

## Team Whoosh



### Vision

#### Version 1.0

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**Revision History**

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
11/1/2015	1.0	Created document	E. Keller
11/10/2015	1.1	Added more content	J. Nguyen, S. Borodin, E. Keller

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## Vision

### 1. Introduction

#### 1.1 Purpose

This document is designed to provide an overview of features and requirements of the Whoosh app. The needs of stakeholders and targets users will be explained. Our use cases and supplementary documentation will show how these needs are met by the Whoosh app.

#### 1.2 Scope

This Vision Document is for the Whoosh application, which will be developed by Team Whoosh in Dr. Chung's Requirements Engineering course. This document is influenced by our Project Management Plan and WRS documents. The application will be limited to phones using Android.

#### 1.3 Definitions, Acronyms, and Abbreviations

- Team Whoosh: the team producing the Whoosh application, made up of 4 sub teams (Logistics, Design, Development, and Project Management)
- Whoosh: smart phone application providing accessible route navigation
- ATEC: Arts and Technology building on UT Dallas campus
- SSB: Student Services Building on UT Dallas campus

#### 1.4 References

UTD's Official Site: <http://www.utdallas.edu/>

UTD Campus Map: <http://www.utdallas.edu/maps/>

UTD Office of Accessibility <http://www.utdallas.edu/studentaccess/>

Dr. Chung's website: <http://www.utdallas.edu/~chung/CS4351/syllabus.htm>

#### 1.5 Overview

This document will identify the problem our system aims to eliminate and the stakeholders and target users will be identified and their roles defined. The features of the Whoosh application and how we will achieve those features will also be in this document. Following the aforementioned, we will discuss the product as a whole.

### 2. Positioning

#### 2.1 Business Opportunity

Handicap accessible route navigation is critical for those with disabilities. Our business model will build off of existing navigation applications such as Google Maps and Here Maps. Our primary users are those with a movement impairment who will be able to route themselves around the UT Dallas campus using only routes that are accessible. The user will have access to the navigation via an application on their smart phone.

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## 2.2 Problem Statement

The problem of	Accessibility not being factored into current location navigation systems for UT Dallas' campus
affects	Those with accessibility impairments
the impact of which is	Exclusion and unnecessary difficulties for those with accessibility impairments
a successful solution would be	<p>An easy-to-use smart phone application that can direct the user to their destination on campus using routes accessible to them.</p> <p>The application would enable users to see route navigation before visiting, and prevent them from having to use trial and error to find accessible routes.</p> <p>The application would help those visiting and living on campus feel more confident getting around campus.</p> <p>The user will be able to browse floor plans of buildings on campus and see accessible entrances and exits.</p>

## 2.3 Product Position Statement

For	People on UT Dallas' campus
Who	Require accessible routes when navigating around campus
The (product name)	is an Android smart phone application
That	Provides the user the ability to navigate campus using routes accessible to them
Unlike	Current navigation applications, such as Google Maps, that do not provide navigation indoors and does not allow the user to choose routes based on accessibility
Our product	Provides navigation within buildings and uses accessible routes

## 3. Stakeholder and User Descriptions

### 3.1 Target Demographic

The key demographic of the Whoosh application are those with movement impairments and may be unfamiliar with the University of Texas campus. Whoosh aims to help users navigate via movement friendly routes. Thus, the target demographic of this application may include, but is not limited to:

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- Students with movement impairments
- Visitors with movement impairments
- Personal assistants

It is also assumed that users will be technologically literate and have a device, typically a smart-phone, that this application will run on.

