

ALTOGETHER – FROM CODE-SWITCHING TO COMMUNITY MATCHING

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College : B.N.M. Institute of Technology, Bengaluru
Branch : Artificial Intelligence and Machine Learning
Guide(s) : Mr. Mohanesh B M
Student(s) : Mr. M Harshith
Mr. Kamal Kumar Jangir
Mr. Mustkim Khan

Keywords:

AI-Based Community Platform, Graph Neural Networks, Recommendation System, Two-Tower Model, Semantic Embeddings, Geospatial Analysis, Interactive Map, Community Detection, Event Discovery, Agentic AI, Retrieval-Augmented Generation.

Introduction:

Migration to new cities often leads to social isolation and difficulty in finding like-minded communities. Existing platforms mainly focus on generic networking and lack location-aware, community-driven connections. ALTogether addresses this gap by providing an AI-based platform that connects users with similar individuals nearby using recommendation systems, geospatial mapping, and event discovery. The system integrates advanced technologies like Graph Neural Networks, semantic embeddings, and conversational AI to enhance user experience and enable seamless community building.

Objectives:

1. Develop an AI-Based Platform for Community Discovery.
2. Implement Graph-Based User Recommendation System.
3. Enable Interactive Map to Locate Nearby Users
4. Provide Event Discovery and Community Activities.
5. Integrated Conversational AI Assistant for User Queries and local laws support using RAG based system.

Methodology:

The project collects and stores user profile data including identity, location, and interests to build a comprehensive user base. Structured data is encoded using One-Hot Encoding (Tower 1), while semantic information from user descriptions is transformed into embeddings using Sentence Transformers (Tower 2). These features are then fused to create a unified representation, which is used to construct a user similarity graph. A Graph Attention Network (GAT) is trained on this graph to generate accurate recommendations. Users are ranked based on a combination of similarity, geographical proximity, and personal preferences. The system further integrates an interactive map and event module for real-time visualization and engagement. Additionally, an agentic AI along with a Retrieval-

Augmented Generation (RAG) system is incorporated to handle user queries and provide legal assistance.

Result and Conclusion:

In conclusion, the project successfully develops a comprehensive AI-driven community platform that integrates multiple components such as user recommendations, interactive maps, events, and an intelligent assistant. The hybrid recommendation approach, combining structured data and semantic embeddings, enhances the accuracy of user matching. The use of a Graph Attention Network further improves community-based recommendations, while geospatial features enable real-time discovery of nearby users and events. The platform promotes user engagement through connection and event participation features. Additionally, the integration of agentic AI and a RAG-based system provides effective query handling and legal assistance. Overall, the project demonstrates a scalable and efficient solution for improving social connectivity and community integration.

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Future Scope:

The future scope of this project includes:

1. Mobile app development (Android/iOS)
2. Real-time chat and messaging system
3. Advanced personalization using deep learning
4. Integration with government/local services
5. Multi-city and global scalability