Smart Assist – Campus Services Assistant

Project Vision Document (PVD)

Version 1.0

15 September 2025

Release Checklist

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| --- | --- |
| **Checklist Item** | **Control (Yes/No)** |
| The document has passed the quality assurance process. | YES/NO |
| The document is visually appealing and has a professional look and structure. | YES/NO |
| All placeholders such as text within <> are replaced with appropriate text. | YES/NO |
| The document is prepared in the “Justify Text” format. | YES/NO |
| The document does not include typos, different fonts, and misalignments. | YES/NO |
| In the revision history, the first version states “The first version”. Additional versions include an entry highlighting all the changes from the previous version. | YES/NO |
| The table of contents (TOC) is updated as necessary. | YES/NO |
| References list other project documents and additional standards or documents needed to understand the document. The references include the necessary document/artifact version number and publication date. | YES/NO |
| The language grammar is used appropriately. | YES/NO |
| Sentences are written as full sentences. | YES/NO |
| The wording in the document is formal. | YES/NO |
| The wording in the document is clear. | YES/NO |
| The wording in the document is professional. | YES/NO |
| All project-related definitions, acronyms, and abbreviations sections are included in the related tables. | YES/NO |
| The team member names are specifically spelled out in the document preparation and approvals sections. | YES/NO |
| The purpose and scope of the document are adequately described. | YES/NO |
| All sections include the necessary and adequate information. | YES/NO |
| All stakeholders and users are identified as related to the product. | YES/NO |
| The user environment is adequately analyzed and described. | YES/NO |
| The product alternatives and competitive products are adequately analyzed. | YES/NO |
| The “Precedence and Priority” section includes the list of features in a priority order. | YES/NO |

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| **Final Control** | **Yes/No** |
| The document is checked based on the “Team Project Artifacts Common Errors” Guideline. The document is ready for release. | YES/NO |
| The document is not ready for release. | YES/NO |

Document Preparation

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**Project Vision Document**

# Introduction

## Purpose of the Document

The purpose of the project vision document (PVD) is to document the shared project vision and the shared quality vision of the project **SmartAssist – Campus Services Assistant**. The shared project vision ensures that the final product and all related deliverables are up to the expectations and satisfaction of the stakeholders. The shared quality vision ensures that the product and all related deliverables have adequate quality. Furthermore, the purpose of this document is to collect, analyze, and define high-level needs and features of the **SmartAssist system**. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist. The details of how the SmartAssist system fulfills these needs are detailed in the use-case and supplementary specifications.

Specifically, for SmartAssist, this document defines how the system will enhance student services at Texas A&M University–Corpus Christi by providing centralized access to information, ticketing, appointment scheduling, and campus navigation. It serves as a foundation to align the development team, stakeholders, and users toward the shared goals of improving student experience, reducing staff workload, and enabling data-driven service improvements.

## Scope of the Document

The scope of the project vision document (PVD) includes the positioning of the product, the stakeholder and user descriptions, the product overview, the product features, the constraints, the quality features, and the precedence and the priority of the product features. This scope establishes the boundaries of the project vision and ensures that all aspects of the product’s definition are clearly outlined for stakeholders and the project team.

For **SmartAssist – Campus Services Assistant**, the scope specifically addresses how the platform will integrate an AI chatbot, intelligent knowledge base, ticketing system, appointment scheduling, and interactive campus navigation to enhance student and staff experiences at TAMU-CC. It also defines the relevant stakeholders and user groups, outlines the quality expectations such as performance, usability, and security, and prioritizes the system features for phased implementation. Together, these elements ensure the SmartAssist project is delivered with clarity, focus, and measurable value to the university community.

## References

This subsection provides a complete list of all project-related documents within the project and other documents necessary to understand this document. The references serve as supporting materials that provide context, industry standards, and prior project documentation relevant to the SmartAssist project. Each reference is listed with its publication date and version number to ensure traceability and clarity.

