



HIKIGO

GROUP 15



EnzeZhou

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INTRODUCTION



HiKiGo: Smarter Hiking for Beginners

Hiking's rising popularity brings new challenges. Novice hikers often struggle to find safe routes, pace themselves, and connect with compatible partners. Existing apps rely on static recommendations and manual coordination, leading to poor experiences or even safety risks.

⌚ Adaptive Route Planning – Real-time trail suggestions based on weather, terrain, and fitness.

👫 Intelligent Partner Matching – Automatically connects hikers with similar goals and experience.

🤖 AI-Guided Social Support – In-app chat for gear tips, safety alerts, and "story-style" hike sharing.

Built on Trust,
Community & Confidence

HiKiGo Solves
This With

HiKiGo helps new hikers explore safely, build lasting friendships, and enjoy every step of the journey.

Requirement Discover

Persona

Scenario

Requirement Analysis

Lily Johnson



Age: 20
Work: Student
Location: Suzhou, China

Personality



Goals:

- Want to find a hiking route that suits your physical fitness level and experience and enjoy the hiking experience.
- Want to track your hiking progress and make real-time adjustments based on weather and environmental conditions.
- Want to find suitable teammates or group hikes based on shared goals and fitness levels.

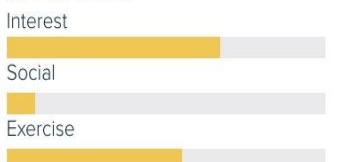
Challenges:

- Because of lack of experience, I don't know how to choose the right route based on my physical fitness and experience.
- She has no regular hiking partners and feels awkward joining strangers, which makes group hiking difficult.

Background:

Lily is a university student majoring in communication. She leads a fulfilling but busy life. She has recently become interested in hiking and decided to try to improve her physical fitness while enjoying nature. Although she has a lot of hiking interests, she is confused about route selection, physical fitness management, etc. due to her lack of experience.

Motivation



Solution:

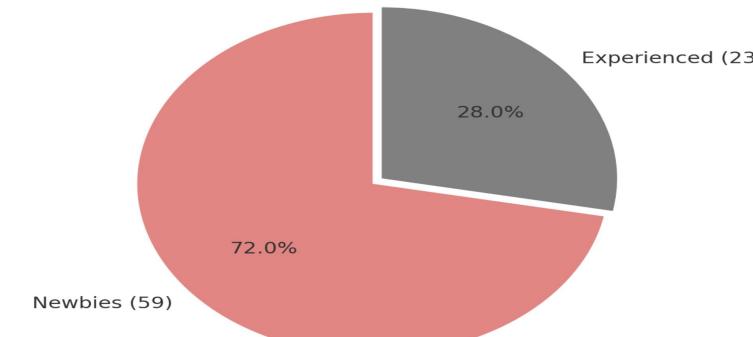
- AI Route Planning: Recommends personalized routes based on fitness and experience.
- Smart Teammate Matching: Recommends hiking partners based on experience, pace, and social preferences.

Favourite destinations

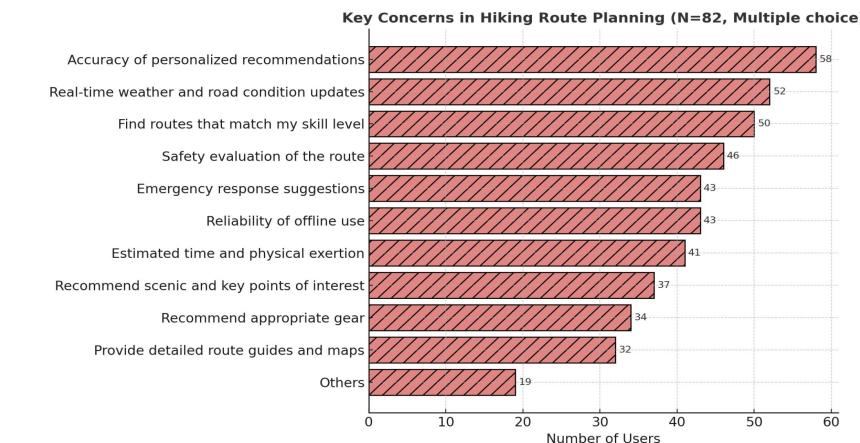
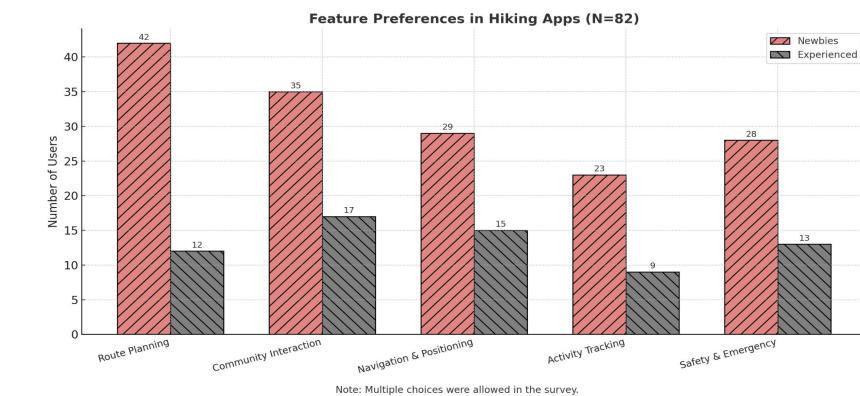
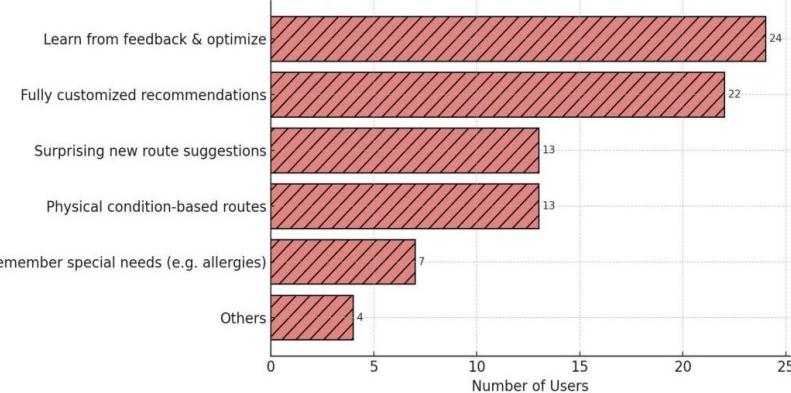


