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# **Vision and Scope Document**

**for**

# **Visually Impaired Mobility App**

**Version 1.0 approved**

**Prepared by: Anthony Devito, Eli Lawrence, Ivan Quintero, Jace Dunn,  
Riley Nielsen, Shawn Will**

**Washington State University**

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## Revision History

Name	Date	Reason For Changes	Version
Vision and Scope	12/6/25	Initial draft	1.0

# 1. Business Requirements

## 1.1. Background

The navigation of indoor environments such as buildings on a college campus can be challenging and sometimes unsafe for blind and visually impaired individuals. Recognizing this led our group to design a mobile app which would be able to provide support for indoor navigation by offering voice assisted navigation, and mapping as well as providing real-time assistance in emergency situations.

## 1.2. Business Opportunity

Indoor environments remain one of the most challenging environments for visually impaired individuals to navigate. While outdoor environments have tools such as Google Maps, indoor environments such as hospitals, airports, and office buildings don't. Our mobile app addresses this gap in the market by offering a platform designed specifically with accessibility in mind. We are going to provide a solution that is not currently met by existing technologies, while keeping usability and stability in mind.

## 1.3. Business Objectives

Our objective by the end of the semester is that we will have a functioning prototype that we can show early adopters and investors. Our goal is to gather data so that we can iterate on our app to eventually meet our success metrics and maintain profitability within our first year of the app launching.

## 1.4. Success Metrics

Success will be defined by hitting these milestones by the end of year one.

Navigation Accuracy	Maintain an 90% navigation accuracy score so users can get to their desired location quickly
User Satisfaction	Feedback from users should be a 4.5/5 stars or higher regarding categories such as usability, trust, and reliability.
Emergency Response Efficiency	Fall detection or disorientation alerts should be transmitted to staff within 20 seconds of a fall being detected
Adoption	At least 50% of our early adaptors should opt to use the app during the semester. During our first year we'd like 25,000 users.
Reliability	System uptime should be 99%
Revenue	We want to make \$250,000 in our first year

These metrics will determine whether the app meets its business objectives and provides value to our community.

## Vision Statement

Our vision is to create an indoor navigation system that lets visually impaired individuals to be able to move independently, and safely within buildings on campus.

## 1.5. Business Risks

With the market being relatively untapped, there are some risks that come along with this. User acceptance is unknown; visually impaired users might not be willing to try new tools. Which ties into the second risk, technical limitations of smartphone sensors might impact indoor positioning precision, which could lead to user acceptance dropping, especially in the early stages while we fine tune the app.

## 1.6. Business Assumptions and Dependencies

We assume that our users will have access to a smartphone that comes equipped with an accelerometer, gyroscope, and cameras which are essential for navigation accuracy. We also depend on the availability of university building layouts or the need for personnel to map them. We will also depend on technologies such as Flask and deployment tools for the app store.

# 2. Scope and Limitations

## 2.1. Major Features

The two major features of our app are voice-directed navigation and fall detection. The voice directed navigation lets visually impaired users get directions and navigate around buildings with more independence because it doesn't rely on a traditional UI. Fall detection keeps users safe in case of an accident. If you user falls and isn't ok, it will call a predetermined emergency contact.

## 2.2. Scope of Initial Release

The initial release will be the core features that are needed to provide both safe and reliable indoor voice-based destination input, output and routing using predefined building maps. The release will use smartphone sensors such as the accelerometer and gyroscope to support movement tracking and detecting if the user has potentially fallen. If the user does happen to fall, a preset emergency contact will be alerted.

Voice detection	Listen for user instructions
Speaker	Giving instructions
Accelerometer	Fall detection
Gyroscope	Fall detection
GPS	Maps

## 2.3. Limitations and Exclusions

The project is limited mainly by time, so several features that a stakeholder might expect won't make it in the initial release. Features like the mapping of unknown environments, outside environments, or use of AI won't make it into the project. The system won't be able to support alternative platforms such as smart watches, or proprietary hardware. These choices keep development time down, while still providing a lot of value for the customer.

### 3. Business Context

#### 3.1. Stakeholder Profiles

<b>Stakeholder</b>	<b>Major Value</b>	<b>Attitudes</b>	<b>Major Interests</b>	<b>Constraints</b>
<i>Primary users</i>	<i>Increased independence</i>	<i>Highly receptive as it makes their day to day life easier</i>	<i>Accurate navigation, clear voice instructions, fast emergency help</i>	<i>Can't rely on a visual UI</i>
<i>Caretaker</i>	<i>Easier and more hands off support</i>	<i>Supportive as it helps their friends/family life</i>	<i>Reliable fall detection, fast alerts, and accurate results</i>	<i>Must be easy to setup</i>
<i>Development Team</i>	<i>Clear requirements, manageable scope</i>	<i>Motivated by helping people who are visually impaired</i>	<i>A technical implementation of well defined requirements</i>	<i>Limited development time</i>

#### 3.2. Project Priorities

<b>Dimension</b>	<b>Driver (state objective)</b>	<b>Constraint (state limits)</b>	<b>Degree of Freedom (state allowable range)</b>
<i>Schedule</i>	<i>release 1.0 to be available by 12/07</i>	<i>Deadlines can't be changed, so release 1.0 has to come out by 12/07</i>	<i>Internal milestones can change, but the final deadline has to remain fixed</i>
<i>Features</i>	<i>All core features such as voice input, routing, and fall detection</i>	<i>Feature list must be achievable in a semester</i>	<i>All features must be added for our demo release</i>
<i>Quality</i>	<i>Everything is stable and reliable</i>	<i>Must be good enough for professor approval</i>	<i>The program just needs to be in its minimum viable state</i>
<i>Staff</i>	<i>Maintain a good workflow so the team can contribute affectively</i>	<i>No additional help can be employed</i>	<i>Multiple people will have to wear different hats during the dev cycle</i>
<i>Cost</i>	<i>Keep cost low</i>	<i>No budget is given</i>	<i>No budget so no freedom is given here</i>

#### 3.3. Deployment Considerations

Our deployment will be on the android app store, so any user with a modern mobile android device can download and use the app. Everything will be run locally, so limited large-scale infrastructure will be needed. All users will use the system locally on the same device, which simplifies things. Our system relies on building layout data to create routes, which will need to be gathered before launching because there is no cloud storage. To support our deployment, we will monitor user feedback and do our own testing to make sure there are no issues and that everything works as expected. Our approach to this deployment will ensure that our app is tested and reliable for realistic operational environments such as university buildings.