## 3.2 Stakeholder Summary

Name	Description	Responsibilities
University of Texas at Dallas Official	The staff and faculty of UTD who aim to improve the university experience for all who set foot on the UTD Campus especially for those who may require assistance.	<ul style="list-style-type: none"> <li>- Provide ideas for new app features</li> <li>- Provide information to improve application such as contact info, floor-plans, and more</li> <li>- Develop plans for future project ideas to improve university experience</li> <li>- Monitor project progress</li> <li>- Provide funding for future projects</li> </ul>
University of Texas at Dallas Research Team	The research teams developing new technology at UTD. Some developers may integrate or further develop Whoosh once the semester ends.	<ul style="list-style-type: none"> <li>- Develop projects requested by UTD Officials</li> <li>- Improve upon existing projects</li> <li>- Ensure development meets professional standards</li> </ul>

## 3.3 User Summary

Name	Description	Responsibilities	Stakeholder
Students	Students who are new and/or are unfamiliar with the UTD campus who require assistance with campus navigation.	<ul style="list-style-type: none"> <li>- Provide error reporting</li> <li>- Provide user feedback</li> </ul>	UTD Officials, Team Whoosh (Us)
Visitors	Visitors who are new and/or are unfamiliar with the UTD campus who require assistance with campus navigation.	<ul style="list-style-type: none"> <li>- Provide error reporting</li> <li>- Provide user feedback</li> </ul>	UTD Officials

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Personal Assistants	Assistants attending to those with movement impairments.	<ul style="list-style-type: none"> <li>- Provide error reporting</li> <li>- Provide user feedback</li> </ul>	UTD Officials
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### 3.4 User Environment

Because Whoosh is a navigation application for the University of Texas at Dallas, the primary user environment will be at the University of Texas at Dallas campus. The university campus features excellent infrastructure such as ramps, elevators, and sky-walks to accommodate the movement impaired. UTD also features campus-wide access to wireless Internet for both students and guests alike. This allows for convenient and extensive use of the Whoosh application via mobile devices while on the university campus.

Currently, the app is only supported on Android however future release will also include the iOS platform. Future releases of the application will also be upgraded to utilize the latest technology.

### 3.5 Stakeholder Profiles

#### 3.5.1 University of Texas at Dallas Officials

<b>Representative</b>	Dr. Lawrence Chung
<b>Description</b>	Dr. Lawrence Chung is a lecturer at the University of Texas at Dallas who is currently teaching a course in Requirements Engineering.
<b>Type</b>	<ul style="list-style-type: none"> <li>- Ph.D. in Computer Science</li> <li>- Multiple awards and published work</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>- Monitoring the progress of the Whoosh Project</li> <li>- Provide feedback on software development and documentation</li> </ul>
<b>Success Criteria</b>	<ul style="list-style-type: none"> <li>- Functional application prototype</li> <li>- Adequate software documentation</li> </ul>
<b>Involvement</b>	Dr. Chung is overseeing the development of the application as part of a course project. He also leads a team of graduate students working on a similar project who may use Whoosh as the basis for their work.
<b>Deliverables</b>	Project Feedback
<b>Comments / Issues</b>	None



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## 3.5.2 University of Texas at Dallas Research Team

<b>Representative</b>	Kirthy Kolluri
<b>Description</b>	Kirthy Kolluri is a graduate student working on a research project under the guidance of Dr. Lawrence Chung.
<b>Type</b>	<ul style="list-style-type: none"> <li>- Graduate Student</li> <li>- Member of research team</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>- Monitoring the progress of the Whoosh Project</li> <li>- Provide feedback on software development and documentation</li> <li>- Adapting aspects of the Whoosh project upon its completion</li> </ul>
<b>Success Criteria</b>	<ul style="list-style-type: none"> <li>- Functional application prototype</li> <li>- Adequate software documentation</li> </ul>
<b>Involvement</b>	Kirthy is currently working on a project similar to the Whoosh Application but with several extensions. She has indicated interest in the Whoosh project and hopes to utilize the project to further her current one.
<b>Deliverables</b>	N/A
<b>Comments / Issues</b>	None

