## **Revision**

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| **Version** | **Primary Author(s)** | **Description of Version** | **Date Completed** |
| 1.0 | Chang Hoe Hin  Yee Si Shun | Explain what and how Vision will be | 19/4/2025 |
| 1.1 | Goh Chun Yong | Define project goals. | 24/4/2025 |
| 1.2 | TEE KAH LE | Define project scopes. | 27/4/2025 |
| 1.3 | Goh Chun Yong | Update project goals table. | 27/4/2025 |
| 1.4 | TEE KAH LE | Implementation of IEEE scope format | 11/5/2025 |
| 1.41 | Chang Hoe Hin | Fixed type error in out scope. | 12/5/2025 |

## Vision

**Requirement for the whole system**

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| --- | --- |
| **What?** | **How?** |
| The System needs to provide accessible route planning across campus | * The user can select the starting point and desire location. * The navigation system should show multiple available routes from start location to end location. * Some route being shown should automatically avoid unwanted events (elevator breakdown and construction) and default one is the fastest without events consideration. |

**System Architecture**

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| **What?** | **How?** |
| The System needs to integrate with the university's facilities management database and events calendar | * Universities that want to use the system need to link their events calendar and build a map model database. |

**Requirements for the components**

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| --- | --- |
| **What?** | **How?** |
| Users can contribute accessibility information about campus. | * Users can select the location on map model to mention the type of event that will be marked as potential event. * The navigation system provides different interfaces for the university’s administrator to validate and double confirm the information sent by users or update themselves manually. |

**Design model of the components**

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| **What?** | **How?** |
| The System shall provide multiple interfaces for users to choose | * Normal routes and wheelchair-accessible maps can be chosen by users. * User’s account can be use differ between basic users and administrator person for different interfaces. |

**Implementations of the components**

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| **What?** | **How?** |
| The System shall present event information on campus navigation | * Events calendar and database being link from university will import the information to show details on the specific location. |

## **In-Scope**

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| Accessibility | We will implement a design approach that prioritizes ease of navigation for users with mobility challenges, ensuring that all individuals can use the system. Users will be able to plan their movements to avoid stairs, elevators and ramps, which will enable easier navigation throughout the campus. |
| Real Time Updates | The platform will merge with University facilities management databases in order to provide construction, elevator downtime, and other disruptions in real time. This will allow users to quickly devise the best routes across campus to avoid inaccessible areas. |
| Event Integration | The system will fetch data from the university’s events calendar to incorporate modifications to pathways and access routes for various events. Users will be notified of other routed or added accessibility accommodations. |
| Personalized User Experience | Users will have defined mobility constituents under which they shall customize their own profiles. The platform will provide the most appropriate and accessible routes based on these preset preferences. |
| Interactive Mapping | A computer based instructional system will be developed to enable users to look for buildings, view accessible entrances, and see the recommended routes, as well as predetermined ones, on an interactive campus map. |
| Feedback and Reporting System | Users will have the option of reporting accessibility issues with the platform itself so that the facilities team can take action and make improvements more rapidly and efficiently. |
| Administrative Tools | The platform will have a backend dashboard for administrators where they will be able to view user activity, view reported problems, and assess how effective the navigation system is working. |

**Out-Of-Scope**

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| Off-campus navigation | The platform will focus on routes within the university campus and will not provide directions outside campus grounds. |
| Public transportation integration | Bus schedules, train routes, and ride-sharing services will not be part of the system. |
| Parking management | The system will not handle information related to parking availability, reservations, or enforcement. |
| Emergency routing | While accessibility is a priority, the platform will not provide real-time emergency evacuation plans. |
| Multi-language support | The initial version of the system will be delivered in English only. |
| Mobile-based version | The project will focus on building a mobile application only. |

**Target Users**

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| Students with accessibility needs | This category includes users in wheelchairs or on crutches, as well as those with visual impairments, in addition to persons with temporary injuries. |
| Staff and faculty members | All academic and administrative staff who need navigational access routes across the campus and its buildings. |
| Campus visitors | Guests for functions, open days or conferences who require assistance with navigation for routes and ramps. |
| Facilities management staff | University staff in charge of the building and construction service works in relation to accessibility and other similar maintenance needs. |
| Event organizers | University or student staff responsible for particular events on the campus and need to inform about changes concerning access. |

**System Boundaries**

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| Campus-only coverage | The navigational aid will be limited to the university campus with navigable areas being its buildings, walkways, and known features of movement into and out of the campus. |
| Data sources | Up-to-date information will come from the university’s facilities management system and official events calendar. |
| User input | System interaction will take place through a mobile app interface allowing customization of mobility preferences and reporting of system issues. |
| Admin access | Administrative interfaces shall be restricted to monitored data, and hence university staff only, for data monitoring, updating, and back-end data management. |
| Privacy limits | No personal or sensitive information shall be stored, not even identity data, beyond the user profiles which trek essential configurable accessibility settings. |
| Mobile platform only | The system will be designed specifically as a mobile application, tailored for Android and/or iOS platforms, without a desktop version. |

## Goals

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| **Category** | **Project Goal** | **Description** |
| **Accessibility** | Make Campus Navigation Easy for Everyone | Ensure that every individual, regardless of mobility challenges, can move around campus easily and safely, with routes designed to avoid obstacles like stairs, construction zones, or broken elevators. |
| **Real-Time Information and Updates** | Help Users Make Better Decisions Instantly | Give users the latest updates about accessibility issues so they can quickly adjust their travel plans and avoid disruptions. |
|  | Automatically Adjust Routes When Needed | The system will replan the best routes for users if sudden obstacles like construction work or elevator outages appear. |
|  | Keep Information Always Up to Date | Continuously sync with the university's facilities and event databases to make sure users always see the most accurate and updated routes. |
| **User Interaction and Personalization** | Let Users Share Feedback and Accessibility Tips | Allow users to easily report problems they encounter and suggest improvements, helping the system get better over time. |
|  | Personalize the Experience for Different Needs | Users can set up their mobility preferences, such as wheelchair-accessible paths, so the system suggests the best possible routes for their specific needs. |
| **System Management and Administration** | Give Admins Powerful Tools to Manage the System | Provide a backend dashboard where administrators can check reports, approve user contributions, monitor activity, and fine-tune the system's performance. |
| **Mapping and Visualization** | Build an Interactive Map to Explore Campus | Create a simple and easy-to-use map where users can find buildings, accessible entrances, event locations, and suggested paths briefly. |