Campus Companion

Team 10

Ernesto Espinoza, Farah Jaber, John Dyer

# Software Requirements Specification Document

**Version: (1)**                                                     **Date: (10/07/2024)**

# Table of Contents

# 1 Purpose

**Background information**

Starting college can be overwhelming, especially when students don't know their way around campus. While CSUSM already offers an app, it falls short in helping students with everyday needs like finding bathrooms, hydration stations, or event locations. This is where **Campus Companion** steps in, designed specifically to address these gaps.

**Campus Companion** aims to help students navigate campus effortlessly by providing directions to the nearest bathrooms, hydration stations, and events. Unlike the current CSUSM app, which focuses on general campus information, **Campus Companio**n specializes in offering real-time updates and details like restroom availability, cleanliness ratings, and accessibility, creating a more personalized and practical experience for students.

Why a New System is Needed

Although the CSUSM app provides basic information about campus, it lacks the specialized, real-time features that students need for everyday campus life. Here's why **Campus Companion** is necessary:

- No Real-Time Updates on Facilities: The existing CSUSM app does not provide updates on bathroom availability or cleanliness, leading to inconvenient and sometimes frustrating experiences for students. **Campus Companion** solves this by giving live information on nearby facilities.
- Navigational Challenges for New Students: Given the constant influx of new freshmen and transfer students, many new students find it hard to locate key spots like bathrooms, hydration stations, and event venues. **Campus Companion** simplifies this with precise, step-by-step directions, making the campus feel more accessible.
- Lack of Event Awareness and Navigation: While CSUSM's app lists some events, it doesn't focus on guiding students to them or providing detailed information. **Campus Companion** highlights school events and their exact locations and ensures students never miss out again.

**Objectives of Campus Companion**

The main goal of **Campus Companion** is to provide a more connected and informed campus experience. Here's what we aim to achieve:

- Improve Campus Navigation: **Campus Companion** will offer clear, real-time directions to bathrooms, hydration stations, and event locations, making it easier for students to find what they need.

- Provide Real-Time Facility Information: The app will include live updates on bathroom stall availability, cleanliness, and accessibility, ensuring students can make informed choices without wasting time.
- Boost Event Engagement: **Campus Companion** will ensure students are aware of all school events, providing details and directions, so they can easily join in and feel more connected to their campus.
- Focus on User Experience: We want **Campus Companion** to be intuitive and easy to use, offering a friendly, student-centric experience that fills the gaps left by the existing CSUSM app

## 2 Scope

**System Name:** Campus Companion
**Goals of Campus Companion:**

**Campus Companion** aims to enhance the daily lives of CSUSM students by providing a comprehensive, real-time navigation and campus resource tool. The software is designed to address specific issues faced by students, focusing on accessibility, convenience, and engagement. The main goals of the software include:

- Simplify Campus Navigation: **Campus Companion** will guide students to key locations on campus, such as bathrooms, hydration stations, and event venues, using precise GPS-based directions.
- Provide Real-Time Facility Updates: Students will receive live information on the status of facilities, including bathroom stall availability, cleanliness ratings, and accessibility options, allowing them to make informed decisions.
- Boost Event Awareness and Attendance: **Campus Companion** will highlight upcoming campus events, providing detailed information and turn-by-turn navigation to event locations, and encouraging student involvement.
- Enhance Accessibility: **Campus Companion** will feature routes and information tailored for students with disabilities, ensuring everyone can navigate campus easily.
- Offer a User-Friendly Experience: Designed with students in mind, **Campus Companion** will prioritize ease of use with intuitive navigation, customizable notifications, and personalized recommendations.

**Application and Potential Benefits** of Campus Companion

**Campus Companion** will be a mobile application available for both iOS and Android devices, integrating GPS navigation, real-time data feeds, and user input to deliver a seamless campus experience. Here's how the app will be applied and the potential benefits:

- Real-Time Navigation Assistance:

    Application: Using the student's location, **Campus Companion** will provide real-time directions to the nearest bathrooms, hydration stations, and events. It will offer multiple route options, including the quickest or most accessible paths.