## 3.6 User Profiles

### 3.6.1 Students with Movement Impairments

<b>Representative</b>	UTD Officials and Team Whoosh
<b>Description</b>	Students who are new and/or are unfamiliar with the UTD campus who require assistance with campus navigation.
<b>Type</b>	<ul style="list-style-type: none"> <li>- Casual Users</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>- Providing user feedback</li> </ul>
<b>Success Criteria</b>	<ul style="list-style-type: none"> <li>- Functional application prototype</li> <li>- Reliable campus navigation</li> <li>- Easily accessible important contact information</li> </ul>
<b>Involvement</b>	Demographic which the application is developed for.
<b>Deliverables</b>	N/A
<b>Comments / Issues</b>	None

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## 3.6.2 Visitors with Movement Impairments

<b>Representative</b>	UTD Officials and Team Whoosh
<b>Description</b>	Visitors who are new and/or are unfamiliar with the UTD campus who require assistance with campus navigation.
<b>Type</b>	- Casual Users
<b>Responsibilities</b>	- Providing user feedback
<b>Success Criteria</b>	- Functional application prototype - Reliable campus navigation - Easily accessible important contact information
<b>Involvement</b>	Demographic which the application is developed for.
<b>Deliverables</b>	N/A
<b>Comments / Issues</b>	None

## 3.6.3 Personal Assistants

<b>Representative</b>	UTD Officials and Team Whoosh
<b>Description</b>	Assistants attending to those with movement impairments.
<b>Type</b>	- Casual Users
<b>Responsibilities</b>	- Providing user feedback
<b>Success Criteria</b>	- Functional application prototype - Reliable campus navigation - Easily accessible important contact information
<b>Involvement</b>	Demographic which the application is developed for.
<b>Deliverables</b>	N/A
<b>Comments / Issues</b>	None

## 3.7 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
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Movement Friendly Campus Navigation	High	Real-Time movement tracking not feasible with campus navigation	Manual navigation via maps and verbal direction	Navigation via GPS tracking with easily understood User Interface
Information for Student Accessibility	Medium-High	Information must be kept up-to-date	Finding information on school site via search engine	Gathering important contact information and providing it with the application

## 4. Product Overview

### 4.1 Product Perspective

The Whoosh Application is a standalone product that at most utilizes the GPS capabilities available in almost all current smart-phones. Whoosh is created by University of Texas at Dallas students for those at the University of Texas at Dallas, hence the application's utilization focuses on the university's campus. No other application currently exists to provide the same features. Users can download and run the application on their Android-compatible devices. When the application is downloaded and installed, users can select from several of the features provided by the Whoosh application to help improve their experience at the University of Texas at Dallas.

### 4.2 Summary of Capabilities

**Table 4-1 Whoosh Application**

Customer Benefit	Supporting Features
Users can easily find their way around campus	Point to point navigation with several options to selection start points and destinations.
Users can find their location on campus	Locate user via GPS technology to approximate their location
Users have convenient access to important campus and contact information	Directory with building information and contact information along with quick buttons to email or call those of interest.

### 4.3 Assumptions and Dependencies

Just like other navigation applications available in the market, Whoosh relies on a data connection for several of its features. Hence, users will need to have an Internet connection via either mobile data or wireless Internet to use Whoosh. This also assumes that the user's device will have GPS capability.

As previously mentioned, Whoosh is currently being developed for the Android platform. While an iOS version is anticipated for release, it is assumed that the first wave of users will be on Android devices.

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## **4.4 Cost and Pricing**

The price of the smart phone application will be free. We believe it should be accessible to all. Our project has not incurred any costs, as the work has been done by students for a class project. We do not foresee a cost constraint on distributing it on the Android App Store.

## **4.5 Licensing and Installation**

The application will be installed by the user like a typical smart phone application. At this time, there is no personal accounts, and thus no password security.

## **5. Product Features**

### **5.1 Campus Locate**

The Campus Locate feature allows for the application to locate the user on the UTD campus. This allows the user to determine which building that they are closest to and begin the navigation from there. In Fig 5.1. we see a cross-hair denoted button, that upon press, will navigate the application over to the user's current location.