The following documents and standards are referenced for the SmartAssist – Campus Services Assistant Project Vision Document (PVD):

|  |  |  |
| --- | --- | --- |
| **Reference Title/Name** | **Date** | **Version** |
| Project Proposal Document (SmartAssist – Code Gems) | 09/02/2025 | 1.0 |
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## Definitions, Acronyms, and Abbreviations

|  |  |  |
| --- | --- | --- |
| **Term** | **Abbreviation / Acronym** | **Definition** |
| Project Description Document | PDD | The project description document is the project document detailing the project to be completed. |
| Project Vision Document | PVD | The project vision document is the project document describing the project vision to be accomplished. |
| Artificial Intelligence Chatbot | AI Chatbot | An automated conversational system that provides responses and guidance to user queries. |
| Retrieval-Augmented Generation | RAG | A method that combines database retrieval with generative AI to deliver accurate, context-aware answers. |
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# Positioning

## Business Opportunity

The business opportunity for the SmartAssist project lies in addressing the inefficiencies and fragmentation of current student support services at Texas A&M University–Corpus Christi. At present, students rely on multiple disconnected systems, physical offices, and staff assistance to access information such as office locations, classroom details, advising appointments, or service requests. This creates delays, repetitive staff workload, and inconsistent user experiences. By introducing SmartAssist, a centralized and intelligent campus services assistant, the university can significantly enhance student satisfaction, streamline service delivery, reduce front-desk inquiries, and provide staff and administrators with actionable analytics for continuous improvement.

## Problem Statement

|  |  |
| --- | --- |
| The problem of | fragmented and inefficient campus service delivery |
| affects | students, faculty, and administrative staff at TAMU-CC |
| the impact of which is | delayed access to information, repeated manual inquiries, higher workload on staff, and reduced overall student satisfaction |
| a successful solution would be | a centralized assistant providing 24/7 intelligent self-service, faster resolution of requests, reduced administrative burden, and improved campus experience |

## Product Position Statement

|  |  |
| --- | --- |
| For | students, faculty, and visitors at TAMU-CC |
| Who | need timely, accurate, and convenient access to campus services and information |
| The **SmartAssist – Campus Services Assistant** | **web-based intelligent service platform** |
| That | provides AI-powered self-service, ticketing, appointment scheduling, and real-time campus navigation |
| Unlike | disconnected departmental websites, phone calls, or generic chatbots |
| Our product | delivers a TAMU-CC-specific, continuously updated, and integrated solution that improves efficiency, reduces wait times, and enhances user convenience. |

# Stakeholder and User Descriptions

To effectively provide products and services that meet stakeholders’ and users' real needs, it is necessary to identify and involve all of the stakeholders as part of the Requirements Modeling process. It is also important to identify the users of the system and ensure that the stakeholder community adequately represents them. This section provides a profile of the stakeholders and users involved in the project, and the key problems they perceive to be addressed by the proposed solution. It does not describe their specific requests or requirements, as these are captured in a separate stakeholder requests artifact. Instead, it provides the background and justification for why the requirements are needed.

For the **SmartAssist – Campus Services Assistant** project, stakeholders include university administration, departmental staff, and the project development team. Administration and staff are responsible for overseeing services, managing student requests, and updating system information, while the development team ensures technical delivery. Users include students, faculty, and campus visitors, who require quick access to accurate information, scheduling tools, and navigation assistance. Their needs highlight the importance of centralizing campus services, improving efficiency, and enhancing accessibility, which justifies the system’s core features such as the AI chatbot, ticketing, and interactive campus map.

## Stakeholder Summary

[There are a number of stakeholders with an interest in the development and not all of them are end users. Present a summary list of these non-user stakeholders. (The users are summarized in section 3.2.)]

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Responsibilities** |
| University Administration | Senior management overseeing campus services and student experience. | Approve funding, ensure adoption, use analytics for decision-making. |
| Departmental Staff | Advisors, financial aid officers, IT support staff, library staff, and service desk representatives. | Manage service requests, respond via live chat, update records in the system. |
| Project Team (Code Gems) | Student developers and project managers. | Design, implement, test, and deliver SmartAssist; ensure alignment with requirements. |

## User Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Description** | **Responsibilities** | **Stakeholder** |
| Students | Primary users seeking academic, administrative, or campus-related information. | Submit service requests, schedule appointments, use chatbot and navigation tools. | University Administration & Departmental Staff |
| Faculty | Professors and staff needing visibility into student interactions and schedules. | Update office hours/locations, respond to escalated requests. | Departmental Staff |
| Visitors | Guests navigating campus facilities or locating departments. | Use map and itinerary features for navigation. | University Administration |

## User Environment

Users will primarily interact with SmartAssist through a **web portal integrated into the university’s main website** and **mobile devices** for on-the-go access. The system must support multiple browsers, mobile responsiveness, and compliance with **WCAG accessibility standards**. It will integrate with TAMU-CC databases for up-to-date professor office locations, classroom schedules, and service desk data. Users will operate in both on-campus and remote environments, requiring reliable uptime and fast response times across various platforms

