Vision and Scope Document

for

<THEIA>

Version 2.0 approved

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Revision History

Name	Date	Reason For Changes	Version
Revision 1	10/23/2018	Work on the vision & scope document	1.0
Revision 2	11/29/2018	Check all information and add more detail in every part.	2.0

1. Business Requirements

Theia provides an automated service to help guide blind people to their requested destinations, and it also ensures that the service it provides shall be safe and handy.

1.1. Background

With the aid of an automated navigation system, fewer people can be involved while the job of navigating the blind will be more efficient using a developed system. Dijkstra's shortest-path algorithm is an exemplary example for finding the shortest route in a weighted graph: before the algorithm was invented it was nerve-racking to enumerate each route in a weighted graph, and also the application of Dijkstra's shortest-path algorithm makes it much faster to do the job well. Thus a smart-phone application that automatically navigates the blind can significantly increase the effectiveness and efficiency and the blind will absolutely feel happier in the future.

THEIA is a new technological product include lack of user-friendliness, that is, current tools that help the blind are actually expensive and cumbersome and difficult to learn to use. However, THEIA is a more friendly navigation system for the blind than the general navigations. It focuses on the blind to get perfectly experience to direct the road. The users only need to download the application on their multi-functional devices, such as mobile phone, and they can able to use easily in their daily lives.

1.2. Business Opportunity

There is a statistic about the number of blind people: The estimated number of people visually impaired in the world is **285 million**, **39 million blind** and **246 million** have low vision; **65** % of people visually impaired and **82**% of all blind are 50 years and older. Therefore, from a business perspective, the group of blind is also large of a market. Additionally, the THEIA navigation also provides service to relative users: blind family members, some related institutions, etc.

Luckily, the technologies have solved the problems of GPS, navigation, and directions. Meanwhile, people have been used to navigation systems in their lives. There are many companies, such as Google, provide navigation services and have been recognized by many users. Their mature business model can be used as a reference. However, most of the navigation systems are targeted at general people rather focus on special people like the blind. The blind can't use general navigation system for visual reasons, but they also have the same needs to direction, so compared with the traditional navigation system, the THEIA can achieve greater competitiveness among the blind.

1.3. Business Objectives

BO-1 users are able to use this application in 95% of the indoor environment

BO-2 on average new users spend no more than 10 minutes to understand how to use this application

BO-3 in an emergency situation, users are able to use emergency contact and get help within 2 minutes

1.4. Success Metrics

SM-1 users(mainly blind people) can use the product on their own to go to their desired destinations in an indoor environment.

SM-2 users can get help in an emergency situation within 2 minutes

1.5. Vision Statement

For blind people who sometimes need to go somewhere but they don't want to bother other people, Theia is a supercalifragilisticexpialidocious automated navigation application that can help blind people navigate by themselves so that fewer guide dogs will be needed and those blind people have more freedom to explore their world. Unlike guide dogs, our product is easy for blind people to learn and use. Also, Theia satisfies the need of some blind people that they want to go somewhere by themselves because they don't want anybody to be involved.

1.6. Business Risks

Summarize the major business risks associated with developing—or not developing—this product. Risk categories include marketplace competition, timing issues, user acceptance, implementation issues, and possible negative impacts on the business. Business risks are not the same as project risks, which often include resource availability concerns and technology factors. Estimate the potential loss from each risk, the likelihood of it occurring, and any potential mitigation actions. See Chapter 32, "Software requirements and risk management," for more about this topic.

RI-1: the application might have some issue with system access when the mobile phone system is updated

RI-2: voice input may not be accurate enough, causing erroneous inputs, for example.

RI-3: blind people may be tired of using voice input

RI-4: the smartphone may run out of power or turn off automatically

1.7. Business Assumptions and Dependencies

AS-1: The user should stay in the house to use the navigation system.

AS-2: The user needs to use multi-functional devices, such as mobile phone and ipad, and turn on Bluetooth.

AS-3: The user needs to connect Wireless or 4G. If there is no wifi nearby, the user should download offline data in advance.

AS-4: To contact with relative users in an emergency, the user should edit relative information and connect different account in advance.

DE-1: If some relevant organizations want to obtain user information in an emergency, they need to contact the relevant agencies in advance.

DE-2: If relative users want to know the location of the blind, they need to bind to the account of the blind user.

2. Scope and Limitations

2.1. Major Features

FE-1 Easy-to-learn-and-use: since it is for blind people to go to their wished destinations in an indoor environment, Theia is easy to learn and use.
FE-2 Simple and Clean UI: there's no embedded ad and Theia provides a simple and clean UI

2.2. Scope of Initial Release

Release 1:
- Only determine one route from the location to the destination
- Can just identify available rooms with a radius of 10 meters.

2.3. Scope of Subsequent Releases

Release 2:
- give users different choices of routes from their current location to the destination.
- identify available rooms within a radius of 20 meters.

2.4. Limitations and Exclusions

LI-1: The app shall be used only indoor, it doesn't include outside the map.
LI-2: The app can only identify some official rooms; Some temporary or ambiguous positions cannot be identified.

3. Business Context

3.1. Stakeholder Profiles

Stakeholder	Major Value	Attitudes	Major Interests	Constraints
blind people	self-service to navigate them to go anywhere they want	Happy and relieved of relying on guide dogs	voice input to enter destination voice input to make choices	indoor environment only
users' friends	emergency contact to check if their blind friends are safe or not	Assured of whether their blind friend is in trouble or not	contact the user immediately	none identified
fire department	emergency contact to get first-hand location of the user	Happy with the effectiveness of the emergency contact	locate the position of the user. gain the user's information and rescue.	none identified

3.2. Project Priorities

Dimension	Driver (state objective)	Constraint (state limits)	Degree of Freedom (state allowable range)
Schedule			
Features		All features scheduled for release 1.0 must be fully operational	
Quality		95% of user acceptance tests must pass	
Staff		record all specific test data	
Cost		control the cost in a ap	

3.3. Deployment Considerations

The application needs to be connected to the internet, and it needs system access to user's current location during its background activity. Users need to keep their application updated so that they get the most effective navigation service.