Vision and Scope Document

for

THEIA

Version 1.0 approved

Prepared by Jareth, Tanner, Nate, Stef, Peter

CPTS 484

11/11/2023

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Revision History

Name	Date	Reason For Changes	Version

1. Business Requirements

1. Create an app that allows visually impaired individuals the independence to traverse a new environment, with little to no assistance outside the app's capabilities.
2. Develop alongside technologies such as object detection through phones / cameras, mobile application platforms, gps / mapping services, visually impaired organization for providing help lines within the mobile app.

1.1. Background

As technology evolves, there exists a persistent challenge for visually impaired individuals in navigating and interacting with their surroundings. Our team recognized the need for a comprehensive application that exceeds traditional aids. THEIA hopes to combine these traditional aids with the constantly evolving technologies that exist around us, therefore increasing the independence of the visually impaired.

1.2. Business Opportunity

The business opportunity for an app like THEIA lies at the intersection of technological innovation, social impact, and a growing market demand for inclusive solutions. Governments and organizations worldwide are placing increased emphasis towards inclusive environments, driving the demand for products and services that cater to the needs of individuals with disabilities. Additionally, this allows for technological advancements by introducing already existing technologies such as object detection and text to speech, which further encourages the growth of these technologies for the betterment of society as a whole. This opens the doors to several collaboration parties as well such as healthcare, assistive technologies, and disability advocacy organizations. Data monetization can be a factor as it can provide insights into trends and behaviors of a certain environment, therefore encouraging better routes by time of day catering further to the user. By addressing the unique needs of visually impaired individuals, other markets such an app has the potential to make a positive difference while also creating a sustainable and socially responsible business venture.

1.3. Success Metrics

To determine the success metrics for a visually impaired application, our objective will be to look at how much time it takes a user to venture from point A to point B with little to no problems. This can be rated on a scale of 1 - 3 (1 being bad, 3 being good) as shown in the rubric below:

	3 - excellent	2 - great	1 - acceptable	Score
Text To Speech	Recognizes my voice.	Had to repeat myself once.	Had to repeat myself multiple times.	3
Map navigation	Arrived in expected time.	Arrived a few minutes after expected time.	Got close, had to ask for help when near the destination.	3
Object Detection	Avoided all obstacles, was warned when near something.	Avoiding all obstacles, object detection wasn't sure what some items were.	Bumped into some obstacles as I was not warned in time.	3
Access to Impaired organizations	Was able to contact someone who could help me.	Took a few times but was able to get in contact with someone.	Wasn't able to contact anyone through the app, so I had to call someone through my contacts.	3
App navigation	All buttons and navigation options were clear.	Some buttons were hard to find, but text to speech helped navigate me.	Couldn't navigate the space, had to ask for help to get me around the app.	3
Total Score				15

Based on the score provided the user gives on the right, the overall score will be added up providing an overall score for the app. In this case 5 categories are described, therefore a perfect score would be considered to be a 15 given the metrics. Another metric not considered in the table above is the amount of users and organizations that choose to enlist in our application. These metrics would be measured solely based on the amount of users that have downloaded the app onto their mobile devices.

1.4. Vision Statement

The THEIA app aims to increase independence in visually impaired individuals through technological assistance and more convenient access to visual impairment aids.

1.5. Business Risks

The major risk we run into developing this app is the safety and well being of the users of this application. As the app focuses around making the transportation of visually impaired individuals easier; ensuring the app functions can reliably work within the scope of the functional requirements mentioned will be extremely important. This being said rigorous testing will need to be put in before letting it run autonomously with its

users, therefore, potentially pushing back the release date to ensure the app works as promised may be a reality. A secondary risk to consider is the technology in use, although camera object awareness, gps, text to speech isn't anything new, the combination of these technologies may prove to be challenging both for development and user interaction. These challenges may come in the form of constantly evolving components, or overwhelming the user with technologies that they would need to absorb all at once. The last potential risk factor we may see is making sure we are meeting our target audience with something that will help rather than inhibit their independence. Given the utilities and services already available to those who are visually impaired, the last thing we would want would be for this service to make it harder for those individuals, which in turn may push clients away from using our product.

1.6. Business Assumptions and Dependencies

Assumptions:

- Limited UI to cater towards visually impaired
- The user will have access to a phone with
    - camera
    - speakers
    - microphone
    - gps

Dependencies:

- React Native
- Phone
- Visual Impairment Organizations (for users to potentially reach out to)

2. Scope and Limitations

The THEIA app will be a user-friendly phone application accessible by a wide variety of people with different needs. THEIA offers a complete and robust solution to assisting the visually impaired with navigation, accessibility in environments, and safety. Our solution will utilize the user's phone in a variety of ways to provide navigation feedback and allow for multiple forms of user input to interact with the application. The solution does not provide or rely on external materials to be present other than the user's cell phone and functioning components on their device. While it may be useful to have a visually-abled person to assist with navigation of the app in a pinch, the solution will be designed to be entirely navigable and catered towards the visually impaired in order to provide them with safe and reliable navigation feedback.

