
whoosh 

— Presented by Team Whoosh —

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As-is Scenario

- Scenario: Jimmy is starting out college and has a wheelchair. He is unfamiliar with UTD's campus and looks for his classes on a map. Upon going to his first class, he cannot find an accessible route to the fourth floor of Green. He ends up late to class and is anxious about getting to his next class.



To-Be Scenario

- Scenario: Jimmy downloads the Whoosh app and inputs the classroom number he wants to go to. The application navigates him to his classroom using accessible routes. Jimmy is early to his class and confident about getting to his next class.

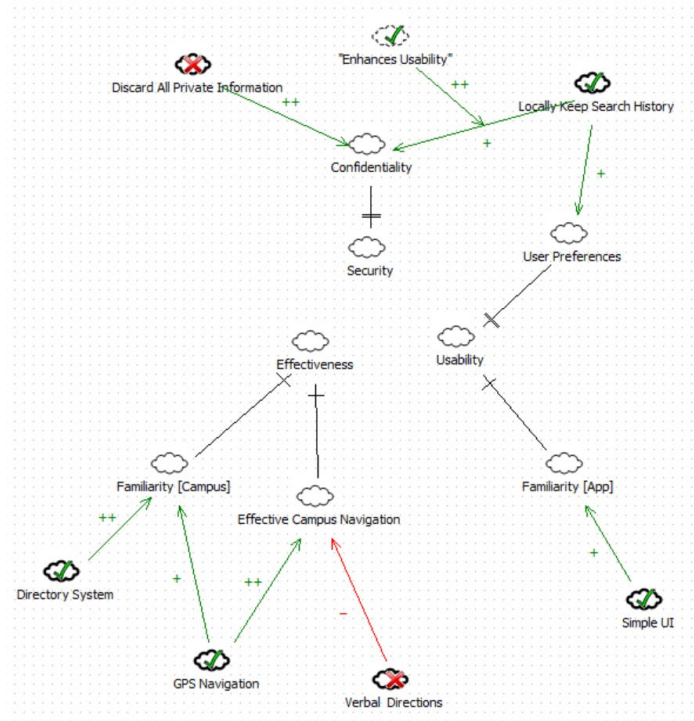


Goals

- To assist disabled people in navigating around campus by providing accessible routes via a smartphone application.
- To provide information about the Office of Student Accessibility.



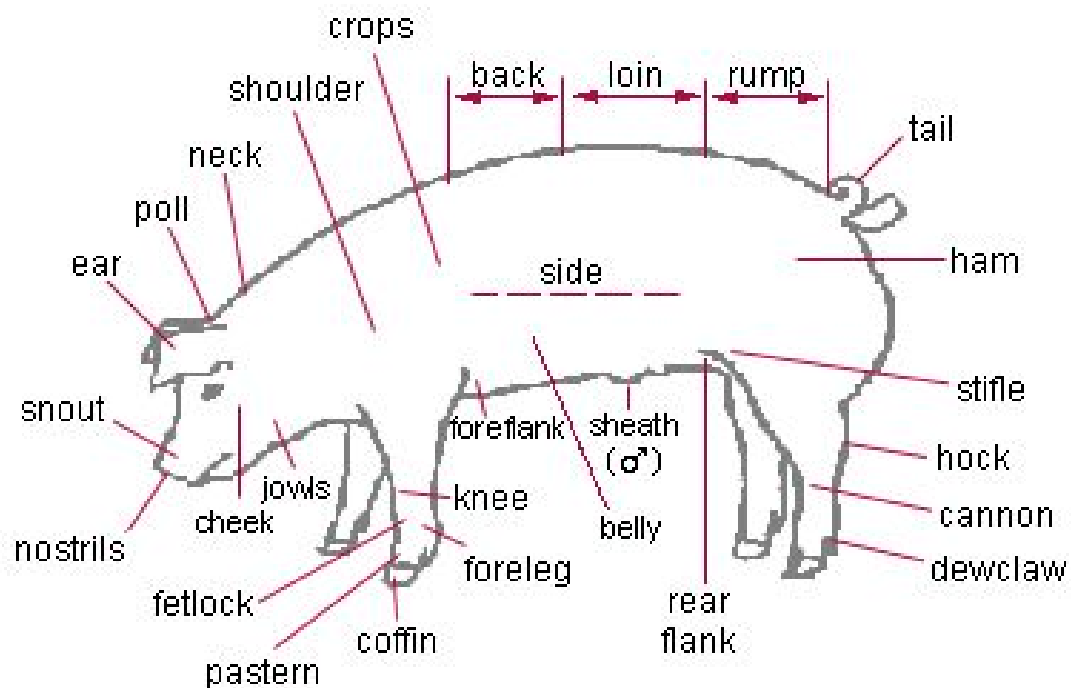
SIG Diagram (goals)



