AI POWERED COMMUNITY NETWORKING PLATFORM

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Abstract: Online communities often struggle with efficient networking due to incomplete information about members' capabilities, interests, and intentions, making manual networking time-consuming and prone to mismatched partnerships. To overcome this challenge, the project implements a production-ready, AI-driven community networking platform that uses LLM-powered natural language search to intelligently match users based on comprehensive profile analysis, including Ikigai self-discovery responses, professional backgrounds, portfolios, social profiles, skills, and intent. The system features a structured multi-step onboarding process to capture purpose-driven and professional data, AI-assisted matchmaking powered by Google Gemini 2.5 Flash through the Lovable AI Gateway, and a natural language search interface that returns ranked and filterable match lists with percentage-based compatibility scoring, AI- generated match explanations, and highlighted attributes. In addition, the platform includes real-time built-in messaging with conversation threading, customizable privacy controls, and a modern gradient-themed user interface developed using Tailwind CSS and shadcn/ui components. The application is built on a modern, scalable technology stack comprising React 18.3, TypeScript, Vite for build tooling, Supabase for authentication and PostgreSQL database management, real-time subscriptions for messaging, Row Level Security (RLS) policies for secure data access, and a serverless edge-function architecture to efficiently support AI processing.

INTRODUCTION

A purpose-driven professional networking system called the AI-Powered Community Networking Platform (Ikigai Match) was created to address the increasing difficulty of locating compatible and meaningful partners in contemporary digital communities. Keyword- based searches, static filters, and constrained profile attributes like job titles or skill lists are the mainstays of traditional networking platforms. By utilizing the Ikigai framework—a comprehensive idea that symbolizes the intersection of a person's passions, skills, needs, and earning potential—Ikigai Match overcomes these constraints.

The platform produces a more comprehensive and significant representation of each user's professional identity by organizing user profiles around this framework. The platform performs deep semantic analysis of user-generated content by integrating Large Language Models (Google Gemini 2.5 Flash) through sophisticated natural language processing techniques. Instead of using predefined fields, users can use natural language to describe their objectives, interests, and collaboration needs. AI-generated explanations that make it obvious why a certain match is suggested.

Users' confidence in the matchmaking process is bolstered by this transparency. Furthermore, Ikigai Match offers a safe real-time communication system that lets users communicate, work together, and share ideas all within the platform without the need for outside resources. You can access the fully operational system at https://purpose-match-find.vercel.app/.By enabling purpose-aligned, meaningful connections through intelligent AI- driven matchmaking, the project hopes to greatly reduce the amount of time spent on manual networking, improve the relevance and quality of professional matches, and increase user engagement.

EXISTING SYSTEM

Professional networking sites like LinkedIn, AngelList, Shapr, Kaggle, Lunchclub, and Y Combinator Co-founder Matching are already available and very useful in making professional networks and collaborations. These sites rely solely upon keyword search and traditional filtering systems like job title, skills, industry, and geographic location to suggest connections. The process requires the users to thoroughly search and browse through a large number of profiles to find the appropriate collaborators. IJISAE Recent research in social networks has extensively explored community detection and recommendation systems to improve user connectivity and personalization. Studies published in and the Journal of Electrical Systems highlight how traditional and machine learning– based community detection methods help

identify meaningful user groups by analyzing interaction patterns, interests, and network structures. With the evolution of recommender systems, approaches such as Hete-CF emphasize the importance of heterogeneous social relationships to enhance collaborative filtering accuracy. Advanced deep learning models, including DiffNet++ and adversarial Graph Convolutional Networks, further improve social recommendations by capturing influence propagation, interest diffusion, and network robustness. Additionally, deep learning techniques using autoencoders and other neural architectures, as discussed in Informatica and MDPI publications, demonstrate significant improvements in detecting complex community structures within large-scale social media platforms.

Limitations of Existing Systems

Based on the literature review and analysis of existing systems, the following limitations are identified.