While walking, Lily saw a poster of a golden ginkgo forest that inspired her to hike there. Despite her efforts, she couldn't find the location until she used HIKIGO, the AI-powered hiking app. By uploading the image to the app's Smart Route Planning feature, the AI identified it as Ginkgo Valley near Mount Moganshan and created a personalized hiking plan. Guided by the AI, Lily completed her dream hike and shared her story, inspiring others.

User Composition: Newbies vs Experienced (N=82)



User Expectations for AI Personalization in Hiking Apps (N=82)



We conducted a semi-structured group interview with four active hikers to explore pain points and expectations in hiking experiences. To validate and broaden our findings, we also distributed a mixed-format questionnaire (both open- and closed-ended) and received 82 valid responses. These results helped us identify core user needs, preferred features, and personalization expectations for hiking apps—especially among beginners.

Requirement Analysis

Design Process

Our interaction design process follows the iterative interaction design lifecycle, involving four core activities. We defined the requirements using an atomic requirements shell and a user persona. Through weekly meetings, we clarified the functional, non-functional, data, environmental, and user needs. Data was collected via questionnaires and interviews with both open- and closed-ended[1] questions. To ensure alignment with user needs and project goals, we explored multiple design options and conducted evaluations.

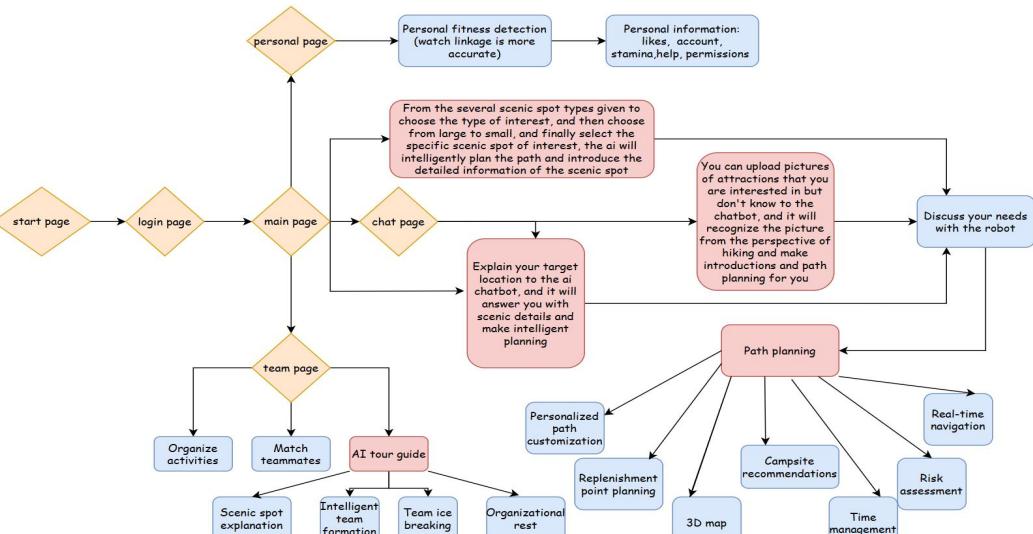


Figure 1 Software interface structure diagram

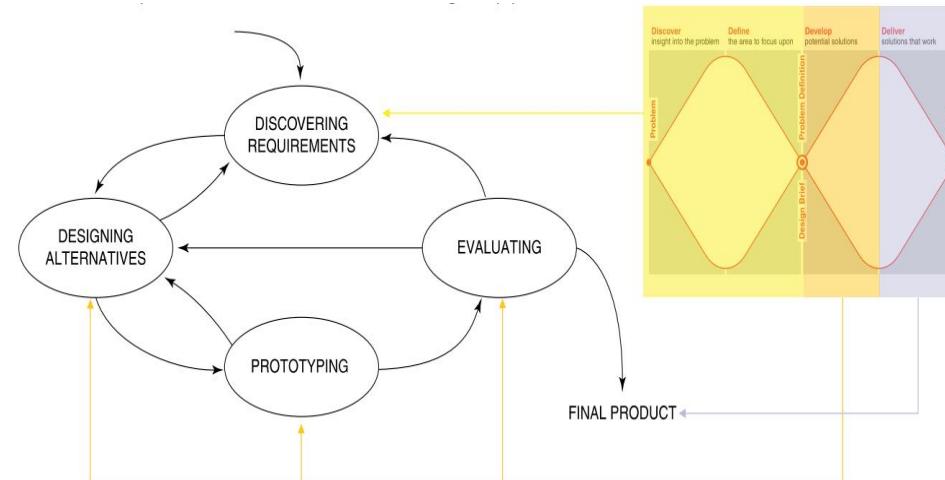


Figure 2 Interaction design lifecycle model[2]

User Functional Requirements

1. AI-powered route planning tailored to user skills and preferences
2. Multiple route options for different hiking profiles on the same trail
3. Adaptive suggestions that learn from user feedback and history
4. Real-time safety alerts and environmental updates
5. Smart teammate matching based on experience and goals