Benefits: This feature will reduce time spent searching for facilities, alleviate the stress of getting lost, and help new students adapt quickly to campus life.

- Detailed Facility Information:

    Application: **Campus Companion** will display current information on bathroom conditions, such as which stalls are available, cleanliness ratings submitted by other users, and accessibility details, allowing staff to determine if student needs are being properly met or need to be examined further.

    Benefits: Students can avoid overcrowded or unclean facilities, enhancing their comfort and convenience while on campus.

- Event Discovery and Engagement:

    Application: **Campus Companion** will feature a dedicated section for campus events, showing what's happening, when, and where, along with navigation support to event locations.

    Benefits: By making it easier to find and attend events, the app will help students stay informed and connected, increasing their participation and fostering a sense of community.

- Accessibility Features:

    Application: **Campus Companion** will highlight accessible routes and provide information on facilities suitable for students with disabilities, such as ramps, elevators, and accessible restrooms.

    Benefits: This ensures inclusivity, allowing all students to navigate campus confidently and independently.

- User Feedback Integration:

    Application: Students can provide feedback on the facilities they use, such as rating bathroom cleanliness or event quality, which will be reflected in the app to help other users make better choices.

    Benefits: Continuous feedback helps keep the app's data accurate and relevant, while also encouraging campus management to maintain high standards for facilities and events.

- Several key features:
    - Bathroom ratings
    - Availability
    - Traffic/Active Times

- ○ Hydrostations
- ○ Resource Availability
- ○ Locations
- ○ Accessibility
- ○ Downtime/Maintenance
- Goals:
  - ○ Ability to sort restrooms by cleanliness, distance, et cetera.
  - ○ Allow janitorial staff to address more urgent needs.
  - ○ The ability for club staff to create and post events with related information included.
  - ○ Allow users to rate bathrooms from 1 to 5 stats.

# 3 User characteristics

## 3.1 Key users

**Key users** will be all CSUSM students and staff, focusing on students with physical disabilities and new students/staff (Freshman and transfer students).

**User Role Responsibilities**:

- Use the application to locate resources on campus such as bathrooms, hydrostations, and events.
- Provide feedback on the cleanliness of the bathrooms.
- Utilize the application to view details regarding campus events, and be able to navigate using the app's navigation system.

**Subject Matter Experience:**

*Novice* - New students/staff, including freshman and transfer students, could benefit from the campus navigation system due to their unfamiliarity with the campus layout.

*Journeyman* - Continuing students who enjoy having real-time updates regarding the availability of restrooms, and details of events on campus.

**Technological Experience**: *Journeyman*: The majority of students have had experience with similar applications that also allow the user to view details regarding events and utilize navigation systems, this makes Campus Companion relatively easy and intuitive to the user.

**Physical Disabilities:** Campus Companion will aid those with disabilities in finding accessible bathrooms and navigating through accessible routes.

**Attitude Toward Technology:** The majority of students are familiar with mobile applications and have a positive attitude towards technology.

**Education:** Campus Companion will mostly be used by CSUSM students, hence, they have college-level education.

**Age Group:** The target age group is CSUSM students most of which range between 18 - 25.

## 3.2 Secondary users

**Secondary Users** will be Maintenance, Janitorial Staff, Visitors, and Student Clubs/Organizations.

**Maintenance and janitorial staff:**

**User Role Responsibilities**:

- Announce any issues with restrooms and report when they are unavailable due to being under maintenance.
- Use the software to update the status of the restrooms, this includes maintenance, resources, availability, and cleanliness.

**Subject Matter Experience**: *Journeyman* - Maintenance and Janitorial staff are familiar with facility management systems and can update the status of the restrooms as they see fit.

**Technological Experience**: *Novice* - Campus Companion has a friendly and easy-to-use interface, not requiring a high level of technological expertise.