- Existing platforms rely primarily on keyword-based matching, leading to superficial connection recommendations.
- Current systems lack semantic understanding of user intent, goals, and motivations.
- Users must manually search through numerous profiles, making collaboration discovery time-consuming.
- Most platforms do not support goal-oriented or purpose-driven matchmaking.
- Recommendation processes lack transparency, leaving users unaware of why matches are suggested.
- Information overload results from broad and low-quality connection suggestions.
- Existing platforms offer limited or no built-in collaboration and communication tool.

PROPOSED SYSTEM

The proposed Ikigai Match system is designed to overcome the shortcomings of traditional professional networking platforms by focusing on meaningful and purpose-driven connections. Instead of limiting users to rigid profile fields and keyword-based searches, the platform uses Ikigai-based holistic profiling, allowing individuals to express what they truly enjoy, what they are skilled at, what motivates them, and what they aspire to achieve professionally. Users can describe their goals and collaboration needs in natural language, making the search process more intuitive and personal. The system applies Large Language Models to understand the intent behind user inputs and perform deep semantic compatibility analysis, rather than simply matching keywords. One of the key strengths of the platform is its ability to provide AI- generated match explanations, clearly showing users why a particular connection is recommended, which builds trust and confidence in the system. Additionally, real-time in-app communication enables users to connect and collaborate instantly without relying on external tools. Overall, Ikigai Match creates more transparent, relevant, and productive professional connections. Additionally, deep learning techniques using autoencoders and other neural architectures, as discussed in Informatica and MDPI publications, demonstrate significant improvements in detecting complex community structures within large-scale social media platforms. Comparative analyses of classical algorithms provide essential baselines for evaluating these modern methods, collectively indicating that integrating machine learning, deep learning, and social network analysis leads to more accurate, scalable, and intelligent community-based recommendation systems, paving the way for future enhancements in AI-powered community networking platforms.

Advantages of the Proposed Systems

- Enables purpose-driven and meaningful professional matchmaking.
- Uses Ikigai-based holistic profiling for deeper user representation.
- Understands user intent through semantic analysis using Large Language Models.
- Supports natural language goal and collaboration descriptions.
- Provides transparent AI-generated explanations for every match.
- Reduces information overload by delivering high-quality, relevant connections.
- Offers built-in real-time communication for seamless collaboration.
- Improves recommendation accuracy using advanced machine learning and deep learning techniques.
- Efficiently detects complex community structures within large networks.
- Saves user time by minimizing manual search and browsing efforts.

SYSTEM ARCHITECTURE AND METHODOLOGY

The proposed system architecture follows a layered and modular approach to deliver an intelligent, scalable, and purpose-driven professional matchmaking platform. The system begins with the client interaction layer, where users access the platform through a responsive web interface developed using Next.js and React. This interface enables users to register,