6. Scenic spot & gear recommendations based on route features

Prototype Iteration

01

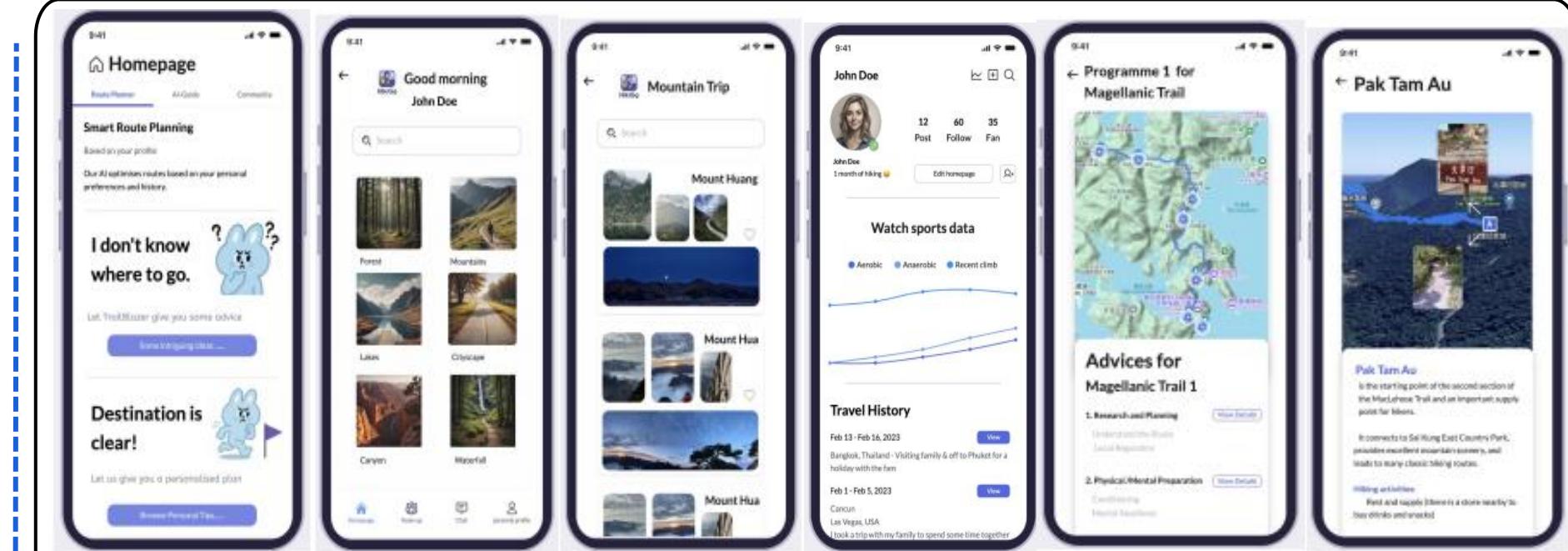
Iterative process



Prototype

We adopted the evolutionary prototyping method and pilot study, carried out two rounds of iterative optimization on the hiking software. The whole process strictly follows the four methods of demand acquisition (observation, interview, questionnaire survey, data analysis), according to the user needs of the interview and survey analysis, to ensure that the product is always evolving around the real user needs.

Version	AI-Powered Route Recommendation	AI Hiking Assistant	User Experience Optimization
Iteration I	Upgraded AI interaction system: Expanded from text-only to multimodal interaction (image/voice). Uses learning algorithms to accurately understand user intent, combining environmental data and personal preferences to deliver precise personalized route recommendations.	New AI tour guide feature: Machine learning generates personalized guiding services. Handles team formation, ice-breaking, conflict mediation, and role assignment initially; provides real-time member tracking and proactive safety alerts during hikes.	Redesigned core homepage with intuitive UI. Elevated AI planning function to primary visual module. Streamlined workflows significantly improve feature discoverability and interface readability for effortless core function access.
Iteration II	Added wearable integration: Continuously monitors vital signs, using AI fitness algorithms to dynamically adjust route difficulty and pace. Combines real-time physical data with historical patterns to deliver scientifically optimized route suggestions ensuring safety and comfort.	Enhanced AI guide: Added context-aware scenic explanations and image recognition commentary with voice prompts. Introduced "rest coordination" - privately request breaks via AI to intelligently adjust group pace while maintaining harmony.	Upgraded guide interface: Visual guidance system with dynamic indicators reduces cognitive load. Community UI: Implemented preferred card-style waterfall layout.



