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A Review of Modern Travel Buddy Finder Technology for Solo Travellers

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Abstract - The rise of solo tourism has created a demand for digital solutions that address loneliness, safety, and cost. This paper presents a comprehensive review of existing travel companion platforms and recommendation systems, analyzing their matching algorithms, security protocols, and user engagement strategies. We examine the limitations of current technologies, such as the "cold-start" problem in recommendation engines and data privacy concerns in location-based services. Based on this literature review, we propose the conceptual architecture for "Travel Together," a comprehensive web platform designed to bridge existing gaps. The proposed framework integrates intelligent matching algorithms, real-time tracking, and verified trust mechanisms to create a safer and more reliable environment for global travellers.

Keywords: Solo Travel, Literature Review, Travel Buddy Finder, Recommender Systems, Web Architecture, Trust Mechanisms.

I. Introduction

Solo travel has gained popularity due to the freedom and flexibility it offers, allowing individuals to explore at their own pace. However, it presents significant challenges, including loneliness, safety concerns, higher costs, and logistical difficulties, which often deter potential travellers. To address these issues, mobile and web technologies have evolved to create "travel buddy finder systems". These platforms facilitate safer and more enjoyable trips by connecting travellers with similar itineraries, allowing for shared expenses and cultural exchange.

This paper introduces "Travel Together," a web platform designed to overcome the limitations of existing applications by integrating multiple features into a single system. Key features include intelligent matching algorithms, real-time location tracking, verified user profiles, and a feedback-based trust system.

The primary goal of this study is to review existing travel companion systems, identify their shortcomings, and propose "Travel Together" as a comprehensive solution to make solo travel more secure, reliable, and friendly.

II. Related Work

The development of travel companion and recommendation systems has progressed steadily over the past decade, with major improvements in matching algorithms, personalization, safety mechanisms, and contextual recommendations. Various researchers have explored how intelligent technologies can help travelers find suitable companions and enjoy safer, more engaging journeys. The following studies highlight the key advancements, their limitations, and the gaps that motivate the development of the *Travel Together* platform.

R. Das, N. Natarajan, and K. S. Murthy (2024) introduced **Travel Tinder**, a hybrid recommendation platform designed to match solo travelers based on shared interests, preferences, and safety priorities. Their approach successfully increased user satisfaction and improved matching accuracy. However, challenges such as limited scalability and the cold-start problem—when there are few active users or profiles—restricted its broader adoption [1].

A. Khan and M. Roy (2023) developed a system using **Knowledge Graph Attention Network (KGAT)** to offer personalized recommendations for both travel buddies and destinations. The system achieved high accuracy by modeling relationships between users, destinations, and travel behaviours. Despite these strengths, the authors reported computational complexity and latency issues, especially when handling large datasets or operating on low-resource devices [2].

M. Banerjee and S. Mitra (2022) proposed **GuideMe**, a recommender system combining collaborative filtering with data from travel blogs and social reviews. This hybrid approach provided more context-aware recommendations by incorporating user-generated content. However, the system faced challenges in filtering unreliable or biased information from unstructured social data, which affected recommendation precision [3].

S. A. Rajan and R. S. Mehta (2023) explored **time-aware recommender systems** for e-tourism. Their system included temporal factors such as travel season, time, and duration to generate more relevant suggestions. While effective in improving recommendation timing, the model struggled with incomplete user travel histories and sparse timestamped data, reducing performance for new or infrequent travelers [4].

H. Nakamura, K. Tanaka, and R. Yamamoto (2022) developed a **real-time, location-based mobile guide** that provided destination and companion suggestions using GPS data. This system enhanced the spontaneity of travel experiences but was highly dependent on continuous connectivity and device battery performance. It also raised privacy concerns due to real-time location tracking [5].

Weiser and Brown (2020) studied the **role of social networking in travel companionship**, focusing on how online communities foster trust, engagement, and long-term use. Their findings emphasized that travel platforms must balance social interactivity with strong safety mechanisms, including verified profiles and moderated communication, to build user trust and loyalty [6].

Gonzalez and Johnson (2019) traced the **evolution of travel buddy platforms** from early community-based models like Couchsurfing to modern mobile applications. Their study highlighted how the rise of smartphones and cloud services transformed user expectations regarding instant matching, interface design, and review-based trust systems [7].

Singh and Sharma (2018) provided a **comprehensive survey of matching algorithms** used in travel companion finders, including rule-based, content-based, collaborative filtering, and hybrid models. They analyzed the trade-offs between accuracy and computational cost, especially in systems with sparse data or diverse user preferences [8].

Huang and Lee (2017) proposed a **travel buddy recommender system** based on user preferences, travel behaviours, and ratings. Their experiments showed higher user satisfaction when recommendations aligned with past travel styles. However, the system faced challenges with demographic diversity and the cold-start issue when users had little historical data [9].

Patel and Goyal (2021) focused on **user safety in online travel platforms**, proposing trust and verification mechanisms such as identity checks, peer reviews, and content moderation. Their work emphasized that trust

and safety are equally important as matching accuracy in ensuring user adoption and long-term engagement [10].

Zhou and Zhang (2020) studied **security and privacy challenges** in travel platforms, addressing issues like fraudulent accounts, data misuse, and malicious user behavior. They suggested security improvements through encryption, clear privacy policies, and verified user data. However, they noted that many users hesitate to share personal details, which limits the effectiveness of such systems [11].

