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**Team 4-Runners**

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**Theia Navigation  
Vision**

**Version 1.0**

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**12/11/2022**

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## Revision History

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12/11/2022	1.0	Vision and Scope Document	Pallavi, Hilda, Garhgaj, PrasanthV

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# Vision Document

## 1. Introduction

### 1.1 Purpose

Through this document we will collect, analyze and define high-level needs of visually impaired personnel and corresponding features related to the observed needs. By focusing on each identified need in depth, we will analyze the roles that the stakeholders, target users and developers play in execution of these needs thereby validating the necessity of the needs. Then finally, to support them, we will present the analysis in the form of feature attributes.

### 1.2 Scope

The application aims to assist the blind and visually impaired with their indoor navigation. This is achieved through voice navigation service provided by the application. The route planning and navigation function is activated based on the user's voice input about their source and destination. This application prioritizes safe, fast and easier navigation. To avoid obstacle collision, the application uses obstacle detection and rerouting mechanisms. This application also provides help to the user in case of emergencies by directly contacting the relevant emergency personnel. The Theia system uses a comprehensively interlaced mechanism to address all the possible scenarios encountered by the primary users.

### 1.3 Definitions, Acronyms, and Abbreviations

**Application:** A program designed to perform a certain task or a function for the end user.

**Android:** Open source operating system designed primarily for mobile devices.

**Domain:** It refers to the area of control or sphere of knowledge that is essential to complete a project.

**Goals:** Desired outcomes of a software project.

**Functional Requirements:** Functions which developers need to complete in order to complete user tasks.

**Objectives:** Individual actions one needs to take to achieve a goal.

**Nonfunctional Requirements:** Specifies criteria to determine the operation of a system.

**StakeHolders:** Stakeholders refers to all the individuals or groups that are involved in a project. They may be the target users or the project sponsors.

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**GPS:** Global Positioning System

**App:** Application

## 1.4 References

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## 1.5 Overview

The Vision document gives a detailed view on the positioning and functioning of the product. The rest of the document is organized as follows: Section 2 establishes the positioning of the application whereas Section 3 describes all the stakeholders and users involved in the project. Section 4 provides preliminary information relevant to the usage of the application and Section 5 describes all the features of the product. Section 6 highlights the constraints of the application whereas Section 7 defines the quality metrics for measuring the success of the application. Section 8 establishes the priority and precedence among the product features. Section 9 and Section 10 includes the application standards and documentation information.

## 2. Positioning

### 2.1 Business Opportunity

Globally around 2.2 billion people are either blind or visually impaired. Most of these individuals need a form of navigation assistance during their daily activities. Although a handful of navigation solutions are currently available in the market, like Lazarillo and google indoor navigation tools, they do not offer a user friendly, voice controlled and customizable option for navigating indoors. These features are offered by the Theia system and provide a highly flexible and smart indoor navigation tool.

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## 2.2 Problem Statement

The problem of affects the impact of which is	indoor navigation the blind and visually impaired increased time to reach the destination, discomfort during travel and increased risk of injury.
A successful solution would be	A free of cost and easy to install mobile application that caters to the navigational needs of the users. The application would support assistance through voice commands and hence can be easily utilized by the blind and visually impaired. All the settings such as volume and speed of instruction can be updated via the voice assistant integrated with the application. The user would be able to select their destination and route for navigating. The application would guide the user to the destination by constantly tracking their current location and providing relevant instructions. The user would also be able to contact their emergency contacts in case of concerns or injury through the application.