Iteration I



Iteration II

Iteration III

★ Personal

Function Module	User Requirement
Real-time AI Guidance	Beginners need real-time, safe, and efficient outdoor guidance
Instructional Video Generation	Users want to quickly acquire skills without reading complex manuals
Itinerary & Equipment Suggestions	Users hope the system can provide customized suggestions based on their plan
Team-up Integration	Users want to more easily find suitable teammates
Content Sharing / Tutorials	Users want to learn from others' experiences and express themselves
AI Friend Matching	Users want the platform to automatically recommend friends with similar interests
Achievement System	Users need ongoing motivational systems to stay engaged

John Wick



Wish

- Trail Recommendations: The app suggests the best hiking and trekking routes based on Jake's preferences.
- Weather & Safety Alerts: Provides real-time weather updates and safety warnings to ensure a secure hiking experience.
- Hiker Community: Connects John with fellow hikers to share trails, experiences, and tips.

Interests

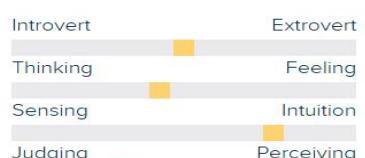
Photography: Enjoys capturing breathtaking landscapes and wildlife on his hikes.
Camping: Loves spending nights under the stars, often combining his hiking trips with camping.
Environmental Conservation: Passionate about preserving nature and reducing his carbon footprint.

Skill level

Beginner hiker: Only suitable for beginner-level hiking, still learning the skills of long-distance and high-altitude hiking.

Learning to plan routes and prepare for tough conditions: Actively seeking guidance on how to handle unpredictable weather and terrain changes.

Age: 21
Work: University student studying environmental science
Family: Lives with parents and younger sister (16).
Location: Suzhou, China



John is planning a weekend hiking trip with friends. The day before departure, he shares his itinerary and schedule with the AI assistant. The AI automatically generates a route plan, a checklist of essential gear, and a 2-minute video tutorial on how to pitch a tent. During the hike, John feels tired and quietly tells the AI, "I need a break." The AI discreetly adjusts the group's pace without disrupting the team. After the trip, John shares photos and reflections in the community, where the system recommends active beginner groups based on his interests and rewards him with a "First Camping" achievement.



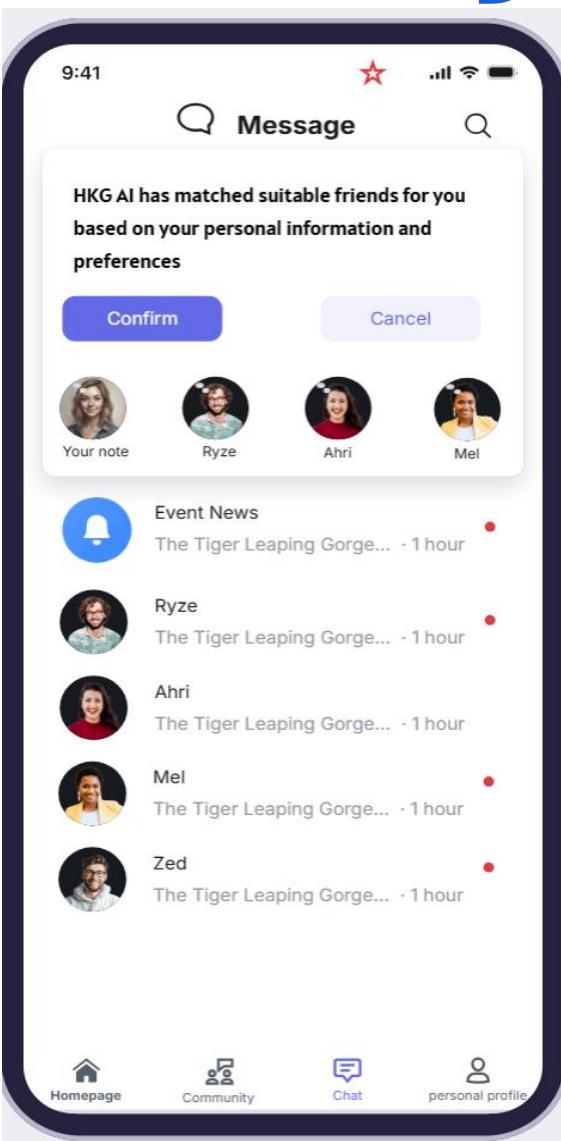
Version	AI-Powered Route Recommendation	AI Hiking Assistant	User Experience Optimization
Iteration III		Enhanced care for beginners: The AI assistant provides real-time hiking guidance. Users can share their itinerary in advance, and the AI will generate voice or text recommendations for routes and gear planning. It can also create teaching videos, like pitching a tent in 2 minutes.	Community page improvements: Enhanced team-up functionality, now integrated into the community. Users can share updates and tutorials, while AI matches compatible friends based on personal information and preferences. Added daily tasks and achievement systems to motivate hiking.

