflow so the team does not feel overwhelmed

Efficiency

- Distribute the workload evenly
- Divide and conquer aspect

Development of Team Interaction

- Effective communication between members

Quality Assurance

- The CodeBuster team will provide the best quality that we could provide in a timely manner.

## 2.2 Team Roles

The team roles for each team member will change for every deliverable to help spread the workload around and ensure that no team member is overwhelmed.

| Phase | Project Manager | Requirement Engineer | Developer / Quality Assurance |
|---|---|---|---|
| 1.1 | Zack Allen | Jerry Huynh<br>Nasif Mahmood<br>Nebil Weber<br>Jacob Chlebowski<br>Samuel Osezua | Nebil Weber<br>Jacob Chlebowski |
| 1.2 | Zack Allen | Jerry Huynh<br>Nasif Mahmood<br>Nebil Weber<br>Jacob Chlebowski<br>Samuel Osezua | Nebil Weber<br>Jacob Chlebowski |
| 2.1 | Samuel Osezua | Jerry Huynh<br>Nasif Mahmood<br>Nebil Weber<br>Jacob Chlebowski<br>Zack Allen | Jerry Huynh<br>Nasif Mahmood |
| 2.2 | Samuel Osezua | Jerry Huynh<br>Nasif Mahmood<br>Nebil Weber<br>Jacob Chlebowski<br>Zack Allen | Jerry Huynh<br>Nasif Mahmood |

### 2.3 Workflow

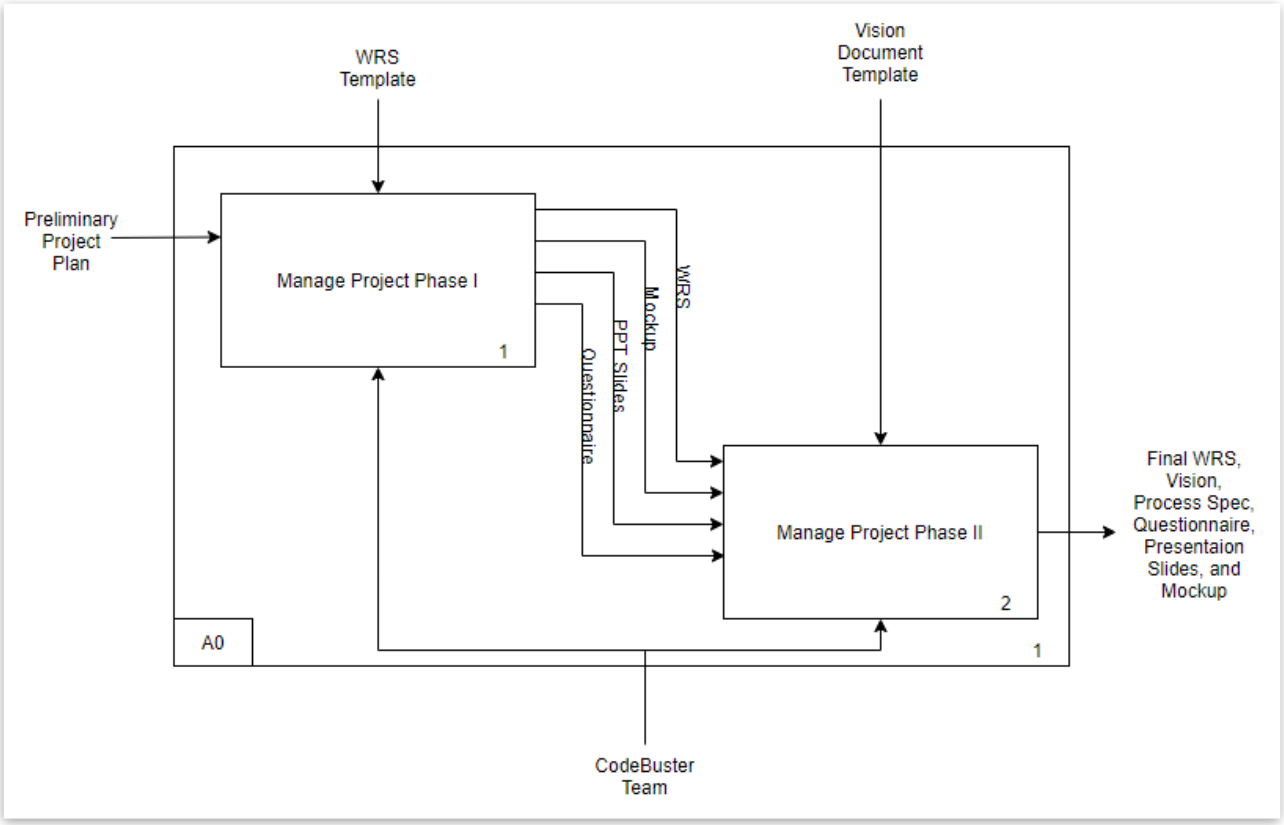
For each meeting we've swap roles for the Project Manager which will outline everything that needs to be accomplished before the next deliverable. The project manager will receive input from each of the team members before they are assigned tasks for everyone. When tasks are assigned, they are given a specific due date where they should be uploaded via Microsoft Teams or GroupMe chat. After all the documentation have been uploaded the team will go over and finalize them from the day before it's submission. In the case that there isn't a meeting before the due date the Project Manager will finalize it himself.

