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AMICO: YOUR SOCIAL AND PROFESSIONAL CONNECTOR

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ABSTRACT
In today's digital age, effective networking plays a pivotal role in both personal and professional growth, especially for college students navigating academic and career paths. Amico is an innovative social and professional connectors platform designed to address the unique challenges students face in building meaningful connections during their academic journey. By harnessing advanced Machine Learning algorithms, Amico delivers personalized recommendations that foster interactions between peers, mentors, and industry professionals. The platform analyses user preferences, academic backgrounds, and career aspirations to offer relevant collaboration, mentorship, and social opportunities. Additionally, Amico continuously adapts its matching capabilities by learning from user feedback, ensuring the recommendations evolve with the student's needs. This dynamic system not only promotes community engagement but also empowers students to take proactive control over their networking, enhancing their academic experiences and building valuable career connections. Ultimately, Amico strives to create a thriving ecosystem that prepares students for success in both social and professional spheres.
Keywords: Networking, Machine Learning, Personalized Recommendations.

I. Introduction

In today's fast-paced academic environment, college students face a wide range of challenges that go beyond just academic pressures. One of the most significant struggles they encounter is building meaningful social connections and networking opportunities that can support both their personal lives and future careers. As students move through their studies, the quest for professional growth, mentorship, and lasting friendships becomes a critical part of their college journey. However, finding these connections can be daunting in a sea of classes, extracurricular activities, and part-time jobs. Amico seeks to address this challenge head-on by offering an innovative platform specifically designed for college students, acting as a social and professional connector. Amico itself name represents the meaning FRIEND. It provides a solution that not only enhances student's social lives but also gives them an edge in their future professional endeavours. The platform taps into the power of machine learning and cutting-edge technology to create a personalized experience, helping students connect with individuals who share similar academic interests, career goals, and personal hobbies.
By understanding a student's academic background, extracurricular involvements, and career aspirations, Amico curates tailored recommendations that allow students to network more efficiently. Whether it's connecting with like-minded peers for study groups, discovering potential collaborators for research projects, or identifying industry professionals who can offer mentorship, Amico becomes an indispensable tool in navigating the complexities of academic life.

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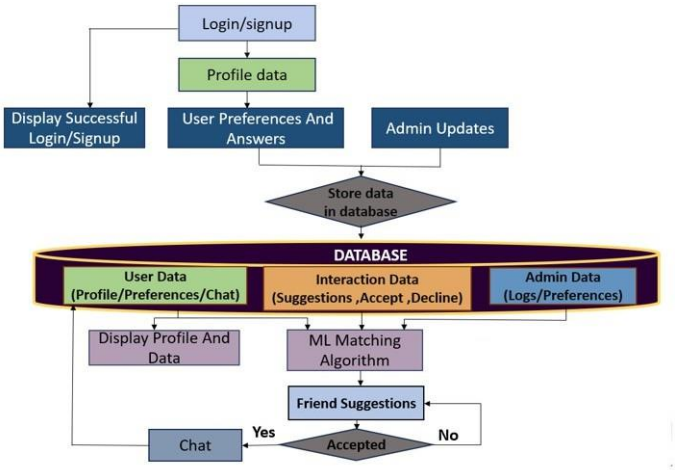

Figure 1: Work Flow

Ultimately, Amico bridges the gap between socializing and professional networking, creating a space where students can thrive academically and personally. By offering the tools and connections that students need to succeed in both spheres, Amico ensures that students are equipped with the resources to build relationships that will support their growth during their college years and beyond. Through this platform, students are not merely surviving their college experience but are actively shaping their futures in a collaborative, connected, and enriching environment.

1.1 Methodology

The AMICO social networking website is designed to enhance networking between students of different years, branches and alumni from a single college, enabling professional and social connections. The platform integrates advanced matching algorithms, database management, and real-time chat functionality to optimize user interactions. AMICO employs a content-based tagging system to classify and recommend profiles based on interests, preferences, and networking goals. By leveraging the K-Means Algorithm, the platform efficiently matches users with similar profiles, providing tailored suggestions for potential connections.

The fig.1 illustrates the process of an The AMICO app is designed to enhance networking between students among themselves and alumni from a single college, allowing for both professional and social connections. Users can find connections for various purposes, such as collaborating on projects, seeking sports-related networking, receiving career guidance, or simply expanding their professional and social circles. Whether looking for a teammate, mentor, or industry expert, AMICO helps users find like-minded individuals who align with their goals and interests.

Students/Alumni can log in, create a profile, complete their preferences, and view potential connections based on their professional or social goals. Once a connection is established, they can interact through a real-time chat feature. The Management team will have the ability to manage user data, preferences, and provide support. Admins oversee the overall system, making updates to user profiles, ensuring the quality of connections, and maintaining the platform.