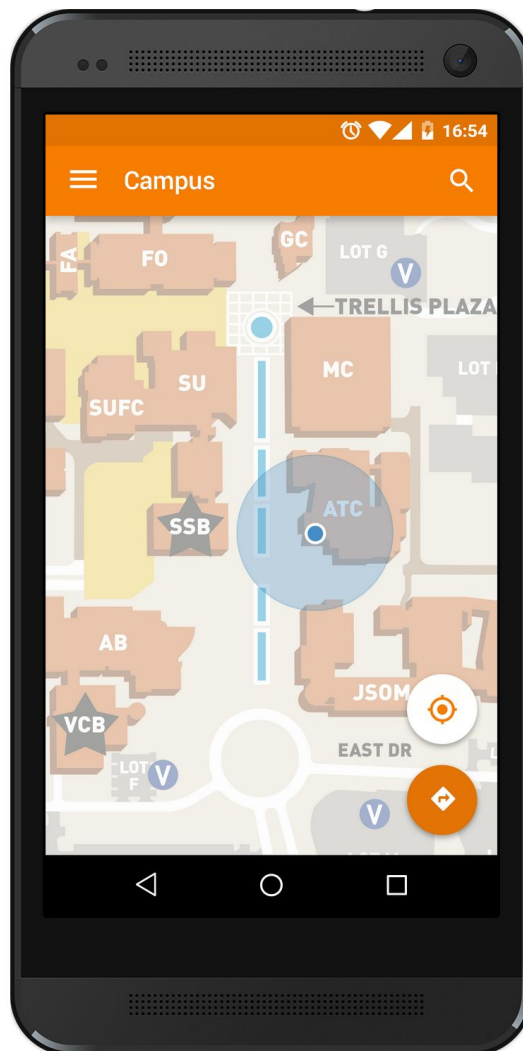


Fig 5.1 - Campus Locate and Campus Browse

## 5.2 Campus Browse

The Campus Browse is a simple feature that takes place on the same screen as the Campus Locate feature. This feature allows users to drag around and observe the UTD campus map. From the map, users can select indicated buildings to view information and set as a travel destination.

## 5.3 Campus Search

The campus search feature allows student to type in the name or common abbreviation of a building to find it on campus map. From there, the user can set it as a point of navigation, view information about building, and more. The image for the prototype of the campus search is seen in Fig 5.2.