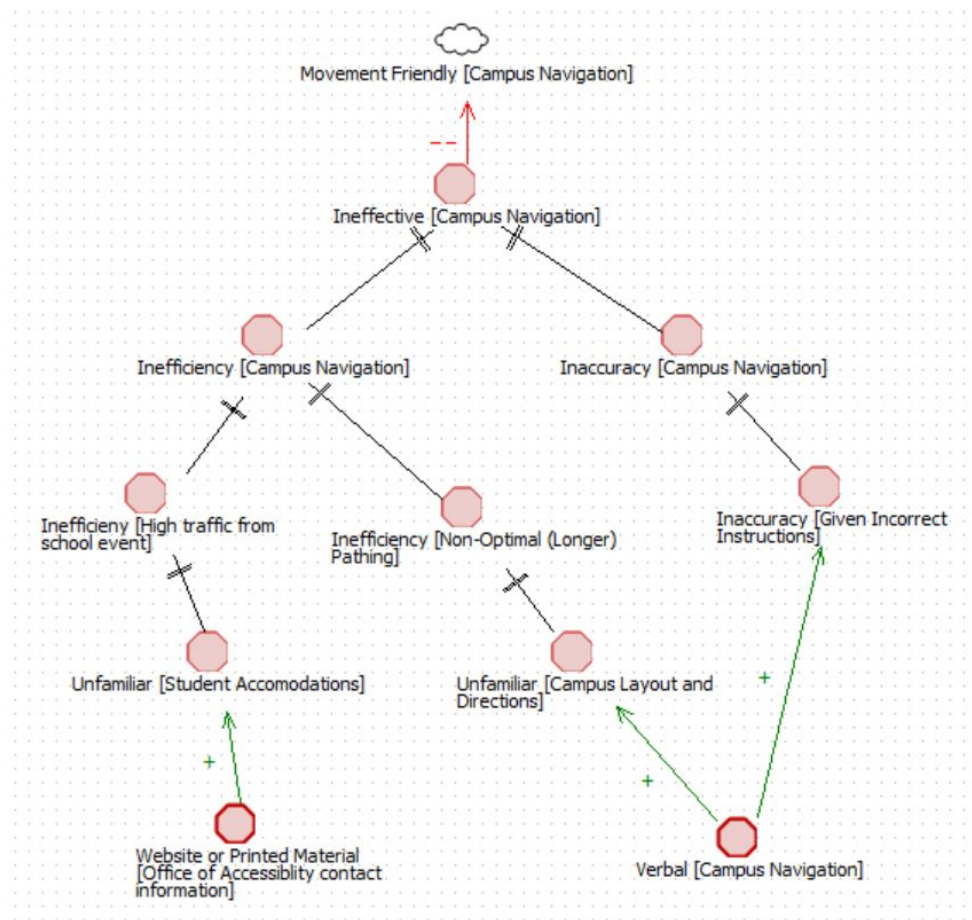
Problem Statement

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>

PIG



PIG



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

Stakeholders

- University of Texas at Dallas Official
- University of Texas at Dallas Research Team
- Dr. Chung