The AI assistant enhances the hiking experience by offering real-time guidance, including route and gear recommendations based on users' itineraries, along with quick instructional videos, such as pitching a tent. Additionally, the improved community page integrates upgraded team-up features, allowing users to share updates and tutorials. The AI also matches compatible friends based on personal information and preferences, while new daily tasks and achievement systems encourage users to stay active and motivated on their hiking journeys.

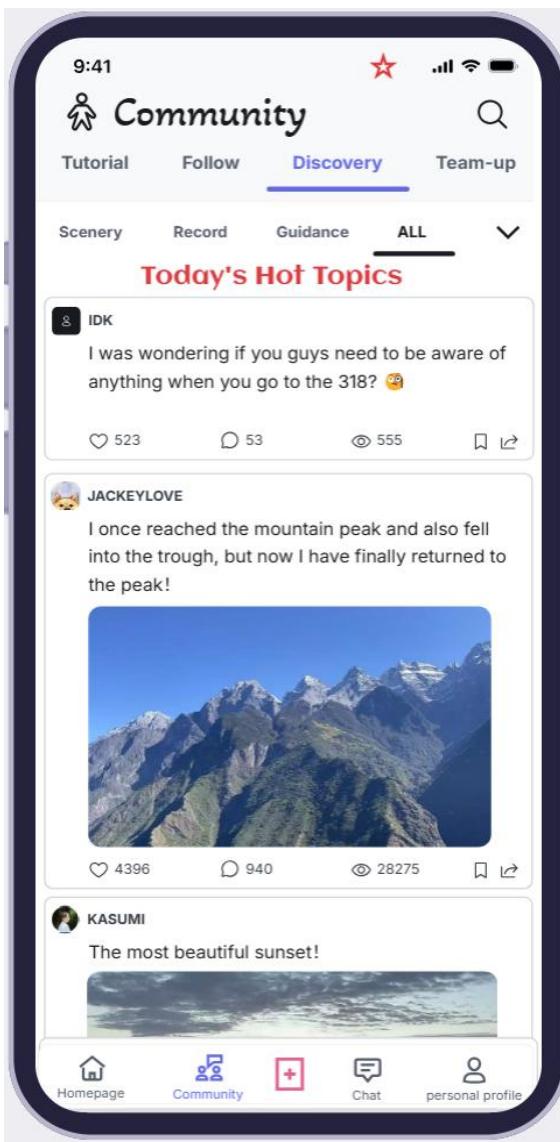


Prototype

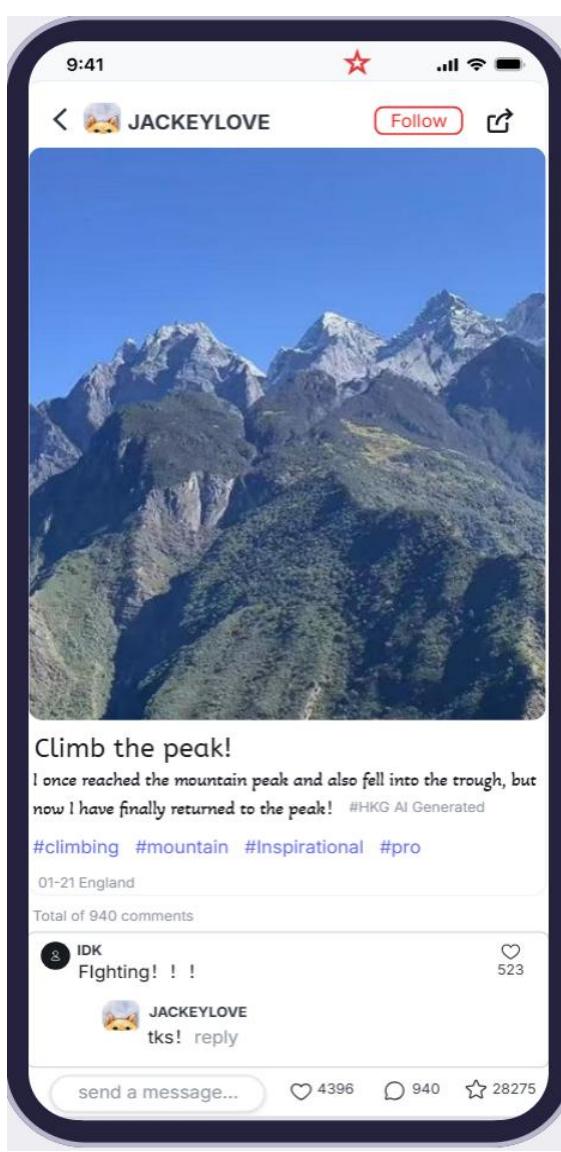
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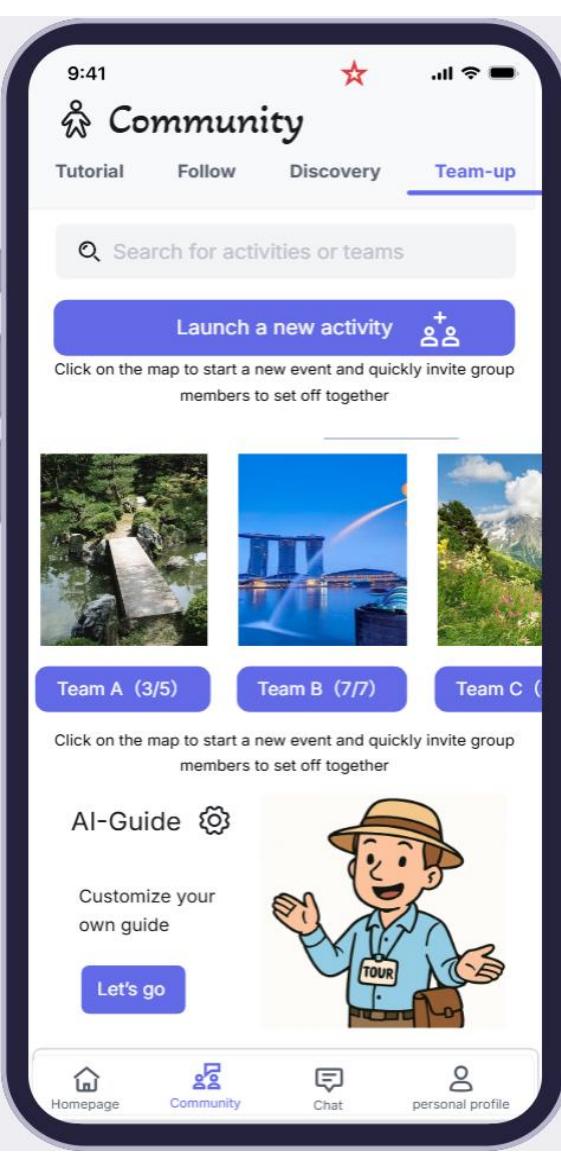
This message page integrates AI-powered friend matching and a streamlined chat interface to enhance social interaction. A pop-up recommends friends based on personal preferences, while the chat list provides clear, time-stamped conversation summaries with notification indicators. The design balances dynamic AI suggestions with static communication, creating a personalized and efficient user experience.



