DAYANANDA SAGAR UNIVERSITY

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SCHOOL OF ENGINEERING

Bachelor of Technology
in
COMPUTER SCIENCE AND ENGINEERING

22CS4701- Project Phase I

Project Proposal
on

UniVerse

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Project Summary

The "Universe" Campus Platform is a comprehensive digital solution designed to address the key challenges students face in their academic and social lives. The platform aims to connect students within and across universities, facilitate collaborative learning between teachers and students, and enhance overall well-being. It leverages technologies like Next.js and React to deliver a dual-feed social platform for networking, an AI chatbot for academic support, and integrated event hosting.

The expected output is a unified, user-friendly platform that improves student engagement, academic performance, and mental health. Additional features will include a resume analyzer, community sub-forums, personal wellness insights, a travel coordination tool, an AI-powered academic planner, a campus resource finder, a faculty-student collaboration hub, and a crowdsourced knowledge base.

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1. Introduction

The current university experience often lacks a centralized digital space that seamlessly integrates academic, social, and wellness aspects of student life. This project proposes a solution, the "Universe" Campus Platform, to bridge this gap. The platform will use modern web development frameworks like Next.js and React to create a dynamic and responsive user interface. The integration of artificial intelligence (AI) will be one of the core components, powering features such as a chatbot for academic assistance, mentorship guidance, and personalized event recommendations. The project aims to provide a holistic, all-in-one platform for students, fostering a more connected and supported campus community.

2. Problem Definition

Students often struggle with disconnected systems for communication, event discovery, and academic support. This fragmentation leads to missed opportunities for collaboration, inefficient resource utilization, and a lack of a centralized space for community building. The absence of a platform that integrates social networking with academic and wellness tools creates barriers to a well-rounded university experience. Solving this problem is crucial for enhancing student engagement, improving academic outcomes, and promoting a healthy student lifestyle.

3. Objectives

- To develop a dual-feed social platform for both intra-university and inter-university networking, enhanced with AI-driven mentorship guidance.

- To create an AI chatbot that provides academic support, explains complex topics, and facilitates virtual study groups.

- To build an integrated event hosting system with an AI-powered recommendation engine for academic and wellness activities.

- To implement tools such as a resume analyzer, a wellness tracker, and a travel coordination planner to support students' personal and professional development

4. Scope of the project

The project will deliver the "Universe" Campus Platform, a dynamic digital hub designed to empower student life both academically and socially. Core features will include a dual-feed social network for collaboration, an AI chatbot for academic support, integrated event hosting, a resume analyzer to boost career readiness, and community sub-forums to strengthen peer and faculty engagement. Supported by a dedicated development team, the deliverables will be a fully functional, user-friendly web platform along with its complete source code. The budget will primarily cover development tools and hosting infrastructure, ensuring a cost-effective yet impactful solution for modern campuses.

5. Functional Requirements

The system must allow students to create profiles and connect with peers through dual-feeds for campus and cross-campus updates. The AI chatbot should be able to answer course-related questions, explain topics, and suggest study tips. The platform must enable users to promote and register for academic and wellness events, along with an event collaboration feature that allows students and faculty to co-host, manage, and participate in joint activities. The resume analyzer should refine CVs and include a portfolio builder.

Users must be able to create dedicated discussion spaces for courses and universities, with anonymous posting options for sensitive topics. The wellness insight feature should provide AI-generated summaries and tips based on tracked habits and mood logs. The travel coordination plan must allow students to share travel schedules for cab pooling or group trips. The platform should also include a faculty-student collaboration hub for research opportunities and a crowdsourced knowledge base for course-related information.

6. Non-Functional Requirements

The platform must be highly reliable and available 24/7 to support students' academic and social needs. It must be scalable to accommodate a growing number of users and campuses. The system's performance should be optimal, with fast load times for all features, including the AI components. The platform should be secure, protecting user data, and allowing for anonymous posting as required. Maintainability is crucial, so the code should be well-documented and modular for future updates and feature additions.

7. Software/System Requirements

- Next.js + React
- Node.js backend
- MongoDB (or NoSQL equivalent)
- AI/ML libraries (TensorFlow, PyTorch, or OpenAI APIs)
- Real-time communication (WebSockets / Socket.IO)
- Authentication (JWT, OAuth, or Firebase/Auth0)
- Cloud storage (S3, Firebase Storage, Cloudinary)
- Search/Recommendation engine (Elasticsearch, Pinecone, etc.)
- Cloud hosting (Vercel, AWS, GCP, Azure)

- Git + CI/CD pipeline
- Testing frameworks (Jest, Cypress, etc.)
- Figma/Adobe XD (design)
- Analytics & monitoring tools