## 2.3 Product Position Statement

For	the blind and visually impaired individuals
Who	wish to explore places independently without compromising their safety
The Theia	is a mobile application
That	provides assistance to the users with indoor navigation. It utilizes the voice assistant integrated with the application and hence, is easily usable by both the blind and visually challenged. The application was created keeping in mind the safety of the individuals, hence, constant location tracking and emergency services are both available within the application.
Unlike	the current navigation applications for the blind that either do not cover indoor navigation (i.e. are mostly focused on reaching the destinations such as outside a building or cafe) or do not include emergency services that should be triggered in case the user gets injured or lost.
Our product	Theia offers personalization with respect to all major functionalities such as - Destination Selection, Route-finding, Guided Navigation and Emergency Services all within a single application. All the settings can be customized as per user's comfort through voice commands. The application also ensures utmost safety of the user by triggering emergency services in case of

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	injuries and re-routing services in case the user gets lost on their way.
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### 3. Stakeholder and User Descriptions

#### 3.1 Market Demographics

The target market segment includes the blind and visually impaired individuals with modern smartphone devices. The users are anticipated to be using either an Android powered device or an IOS device as the operating system of their smartphone devices. The Theia application is the first initiative towards this market segment in an effort to improve navigation experiences among this group. An instance of the Theia navigation application in every blind and visually impaired individual's smart device will greatly enhance the navigation experience for individuals in this category.

#### 3.2 Stakeholder Summary

Name	Description	Responsibilities
Project Sponsor	Overseas decisions made about the project.	Makes decisions about the project including appointing the project team and defining the success criteria of the project
Project Manager	Stakeholder charged with ensuring a successful delivery of the requested product	They are responsible for planning, directing, organizing the project as well as managing time and effort needed by the project and keeping them within the scope of the project.
Project Lead	Stakeholder in charge of leading the development of the system	Makes and executes plans to support the goals of the project. Manages the development team to ensure participation, engagement and enthusiasm.
Developers	Stakeholders responsible for delivering various deliverables of the project	Implements the specified requirements of the project by conducting research and choosing the best approach to delivering specified features.

#### 3.3 User Summary

Name	Description	Responsibilities	Stakeholder
Blind and visually impaired	The primary end users of the system	<ol style="list-style-type: none"> <li>Provide source and destination to start navigation.</li> <li>Following the selected navigation path provided</li> </ol>	Self

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		by the application. 3. Contact emergency services in emergency situations.	
Caretakers	These are the secondary users of the system.	1. Setup configuration for the visually impaired user. 2. Respond to emergency calls.	Self

### 3.4 User Environment

The user uses the application in an indoor environment. It would involve usage of a voice assistant to help navigate the user to reach their respective destination. Caretakers help in setting up the application and are also the emergency contacts involved in the working environment of the target user. The mobile phone used is expected to have pre-installed software/hardware that supports voice output.

### 3.5 Stakeholder Profiles

#### *Software Developers*

Representative	Software Developers: Garhgaj, and Prashant
Description	Software developers design, build, maintain and deploy software using different techniques and tools.
Type	All developers have a technical background of building apps.
Responsibilities	1. Come up with algorithms and flowcharts 2. Produce clean and efficient code based on requirements. 3. Troubleshoot and debug code to determine if any bugs 4. Collect user feedback in order to refine the application
Success Criteria	The success of the application depends on the user ratings and reviews. Good ratings and reviews increase the popularity of the product.
Involvement	Developers work on assigned segments of the code to complete and produce a user friendly application.
Deliverables	1. Optimized and working code 2. Code Quality Test Report 3. Unit and Integration Tests result 4. Progress report 5. User Manual
Comments / Issues	Not completing deliverables or assigned tasks on time is an issue. Other issues could be inadequate communication between team members.

#### *Project Sponsors*

Representative	Project Sponsors (Business Executives)
Description	Business executives organize and manage any fundraising efforts
Type	Business executives are experts at managing businesses with a knowledge of profit and margins.