User profiles

- Students
- Visitors
- Personal Assistants



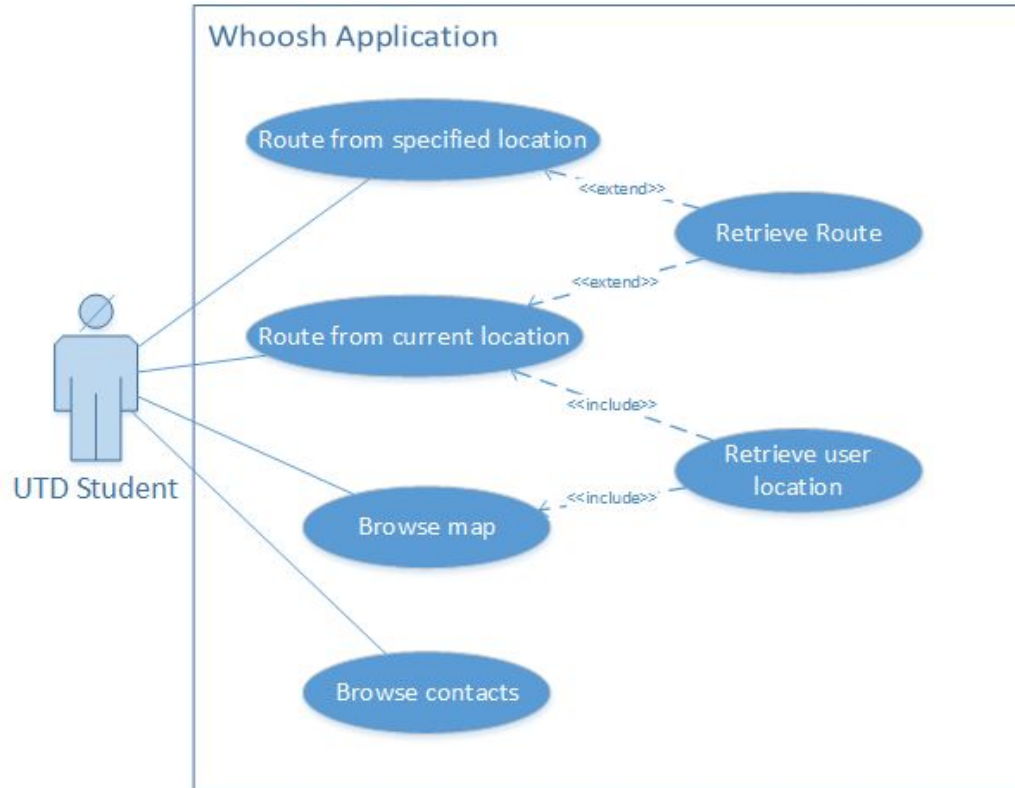
Functional Requirements

FR ID	FR Description
FR1	The user shall be able to browse a map of the UTD's Central Campus.
FR2	The user shall be able to select the ATEC or SSB building when browsing UTD's Central Campus.
FR3	The user shall be able to select Student-Important location as a start/end location while browsing the floor plans.
FR4	The application shall be able to detect the user's location to the best of the ability of the underlying Android system.
FR5	The user shall be able to search a database of Student-Important locations, and select a particular result to navigate to.
FR6	The application shall be able to return a set of navigational instructions for a start and end point specified by the user.
FR6.a	The route shall be calculated in such a way as to include only movement-friendly steps.