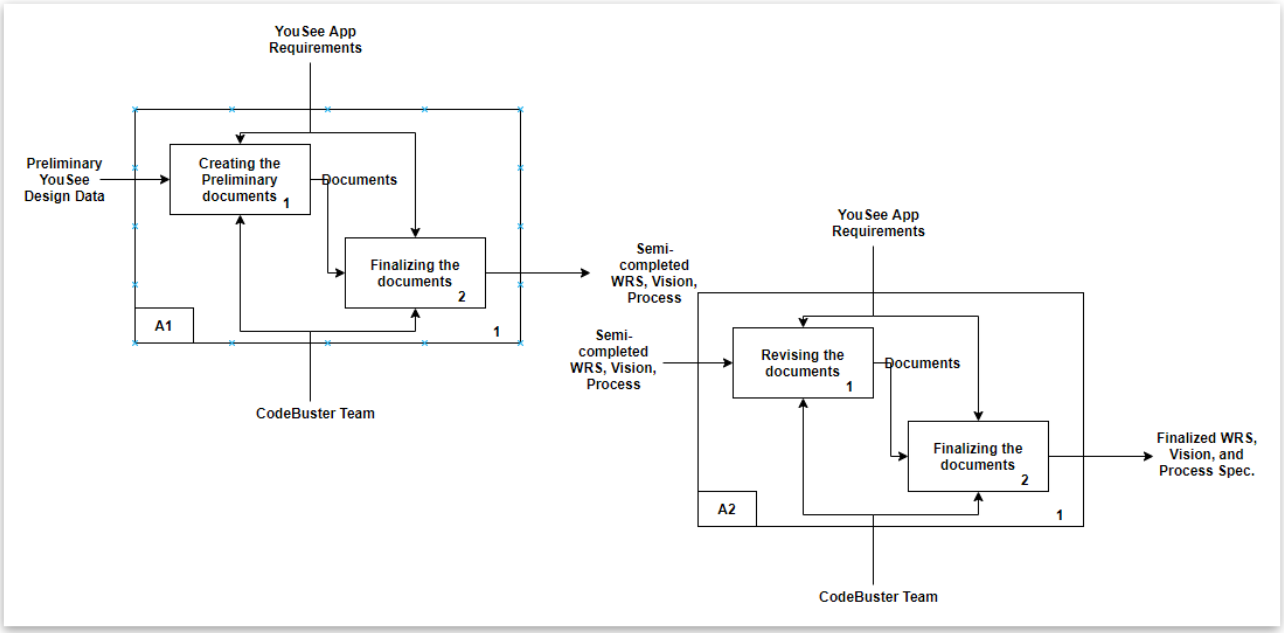
## [3]. Process Specification

The process specification will show all the iterative steps of our team has gone through, each involving in modeling and prototyping of our YouSee system. This will specifically show the activities that have been carried out by CodeBuster team, who have been involved in each phase and what relationship is between the two phases in terms of the applications output and input.