**Physical Disabilities:** Personnel with disabilities such as mobility issues will be able to use the software as normal since it would be easy and would require little time to update the status of the restrooms.

**Attitude Toward Technology:** The attitude towards technology of the maintenance and janitorial staff varies, which is why the software has a simple user interface.

**Education:** The level of education varies from one person to another, no specific level of education is required to work the app.

**Age Group:** The age of maintenance and janitorial staff widely varies, mostly from the ages of 18 - 65

**Visitors:**

**User Role Responsibilities**:

- Visitors of CSUSM can utilize Campus Companion to locate bathrooms, hydrostations, and events as needed.

**Subject Matter Experience**: *Novice* - Visitors won't have much experience since they are assumed to have never visited the campus or have a very limited familiarity with the campus.

**Technological Experience:** *Novice* - The user interface of Campus Companion is intuitive and easy to use. While most people have used navigational systems before, having high technological expertise is not needed to use Campus Companion.

**Physical Disabilities:** Visitors of CSUSM who have disabilities can benefit from Campus Companions features of locating accessible bathrooms, and navigating to the desired location using accessible routes.

## Student Clubs and Organizations:

**User Role Responsibilities**:

- Upload event information including the time and location of the event, and any other relevant details.
- Keep users updated in real-time in case of any changes in location, time, or cancellation of events.

**Subject Matter Experience**: *Journeyman* - Student clubs and organizations have most likely used social media to promote events. This experience helps utilize Campus Companion effectively.

**Technological Experience**: *Journeyman* - The promoters of student clubs and organizations are familiar with the use of social media to promote their events. This prior experience will make using Campus Companion very easy.

**Attitude Toward Technology:** Promoting events is often done using social media, which is why student organizations and clubs will most likely have a positive attitude towards technology.

**Education:** Those who run student organizations and clubs are often students themselves, most having a college education, though it is not needed to work the app with ease.

**Age Group:** Student clubs and organization promoters typically fall in the age range of 18 - 25 since most of them are students.