Key Steps and Phases:

Login/Signup Screen: The app opens with a login/signup screen where users can either log in with existing credentials or sign up by providing basic details such as name, email, and password. Once logged in, users are directed to their respective dashboards based on whether they are a student, alumni, or admin.

Profile Data Input: After logging in or signing up, users are prompted to complete their profile, including: Personal Information (Name, Age, Educational background).

Professional Experience: Current Status (Student/Alumni). This data is stored in the User Data section of the database.

User Preferences and Answers: Following profile setup, users answer questions related to their networking goals, Preferences include: Types of Connections (Professional, Social, Mentorship)

Fields of Interest, Preferred Year/Department for Connections. These preferences are stored in the User Preferences section of the database.
Admin Updates: Admins can make periodic updates to user preferences, adjust system settings, and manage logs. Admins play a key role in ensuring that the system runs smoothly and efficiently, adjusting how suggestions are presented to users.
Data Storage in the Database: All data (user profiles, preferences, and admin updates) is securely stored in the app's database. The database is organized into two sections: User Data: Includes profile information, preferences, and chat history. Admin Data: Includes logs and settings for system maintenance.
Display Profile and Data: After users complete their preferences, their profile along with any relevant data is displayed. Users can view or edit their profiles and preferences as needed.
Machine Learning Matching Algorithm: The backend employs an ML matching algorithm to process user profiles and preferences. The algorithm analyzes factors like field of interest, current status, and batch year to provide personalized connection suggestions.
Label Encoders: To process categorical data efficiently, label encoding is applied to user preferences and profile data. This conversion allows for better handling of data in the K-Means clustering model.
Converting Data for K-Means: Before applying the K-Means algorithm, data is preprocessed and converted into a numerical format suitable for clustering. Features such as interests, batch year, and current status are transformed into numerical representations for optimal clustering performance.
K-Means Clusters: The K-Means Algorithm is implemented to group users into clusters based on their interests, educational background, and networking preferences. Users in the same cluster have a higher likelihood of meaningful connections.
Friend Suggestions: Based on the ML algorithm's output, the app presents a list of friend suggestions. The user can choose to:Accept the suggestion (indicating interest in connecting), Decline the suggestion (skipping this potential connection). If declined, the suggestion is not shown again, and new suggestions are generated.
Interaction Process: If the user accepts a suggestion, the connection is established, and users can interact. The interaction data is updated with details on accepted and declined suggestions.
Chat Functionality: Once both users have accepted a connection, they can engage in real-time chat through the app's messaging interface. Chat history is securely stored in the User Data section of the database, ensuring that past conversations are accessible for future reference.
Continuous Learning and Updates: Over time, the ML algorithm learns from user interactions (who they accept or decline) to improve future suggestions. Admins can periodically update user preferences or make performance improvements to the app through the Admin Panel. This iterative process ensures that the app continually refines its recommendations based on user behavior.

II. Literature

Alumni management systems play a crucial role in fostering connections between graduates and their alma mater. Recent research highlights various technological advancements that enhance alumni engagement, streamline interactions, and provide long-term networking opportunities.
Mate and Mehare [1] explore the transformative potential of cloud computing in alumni management. Their study highlights the benefits of cloud-based platforms, including enhanced communication, real-time database features, and centralized security mechanisms. Despite concerns regarding data security and privacy, the research suggests integrating AI-driven analytics, blockchain for secure data handling, and IoT for real-time event updates to improve efficiency. Furthermore, multi-language support, energy-efficient cloud solutions, and gamified engagement tools are recommended for better alumni participation.
Sela, Ikhsan, and Yuniarty [2] investigate the role of Learning Management Systems (LMS) in alumni engagement. Their study emphasizes LMS platforms as a bridge between students and alumni, facilitating professional networking, mentorship, and social initiatives. Findings indicate that a high-

quality educational experience correlates with long-term alumni relationships. Additionally, AI-powered recommendations, real-time collaboration tools, and data-driven engagement strategies are proposed as future improvements to further enhance alumni interactions.

Khan, Siddiqi, and Ahmad [3] highlight the development of an Intelligent Alumni Management System (IAMS) for universities. Their research focuses on a web-based platform that integrates profile management, job postings, surveys, and event coordination to strengthen alumni networks. The study emphasizes usability, security, and accessibility as key factors influencing user participation. The authors suggest implementing AI-powered analytics, blockchain for secure credential verification, and IoT-enabled event management for real-time interactions. The integration of mobile-friendly interfaces and gamified engagement models is also recommended to improve alumni experiences.