authenticate, complete Ikigai-based questionnaires, define their goals and collaboration needs, and view recommended matches along with explanations. User actions from the frontend are securely transmitted to the backend through a serverless API layer, which serves as the core communication bridge between the user interface, AI logic, and data storage components.
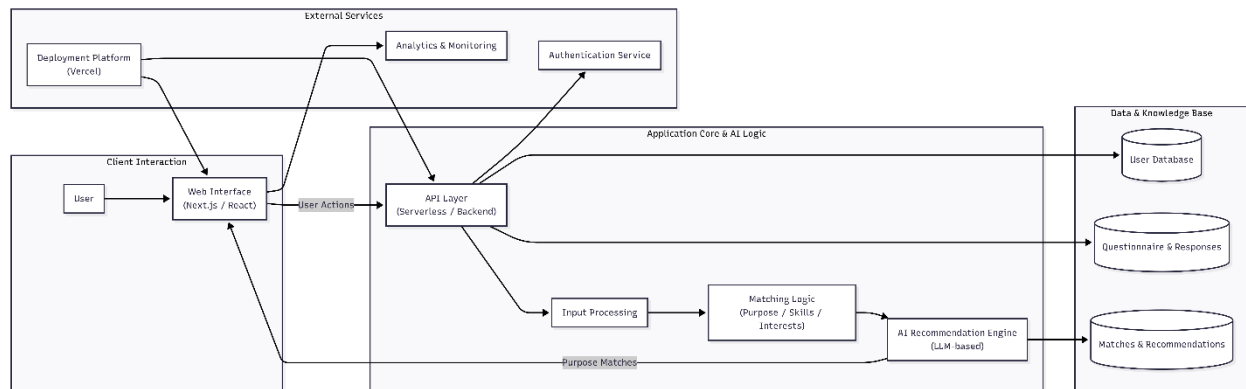
The application core and AI logic layer is responsible for processing user inputs and executing matchmaking operations. Raw user inputs are first handled by an input processing module, which cleans, structures, and prepares the data for further analysis. The processed data is then passed to the matching logic component, which evaluates user compatibility based on purpose, skills, interests, and goals. To enhance the accuracy and relevance of recommendations, the system integrates an LLM-based AI recommendation engine that performs deep semantic analysis, understands user intent, and generates explainable matchmaking results. This engine not only identifies compatible users but also provides transparent reasoning behind each recommendation, improving user trust and engagement.

The data and knowledge base layer store all critical information required by the system, including user profiles, questionnaire responses, interaction history, and generated matches and recommendations. This structured and persistent storage enables continuous learning, improved personalization, and efficient retrieval of data for real-time matchmaking. Additionally, the architecture integrates external services such as authentication systems for secure user access, analytics and monitoring tools for performance tracking and system health, and a cloud-based deployment platform (such as Vercel) to ensure scalability, reliability, and seamless deployment. Overall, this architecture enables a robust, intelligent, and transparent AI-powered networking platform that facilitates meaningful and productive professional connections.

METHODOLOGY

The AI-powered community networking platform is developed using a systematic and user- focused approach. Initially, the requirements of the system are analyzed to understand user needs such as profile creation, community interaction, and intelligent networking features. Based on these requirements, the system architecture is designed with separate frontend, backend, database, and AI components to ensure smooth functioning and scalability. User data such as interests, activities, and interaction history is collected with consent and processed to remove inconsistencies and improve accuracy.

Artificial intelligence techniques are then applied to analyze user behavior and provide personalized recommendations for communities and connections. The backend handles user authentication, data processing, and communication between the AI module and the user interface, while the frontend offers a simple and interactive experience for users. After development, the system is tested using unit testing, integration testing, and system testing to ensure reliability and performance. Finally, the platform is deployed on a server environment and continuously monitored for improvements, updates, and future enhancements based on user feedback.