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Responsibilities	<ol style="list-style-type: none"> <li>1. Serve as mentors</li> <li>2. Manage and assess budgets</li> <li>3. Provide feedback on the prototypes and final product</li> </ol>
Success Criteria	Their success is dependent on the monetary success of the application in which they have invested the money.
Involvement	Providing feedback and sharing their experience with the team in an effort to refine the developed product.
Deliverables	<ol style="list-style-type: none"> <li>1. Initiating Design</li> <li>2. Progress of team members</li> <li>3. Regular team meetings</li> <li>4. Finalizing design</li> <li>5. Finalizing app/product</li> </ol>
Comments / Issues	Budget can be a conflict if a project requires more resources

#### *Project Manager*

Representative	Project Manager : Pallavi
Description	Software Manager monitors progress to make sure team members aren't facing any difficulties. They also monitor the project to see if it is meeting the business requirements.
Type	Managers have a technical background of managing teams and building products.
Responsibilities	<ol style="list-style-type: none"> <li>1. Planning the project</li> <li>2. Leading the team</li> <li>3. Monitoring project progress</li> <li>4. Managing the budget</li> <li>5. Communicating with stakeholders to ensure satisfaction</li> </ol>
Success Criteria	If employee and customer are both satisfied, then that is a manager's true success
Involvement	Project managers are involved in planning direction for the completion of projects.
Deliverables	<ol style="list-style-type: none"> <li>1. Project plan</li> <li>2. Work Schedule</li> <li>3. Stakeholder Meeting for Budget</li> <li>4. Training plan for the team</li> <li>5. Issue Logs</li> </ol>
Comments / Issues	Budget restrictions and team conflict

#### *Project Lead*

Representative	Project Lead: Afoke
Description	Provides the technical guidance and mentorship to team members to support business functions and meet customer requirements

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Type	Leads have a technical background of building applications and have the ability to properly communicate with the team.
Responsibilities	<ol style="list-style-type: none"> <li>1. Lead the team in project</li> <li>2. Resolves technical issues</li> <li>3. Makes sure that the product is delivered on time</li> </ol>
Success Criteria	Their success depends on the timely deployment of the application or features.
Involvement	Dividing the work among the developers and guiding them to completion
Deliverables	<ol style="list-style-type: none"> <li>1. User Manual</li> <li>2. Test plan documentation</li> <li>3. Unit testing and integration testing results</li> </ol>
Comments / Issues	Not completing deliverables or assigned tasks on time is a problem. Other issues could be inadequate communication between team members.

### 3.6 User Profiles

*Blind and Visually impaired*

Representative	
Description	This is the primary user of the application. The application has been designed and created keeping these users in mind.
Type	The user being visually impaired is mostly dependent on the voice assistant present in the smartphone for interacting with the application. The user may have some experience operating navigation applications.
Responsibilities	<ol style="list-style-type: none"> <li>1. Customizing the settings as per requirement.</li> <li>2. Selecting the final destination via voice commands.</li> <li>3. Selecting the preferred route from the list of options via voice commands.</li> <li>4. Following the navigation instructions given by the application.</li> <li>5. Informing the application through voice command in case of emergency.</li> </ol>
Success Criteria	<p>The success is defined by the following factors:</p> <ol style="list-style-type: none"> <li>1. The ease with which the user was able to reach the destination safely.</li> <li>2. The time taken by the user to arrive at their destination.</li> <li>3. The usability of the application for the user.</li> </ol>
Involvement	<p>The user is involved in the following processes:</p> <ol style="list-style-type: none"> <li>1. Requirement Elicitation - Interviews with the user for requirements gathering.</li> <li>2. Prototype Testing: Testing the prototypes and providing feedback for refinement.</li> <li>3. Product Testing: Testing the product and providing feedback for refinement.</li> </ol>
Deliverables	

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Comments / Issues	Since the user interacts with the application via the voice assistants, the user should be able to hear and speak properly.
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### Caretakers