## 3.1 IDEF0 Model

The idef0 is a design model to highlight the team decisions, actions, and activities.




## 3.2 Requirements Elicitation

The first phase of the project, the team and professor have set the initial requirements for the YouSee software system. The second phase the Codebuster team use the optional requirements we've assumed because no feedback was presented to the project team.

Team Codebuster should consult with Dr. Chung in added requirements to the set of initial requirements when presented. This came from the result of team discussions, reviews of presentation from other teams.

### 3.4 Requirements Specification

The requirements have been divided into domain, functional requirements, and non-functional requirements to allow for efficient maintenance on the software system.

### 3.5 Requirements Validation

The CodeBuster team have created a prototype that will be used through the remainder of each phase while also revising and improving the overall look of the software system. We must confirm with our stakeholder if the requirements have been met and that it meets expectations. The prototype have several functionalities of the system so that any missing services, ambiguous services, or misunderstanding between Team CodeBuster and other stakeholders will be identified as early as possible and they will be resolved before the final product is completed.

## [4]. Project Organization

### 4.1 Project Phases

**Phase I: Interim (August 24, 2021 – September 30, 2021)**

In the interim phase, the CodeBusters have planned how we should divide the work evenly. The team have consulted on making the NFR and FR as well as creating the Interim I documentation which displays the team's information.

**Phase I: Final (September 30, 2021 – October 12, 2021)**

The team created the preliminary WRS documentation, presentation slides and slightly prototype the design of our mobile application.

**Phase II: Interim (October 12, 2021 – November 16, 2021)**

The team continued to improve the WRS, created the preliminary vision document, create UML class diagram, PIG, SIG, and sequence diagram. We have all makes are questionnaire and compiled them together. We have yet to get consultation from the professor or TA for feedback on our requirements, but we assume they are acceptable.

**Phase II: Final (November 16, 2021 – November 30, 2021)**

The team will finalize the WRS evolution, vision, and process spec documentation. We've created the necessary diagrams for the WRS and created a prototype of the mobile application.

## 4.2 Interim Phase I – Description: (August 24, 2021 – September 30, 2021)

**Stakeholders**
The following are the stakeholders in the Interim Phase I of the project:

- Users
- Professor Lawrence Chung
- Team CodeBusters

**Goals**
The following are the goals for the Interim Phase I of the project:

- Establish stakeholder
- Create Interim document
- NFR and FR
- Create presentation slides

**Input**
The following are the goals for the Interim Phase I of the project:

- Initial understanding of the requirements elicitation

**Process**
The following are the goals for the Interim Phase I of the project:

- Determine the best times to conduct meetings, mainly after class
- Make sure everyone has completed their tasks
- Receive input from team members concerning their issues about the project
- Get feedback on work done from each stakeholder
- Submit all deliverables on the due date.

**Activities**
The following are the major activities performed during Interim Phase I of the project:

- In-person meetings
- Group meeting on Groupme or Microsoft Teams
- Create our deliverables
- Create presentation slides
- Prepare for the presentation

**Outputs**
The following are the major outputs for Interim Phase I:

- Project slides
- Mockup/Wireframes of our YouSee application
- Interim document w/ FR and NFR

**Roles and Responsibilities**

- Project slides – Everyone
- Mockup/Wireframes – Nebil and Zack
- Interim document – Jerry, Nasif, Samuel, and Jocob

### 4.3 Final Phase I – Description: (September 30, 2021 – October 12, 2021)

**Stakeholders**

The following are the stakeholders in the Final Phase I of the project:

- Users
- Professor Lawrence Chung
- Team CodeBusters

**Goals**

The following are the goals for the Final Phase I of the project:

- Finish Project slides
- WRS document
- Questionnaire

**Input**

The following are the goals for the Final Phase I of the project:

- Preliminary Project document
- WRS document
- Prototype Mockup
- Questionnaire

**Process**

The following are the goals for the Final Phase I of the project:

- Determine the best times to conduct meetings, mainly after class
- Make sure everyone has completed their tasks
- Receive input from team members concerning their issues about the project
- Get feedback on work done from each stakeholder
- Submit all deliverables on the due date.

