**CSE6224 SOFTWARE REQUIREMENTS ENINEERING**

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**Tutorial Section: TT3L**

**Group No.: G3**

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# Introduction

## 1.1 Purpose

University often holds events and open days, and neither students nor tourists are familiar with map if they are new to the campus. This creates difficulties campus patrons, whether they are heading to the event location or being blocked by unexpected construction or outage.

Therefore, it is necessary to build a Campus Accessibility Navigation System with Facilities and Event Integration software that satisfy these main needs:

* List of all events happening and will happen on campus
* List of all available route between starting location and destination
* The fastest route between the user’s current location to the desired location avoiding unwanted events (considering events like construction, elevator outages and temporary accommodations for events)
* Campus map navigation for users
* List of accessibility of campus facilities
* List of accessibility of campus events
* Details of events

## 1.2 Scope

The ‘campus accessibility navigation system with facilities and event integration’ software will be name as ‘Campus Route Navigator’ which will display campus route while guiding visitors through navigation system.

**Campus Route Navigator will be able to perform the following functions:**

1. *Provide accessible route planning across campus*

-Route being shown should automatically avoid unwanted events.

1. *Integrate with campus facilities database and events calendar*

-Universities able to link their events calendar and database to improve the route calculation system.

1. *Store message from users about accessibility information of campus*

-User able to contribute message to university database.

-Administrator can double confirm message being send by users.

1. *Provide multiple interfaces for users*

-Normal user, administrator and disability person can have their own custom interface selected in the software.

1. *Present event information on campus navigation*

-Events details able to retrieve from university database to show to users.

Campus Route Navigator can eliminate many of the inconveniences associated when visiting a university. **Desire goals include**:

* Make campus navigation easy for everyone
  + Software ensures that every individual move around campus easily and safely
* Help Users make better decisions
  + Give users last updates about accessibility issues so decisions can be plan during navigation
* Let Users share Feedback
  + Allows users to report problem encounter and suggestions to improve the system over time.
* Build an Interactive navigation system
  + Simple and easy to use map where users can go where they wanted in fast and easy way.

**System requirements:**

* Students, Staff, and Visitors (End Users)
  + Primary users of the system, provide real-world feedback, issues and suggest improvements.
* University Events Calendar
  + Supplies information of upcoming events, temporary access changes and additional accessibility setups. Important for real-time event-based rerouting.
* University Facilities Management Database
  + Provides real-time updates on construction, maintenance works, elevator operations and outages. Essential for dynamic route updates to avoid inaccessible areas.
* Campus Maps and Infrastructure Plans
  + Detailed layouts of buildings, entrances, elevators, stairs and ramps that used to build the foundation of the navigation system and design accessible routes.
* University Administration and IT department
  + Manages system integration, user access, data linking , database updates and security.

## 1.3 Product overview

### 1.3.1 Product perspective

This section provides an overview of the Campus Accessibility Navigation System with Facilities and Event Integration (CANS-FEI) — a mobile-exclusive application developed to enhance real-time, accessible navigation across the university campus. It is specifically designed for individuals with mobility challenges, ensuring they can move around campus independently, safely, and efficiently by leveraging real-time data and smart routing technology.

The system integrates with the university’s Facilities Management and Event Management systems to deliver a dynamic, responsive navigation experience that adapts to temporary disruptions like construction, elevator outages, and event-related closures. By combining static map data with live campus conditions, the platform aims to eliminate barriers and promote inclusivity.

Figure 1.1: System Overview Diagram

As a mobile-only solution, CANS-FEI is available exclusively on smartphones (Android and iOS). Users log in using their institutional credentials, ensuring secure access and personalized routing based on individual accessibility needs. Once authenticated, users are presented with a map-based interface that highlights accessible routes, warns of potential obstacles, and suggests alternatives where necessary.

**Core Functionalities of CANS-FEI (Mobile App):**

1. **Mobile-Based Accessible Route Planning**  
   Users select their origin and destination on a map through the mobile app. The app generates routes optimized for accessibility, avoiding stairs, steep slopes, or blocked paths.
2. **Real-Time Campus Condition Updates**  
   The system integrates live data feeds from the university’s Facilities Management system to reflect construction, elevator malfunctions, and other physical impediments.
3. **Event-Aware Navigation**  
   The app incorporates updates from the university event calendar to redirect users around event zones and provide information on temporary accommodations such as alternative restrooms or accessible seating.
4. **User Feedback Reporting**  
   Users can report issues they encounter (e.g., blocked ramps or slippery surfaces) directly through the app. This data is reviewed and can influence real-time route recalculations.
5. **Personalized Accessibility Preferences**  
   Users can set preferences (e.g., avoid slopes, prefer wide paths) to ensure routes match their individual mobility needs.
6. **Admin and Analytics Dashboard (Back-End Only)**  
   While users interact via mobile, administrators can use a back-end interface (not part of the mobile app) to view reports, manage feedback, and analyze usage metrics to inform campus planning.

**Figure 1.2: System Context Diagram**

Aligned with the university’s mission to promote digital inclusion, CANS-FEI ensures that all members of the university community, particularly those with physical disabilities, can access timely, safe, and inclusive navigation services directly from their mobile phones.

#### 1.3.1.1 System Interface

### 1.3.2 Product functions

### 1.3.3 User characteristics

### 1.3.4 Limitations

## 1.4 Definitions

Below are terms, phrases and words used in the document and its related definition:

**Table 1.15: Definition**

|  |  |
| --- | --- |
| **Terms** | **Definition** |
| Campus Route Navigator | A digital platform that provides navigation system for campus and provides event infos. |

# 2.References

# 3.Requirements

## 3.1 Functions

## 3.2 Performance requirements

## 3.3 Usability requirements

## 3.4 Interface requirements

## 3.5 Logical database requirements

## 3.6 Design constraints

## 3.7 Software system attributes

## Supporting information

# 4.Verification

## 4.1 Functions

## 4.2 Performance requirements

## 4.3 Usability requirements

## 4.4 Interface requirements

## 4.5 Logical database requirements

## 4.6 Design constraints

## 4.7 Software system attributes

* 1. Supporting information

# 5.Appendices

### 5.1 Assumptions and dependencies

### 5.2 Acronyms and abbreviations