Representative	
Description	This is the secondary user of the application. These include the caretaker or the assistive person that usually accompanies the primary users when going out.
Type	The user is a casual user who has some experience of using navigation applications such as Google Maps.
Responsibilities	<ol style="list-style-type: none"> <li>1. Configuration of the application</li> <li>2. Selecting the final destination via touch panel</li> <li>3. Selecting the preferred route from the list of options via touch panel</li> <li>4. Following the navigation instructions given by the application both through voice and text.</li> <li>5. Informing the application through voice command or touch panel in case of emergency.</li> </ol>
Success Criteria	<p>The success is defined by the following factors:</p> <ol style="list-style-type: none"> <li>1. The ease with which the user was able to guide the primary user to the destination.</li> <li>2. The time taken by the user to arrive at their destination</li> <li>3. The usability of the application for both the blind and visually impaired user as well as the caretaker assisting the user..</li> </ol>
Involvement	<p>Being one of the target users of the application, the user is involved in the following processes:</p> <ol style="list-style-type: none"> <li>1. Requirement Elicitation - Interviews with the user to collect their requirements and also for understanding the primary user's requirements.</li> <li>2. Prototype Testing: Testing the prototypes and providing feedback for refinement.</li> <li>3. Product Testing: Testing the product and providing feedback for refinement.</li> </ol>
Deliverables	
Comments / Issues	

### 3.7 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Accurate Route Navigation	High	User's cannot utilize any visual abilities to assist with ensuring a given route is accurate and	None	Utilize multiple data in addition to the blueprint of the building like the visuals available to the smartphone

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		fully rely on the accuracy of the system. The reliability of the system needs to be very high.		camera, the microphone to confirm the location entered by the user etc.to confirm the path provided to the user.
Configurable options	Medium	Lack of flexibility of the application to accommodate specific situations.	None	The application offers configurable user options that includes most common locations, preferred routes, emergency levels and their corresponding emergency contacts.
Obstacle Detection	High	Obstacle detection failure that can result in physical harm to the user.	None	Adding redundancy to the obstacle detection mechanism by utilizing the blueprint to determine static obstacles as well as utilizing the smart device's camera to capture surroundings and analyze in real time to confirm or detect obstacles.
Emergency services	High	Inability to reach an emergency service during an emergency.	None	Utilizing the configured settings for the user, the system can contact emergency services on behalf of the user in situations where the system through a series of occurrences has determined that there is an emergency and has received no response from the user to cancel an emergency alert.

### 3.8 Alternatives and Competition

#### 3.8.1 Lazarillo the GPS app

This application is similarly themed as Theia in the context that it uses audio messages to guide the user towards their respective destination. Lazarillo is a semi-voice interface meaning its design is not focused around voice interaction rather focused on interactive navigation and the voice is an additional feature that can only be activated on touch. The salient features of this app are that it is simple not complex, considers all cases of turns encountered and most importantly, provides a list of shortcut destinations that can be chosen incase of emergencies. The feature of presenting all the nearby destinations in distinct categories allows the users to avoid confusion.

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### 3.8.2 Blind Square

This is another navigation application that also uses GPS for helping visually impaired people in their navigation. Blind square is a much more secondary user dependent application. A secondary user needs to be present for setting up the basic configuration of the app and also in helping users with navigation, as it does not have a voice input feature.

## 4. Product Overview

### 4.1 Product Perspective

Navigation subsystem:

This subsystem is responsible for implementing the internal logic of Theia app. Some of its key functionalities include finding out the best route, monitoring the surroundings to ensure user's safety and guiding the user through voice commands along the chosen path.

User location subsystem:

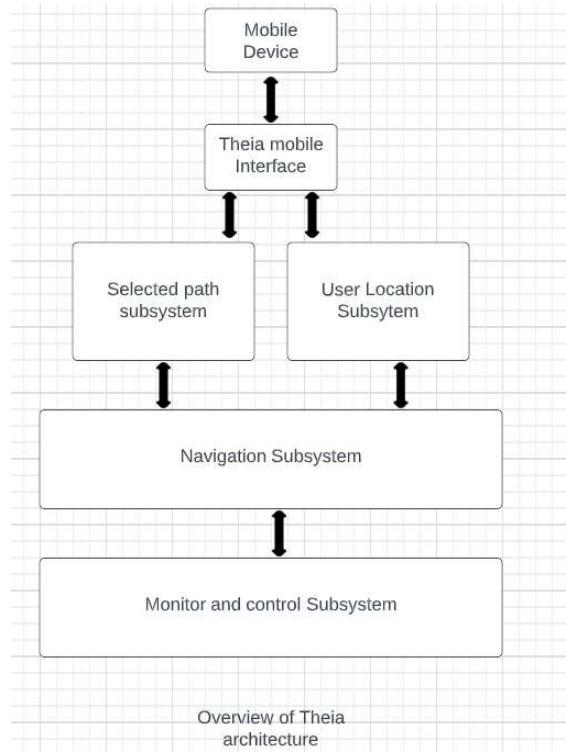
This subsystem is responsible for monitoring user location and constantly sending the location information to the navigation subsystem where new navigation instructions are generated. This subsystem also collects the camera input for the navigation subsystem, where it helps the navigation subsystem deal with re-routing and obstacle collision avoidance.

Selected path Subsystem:

This subsystem includes logic for verbally updating the user's navigation progress. The information about the remaining distance, estimated time to reach, etc is received from the navigation subsystem. This helps both the system and the user in tracking the navigation progress.

The diagram below highlights how these systems interact:

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## 4.2 Summary of Capabilities

Customer Support System

Customer Benefit	Supporting Features
The application is readily available for download.	Theia app is available in google's play store, in the app store as well as in other major application market stores.
Customers have access to flexible authentication methods.	Our system provides high security by authenticating users either through the fingerprint scanner, the braille keyboard or through verbal responses to two security questions.
Customers can easily operate the app using voice command.	The system provides a robust voice control system for communication throughout the navigation.

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Customers have access to a highly responsive emergency system	In case of any emergency or concerns, the user can use the voice command EMERGENCY to connect with our customer helpline which is available 24 hours on all days.
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#### 4.3 Assumptions and Dependencies

The following assumptions were made while creating this document:

1. The user will be using the application from an Android-based or iOS-based smartphone having all the basic utilities and functionalities.
2. The user will be providing access to their current location via GPS to the application.
3. The user will possess a stable internet connection while utilizing the application.
4. The user will use a registered account to log in and use all the services.

The following specifications should be met for the application to be fully-functional:

1. Android Version 7.0 and above
2. Bluetooth version 4.0 and above

#### 4.4 Cost and Pricing

The pricing constraints relevant to the application are as follows:

1. Demand for product and brand
2. Product newness
3. Presence of competitors (other apps such as Blind square)
4. Increased cost of sensors and camera devices

#### 4.5 Licensing and Installation

The product requires a user license which is linked to the user's account for access to the functionalities of the system. The application also requires the assistance of a caretaker or secondary user with no vision impairment for installation and initial configuration of the system.

### 5. Product Features

#### 5.1 Configuring the application

The initial configuration of the application including the account setup and emergency contact information is performed by the caretaker or an assistive person associated with the primary user. It includes the following features:

1. Set up the authentication methods- fingerprint scan, security questions and password for the user
2. Add emergency contact for the user
3. Add emergency contact for the user
4. Update mandatory personal information of the user.

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- 5. Update the volume of instructions as per user's preference.
- 6. Select preferred language of instruction
- 7. Select the speed and interval of instructions.
- 8. Select the preferences related to route selection.
- 9. Select the preferences related to destination selection

## 5.2 Selecting the destination

This is usually the first step in the navigation journey of the user.