# 4 Product perspective

## 4.1 System Context
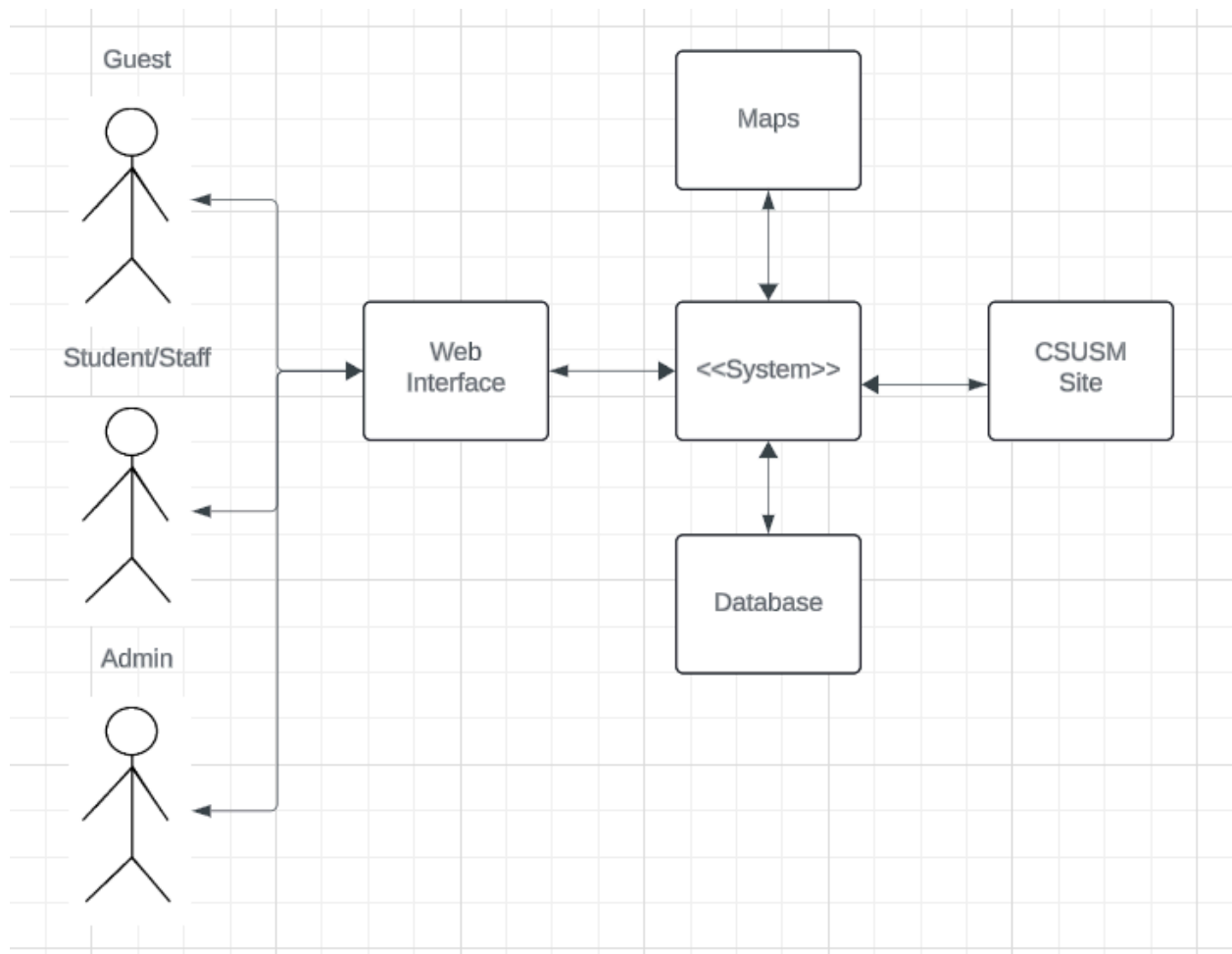


## 4.2 User interfaces

Screen formats should be text only.

Users should have the ability to return to a previous page.

Unauthorized users are met with error messages prompting for a sign-on.

All users should be able to view club events and restrooms from the web interface.

Authorized users should be able to submit reviews.

Admins should be able to delete/add reviews.

The website should be viewable on mobile and desktop browsers.

Club owners should be able to create/manage events through the interface.

## 4.3 Software interfaces
N/A

## 4.4 Deployment requirements
N/A

# 5 Assumptions and Dependencies
Users should possess novice-level proficiency with Google/Apple Maps.

# 6 Specific requirements

## 6.1 System Functional Requirements

R.1.1 The system shall allow authorized users to submit reviews of restrooms under the restroom tab.
R.1.2.1 Users shall be able to sort restrooms by the following options: Proximity and Overall Rating.
R.1.2.2 Users shall be able to filter restrooms by the following options: Accessibility, Building, and Hydrostation Availability.
R.1.3.1 The system shall allow staff to modify restroom availability.
R.1.3.2 The system shall allow staff to flag reviews for deletion.
R.2.1 Club owners shall be able to post/edit event details under the event tab.
R.2.2 Students shall be able to RSVP to events, with up arrows corresponding to the total RSVPs.
R.3.1 The system shall allow users to navigate to restrooms using embedded Google Maps.