2.1. Major Features

THEIA's solution implies an easily accessible solution that will be seamless to use for the visually impaired. With it being easy to use as a primary concern, our application will interface with standard cell phone features, most notably- the camera, the speakers, the microphone, and the phone's gps. The THEIA app will provide audio and haptic feedback for the user to interpret. The user will then use audio or physical input depending on preference or ability to inform the application about navigation/route selection. Safety features are baked into the solution, allowing for crash detection and subsequent emergency contact calling.

<Include a numbered list of the major features of the new product, emphasizing those features that distinguish it from previous or competing products. Specific user requirements and functional requirements may be traced back to these features.>

2.2. Scope of Initial Release

For THEIA's initial release, we want our core feature set to really shine through. This means the ability to interact with the app fully by audio input and feedback will be crucial to the product's initial release. We will also have basic routing and navigation features set up to begin gathering data and informing/improving our location services. The aforementioned set of features we have discussed will be sufficient for the core release of our product.

2.3. Scope of Subsequent Releases

We plan on implementing our safety services soon after initial release due to the relatively small scope needed to complete this task. Our initial efforts will be on the core feature set that composes the idea of what THEIA is.

We will also incrementally roll out improvements and optimizations to our user experience flow and audio navigation abilities of the application as we receive feedback. On top of this, we will also deploy location service optimizations as we gather more data and feedback from use of the application.

2.4. Limitations and Exclusions

A stakeholder might be curious about the inclusion of a mounted camera device that will relay realtime and robust information about the user's immediate environment. While we will have some similar functionality as part of the THEIA application, we do not plan on releasing additional hardware for the users. We want the application to supplement the standard navigation process of a visually impaired individual, not replace it. THEIA will be a supplement, not a pair of eyes for the user to become unnaturally dependent on.

3. Business Context

Moving forward, our product will need some important considerations regarding the nature of the project as well as the management of development priorities considered. The Theia app assumes that the user has a functioning phone as well as access to sighted individuals to aid in the setup of the application and for clarification regarding unresolved and more nuanced interactions within the application.

3.1. Stakeholder Profiles

Stakeholder	Major Value	Attitudes	Major Interests	Constraints
Executives	increased revenue	see product as avenue to 25% increase in market share	richer feature set than competitors; time to market	maximum budget = $500,000
User	easy to use for the visually impaired	excited, but critical of implementation shortcomings	rich but easy to use feature set with desire for user feedback to be met by developers	challenging to receive consistent feedback
Legal Aides	access to app and user reviews	concerned with clear communications about the nature and responsibilities/lack-thereof of the app	ensuring that Theia is not legally responsible for application misuse or incidents that arise during its use	no budget for retraining
Developers	quality application development and testing	concerned with the integrity of the implemented feature set	development process of features and handling customer feedback	time variables and inconsistencies rooted in the nature of development

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 4/1 release 1.1 by 6/1	development issues	To ensure integrity of our initial release, we are adjusting for a 10-20% increase in the expected timeline
Features	Text to Speech Map Navigation Object Detection Impaired Organization Access App Navigation	All of these features are subject to naturally-occuring development hurdles	70-80% of high priority features must be included in release 1.0 The high priority features comprise what is to be considered the logical meat and identity of the Theia app and the initial release is entirely dependent on their relative completion
Quality	Clear communication of project requirements and vision of the development of certain features of the application. Software testing of the implemented components.	Communication of project requirements moderated by project manager. Software testing subject to relative completion of components to be tested.	90-95% of user acceptance tests must pass for release 1.0, 95-98% for release 1.1
Staff	Team is expected to communicate relevant implementation details with each other to ensure continued efficient development of the app.	maximum team size is 1 PM, 4 developers + 2 testers, 1 lawyer, 1 industry expert liaison	Developers may have overlap with integration/development of isolated components of the app and are free to assist each other when appropriate.
Cost	Budget is to be properly utilized by project manager to build	Initial budget determined by initial investors.	budget overrun up to 15% acceptable without sponsor review

3.3. Deployment Considerations

The Theia app will be developed with mobile device usage in mind. There are current considerations regarding the tech-stack needed to accomplish our goals. Our initial decision is to continue development of the app using React Native. The development will need to be tested across multiple different platforms to ensure consistency of functionality in emulation and actual physical testing on appropriate devices.

The Theia app will require users to create an account and insert relevant details and safety information into the application. It will be best for users to have a sighted individual with them to aid in this process, however it is not necessary. There will be no conflicts between users in different time zones, using different platforms. The application is designed for users to utilize at a moment's notice without any crippling dependencies that will interfere with the proper aid the app delivers.

Certain elements of the Theia app will require network utilization, however we must ensure that the application is not fully reliant on using the network. Account creation will require network communication to store the user in our database, active map routing/navigation will require network utilization, etc. However, object detection utilizing the user's device camera will not require networking, amidst other elements of the project.

The user device, though networking is ideal, will also need enough storage for the application and any future updates rolled out.

Due to the complex nature of the app, a tutorial will be supplied for users to learn how to use the Theia app.