Vision and Scope Document

for

THEIA

Version 1.0 approved

Prepared by Samuel Gibson
Ahmed Mohammad
Brenden Crebs
Julie Rodriguez
Caden Oslund

Team IceBucket

11/30/23

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Sam	11/30/23	Initial draft creation	1.0 draft 1
Sam	12/5/23	Added business section	1.0 draft 2

1. Business Requirements

1.1. Background

People with vision disabilities have always found it difficult to maneuver their environment, resulting in a reduction in quality of life. Throughout history many products have been developed in attempts to tackle this problem, increasing in success each time. Nowadays, this problem still persists even with modern tools such as walking canes and service dogs. With the existence of powerful technology and the abundance of smartphones, there is potential for new developments in tools for the vision impaired.

1.2. Business Opportunity

While walking canes, service dogs, and other tools exist to aid in navigation, these usually lack one or more sensory capability. A mobile application that utilizes the multitude of sensors in modern smartphones can provide an improved navigation experience compared to contemporary tools. Additionally, the application can be used alongside the existing tools, supplementing each other and providing the user with an even greater experience.
With the prevalence of smartphone ownership, a mobile application tool can be successful over existing tools. Not only would a smartphone with the application be significantly cheaper, it will be easier to use than the current most successful tool, a service dog.

1.3. Business Objectives

The objectives for the THEIA mobile application is to be cheaper than existing tools by 80%, become the most widely used navigation tool, and increase yearly revenue by 50%.
The target release date for the product is to be December 10th, 2023.

1.4. Success Metrics

The success of the product will be measured by how successful the product's navigation is, how usable the product is for both vision impaired and non vision impaired, how powerful smartphone sensors are, and the popularity and price of smartphones.

1.5. Vision Statement

Ultimately, THEIA will ensure vision impaired people will be able to live more comfortable lives by utilizing the accurate navigation the product will conduct with the aid of sensors. Both the vision impaired and their caretakers will have their quality of life improved by using this product with their smartphones.
The product will be efficiently developed and designed, making use of use cases, user feedback and requirements. The features will be useful for both the vision impaired and non-vision impaired, and be functionally superior to existing products. With these qualities in mind, THEIA will become the leading navigation tool for the vision impaired.

1.6. Business Risks

One of the larger risks involved with this project will be the availability and popularity of smartphones. If the platform for the product is not popular or available, users will not be able to, or not want to use the product, turning to alternatives instead. Other risks involve competition with existing and similar products.
Another big risk is the stability of the technology utilized by the product. Since smartphones are iterated upon frequently, introducing and deprecating features each time, the probability that a key component used by the product is removed or changed is likely. This will result in the product's usability being limited.

1.7. Business Assumptions and Dependencies

Dependencies include smartphone technology and sensors. Assumptions include the availability of smartphones and relevant technology, as well as certain libraries and tools for development.

2. Scope and Limitations

2.1. Major Features

1. Navigation calculation: the process of calculating an efficient and safe navigation route according to a location and destination collected by the user.
2. Application customization: the ability to customize features of the application to suit the needs of a variety of users.
3. Emergency Features: the ability to enact emergency features in detected situations.
4. Obstacle Detection: the ability to detect and alert the user of obstacles and dangers throughout navigation.

2.2. Scope of Initial Release

The scope on initial release of THEIA will focus on core functionalities that provide basic scenario implementations such as caretaker settings, navigation and emergency systems. basic navigation interface and object/fall detection, voice activated controls and compatibility with a variety of phone models.

2.3. Scope of Subsequent Releases

Future releases will aim to expand THEIA's capabilities. Integrating tether systems between multiple devices. Introducing features for building navigation and enhancing obstacle detection. Continue improving on user interface and accessibility features based on users feedback.

2.4. Limitations and Exclusions

Due to some limitations of the release platform and certain time and scope constraints, the following features which users of stakeholders might anticipate are not planned to be included in
upcoming releases.
● Obstacle detection

3. Business Context

Customer Profiles

Primary Customers - Blind and Visually Impaired Individuals
- **Needs**: Reliable, intuitive indoor navigation assistance.
- **Challenges**: Overcoming physical and navigational barriers within indoor environments.

Secondary Customers - Caretakers and Assistive Personnel
- **Needs**: Tools to assist their wards or clients, ensuring safety and independence.
- **Challenges**: Finding reliable and user-friendly solutions that can be easily integrated into daily routines.

Tertiary Customers - Educational Institutions and Corporate Entities
- **Needs**: Inclusive solutions to make their facilities more accessible for all.
- **Challenges**: Implementing comprehensive accessibility features without significant infrastructural changes.