**Activities**

The following are the major activities performed during Final Phase I of the project:

- In-person meetings
- Group meeting on Groupme or Microsoft Teams
- Create our deliverables
- Create presentation slides
- Prepare for the presentation

**Outputs**

The following are the major outputs for Final Phase I:

- Project slides
- Mockup/Wireframes of our YouSee application
- WRS document

**Roles and Responsibilities**

- Project slides – Everyone
- Mockup/Wireframes – Nebil and Zack
- WRS document – Jerry, Nasif, Samuel, and Jocob

### 4.4 Interim Phase II – Description: (October 12, 2021 – November 16, 2021)

**Stakeholders**

The following are the stakeholders in the Interim Phase II of the project:

- Users
- Professor Lawrence Chung
- Team CodeBusters

**Goals**

The following are the goals for the Interim Phase II of the project:

- Revise WRS document
- Create vision document
- Remake mockup using Figma
- Revise presentation slides

**Input**

The following are the goals for the Interim Phase II of the project:

- WRS document
- Vision document
- Wireframes/Mockup using Figma

**Process**

The following are the goals for the Interim Phase II of the project:

- Determine the best times to conduct meetings, mainly after class
- Make sure everyone has completed their tasks
- Receive input from team members concerning their issues about the project
- Get feedback on work done from each stakeholder
- Submit all deliverables on the due date.

**Activities**

The following are the major activities performed during Interim Phase II of the project:

- In-person meetings

- Group meeting on Groupme or Microsoft Teams
- Create our deliverables
- Create presentation slides
- Prepare for the presentation

**Outputs**

The following are the major outputs for Interim Phase II:

- Project slides
- Mockup/Wireframes of our YouSee application
- WRS document
- Vision document

**Roles and Responsibilities**

- Project slides – Everyone
- Mockup w/ Figma– Nebil and Nasif
- WRS Document – Samuel and Jerry

### 4.5 Final Phase II – Description: (November 16, 2021 – November 30, 2021)

**Stakeholders**

The following are the stakeholders in the Final Phase II of the project:

- Users
- Professor Lawrence Chung
- Team CodeBusters

**Goals**

The following are the goals for the Final Phase II of the project:

- Create the process spec
- Revise WRS document
- Review vision document
- Revise questionnaire
- Create Diagrams for WRS

**Input**

The following are the goals for the Final Phase II of the project:

- WRS document
- Vision document
- Prototype
- Process spec
- Diagrams

**Process**

The following are the goals for the Final Phase II of the project:

- Determine the best times to conduct meetings, mainly after class

- Make sure everyone has completed their tasks
- Receive input from team members concerning their issues about the project
- Get feedback on work done from each stakeholder
- Submit all deliverables on the due date.

**Activities**

The following are the major activities performed during Final Phase II of the project:

- In-person meetings
- Group meeting on Groupme or Microsoft Teams
- Create our deliverables
- Create presentation slides
- Prepare for the presentation

**Outputs**

The following are the major outputs for Final Phase II:

- Presentation Project slides completed
- Mockup w/ Figma of our YouSee application
- Final WRS document
- Final Vision document
- Final Process Spec document
- Final Questionnaire

**Roles and Responsibilities**

- Project slides – Everyone
- Mockup w/ Figma – Nasif
- Vision document – Samuel
- WRS and Process Spec – Jerry
- Diagrams – Jacob and Zack
- User Manual - Nebil