It includes the following features:

- 1. Selection of destination through speech
- 2. Selection of destination through querying of past visited/ frequently visited places
- 3. Confirming the selected destination
- 4. Exiting destination selection

## 5.3 Selecting the route

Based on the destination selected by the user, the application curates a list of routes based on the user's preferences. This includes the following features:

- 1. Selecting the preferred route from the list of routes
- 2. Confirming the selected route
- 3. Exiting the route selection

## 5.4 Operating the Navigation Instructions

The application guides the user to the selected destination via the preferred route. This stage offers the following features:

- 1. Pausing the navigation instructions
- 2. Resuming the navigation instructions
- 3. Exiting the navigation instructions

## 5.5 Trigger Emergency services

The user can inform the application in case of any injury/concerns through voice commands

## 6. Constraints

### Design Constraints

- 1. Time: This is one of the most important constraints in this project due to the fact that it affects the scope and the deliverable of the project. For this deliverable, we are working on a time constraint to fully deliver the requirements of this Theia application and because we have a set deadline, we have chosen to overcome this constraint by starting early and avoiding unnecessary meetings and other distractions that can easily eat into time.
- 2. Developers knowledge and experience: One of the constraints we are facing as a team is a lack of the technical expertise to begin development on a mobile application as no member of the project team is experienced in this field. This is only a constraint, it has not restrained us in the least bit. We have chosen to overcome this challenge by spending some time to learn the necessary skills needed

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for the development of the application while we work on eliciting all requirements needed.

3. Safety: Understanding that our primary users who are the blind and visually impaired individuals require a safe way to navigate without bumping into obstacles has led us to create an obstacle detection system that aims to be an eye to the user utilizing the hardware resources of the user's smartphone to accomplish this feat. We also go further by contacting emergency services when there is a suspicion of an emergency situation to keep our users safe.
4. Style (Sensory design for the blind): While the style of an application for the blind and visually impaired can be a real challenge due to the requirements and what is useful to the user as opposed to a design for appearance for the general public, the Theia application aims to overcome this challenge with a simple design with feel and sound as the design priority.
5. Delivery: It is challenging to get maximum responsiveness and robustness in an application for the blind and visually impaired due to the feature rich nature of the application and the technologies relied upon like voice control, indoor gps etc. Our development team aims to optimize the usage of these technologies to deliver a highly responsive and robust system.

### External Constraints

- HIPAA Compliance: This is the Health Insurance Portability and Accountability Act which mandates the protection of privacy and security of the health information of individuals. It ensures that the system and its workforce ensures the confidentiality, integrity and availability of our user's health information. Theia aims to comply with the Hipaa policy by limiting user's information to only caregivers appointed by the user and the emergency services whose individuals are in turn bound by the Hipaa policy.

### Dependencies

- Dependence on device hardware
- Dependence on device operating system
- Dependence on a third party indoor gps system.
- Building blueprint availability dependence

## 7. Quality Ranges

1. **Performance:** We can measure performance on our app by calculating the latency of the system responses. This measure must not exceed 2 seconds.
2. **Robustness:** We can measure the extent of robustness of our system by the number of redundancies built into each of our critical operations. For instance, caching of route information for guiding the user in the absence of the internet.
3. **Fault tolerance:** We can track the fault tolerance of the system by counting the number of failures produced by our logs. The system should produce less than 3.4 defects per million units of logged events.

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4. **Usability:** The usability can be measured by the average rating received by the application on the play store and app store. The average rating received by the application should not be below  $\frac{4}{5}$ .

## 8. Precedence and Priority

The following listed features are listed in order of their precedence with highest on top and least at the bottom.

### 8.1 Configuration

This is given the first priority because, for the user to access the app they will need to first set-up their primary information, their preferred routes, their emergency contacts and other very important user configuration settings. These configurations are very essential to the safety and security of the user and vital to the usability of the application.

### 8.2 Voice communication feature

This system feature is allotted second priority because the basic form of input from the user and output by the system is through voice commands. This is because the primary users of the system are the blind and visually impaired and they rely on verbal interactions from the system.

### 8.3 Route calculation and Navigation

This system feature is the core working logic of the application. It is through this feature that the application will calculate the best route for the user to choose from, will have the re-routing mechanism and all such key navigation functions. This system feature also includes the logic of navigating the user, using voice commands.