This "Community - Discovery" page highlights trending hiking-related posts, allowing users to explore content across categories like Scenery, Records, and Guidance. Users can engage with posts through likes, comments, and shares, while the interface promotes high-traffic discussions under "Today's Hot Topics." The clean layout, image integration, and interactive metrics foster a socially engaging and informative environment for outdoor enthusiasts.



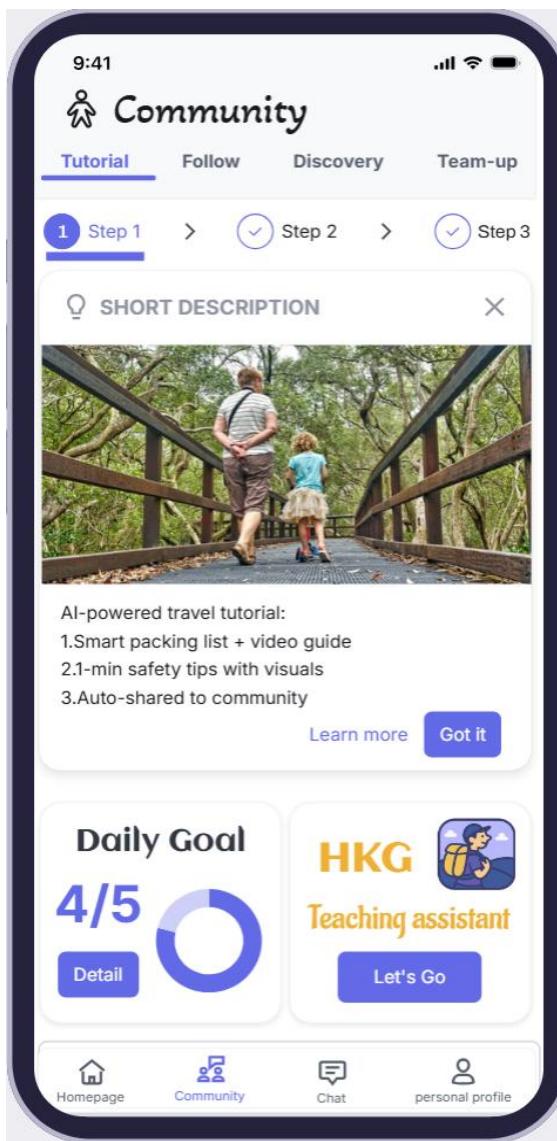
This post detail page highlights a user's hiking experience with a photo and AI-generated caption. It allows likes, comments, and shares, encouraging interaction through a clean layout and visible engagement features like hashtags and reply options.