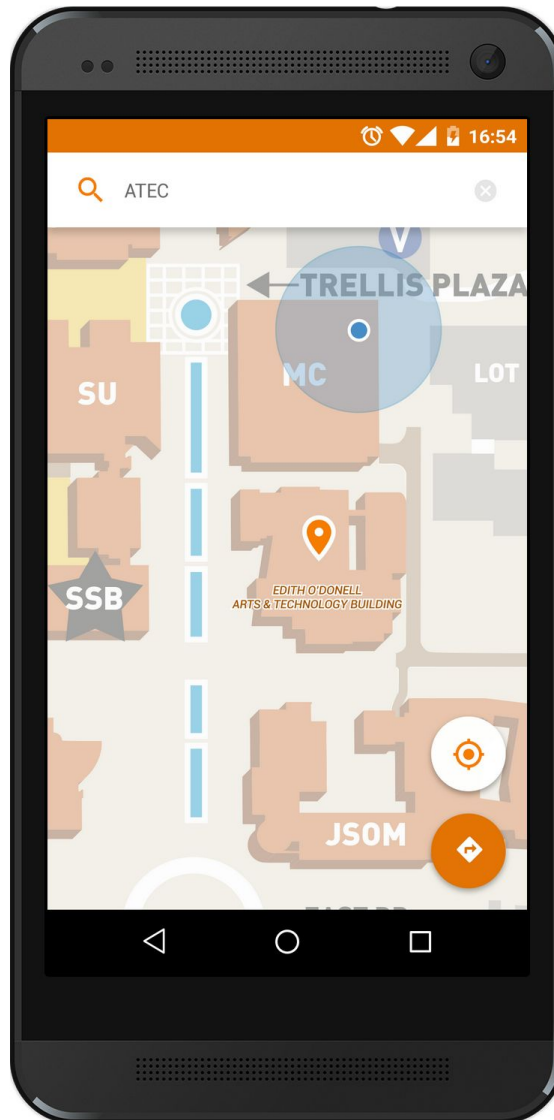


Fig 5.2 - Campus Search

#### 5.4 Campus Navigation

Campus Navigation is the heart of the Whoosh application. After a user specifies a starting point (usually their current location) and an end point, they can confirm and begin navigation. Here, the app will provide easy to follow instructions with simple graphics to help guide the user. Fig 5.3 shows the current prototype for confirming the navigational route from SSB to the ATEC Building.

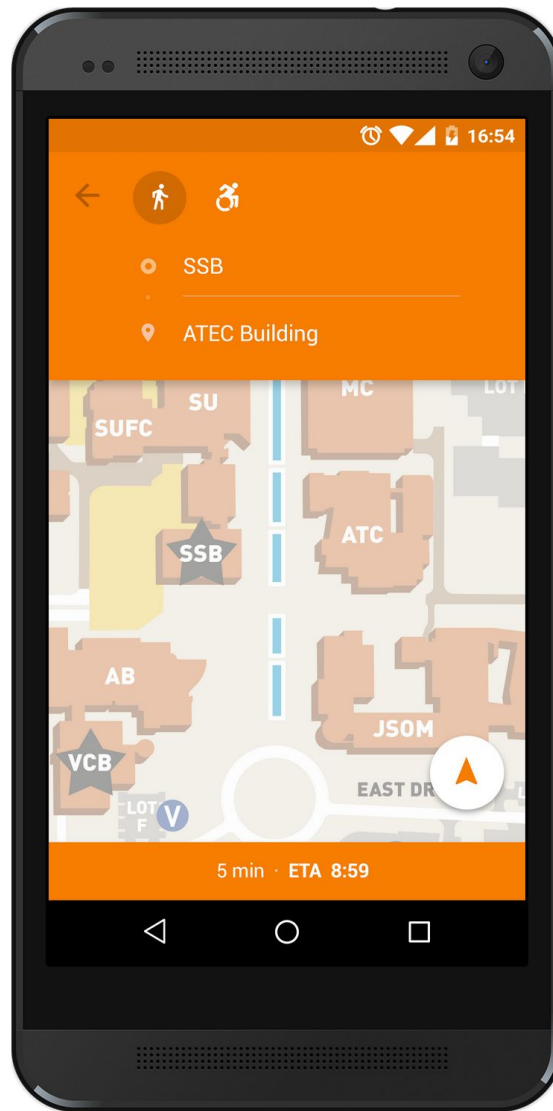


Fig 5.3 - Campus Navigation

## 5.5 Campus Directory

The Campus Directory feature allows users to view a collection of important information concerning campus accessibility and more. From the directory menu, students will have the option of calling or emails a person of interest. Fig 5.4 shows the prototype's current version of this feature.