### 8.4 Emergency services

This system feature is of equal priority with the route calculation and navigation feature. This system feature ensures the security of the user by triggering the emergency service in the applicable situations.

## 9. Other Product Requirements

### 9.1 Applicable Standards

The application is compliant with the following standards:

1. HIPAA (Health Insurance Portability and Accountability Act of 1996) for ensuring the privacy and security of health information of the users.
2. OWASP Mobile Application Security Verification Standard (MASVS) for building a secure mobile application

### 9.2 System Requirements

The mobile application supports both Android and iOS users.

For the android users, the application Theia, is compatible with smartphones with Android version 7.0 and higher

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For iOS users, the application is compatible with device iphone 7 and all the devices that were launched after it.

### **9.3 Performance Requirements**

The application must have performance measures above the minimum threshold values mentioned below:

1. Generation of routes using the destination, current location of user and user preferences within 20 seconds
2. Latency between text and integrated screen reader should be less than 100 ms.
3. Call triggered to the emergency contact within 10 seconds.
4. Settings update through voice input within 20 seconds of confirmation.

### **9.4 Environmental Requirements**

The environmental requirements associated with the mobile application are:

1. The user must have an Android or iOS based smartphone device with all the basic utilities, sensors and functionalities.
2. The user must register an account to have access to the features of the mobile application.
3. The application will get auto-updated if the auto-update feature is enabled on the smartphone.

## **10. Documentation Requirements**

With successful testing of each operating system version for our application, along with corresponding platform specific simulators or actual devices to assess all new and improved features, the pre-deployment documentation takes place.

For a successful deployment, each feature or change set is first documented by providing a brief description of the change. In addition, the user manual of the system will be updated to reflect the new changes to the system.

To utilize the system, the user is required to download the application from a preferred app store and register an account with basic user information like full name, date of birth, and other basic information. The system utilizes the local timezone provided by the operating system of the device.

Infrastructure needed to support features of the application, are basic to smartphone devices. The application runs a system check to determine adequate hardware and software infrastructure during installation and on updates. If the smart device falls below required infrastructure threshold, the device will fail a system's check and alert the user.

### **10.1 User Manual**

The user manual is a documentation created to instruct users about the Theia application. It contains all the essential information for the users to make full use of our system. It includes a description of the capabilities of the system and alternative modes of operation. It provides step by step processes to access, configure and use the system. The document is indexed to enhance easy findability and formatted for easy readability with section highlights, use of headings and subheadings as well as attractive colors and images.

### **10.2 Online Help**

The Theia system offers a mobile help desk tool that matches the look and feel of the Theia system. This help system automatically gathers information about the user and their smart device when used, so the user

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does not need to go through the rigors of providing their mobile system information that can be time-wasting and an annoyance.

Frequently asked questions and a general knowledge base of articles about the system are readily available online in an organized and searchable structure for users to easily access.

### **10.3 Installation Guides, Configuration, and Read Me File**

Installation and configuration guides are included in the user manual for users and are also accessible in the Theia system's online knowledge base for support.

A change log with each updated release notes and a Readme file are source controlled in the Theia system's repository. The repository also includes known compatibility issues, bugs and recommended workarounds for issues identified in the system.

### **10.4 Labeling and Packaging**

To protect the intellectual property of the Theia system, copyright notices are included in every file in the software code. This serves to alert infringers to the property rights of the system. The corporate logo and a suite of standardized icons and graphical elements, designed and copyrighted to the Theia group are protected under the copyright and cannot be copied without the express permission of the Theia group.

The copyright notice is added as a header to each code file, included in the user manual and all other forms of written documentations mentioned above.

These changes are then packaged under the version tag to be released and included as update or release notes in the deployment bundle.

An ios android bundle is deployed to the app store, google play store or other market places for installation or update by the user.

A design documentation of the system is available to developers of the system for comprehension activities as well as for updates when there is a change to the system for maintainability.