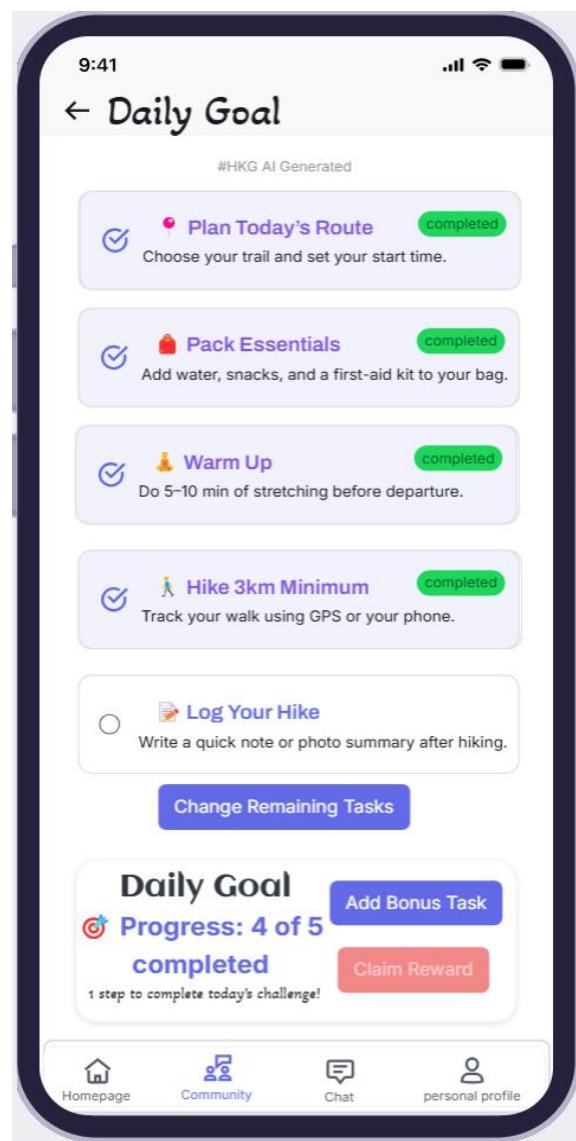
This Team-up page allows users to search or launch hiking activities and quickly join teams. It displays available teams with visual previews and member counts, encouraging spontaneous group formation. The AI Guide section offers a customizable assistant to help plan events, making team coordination smarter and easier through an interactive and friendly design.

Prototype

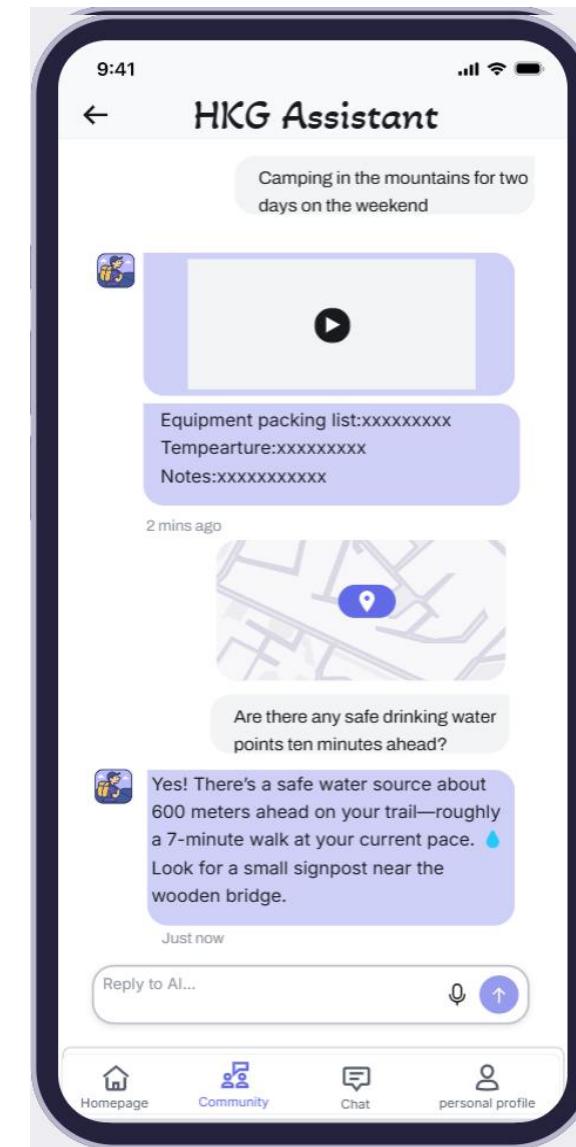
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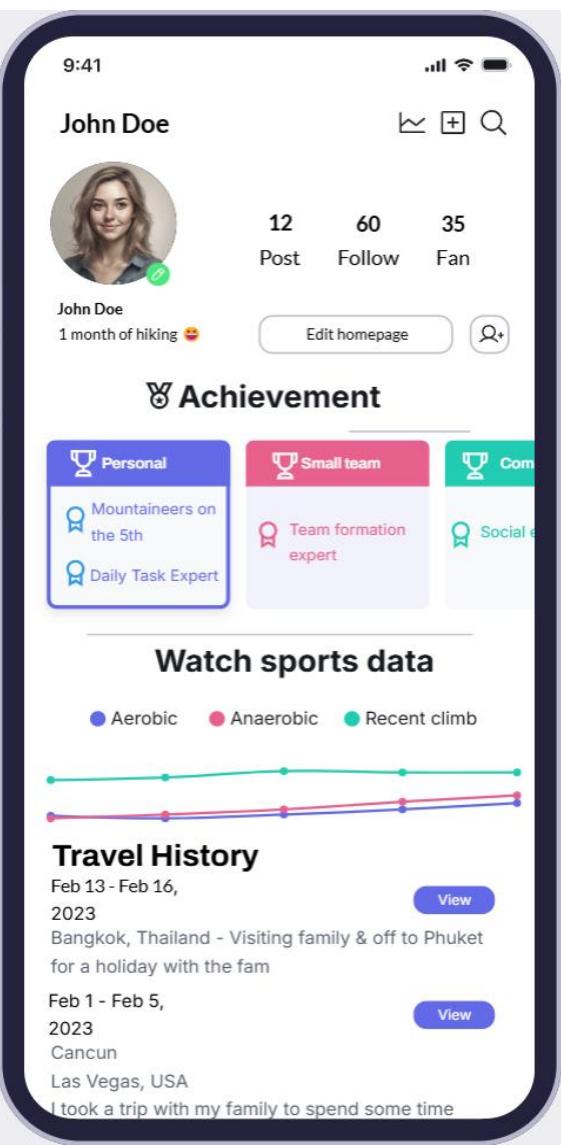
This Tutorial page offers an AI-powered travel guide broken into steps, featuring smart packing lists, visual safety tips, and automatic community sharing. It tracks the user's daily goal progress and provides quick access to a teaching assistant for personalized help, creating a supportive and guided experience for beginners.



