

Application Requirements

for the TUMap application

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1. System Overview

TUmap is a highly customized campus specific Android application that aims to ease navigation around campus for new students and guests. It will be Android based and levy Google Maps API for routing and an open source mapping toolkit for our custom map. The interface will include a simple drop down menu of buildings on campus. Once a building is selected, a user's location will be automatically polled and a route will be traced to their destination. As the user moves, the phone will update the GPS location and the route if necessary.

2. Document Overview

The purpose of this document is to provide a detailed description of the requirements for running the application, both functional and non-functional. It also outlines the major functions, or use cases, for reference by the user.

3. Top Level Requirements

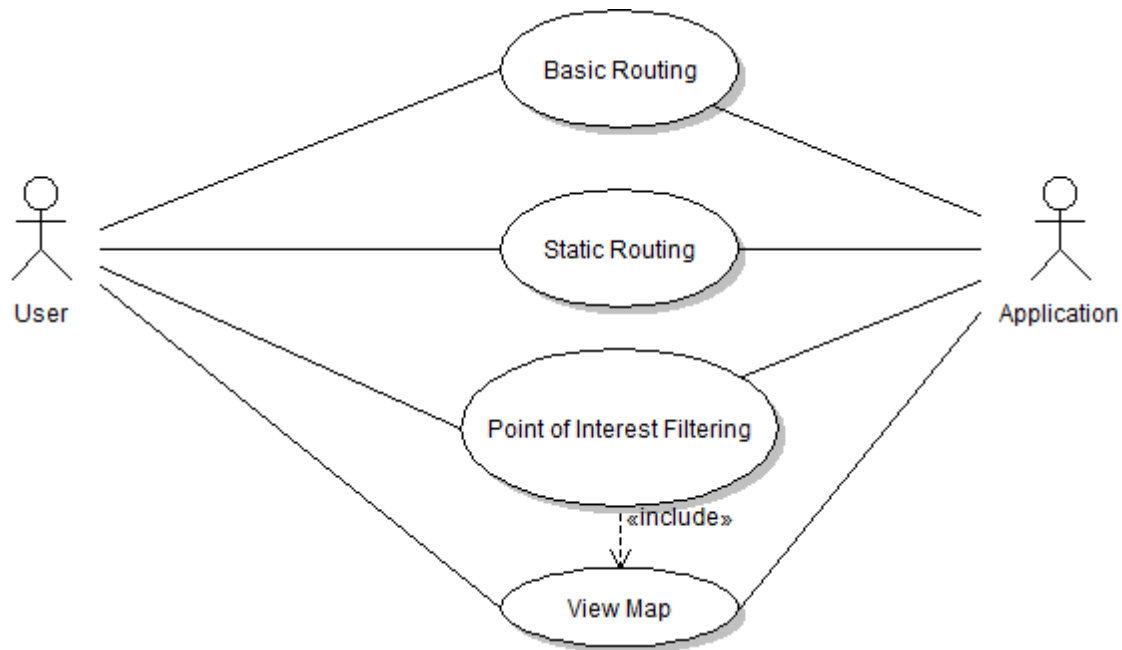
This application only requires four things

- 1 The user must be running Android 3.0 or better on their smart phone
- 2 They must be capable of providing location with GPS
- 3 They must have adequate space on their phone to install
- 4 They must be on Temple Campus to run it

4. Non Functional Requirements

The only non-functional requirement planned is to have the map and route display in a generally fast manner as well as have the application re-route a deviated course in as close to real time as possible.

5. Use Case Diagram



6. Use Cases

Use Case TUM1: Basic Routing

1. Description

This use case outlines the basic functionality of the app in a best case scenario

2. Primary Actor

Temple University student or guest

3. Preconditions

This use case assumes the user's phone is running android 3.3, is functioning and able to receive data/GPS locations, and the user is on campus.