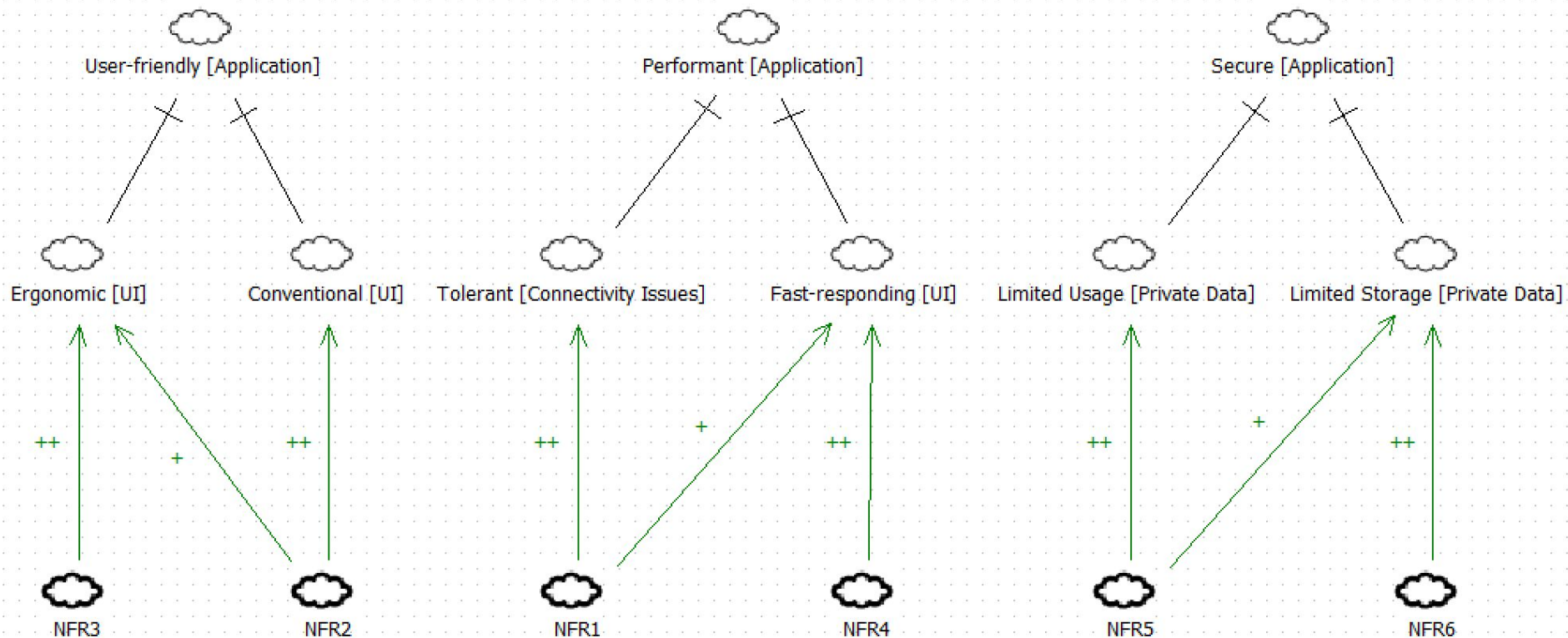
Functional Requirements

FR ID	FR Description
FR6.b	The route shall be calculated such that all intermediate steps are feasible for navigation.
FR6.c	The route shall be calculated in such a way as to optimize the estimated amount of time to navigate it.
FR7	The application shall feature a section providing information and the ability to contact Student Services, the Office of Student Accessibility, and other people of interest.
FR8	The application shall provide an interface to display a set of navigational instructions produced in accordance with FR6.
FR8.a	Each step shall correspond to a geographical point of interest on the calculated route.
FR8.b	Each step shall provide a time and distance estimate to the following step.
FR8.c	Each step shall provide a time and distance estimate to the following step.
FR8.d	When the user selects the next or previous step, the interface shall bring the corresponding geographic point into focus on a moving floor plan map.