Assumptions

Technological Integration: Assumes customers have access to smartphones with necessary capabilities.
User Proficiency: Assumes a basic level of proficiency in using smartphone applications.
Building Compliance: Assumes indoor environments are equipped with necessary markers or signals that the app can interpret for navigation.

Management Priorities

Safety and Reliability: Ensuring the app provides accurate and safe navigation, minimizing risks of accidents.
User Experience: Developing an intuitive, user-friendly interface that caters to the specific needs of blind and visually impaired users.
Scalability and Flexibility: Designing the app to be adaptable to various indoor environments and scalable for future enhancements.
Partnerships and Collaborations: Establishing partnerships with relevant organizations and institutions to broaden the app's reach and effectiveness.
Sustainable Development: Balancing innovative development with sustainable business practices, ensuring long-term viability of the project.

3.1. Stakeholder Profiles

Stakeholder	Major Value	Attitudes	Major Interests	Constraints
Blind & visually impaired	Enhanced Independence	View Theia as a critical tool for achieving greater autonomy and safety in indoor navigation.	Reliable, accurate, and intuitive navigation; voice-activated controls; obstacle detection.	Reliance on technology; varying levels of technological proficiency; need for simple, clear instructions.
Caretakers and Assistive Personnel	Improved Support Capability	Consider Theia as an essential aid in providing better support and care.	Ease of setting up and monitoring; emergency alert features; customizable settings for different users.	Dependence on the user's ability to operate the app; balancing oversight with independence.
Educational or corp entity	Inclusivity and Compliance	See Theia as a solution to enhance inclusivity and meet accessibility regulations.	Easy integration with existing infrastructure; data on usage for improving facilities; minimal maintenance.	Budget for implementation; need for app compatibility with diverse building layouts.
Dev team	Tech Innovation	View the project as an opportunity for development and market differentiation.	Creating a robust, scalable app; incorporating the latest technology; receiving feedback for improvements.	Limited development time; balancing innovation with user-friendliness; budgetary limits.
Investors	Return on Investment and Social Impact	Interested in the dual potential of financial return and social contribution.	Long-term viability of the app; market penetration and user adoption; measurable social impact.	Expectation of return within a specific timeframe; financial contributions capped at set levels.

3.2. Project Priorities

Dimension	*Driver (state objective)*	*Constraint (state limits)*	*Degree of Freedom (state allowable range)*
Schedule	*release 1.0 to be available by 10/1, release 1.1 by 12/1*		
Features			*70-80% of high priority features must be included in release 1.0*
Quality			*90-95% of user acceptance tests must pass for release 1.0, 95-98% for release 1.1*
Staff		*maximum team size is 1 PM, 1 BA, 6 developers + 3 testers*	
Cost			*budget overrun up to 15% acceptable without sponsor review*

3.3. Deployment Considerations

User Access Requirements

Geographical Distribution:
- Theia users, including blind and visually impaired individuals, caretakers, and institutional staff, may be distributed across various regions and time zones.
- **Consideration**: Ensure 24/7 app accessibility, accommodating different time zones.

Accessibility Features:
- Users will require voice command capabilities, screen reader compatibility, and haptic feedback for ease of use.
- **Consideration**: Implement universal design principles to cater to diverse user needs.

System Availability

- **Time-Sensitive Access**:
  - The app must be available during all hours, especially considering the varied schedules of users (e.g., students, working professionals).
- **Update Scheduling**:
  - Schedule updates during low-usage periods to minimize disruption.

Infrastructure Requirements

Capacity and Network Access:
- Ensure robust server capacity for handling multiple concurrent users.
- Stable and fast network access is crucial for real-time navigation and updates.

Data Storage and Migration:

- Adequate storage for user data, maps, and navigation information.
- Secure and efficient data migration strategy for users transitioning from other aids or apps.

Compatibility with Existing Infrastructure:

- Work with institutions to integrate Theia with existing indoor navigation markers and systems.

Training and Business Process Modification

Training Materials:

- Develop comprehensive training materials for users and caretakers, focusing on app navigation, features, and safety protocols.
- Train institutional staff on how to assist Theia users and understand the app's functionality.

Business Process Integration:

- Coordinate with institutions for integrating Theia into their accessibility plans.
- Provide guidelines on how Theia can complement existing processes and infrastructure.

Deployment Timeline and Support

- **Phased Roll-Out**:
  - Implement a phased deployment strategy, starting with pilot testing in selected locations.
- **Ongoing Support and Feedback Mechanism**:
  - Establish a support system for users and stakeholders, including a feedback mechanism for continuous improvement.