## 6.2 Logical Database Requirements

https://lucid.app/lucidchart/de78c266-9392-47ef-906f-e003ddd968e6/edit?view_items=TjBcZtO2mVtE&invitationId=inv_ef7095c7-86f0-4cd6-ab45-e5a799cac64d
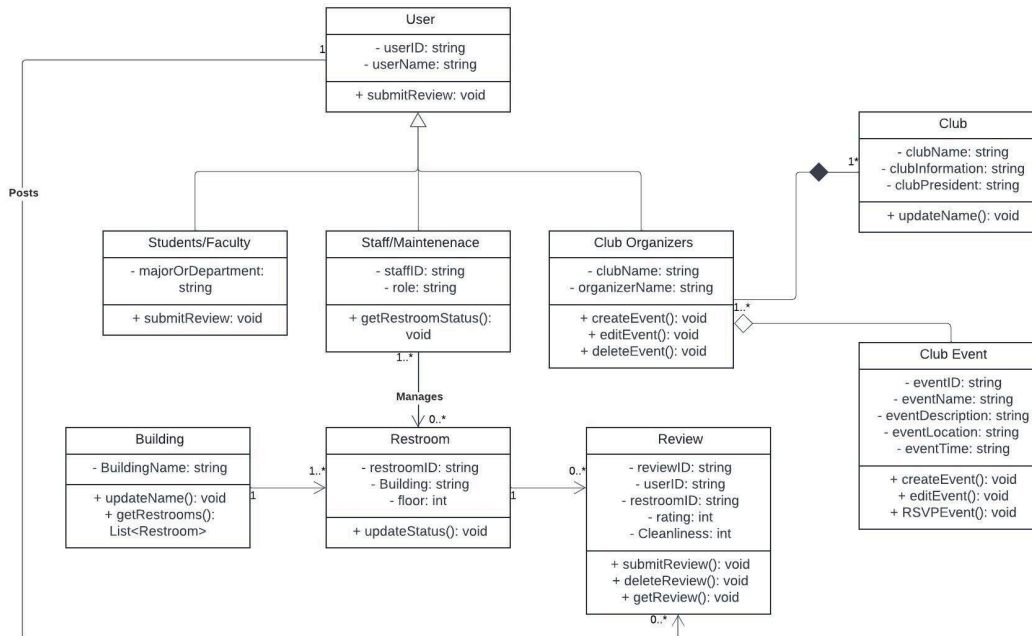
## 6.3 Software System Attributes

### 6.3.1 Usability

- 95% of users should complete their desired tasks such as finding a bathroom, reviewing a bathroom, and RSVPing to an event without the use of external help.
- If a user enters the wrong information or misclicks, they should be able to recover in at most 2 clicks.
- Maintenance staff should be able to view the most poorly rated restrooms in under 10 seconds.
- Users with handicaps should be able to find and navigate to the nearest accessible restroom in under 5 clicks.
- 90% of users should report being satisfied with using CampusCompanion.

### 6.3.2 Performance

**Static:**

The database should be able to store up to 100 reviews for each bathroom.

The system should be able to support 2000 simultaneous users without slowing down the system

Retrieving information about any restroom should take 3 seconds or less.

**Dynamic:**

95% of processes such as reviewing a bathroom or posting a club event should be completed in 1 second or less during typical conditions.

During peak workload, 90% of processes should be processed in 2 seconds or less.

Simple tasks such as finding a restroom, posting a restroom review, and RSVPing to an event should be completed within 4 clicks and under 10 seconds.

### 6.3.3 Reliability/Dependability

R.3.1 All actions performed by the users should be kept in a history log.

R.3.2 The history log should be 100% accurate at all times

R.3.3 User information will be backed up every day to ensure no data loss.

### 6.3.4 Security

R.4.1 Users' passwords must be made of at least 8 characters and include at least 1 uppercase letter, lowercase letter, and a special character.

R.4.2 After trying to log in and being unsuccessful 10 times further authentication is needed to log in.

R.4.3 User information should be encrypted to ensure protection.

R.4.4 A history log will be kept consisting of user activity.

### 6.3.5 Maintainability

R.5.1 The system will be modular, different parts include restrooms, clubs, users, and maintenance/staff.

R.5.2 Different modules will have different interfaces to ensure that changing one module will not affect the other modules.

R.5.3 Clear documentation will be kept to ease maintainability and to keep track of changes

R.5.4 APIs will be used for Google Maps.