This Daily Goal page guides users through five simple hiking tasks—from planning a route to logging the trip—with progress tracking and motivational rewards. The clear checklist format, AI-generated tasks, and bonus options create a structured yet flexible way to stay active and build healthy outdoor habits.



This HKG Assistant chat interface provides real-time hiking guidance, including equipment checklists, weather updates, map navigation, and answers to user queries. The assistant's responses are clear and location-aware, enhancing user safety and decision-making during outdoor activities.



This page is a user profile that shows basic info, social stats, achievements, sports activity, and travel history. It uses a clean, card-style layout with bright colors and clear icons to make the content easy to read and engaging. The design focuses on visual clarity and user interaction.

Evaluation



We used a triangulated evaluation combining heuristic evaluation, 12 user interviews, and 48 survey responses to assess usability and user needs.

Key Finding

Users praised the intuitive interface and AI-generated personalized routes. Quantitative data showed that ease of use reached 77.6% and overall satisfaction was 73.4%, aligning well with the positive qualitative feedback. AI guides and group trekking promoted social inclusion.

Experts recommended exploring augmented reality (AR) features, allowing users to visualize waypoints, historical landmarks, and ecological information directly through their devices—further enriching the trekking experience.

Younger users, particularly those under 25, expressed a preference for simpler, more relatable language in both the interface and the AI assistant's communication style. Some suggested integrating visual storytelling elements and emoji-based cues to make navigation and interactions more engaging and accessible.

I used a mix of usability testing, heuristic evaluation, and a System Usability Scale (SUS) survey to assess the prototype. Eight users completed key tasks like joining a team or checking goals, while three UX experts reviewed the interface using Nielsen's principles. On average, tasks had an 87% success rate and took 1.3 minutes to complete. The SUS score was 78/100. The evaluations showed good usability overall, but also pointed out areas needing improvement—especially feedback clarity and button visibility.

Users responded well to features like daily goals and tutorials, finding them clear and motivating. However, some usability issues were noted: main actions like "Start Team-Up" lacked visual emphasis, the AI assistant felt a bit robotic, and the social layout was overwhelming for new users. Future improvements should focus on clearer visual hierarchy, smoother AI interactions, and simplified navigation. Despite these issues, the prototype met user needs and is ready for further development.

Conclusion & Future Work

This project successfully created interactive prototypes to support outdoor activities through social features, daily goals, and an AI assistant. Usability testing and expert reviews showed that users found the core functions helpful and easy to use, especially in goal tracking and tutorials. However, some issues were identified, such as unclear feedback in certain buttons, slightly rigid assistant responses, and complex layouts for new users.

In future work, we plan to improve visual clarity, make the AI assistant more natural and responsive, and simplify navigation for first-time users. Additional ideas include adding real-time team updates, smarter route suggestions, and better health data integration to create a more complete and personalized hiking experience.



Discussion and Reflections



This project achieved its goal of creating a user-centered prototype to enhance outdoor activities through social features, daily goals, and an AI assistant. Compared to existing apps, our design stood out for its simple task flow and engaging guidance. Strengths included clarity, motivation, and ease of use, while limitations involved limited personalization and occasional UI complexity.

Working on this project taught us the value of early testing and clear communication. I contributed to both design and evaluation, gaining hands-on experience in user research and prototyping. The project followed human-centered principles by focusing on accessibility, community, and healthy behavior, avoiding manipulative or addictive design choices.

- [1] Sharp, H., Preece, J., & Rogers, Y. (2007). Interaction design : beyond human-computer interaction (2nd ed.). Wiley
- [2] P. Hadler, "The Effects of Open-Ended Probes on Closed Survey Questions in Web Surveys," Sociological Methods & Research, vol. 54, no. 1, pp. 106–139, 2025

Reference

Thank you!