Together, these studies demonstrate how travel companion and recommendation systems have evolved from simple rule-based matching to complex, AI-driven, and context-aware platforms. While existing systems have improved personalization and connectivity, challenges remain in scalability, data reliability, and ensuring trust and privacy. The *Travel Together* system aims to bridge these gaps by integrating intelligent matching, verified profiles, real-time tracking, and secure communication to create a safe, reliable, and user-friendly travel companion platform.

III. Proposed System Architechture

Based on the limitations identified in the existing literature, this study proposes the conceptual framework for "Travel Together." The architecture is designed to integrate theoretical research with practical utility, ensuring the platform is efficient, reliable, and user-centric.

1. Functional Design and Requirements: The proposed system addresses the critical gaps found in current travel applications by focusing on specific functional requirements.

- **Trust & Verification**: To counter safety concerns, the system mandates user registration with identity verification.
- **Smart Connectivity:** Users can search and match with potential companions based on specific travel interests, destinations, and dates.
- **Safety Protocols:** A real-time location tracking feature (enabled with user consent) and a secure messaging system are integrated to ensure safe communication and coordination.
- **System Reliability:** Non-functional requirements such as data privacy, scalability, and minimal downtime are prioritized to handle a growing user base.

2. System Architecture: The structural design of "Travel Together" follows a three-layer architecture to ensure smooth data flow and user interaction.

1. **Frontend Layer:** The user interface is proposed to be built using React.js alongside HTML and CSS. This ensures a responsive design that allows users to seamlessly set up profiles and interact with matches.
2. **Backend Layer:** To manage efficient API requests and data processing, the system utilizes Node.js with Express.js. This environment is chosen for its ability to handle asynchronous communication effectively.
3. **Database Layer:** MongoDB is selected as the storage solution for handling unstructured data, including user credentials, complex travel itineraries, messaging records, and feedback logs.

3. Algorithmic Logic: A key differentiator of the proposed system is its intelligent matching algorithm. Unlike basic keyword searchers, this algorithm prioritizes compatibility through a tiered logic:

- **Tier 1 (Highest Priority):** Destination overlap and travel dates.
- **Tier 2 (Medium Priority):** Shared interests and travel preferences.
- **Tier 3 (Trust Metric):** A computed "Trust Factor" based on profile verification status and peer feedback.

4. Implementation Tools and Technologies

The following technologies are used for implementation:

Component	Tools / Technologies
Frontend	HTML, CSS, JavaScript, React.js
Backend	Node.js with Express.js
Database	MongoDB
Authentication	Passport Authentication
Hosting	Firebase Hosting

Fig. 2 Tools and Technologies

VI. Conclusion

In conclusion, this research confirms that technology is the bridge between the freedom of solo travel and the need for personal safety. Our review highlights that while the desire to explore the world independently is growing, trust remains a major barrier. The "Travel Together" platform addresses this by prioritizing **verified user profiles** and intelligent matching, creating a secure space where travelers can connect without fear. By balancing adventure with digital security, this proposed framework offers a practical solution for modern tourists. Future enhancements, such as AI-driven suggestions and real-time tracking, will further ensure that traveling alone no longer means being isolated or unsafe.

REFERENCES

[1] R. Das, N. Natarajan and K. S. Murthy, “Travel Tinder: A Smart Solo Travel Buddy Matching Platform Using Hybrid Recommendation,” IEEE 9th Int. Conf. Smart Comput. Commun. (ICSCC), Chennai, India, 2024.

[2] A. Khan and M. Roy, “Travel Buddy App using KGAT for Personalized Recommendations,” SSRN Electron. J., 2023.

[3] M. Banerjee and S. Mitra, “GuideMe: A Travel Recommender System Using Collaborative Filtering with Social Blog Integration,” Procedia Technol., vol. 25, pp. 1140–1147, 2022.

[4] S. A. Rajan and R. S. Mehta, “E-Tourism Intelligent Search System Using Time-Aware Recommenders,” Int. Conf. Intell. Syst. Comput. (ISCO), IEEE, pp. 398–402, 2023.

[5] H. Nakamura, K. Tanaka and R. Yamamoto, “Smart Tourist Guide Mobile App Using Real-time Locationbased Services,” IIAI Int. Congr. Adv. Appl. Inform., IEEE, 2022.

[6] M. Weiser and J. Brown, Social Networking and Travel: A Comprehensive Guide to Connecting with Others Online, Travel Press, 2020.

[7] A. Gonzalez and R. Johnson, “The Evolution of Travel Buddy Platforms: From Couchsurfing to Mobile Apps,” J. Travel Tourism, vol. 48, no. 3, pp. 215–232, 2019.

[8] R. Singh and S. Sharma, “Travel Companion Finder: A Survey of Matching Algorithms for Online Platforms,” J. Travel Technol., vol. 36, no. 4, pp. 92–103, 2018.

[9] L. Huang and K. Lee, “Design and Evaluation of a Travel Buddy Recommendation System,” Int. J. HumanComputer Interact., vol. 33, no. 6, pp. 536–548, 2017.

[10] A. Patel and S. Goyal, “Ensuring User Safety in Online Travel Platforms: A Comprehensive Guide to Trust and Verification Mechanisms,” J. Internet Safety, vol. 4, no. 1, pp. 112–120, 2021.

[11] M. Zhou and Y. Zhang, “Security Challenges in Online Travel Companionship Platforms: Solutions and Best Practices,” Int. J. Cybersecurity, vol. 6, no. 2, pp. 74–88, 2020.