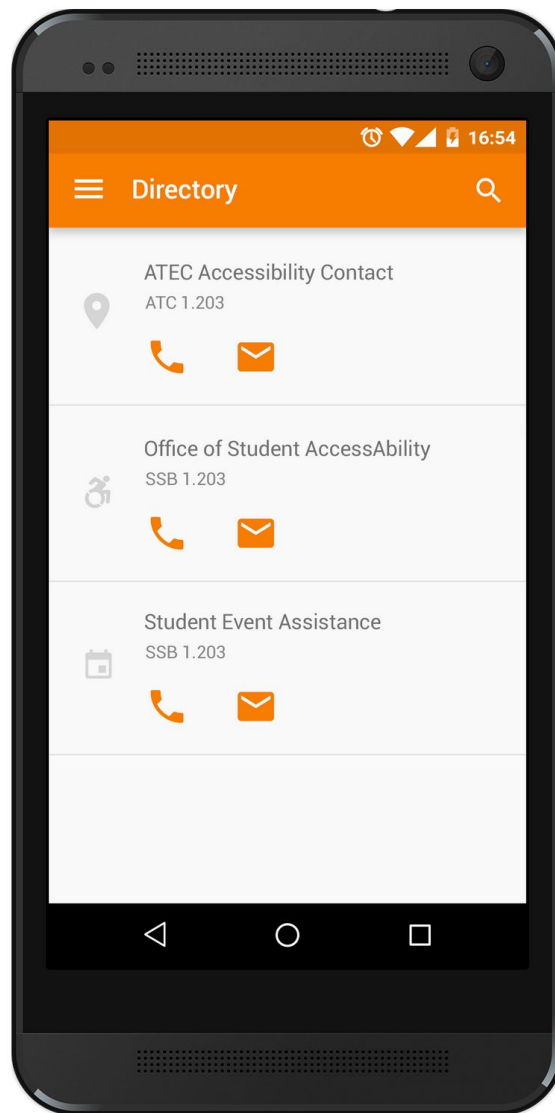


Fig 5.4 - Campus Directory

## 6. Constraints

An Internet connection will be required for the application to determine a route navigation. Floor plans may be browsed without an Internet connection.

Current GPS technology also does not allow for real-time GPS tracking on the campus. Instead, the prototype will feature turn by turn directions for the user to follow.



## 7. Precedence and Priority

The following features are listed from high priority to lowest priority:

1. Campus Navigation
2. Campus Search and Campus Locate
3. Campus Directory
4. Campus Browse

Our rationale is that the Campus Navigation feature has the highest priority over other features as it's the primary focus of the Whoosh Project. Once the feature is completed, it is important for users to find out where they are and where it is they need to go. Hence, the search and locate features are the next most important to implement. After completing the aforementioned items, completing campus directory is the next feature of interest as it is important for users to be able to view important contact information. The campus browse feature is saved for last, as it's more of a cosmetic feature.

## 8. Other Product Requirements

Certain System and Performance requirements have previously been unidentified as Non-Functional Requirements. In such cases, the sections below will reference those requirements for traceability. Where such requirements have not previously been established, a more thorough discussion will follow.

### 8.1 System Requirements

An Android mobile device is presumed and required to run the Application. The device must be running Android operating system version 4.3 (Jelly Bean) or newer.

The Application requires an active data connection at certain phases of execution; these requirements are outlined as part of the following Non-functional Requirement specification: *the application shall require a data connection only during start-up, thereafter making all functionality available offline (NFR1).*

### 8.2 Performance Requirements

Performance requirements in the context of the end-user's device are outlined as part of the Non-functional Requirement Specification: *the application shall provide navigation results within 5 seconds of complete and valid user input (NFR4).*

An OTS solution called Parse has been chosen for the back-end platform. This cloud-based solution has a Service Level Agreement (SLA) that is necessary and sufficient to satisfy projected concurrent load.

### 8.3 Environmental Requirements

The Application shall utilize standard Android error reporting frameworks to communicate information about unexpected execution results (such as unhandled exceptions).

## 9. Documentation Requirements

### 9.1 User Manual

None. The application is self-explanatory.

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## 9.2 Online Help

Any updates or information regarding the Whoosh application be found online at:

<http://utdwhoosh.github.io>

## 9.3 Installation Guides, Configuration, and Read Me File

Like most other Android applications, installation of Whoosh is automatic and will work without needing any prior setup.

## 9.4 Labeling and Packaging

As we do not have a tangible product, we will not have product packaging. We will need to create an application icon that will be displayed in the Google Play store and on a phone that has downloaded the application. We will consistently use our Whoosh icon to maintain our team's image.