Use Case Diagram



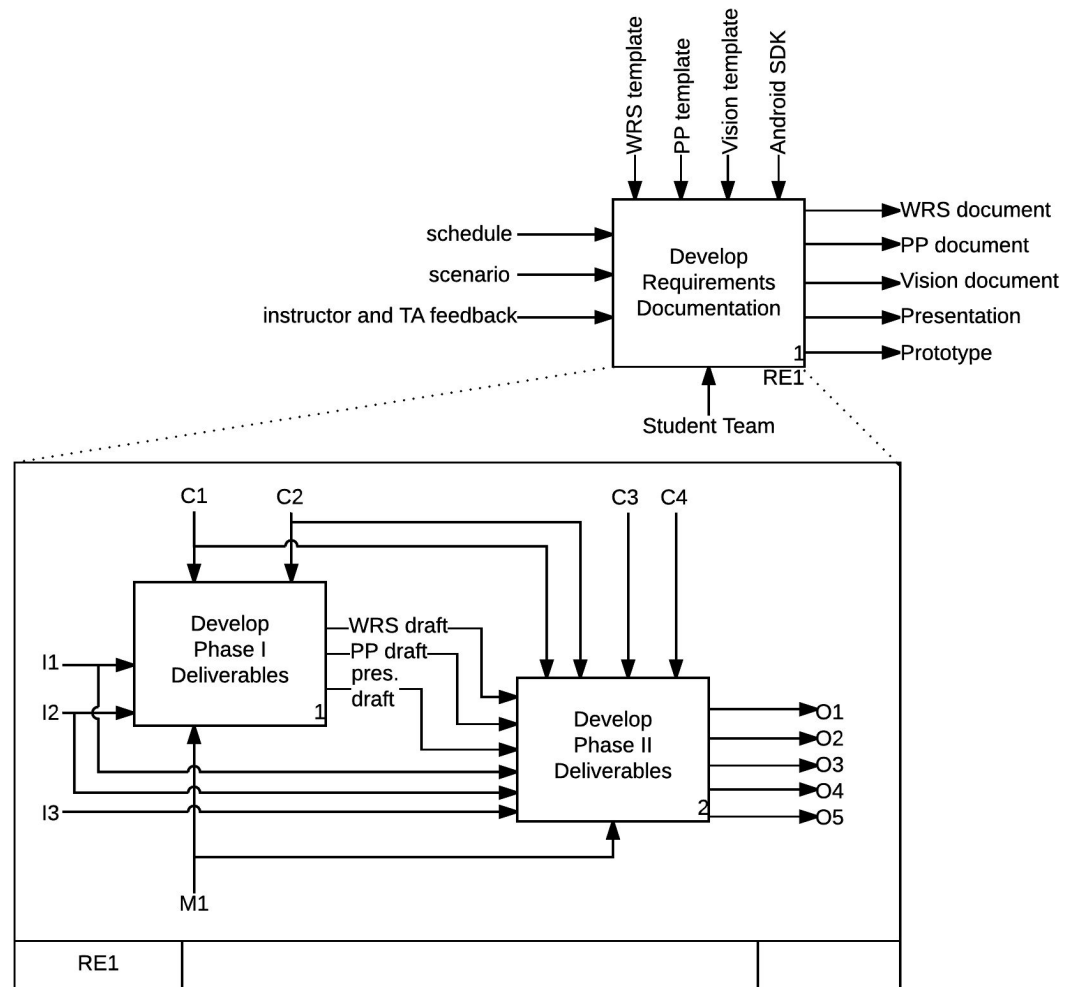
SIG - Product NFR's



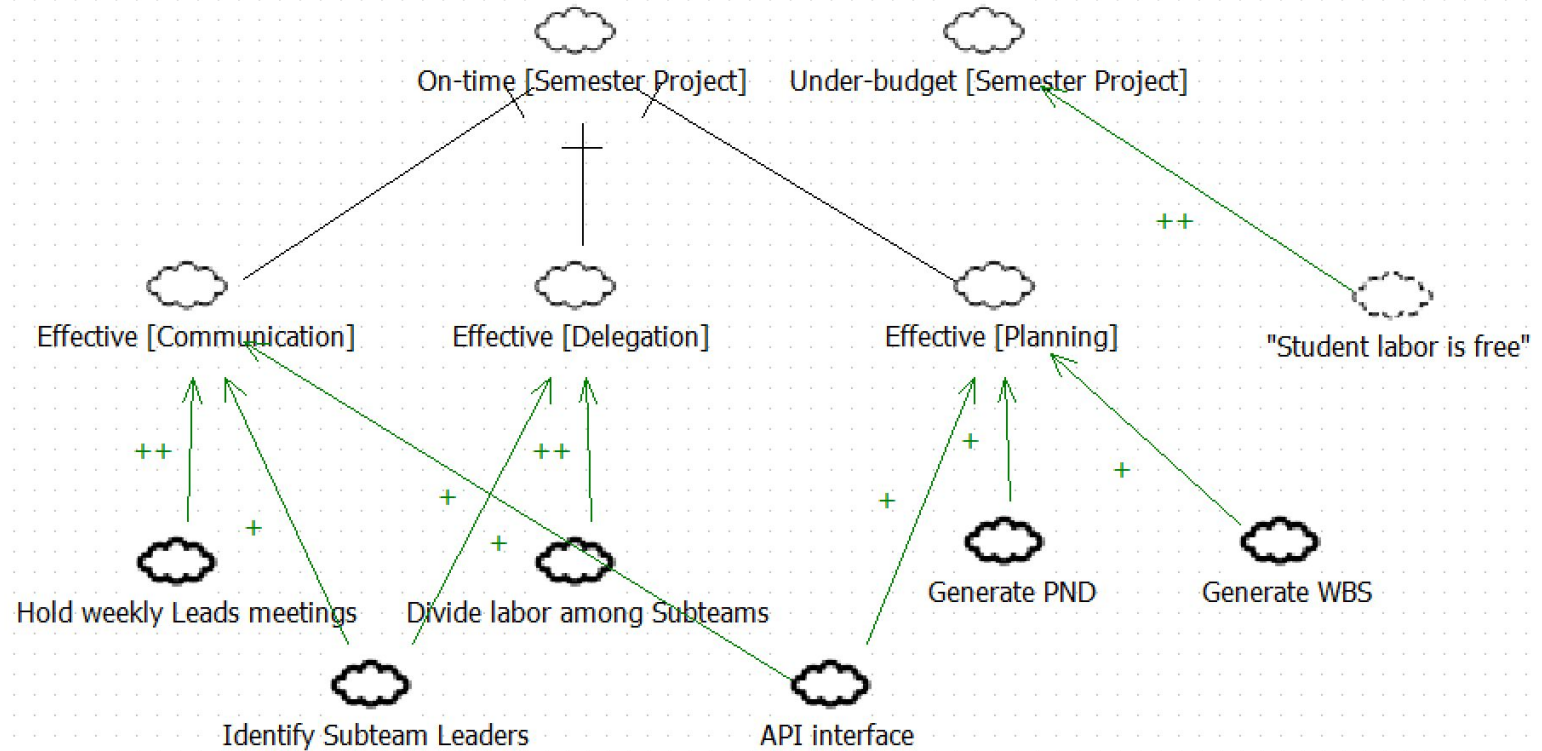
Product NFR's

NFR ID	NFR Description
NFR1	The application shall require a data connection only during start-up, thereafter making all functionality available offline.
NFR2	The application UI shall be designed in such a way as to enable a user already familiar with Google and Apple Maps mobile applications to make use of its primary features without additional instructions.
NFR3	The application UI shall be designed in such a way as to enable single-handed operation.
NFR4	The application shall provide navigation results within 5 seconds of complete and valid user input.
NFR5	The application shall limit representation of user-input data, such as search terms and routing destinations, to local device memory and storage.
NFR6	The application shall limit usage of user-input data, such as search terms and routing destinations, to map browsing and navigation functionality.

