

Team 6: Yennie Tran, Nithya Balachander, Cameron Lusby, Quoc Anh (Alex) Ho

X501 AIDD

Prof. Jay Newquist

2025.11.12

Campus Resource Hub – Product Requirements Document (PRD)

Objective

The Campus Resource Hub is a full-stack web app built to make it way easier for students and staff to find, share, and book campus resources, such as study rooms, lab equipment, event spaces, or AV gear. Currently, this process happens in a disorganized way, or with the use of outdated systems. The goal of this hub is to bring these processes and resources together in a centralized system, to improve efficiency. The app handles listings, scheduling, approvals, and reviews, all tied specific permissions based on the user role. In addition, the hub uses AI to summarize activity and highlight trends for admins, so they can quickly see what's popular, what's underused, and where issues are occurring. By providing this application, we hope to bring a clean and reliable system that makes managing campus resources a smoother process.

Stakeholders

The main stakeholder is the university itself, since it benefits the most from improved visibility, accountability, and utilization of its campus resources. By centralizing all bookings and approvals, the university gains insight into what's being used, what's underused, and how to plan for the future. While IT services and system administrators care for maintaining security and uptime, while university leadership gets accurate data for resource planning and policy decisions. The end users, students, staff, and admins, are part of the ecosystem that keeps the platform alive and valuable, but ultimately, the stakeholder is the university, as they are the organization funding, owning, and benefiting from the system. They sets the goals, provide the resources, and gains the most value from improved resource management.

Non-Goals

This project doesn't aim to handle payments, external calendar integrations, or campus maintenance workflows. It also doesn't include predictive analytics or a native mobile app in this version. The focus here is on core usability-- managing listings, bookings, and communication reliably, while layering in smart AI summarization and moderation functionalities to make the system efficient and self-maintaining.

Core Features

- Role-Based User Management:

The application provides 3 different user roles: student, staff, and admin. Students can search for and book resources, and leave reviews when they're done. Staff can list new resources, manage availability, and approve or reject booking requests. Admins have full control managing users, handling restricted resource approvals, and moderating messages and reviews. The permissions system makes sure everyone stays in their lane and that the right people are responsible for the right actions.

- Resource Listings & Booking Flow:

Authorized users can create listings with details, such as category, location, capacity, images, and custom availability. The booking process runs through a calendar interface that checks for conflicts and supports manual or automatic approvals depending on the resource type. The system automatically notifies users of any changes to their bookings.

- AI Summary & Insights:

An integrated AI summary feature scans reviews, booking logs, and user activity to create short summaries and trend reports. This feature helps admins monitor performance and user engagement without digging through raw data.

- Content Moderation:

Admins can moderate messages, reviews, and user behavior directly through their dashboard. Users can flag reviews and report messages if they deem it inappropriate. Those flags and reports get logged for the admin to review. This helps keep the platform clean, professional, and safe for everyone.

- Search, Filter & Waitlist:

Users can search by keyword, category, capacity, or availability, and sort by most recent or top-rated. When a resource is fully booked, they can instantly join a waitlist and get notified if a slot opens up. This provides insight into availability and ensures resources are utilized more efficiently.

Success Metrics

Success is measured by both engagement and performance. On the user side, the goal is to reach at least 80% of campus bookings made through the app, with under 1% double-booking incidents and average booking approval times under 24 hours. User satisfaction (via feedback or reviews) should maintain an average rating above 4.5/5. On the system side, uptime should remain above 99%, and all key actions (like search, booking, and messaging) should respond in under two seconds. The AI summaries should provide accurate, actionable insights that reduce manual admin effort and improve visibility into resource usage. Overall, success means the app becomes the go-to system for managing campus resources-- fast, reliable, and trusted by everyone on campus.