## Summary of Key Stakeholder or User Needs

The key needs identified for the SmartAssist project highlight the importance of centralizing and simplifying campus services. Students require fast and accurate responses to common questions such as office locations, advising procedures, and service availability, as well as tools for scheduling appointments and tracking requests. Faculty members need a convenient way to update their office hours, classroom locations, and availability while efficiently addressing student inquiries. Departmental staff seek a reduction in repetitive front-desk interactions so they can focus on higher-value support tasks and provide better overall service. University administrators require consolidated analytics to monitor service usage, identify trends, and make informed decisions that improve operational efficiency and student satisfaction. Collectively, these needs demonstrate the demand for an integrated platform that streamlines information access, improves service delivery, and enhances the overall campus experience.

## Alternatives and Competition

Currently, students and staff rely on a mix of **university websites, phone calls, email, and physical front-desk visits** for campus information. These methods are fragmented, time-consuming, and often inconsistent. Competing alternatives include **generic third-party chatbots** that provide limited customization and lack integration with TAMU-CC’s databases. The primary alternative — maintaining the status quo — leads to continued inefficiency, student dissatisfaction, and unnecessary workload for staff. SmartAssist offers a superior, integrated solution tailored to TAMU-CC’s environment.

# Product Overview

The SmartAssist – Campus Services Assistant is a centralized, web-based platform designed to enhance service delivery and student support at Texas A&M University–Corpus Christi. It consolidates multiple functions into a single-entry point, enabling students, faculty, staff, and visitors to access information, schedule appointments, submit service requests, and navigate campus facilities efficiently. The system leverages an AI-powered chatbot, a searchable knowledge base, ticketing and appointment scheduling tools, and an interactive campus map to deliver seamless and consistent experiences across devices. By integrating with university databases and external APIs such as mapping and large language models, SmartAssist ensures that information is accurate, real-time, and easily accessible.

From an operational perspective, SmartAssist reduces staff workload by automating repetitive inquiries and providing administrators with analytics on common requests and performance trends. The system is designed with key assumptions such as reliable access to institutional data, compliance with accessibility and security standards, and sustainable support for third-party services. Costs are primarily limited to hosting, licensing, and maintenance, as the platform will be made available to users free of charge. Installation will be carried out by the project team in collaboration with university IT services, with the system embedded directly into the TAMU-CC portal for easy access without requiring additional installations on user devices.

## Product Perspective

SmartAssist is designed as a standalone, web-based system integrated within the Texas A&M University–Corpus Christi portal. While it functions independently, it relies on interfaces with existing university databases that store professor office assignments, classroom schedules, and departmental service records. The system also integrates with external services such as mapping APIs for navigation and large language model (LLM) APIs for chatbot responses. From a user’s perspective, SmartAssist acts as a single-entry point to campus services, consolidating multiple fragmented systems into one cohesive platform.

## Assumptions and Dependencies

The SmartAssist system assumes that campus databases for professors, classes, and services are consistently maintained and accessible through secure APIs. It also assumes that LLM and RAG services will remain available and scalable to support the chatbot. The system depends on university IT infrastructure to provide reliable hosting, authentication services for student and faculty access, and compliance with accessibility standards. Any changes in third-party API availability, institutional IT policies, or campus database accuracy could affect the system’s performance and require updates to the vision.

## Cost and Pricing

Since SmartAssist is being developed as an internal project for TAMU-CC, students and faculty will not bear direct costs. Project costs are expected to include cloud hosting, licensing fees for AI or mapping APIs, and ongoing maintenance. Constraints may arise from budget limitations, which could affect the scalability of advanced features such as large-scale AI integration. Pricing considerations are limited to institutional costs of deployment and long-term sustainability, rather than end-user charges.

## Licensing and Installation

SmartAssist will be deployed on the university’s servers or a secure cloud environment, requiring institutional licensing for software frameworks, APIs, and any third-party components. Installation will be handled by the project team and IT staff, with the system designed for seamless integration into the university’s existing portal. Licensing will cover compliance with academic IT standards, ensuring that users can securely log in using university credentials and access services without requiring additional installations on their devices.