IDEFO - Process FR's



SIG - Process NFR's



Scope Changes

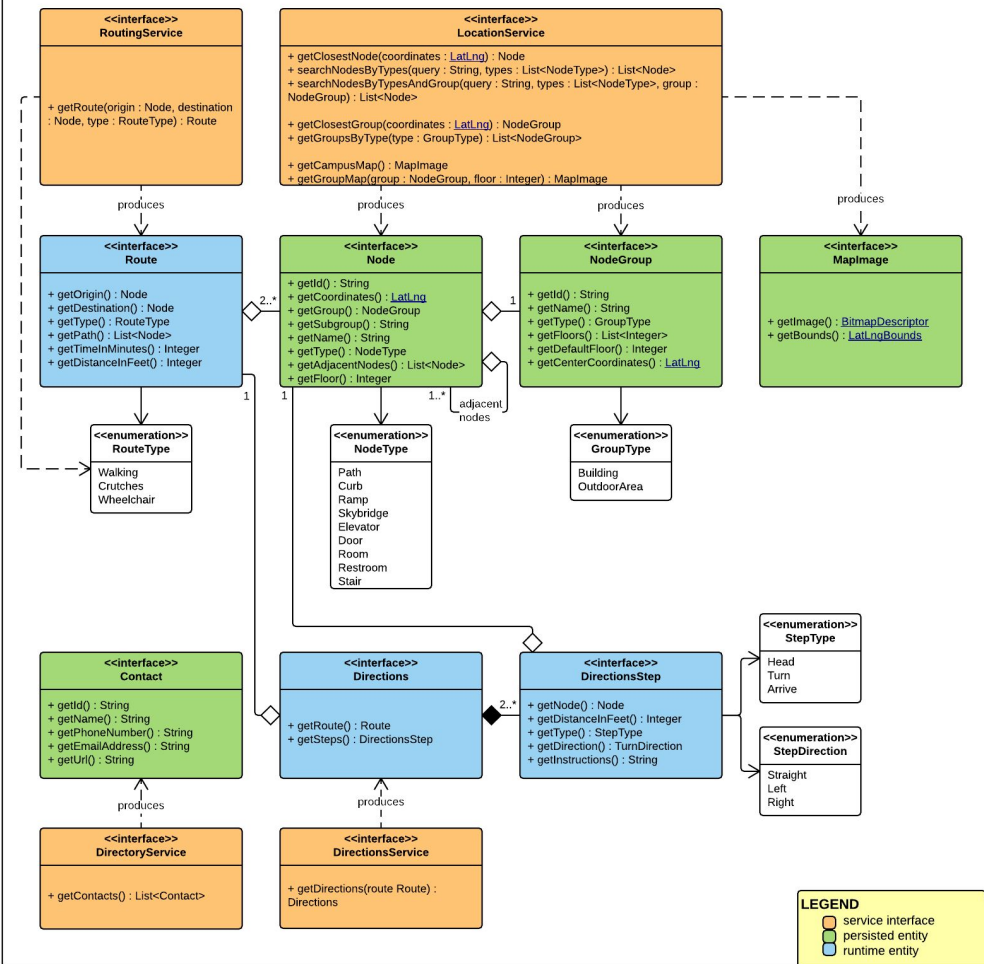
Past

- Primary Use Cases
 - navigate between two known points on campus using accessible routes
 - navigate between current location on campus and another known point
 - browse campus map and building floor plans with accessibility markers
 - browse contact information for OSA
- Constraints
 - Implement as Android smartphone application
 - proof of concept limited to ATEC and SSB buildings

Present

- Primary Use Cases
 - navigate between two known points on campus using accessible routes **Navigation is not with human directions**
 - navigate between current location on campus and another known point
 - browse campus map and building floor plans with accessibility markers
 - browse contact information for OSA
- Constraints
 - Implement as Android smartphone application
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Classes