Patil, Bhasme, and Bobade [4] introduce Alma Hub, a structured digital platform designed for alumni-student collaboration. Their study focuses on key functionalities such as workflow management, seamless system integration, and communication enhancements. Despite challenges related to user adoption and adaptability, the platform provides structured support for mentorship, career development, and knowledge sharing. Future advancements include AI-driven engagement tracking, mobile-first design, and gamified networking tools to improve interaction quality and participation.

Rajni, H. P., and Upendrasingh [5] examine an Integrated Alumni Management and Networking System aimed at fostering continuous engagement, event management, and career support. The system enhances institutional relationships by offering a user-friendly interface for seamless communication. However, challenges such as user participation and technology adaptation persist. The study recommends integrating AI-driven recommendations, advanced career services, and mobile app accessibility to improve alumni engagement.

Occiano, Reyes, and Soberano [6] present a Web-based Alumni Management Information System that significantly improves alumni engagement and institutional communication. The system offers an integrated platform for managing alumni data, facilitating event organization, and encouraging networking opportunities. Alumni can create and update profiles, track activities, and stay informed about institutional events. The system, developed using PHP/XAMPP with MySQL, follows a structured design process using Context Diagrams, Data Flow Diagrams (DFD), and Entity Relationship Diagrams (ERD). The research employed the Rapid Application Development (RAD) model for efficient system development and refinement based on user feedback. Evaluation results highlighted the system's high usability (M=4.75) and strong functionality (M=4.70) regarding security, accuracy, and relevance. Future improvements include AI-driven analytics, multi-language support, and integration with social media for enhanced alumni interaction.

Murugan and Sathya [7] explore the growing significance of online platforms in fostering connections between students and alumni. The study highlights how these platforms facilitate mentorship, career guidance, and knowledge exchange, ultimately enhancing professional networks. Key factors influencing engagement include user-friendly interface design, relevant content, and active participation. The proposed system, developed using PHP, offers essential features like user registration, profile customization, messaging tools, a job board, and an admin dashboard for efficient management. Future enhancements include leveraging analytics for user engagement insights, refining mentorship outcomes, and improving platform performance.

Ved, Tanna, Yeole, and Kamble [8] present a Web-based Alumni Management System designed to enhance alumni data management and communication between institutions and graduates. The system replaces traditional manual methods with a structured, interactive, and digitized approach. Built using HTML, CSS, JavaScript (frontend), Django (backend), and SQL (database management), the platform offers dual access: administrators manage alumni records, events, and job postings, while alumni can update their information, view institutional updates, and share job opportunities. Future enhancements suggest integrating automation techniques like web scraping for job postings, strengthening data security, and refining the user interface for better usability.

Sabri, Ahmad, and Abdulrazzaq [9] introduce the Students and Alumni Web Portal (SAWP), a web-based system designed to enhance communication and data management among students, alumni, and academic staff across three universities. The system was developed after conducting an environmental analysis using the SWOT (Strengths, Weaknesses, Opportunities, and Threats) technique. SAWP consists of two main subsystems:

- Student Portal: Provides academic resources, event updates, attendance tracking, and exam results.
- Alumni Portal: Enables graduates to stay connected with institutions, participate in decision-making processes, and contribute to professional networking.

The usability of SAWP was evaluated using the System Usability Scale (SUS), with a high satisfaction rate of nearly 80%. Future advancements include AI-based event scheduling, real-time analytics, and blockchain for secure credential verification.

III. Conclusion

AMICO has successfully established itself as a specialized platform that bridges the gap between students and alumni of Xavier Institute of Engineering (XIE). It fosters collaboration, career guidance, mentorship, and social networking through machine learning algorithms for personalized user matching and secure access via college ID authentication. By enabling meaningful connections, AMICO enhances both professional and personal growth. Looking ahead, AMICO has immense potential for expansion and refinement. Advanced deep learning models could further improve user matching, making friend suggestions even more accurate and relevant. Extending the platform to other educational institutions would enable cross-college networking, mentorship, and collaboration, broadening opportunities for students and alumni beyond XIE. Future enhancements could include structured mentorship programs, allowing alumni to guide students in their careers. Event planning tools could facilitate networking meetups, career fairs, and guest lectures, fostering a stronger sense of community. Additionally, a dedicated mobile app would enhance accessibility, enabling real-time interactions and notifications. A mobile-first approach would ensure seamless connectivity, increasing user engagement. Leveraging data analytics, AMICO could gain insights into user behaviour and preferences, continuously refining its features to enhance engagement. By incorporating cutting-edge technologies and adapting to user needs, AMICO could evolve into a scalable, dynamic network. The platform has the potential to grow into a global networking hub, not only benefiting XIE's students and alumni but also setting a new benchmark for college networking platforms worldwide.

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