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An AI-Driven Alumni-Student Mentorship System for Career Guidance and Internship Matching

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Abstract: *The gap between students and alumni often limits opportunities for mentorship, career guidance, and industry exposure. This research proposes an intelligent Alumni-Student Mentorship System that leverages AI-driven matchmaking to optimize alumni-student interactions. The system matches students with alumni mentors based on career goals, academic background, skill sets, and professional experience. It provides features such as career opportunity recommendations, internship notifications, mentorship tracking, and feedback mechanisms. The research focuses on the design, development, and evaluation of the system to enhance networking, professional development, and career readiness for students while allowing alumni to contribute meaningfully.*

Keywords: *AI-Driven System, Career Guidance, Mentorship Matching, Internship Matching*

I. INTRODUCTION

Mentorship plays a critical role in shaping a student's career trajectory by providing guidance, sharing experiences, and facilitating industry connections. Traditional mentorship models often suffer from inefficiencies such as random pairing, lack of follow-up, and insufficient tracking. Furthermore, students often lack access to tailored career guidance and internship opportunities provided by alumni. The proposed system integrates AI-based matchmaking to connect students with the most suitable alumni mentors. It will also include career opportunity postings, event notifications, and progress tracking dashboards. This research aims to provide a scalable, user-friendly, and intelligent platform to bridge the gap between students and alumni effectively.

II. LITERATURE REVIEW

A. Existing Platforms

Platforms like Alumni Connect Portal and Student Alumni Interconnect Systems facilitate networking but lack AI-driven personalized matchmaking. Research shows that structured mentorships improves student performance, career readiness, and job placement rates.

B. Gap Analysis

Current platforms do not consider compatibility between mentor and mentee beyond general categories.

Lack of integration with real-time career opportunities, internship postings, or skills mapping.

Absence of feedback and progress tracking systems to measure mentorship effectiveness.

C. AI in Mentorship

Machine learning (ML) algorithms can analyze student profiles, skills, and career aspirations to recommend suitable alumni mentors. Predictive analytics can identify students at risk of disengagement and suggest interventions.

III. OBJECTIVES

- 1) Develop a smart alumni-student mentorship platform with AI-driven matchmaking.
- 2) Facilitate personalized mentorship based on skills, career goals, and professional experience.
- 3) Provide a platform for alumni to post internships, job opportunities, webinars, and work-shops.
- 4) Track mentorship progress, engagement, and outcomes.
- 5) Evaluate the systems effectiveness through surveys, interviews, and comparative studies with traditional mentorship models.

IV. METHODOLOGY

A. System Design

Frontend:

1. Web-based UI with React.js
2. Tailwind CSS, HTML, CSS and Javascript Backend:

1. Django or Node.js
2. REST API for modularity and integration

Database:

1. MySQL/MongoDB to store user profiles, mentorship logs, and job opportunities

AI Component:

1. Machine Learning (ML) algorithm for mentorship matching:
 - Inputs: student skills, interests, career goals, academic background
 - Outputs: ranked list of compatible alumni mentors.
2. Optional: Natural language processing (NLP) to analyze user inputs for better matching

Security Features:

1. User authentication with email/OTP
2. Role-based access control for students, alumni, and admin.
3. Data encryption for sensitive information.

B. System Modules

- 1) User Registration/Login Module: Separate roles for students, alumni, and administrators.
- 2) Profile Management: Users input skills, experience, and career preferences
- 3) Mentorship Matching Module: AI-driven recommendation engine for mentor selection
- 4) Career & Internship Posting Module: Alumni can post job opportunities and workshops
- 5) Communication Module: Chat, email notifications, and scheduling tools for mentorship sessions
- 6) Feedback and Progress Tracking:
 - Students submit mentorship feedback
 - Admin dashboard tracks engagement metrics
- 7) Analytics Dashboard:
 - Visualizes mentor-mentee interactions, engagement statistics, and opportunity uptake

C. Data Collection

Gather anonymized alumni and student profiles with consent. Use surveys to collect student needs and alumni availability. Track system usage and engagement matrix.

D. Implementation Plan

Table 1: Implementation Plan

Phase	Duration	Tasks
Requirement Analysis	2 weeks	Collect functional & non-functional requirements, conduct surveys
System Design	3 weeks	Design UI/UX, database schema, AI algorithm architecture.
Development	6 weeks	Implement frontend, backend, database, and AI modules.
Testing & debugging	3 weeks	Unit testing, integration testing, user acceptance testing
Deployment	1 weeks	Deploy on cloud server or university intranet
Evaluation	2 weeks	Conduct surveys, analyze feedback, compare with traditional methods



V. EXPECTED OUTCOMES

Efficient, AI-driven mentor-mentee matching. Increased engagement between students and alumni. Improved career guidance and internship placement. Measurable improvement in student satisfaction and mentorship effectiveness. A scalable platform adaptable to universities globally.

VI. SIGNIFICANCE OF STUDY

- 1) For Students: Personalized guidance, enhanced career readiness, networking opportunities
- 2) For Alumni: Platform to contribute, network with peers, and mentor effectively
- 3) For Universities: Improved alumni engagement, streamlined mentorship programs, and better tracking of student outcomes.

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