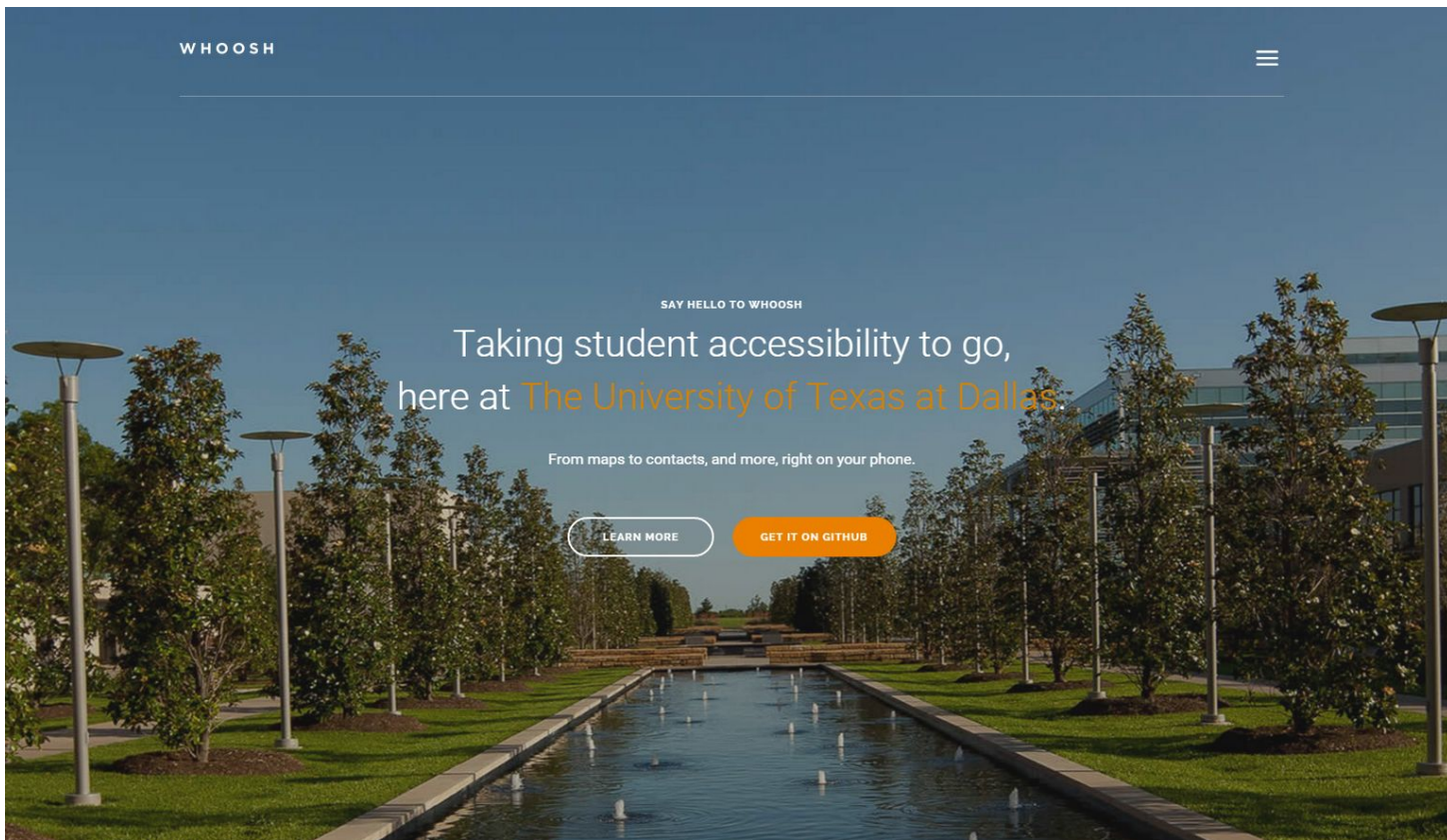
Lessons Learned

- Manual entry of nodes resulted in some errors not caught until testing navigation
- Group learning session for Android may have been more helpful than learning individually
- Initial assessment of team members strengths should be performed before assigning tasks

Possible Future Enhancements

- Include entire UT Dallas campus
- User profiles
 - Allow user to add data for locations (ex: comment on accessibility, pictures of route, etc)
 - Allow user to save frequent routes or locations
- Expanding to accessible bathrooms and parking spots
- Real-time routing with step-by-step human directions
- Hide path segments that are above/below the current floor
- Customizable contacts list

Demo



References

- <http://www.lambertconsultinggroup.com/PDUDescription.aspx?t=94>
- <http://www.adsitsolutions.com/images/home-user-family.jpg>