4. Postconditions

The user reaches their desired destination, application waits for new input

5. Flow

1. User selects application from app library
2. Welcome screen activity is loaded
3. Map is displayed
4. User has three options for initiating routing
 - a. Tap and hold a location to select as end destination
 - b. Tap location to get building information chose *"use as destination"* on pop-up
 - c. Tap phone's menu button to bring up menu dialogue, choose end destination (G.P.S. Location is used by default)
5. Shortest route is calculated from user's current position to their destination
6. Map of campus is shown and a route is traced from their current position to their destination.
 - a. If user deviates from route, see extension 6a
 - b. If user wishes to select a new route, see extension 6b
7. Route is updated as user follows
8. Destination is reached, route is deactivated
9. Return to step 3.

6. Extensions

6a. User has deviated from course and needs to be rerouted

- 1 Application detects user has deviated from course by comparing current position to current route
- 2 Notifies user it is re-routing based on new position
- 3 Polls current position of user and their destination, recalculates shortest distance to destination
- 4 Resume at step 7 of use case 1

6b User wishes to select an entirely new route while there is already one displayed

- 1 User presses the menu button on their phone while the application is running
- 2 From the options list, select new route
- 3 Initial route activity is displayed
- 4 Destination is selected from drop down list
- 5 Current route is cancelled
- 6 Resume at step 5 of use case TUM1

Use Case TUM2: Static Routing

1. Description

This use case outlines routing between a selected start point and end point, ignoring GPS input

2. Primary Actor

Temple University student or guest

3. Preconditions

This use case assumes the user's smart-phone is running Android 3.3, the device is functioning properly, the application is installed and the user is on Temple Campus.

4. Post Conditions

The user reaches their desired destination, application waits for new input

5. Process flow

1. User selects application from app library
2. Welcome screen activity is loaded
3. Map is displayed
4. User has two options for initiating static routing
 - a. Tap a building and select "*Use as starting point*" for beginning point, tap a second building and select "*Use as destination*" from pop-up
 - b. Tap the phone's menu button to bring up the menu, set the start and end points in the menu fields
5. Optimal route is calculated between both points
6. Map of campus is shown and route is traced between start and end destination
 - a. If user wishes to select new route, see extension 6a
7. Once user reaches destination, menu is clicked and "Clear Map" option is selected to clear the current route

6. Extensions

6a User wishes to select an entirely new route while there is already one displayed

1. User presses the menu button on their phone while the application is running
2. From the options list, select new route
3. Initial route activity is displayed
4. Start and end destinations are entered into their respective fields
5. Current route is cancelled
6. Resume at step 6 of use case TUM2

Use Case TUM3: Point of Interest filtering

1. Description

This use case outlines how to hide or show points of interest on the campus map

2. Primary Actor

Temple University student or guest

3. Preconditions

This use case assumes the user's smart-phone is running Android 3.3, the device is functioning properly, the applications is installed and open to the map, and the user is on Temple Campus.

4. Post Conditions

The points of interest on the map are hidden or shown

5. Process flow

1. User performs case TUM4
2. User taps the menu button
3. From the options shown, select "Filter"
4. A dialogue box is then displayed
5. From the dialogue box, user selects the points of interest they want displayed or hidden from the check boxes shown

6. Extensions

This use case has no extensions

Use Case TUM4: View Map

1. Description

This use case outlines how to view the map without routing

2. Primary Actor

Temple University student or guest

3. Preconditions

This use case assumes the user's smart-phone is running Android 3.3, the device is functioning properly, the application is installed and the user is on Temple Campus.

4. Post Conditions

The user is able to view and manipulate the map

5. Process Flow

1. User opens application
2. Map is displayed
 - a. See extension 4.a for zooming
 - b. See extension 4.b for panning

6. Extensions

4a User wishes to zoom on a point

1. User centers the location in the display
2. Press two fingers together and place them on the location
3. Pull them apart to zoom out
4. Press them together to zoom in

4b User wishes to move the view of the map (pan)

1. User places a finger on the screen within the displayed map
2. Keeping the finger touching the screen, the user drags their finger and the map is moved accordingly

7. Glossary

1. GPS – Global positioning system
2. Activity – Current state of the application