# Product Features

[List and briefly describe the product features. Features are the high-level capabilities of the system that are required to deliver benefits to the users. Each feature is a requested service that typically requires a series of inputs to achieve a satisfactory result. For example, a feature of a problem-tracking system might be the ability to provide trending reports. As the use case model takes shape, update the description to refer to the use cases.

Because the vision document is reviewed by a wide variety of involved personnel, keep the level of detail general enough for everyone to understand. However, offer sufficient detail to provide the team with the information it needs to create a use case model or other design documents.

To manage application complexity, for a new system or an incremental change, list capabilities at such a high level that you **include approximately 25-99 features (In your team project, it may be less than that.)**. These features provide the basis for product definition, scope management, and project management. Each feature will be expanded into greater detail in the use case model.

Throughout this section, make each feature relevant to users, operators, or other external systems. Include a description of functions and usability issues that must be addressed. The following guidelines apply:

* Avoid design. Keep feature descriptions at a general level. Focus on required capabilities and why (not how) they should be implemented.
* List all the high-level features here.

In the following headers, replace “Feature 1- Short Name” with “Feature 1- XYZ”.

## Feature 1 – Short Name

[Provide a short name for the feature. Provide a brief description of the feature.]

## Feature 2 – Short Name

[Provide a short name for the feature. Provide a brief description of the feature.]

## Feature 3 – Short Name

[Provide a short name for the feature. Provide a brief description of the feature.]

# Constraints

The SmartAssist project is subject to several constraints that may influence its design and implementation. First, the system must integrate with existing TAMU-CC databases for professors, classrooms, and departmental services, which introduces dependencies on data accuracy, API availability, and institutional IT policies. Second, the platform must comply with **FERPA regulations** and university IT security standards to ensure the protection of student information. Third, accessibility standards such as **WCAG 2.0** must be adhered to, requiring careful attention to responsive design, readability, and multi-device compatibility. Additionally, budgetary limitations may restrict the scope of advanced features, such as large-scale LLM integration or premium API subscriptions, and the project timeline must align with academic semester schedules to ensure timely delivery and usability.

# Quality Attributes

The following quality attributes have been identified as essential to ensuring SmartAssist meets stakeholder and user expectations while aligning with the shared quality vision:

|  |  |  |
| --- | --- | --- |
| **Quality Attribute** | **Definition** | **Reasoning** |
| Performance | The system should respond to queries and service requests in less than two seconds under normal load conditions. | Fast response times are critical for user satisfaction and adoption, especially during peak academic periods. |
| Reliability | The system must maintain at least 99% uptime, ensuring consistent availability of services. | Students and staff rely on real-time information; downtime would directly reduce trust and usability. |
| Usability | The interface must be intuitive, mobile-responsive, and accessible to users of varying technical skills. | Adoption depends on ease of use, and compliance with WCAG ensures inclusivity for all users. |
| Scalability | The system must handle thousands of concurrent requests during peak times such as registration or advising. | Ensures that service delivery remains uninterrupted even under heavy demand. |
| Security | The system must comply with FERPA and TAMU-CC IT security standards, including authentication and data protection. | Protecting student data and institutional information is essential for trust and compliance. |
| Maintainability | The system should allow for regular updates to knowledge bases, APIs, and professor/room data with minimal downtime. | Ensures that the platform remains relevant, accurate, and cost-effective over time. |

# Precedence and Priority

The following table defines the priority of SmartAssist features in alignment with stakeholder needs and project goals. Features are ordered from highest to lowest priority, with reasoning provided to justify the decision and guide future adjustments.

|  |  |  |
| --- | --- | --- |
| **Feature** | **Priority** | **Priority Reasoning** |
| **AI Chatbot + Intelligent Knowledge Base** | High | This feature has the highest priority since it provides 24/7 self-service access and resolves most common student queries without staff intervention. |
| **Ticketing and Appointment Scheduling** | High | This feature has a high priority since it streamlines student–staff interactions, reduces resolution time, and directly impacts efficiency and service quality. |
| Interactive Campus Map & Itinerary Generator | Medium | This feature has a medium priority since it enhances convenience for students and visitors, but is secondary to core support functions. |
| Analytics and Reporting Dashboards | Medium | This feature has a medium priority since it benefits administrators by identifying trends and improving services, but it is not critical for initial user adoption. |
| Community Forum (Optional) | Low | This feature has a low priority since it provides peer-to-peer support but is not essential to core service delivery. |
| Multi-language Support | Low | This feature has a low priority since it enhances inclusivity for international students but is not required for the minimum viable product (MVP). |