RESULTS AND DISCUSSION

The system was tested with various emotional scenarios such as academic stress and anxiety. Results indicate that the chatbot provides meaningful emotional reassurance and appropriate guidance. The emergency module successfully triggers alerts in critical cases, demonstrating the system's reliability and ethical focus.
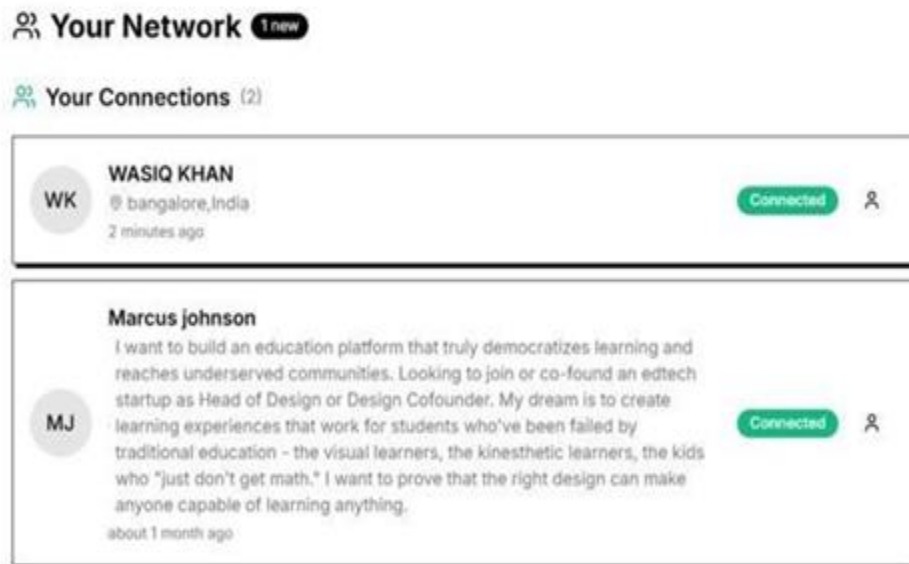
The image shows a professional networking platform interface under the "Your Network" section, where two connected profiles are displayed. One profile belongs to Wasiq Khan from Bangalore, India, indicating a very recent connection, while the other profile is Marcus Johnson, whose account includes a detailed bio describing his mission to build an education-focused platform aimed at democratizing learning and supporting underserved communities. Both profiles are marked with a green "Connected" status, highlighting active professional relationships and emphasizing the platform's role in facilitating meaningful networking and collaboration.

CONCLUSION AND FUTURE WORK

The AI-Powered Community Networking Platform, Ikigai Match, effectively illustrates how the thoughtful integration of Artificial Intelligence with a purpose-driven design approach can transform professional networking. By leveraging the Ikigai framework to understand users' passions, skills, and goals, coupled with semantic AI matching, the platform goes beyond traditional keyword-based networking. It provides users with personalized, meaningful connection suggestions, along with transparent explanations for each match. Real-time communication features further enhance collaboration, enabling users to interact instantly and efficiently. Overall, Ikigai Match empowers professionals to build purposeful connections, save time, and engage in more productive and satisfying networking experiences

Future enhancements aim to make the system more intelligent, personalized, and accessible to a wider range of users while maintaining ethical and privacy standards.

- **AI-Based Adaptive Matching**:
  Use AI and machine learning to analyze user feedback, interaction history, and past matches to continuously improve matching accuracy and relevance.

- **Mobile Application Integration**:
  Develop a dedicated mobile app to enable anytime access, real-time notifications, and seamless user interaction, increasing engagement and convenience.

- **Enhanced User Experience Features**:
  Introduce voice-based search for natural language queries and video profile introductions to allow more authentic self-expression and better connections.

- **AI-Powered Career Guidance**:
  Implement intelligent recommendation systems to suggest suitable career paths, learning resources, and mentorship based on user skills, interests, and market trends.

- **Blockchain-Based Trust and Security**:
  Integrate blockchain for secure identity verification and skill certification, ensuring tamper-proof credentials, reducing fraud, and increasing user trust.

REFERENCES

[1]. General overview of AI in networking: Explore how AI is used for automation and adaptive learning in network management with insights from Hewlett Packard Enterprise.

[2]. Top community platforms with AI features: Review platforms like Mighty Networks, Circle, and Swarm that offer AI-based features for community engagement and learning in this Storyprompt review.

[3]. Using AI for community content and engagement: An article by Khoros discussing how AI can enhance content generation and moderation in online communities.

[4]. AI-powered event management: See how AI is transforming community meetups and events with smart audience targeting and content personalization in this Airmeet blog post.

[5]. AI-powered low-code tools: Learn about the potential of AI in application development platforms from Microsoft Power Platform

[6]. OpenAI Developer Community: A resource for developers working with OpenAI's tools and APIs, available on the OpenAI website

[7]. Impact of AI on social media networks: An analysis of AI's impact on social media from the Journal of Electrical Systems

[8]. AI in collaborative network processes: An article from ScienceDirect reviewing the use of AI in collaborative networks and supply chain management