

# Software Requirements Specification

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# 1 Introduction

## 1.1 Purpose

## 1.2 Scope

## 1.3 Definitions, Acronyms and Abbreviations

## 1.4 References

## 1.5 Overview

# 2 Overall Description

## 2.1 Product Perspective

## 2.2 Product Function

## 2.3 User Characteristics

## 2.4 Constraints

## 2.5 Assumptions and Dependencies

# 3 Specific Requirements

This section expands on the functional requirements of the system. It gives a detailed description of the system and all of its use cases.

## 3.1 External Interface Requirements

## 3.2 Functional Requirements

This section includes all functional requirements in detail. It includes all use case diagrams, Actor-System interaction diagrams as well as a traceability matrix.

### 3.2.1 Use cases

#### 1. Navigation Subsystem

##### 1.1. Get current location

- i. **Description:** The NavUP system must be able to determine a users location at any point in time while the user is on the Hatfield campus. The location must be determined regardless of whether the user is indoors or outdoors.
- ii. **Precondition:** The user must have an active account and must be within range of WiFi routers.
- iii. **Postcondition:** The users location is determined and displayed.

#### 1.2. Search location

- i. **Description:** The NavUP system must provide functionality that enables a user to search for any location (lecture hall, day-house, restaurant) on the Hatfield Campus.
- ii. **Precondition:** The user must have an active account
- iii. **Postcondition:** Matching locations are returned to the user. If no buildings match the search criteria, an appropriate error message is displayed.

#### 1.3. View location details

- i. **Description:** The NavUP system must allow users to view details related to specific locations. This could include restaurant menus, lecture hall timetable schedules as well as images of the buildings.
- ii. **Precondition:** The user must have an active account and a valid location must be selected on the map.
- iii. **Postcondition:** Relevant location details shown to user.

#### 1.4. View places of interest

- i. **Description:** The NavUP system must be able to display places of interests to a user based on their current location. This will include places like restaurants and day-houses that must be displayed in a list form.
- ii. **Precondition:** The user must have an active account and their current location must be known.
- iii. **Postcondition:** Relevant places of interest are listed and displayed to the user based on their location.

#### 1.5. Navigate to location

- i. **Description:** The NavUP system must be able to provide directions and navigate to a location given the users current location as well as a desired destination. The system should calculate the most optimal route by looking at the shortest path as well as pedestrian traffic.
- ii. **Precondition:** The user must have an active account. The users current location must be known and the must have specified a destination through the search interface.
- iii. **Postcondition:** The user is provided with directions from their current location to their desired destination.

#### 1.6. Show pedestrian traffic

- i. **Description:** The NavUP system must be able to display pedestrian traffic on campus in the form of a heatmap. When navigating to a specified location, the system must show traffic on that specific route. A user should also be able to view an overall heatmap of the campus to see traffic.
- ii. **Precondition:** Users must all have the NavUP app installed and must be registered in order for them to show up on the heatmap.
- iii. **Postcondition:** A heatmap of the campus is displayed.

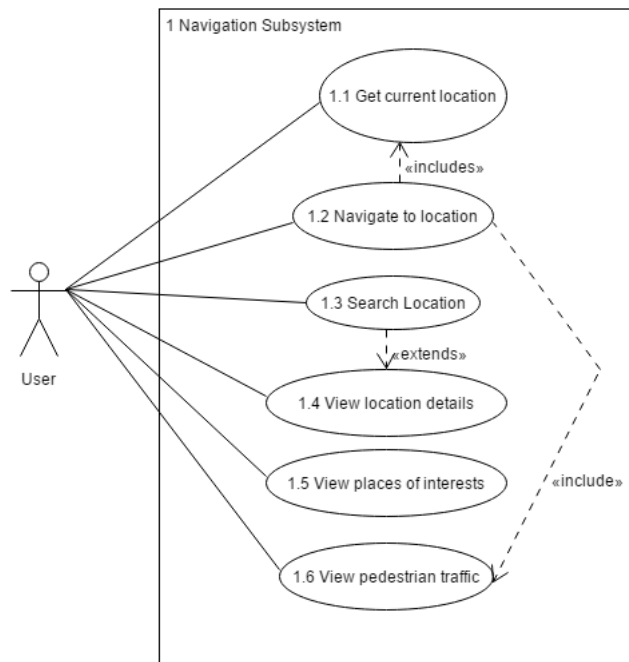


Figure 1: Navigation Subsystem

- 2. Location Management Subsystem
- 3. User Account Management Subsystem
- 4. Entertainment Subsystem
- 5. Achievements Subsystem
- 6. Administration Subsystem

- 3.3 Performance Requirements**
- 3.4 Design Constraints**
- 3.5 Software System Attributes**
- 3.6 Other Requirements**