

AI Powered Personalized Travel Planner

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Abstract:

— Planning a trip involves more than simply choosing a destination. Travellers often need to search for suitable places to visit, decide how many activities can be covered in a limited number of days, check the weather, compare transport and accommodation options, find restaurants, estimate expenses, and understand the routes between different locations. When these tasks are handled through separate applications, planning can take considerable time and the final schedule may not match the traveller's actual interests or budget. The AI-Powered Personalised Travel Planner is developed to address this problem by bringing the major travel-planning activities together in one web application. The system collects important trip details such as the destination, duration of the trip, budget, traveller type, and preferred activities. Based on these details, it prepares a personalised day-wise itinerary that helps the traveller understand what can be done during each day of the trip. The application also provides supporting information such as attractions, hotels, restaurants, transport options, weather conditions, maps, emergency services, and estimated expenses. A live route feature allows the user to view a route from the current location to a selected destination using an interactive map..

I. INTRODUCTION

Personalised tourism recommendation has become an important area because different travellers have different interests and requirements. A recommendation that is useful for one traveller may not be suitable for another. Research in this area therefore considers factors such as user interests, destination characteristics, popularity, and travel constraints. attraction

Work on personalised tourism itineraries focuses on selecting and arranging places according to user requirements. Such systems are useful because they move beyond simply recommending destinations. An itinerary must also consider the limited amount of time available to the traveller. A large number of recommended attractions may not be useful if they cannot be visited within the available days. Existing travel applications are useful for individual purposes.

Map services help with navigation, hotel services help with accommodation, and tourism platforms provide information about attractions. However, the traveller often remains responsible for combining this information. A simple list of recommended places does not necessarily form a useful itinerary because the places may be far apart, require different amounts of time, or may not suit the traveller's interests.

Recent research has explored personalised tourism recommendation, itinerary generation, route planning, generative approaches, and modular travel-planning systems. The supplied reference collection includes work related to personalised tourism itineraries, GenAI-based itinerary planning, smart tourism recommendations, mobile travel applications, and modular trip planning. These studies show the importance of considering user preferences and practical travel constraints when preparing travel plans.

The proposed AI-Powered Personalised Travel Planner focuses on this practical problem. Instead of making the traveller collect information from several sources, the application provides a single workspace where the user can enter trip requirements and obtain a day-wise travel plan. The plan is supported by information about attractions, hotels, restaurants, transportation, weather, maps, routes, emergency services, and expenses.

The system is designed around the traveller rather than around a single service. The itinerary is the central part of the application, while the other modules provide information that helps the traveller understand and use the itinerary. This approach makes the application useful before the trip and also during the journey.

The main objectives of the proposed system are:

1. To reduce the manual effort involved in travel planning
2. To prepare a personalised day-wise itinerary based on user requirements.
3. To provide travel-related information through one platform.
4. To connect planned activities with maps and route information.

5. To provide supporting information about weather, transport, accommodation, restaurants, and attractions.

6. To help users manage estimated and actual travel expenses.

7. To provide useful travel support such as emergency-service information and saved trips

II. RELATED WORK

Personalised tourism recommendation has become an important area because different travellers have different interests and requirements. A recommendation that is useful for one traveller may not be suitable for another. Research in this area therefore considers factors such as user interests, destination characteristics, attraction types, distance, popularity, and travel constraints.

Work on personalised tourism itineraries focuses on selecting and arranging places according to user requirements. Such systems are useful because they move beyond simply recommending destinations. An itinerary must also consider the limited amount of time available to the traveller. A large number of recommended attractions may not be useful if they cannot be visited within the available days.

The supplied work on smart tourism recommendations also highlights the importance of presenting recommendations in a form that users can understand and use. Visual presentation is particularly useful in travel applications because travellers need to understand where places are located and how they relate to one another.

Another direction in the supplied literature is the use of generative AI for itinerary planning. Generative systems allow travellers to describe their requirements more naturally and receive a suggested travel schedule. This can make planning easier, but generated information should still be checked against actual travel information. Prices, opening hours, weather, transport availability, and routes can change over time.

The supplied work on mobile travel applications considers personalised routing and travel content as part of the user experience. This is relevant to the

proposed system because an itinerary becomes more useful when users can connect an activity with its route, location, and supporting information.

The reference paper Safe Urban Route Planning via Semantic Graphs and Neural Cost Shaping is used as the main methodological reference for the present project. Its planning-oriented structure is useful for understanding how a system can separate the planning process from the information and constraints used during planning. The proposed travel planner adapts this general idea to tourism rather than reproducing the auto.nomous-route-planning problem.

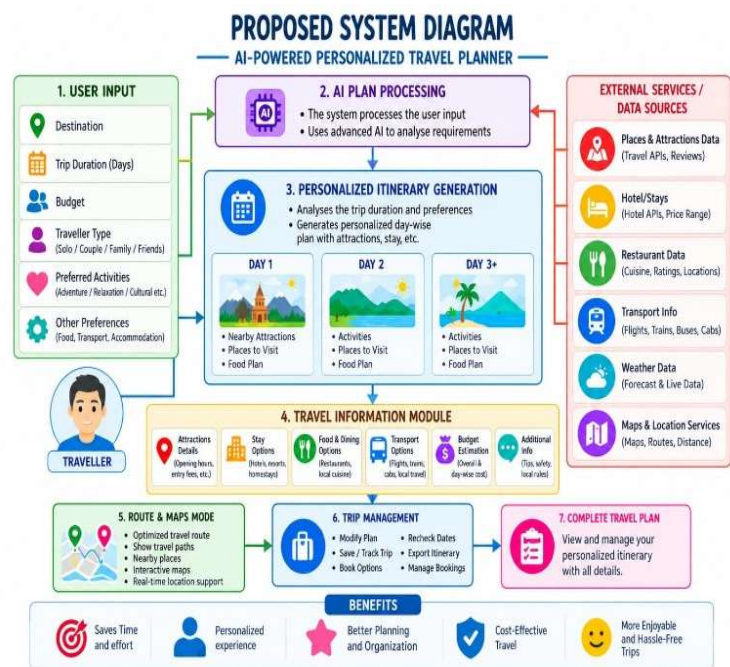
The supplied research on modular multi-agent trip planning also shows the value of dividing a larger travel problem into smaller functions. Transport, accommodation, sightseeing, and other travel tasks can be handled as separate components and brought together around one trip. From these studies, it can be observed that personalised recommendations, itinerary generation, route planning, and travel information are often discussed as separate areas. The proposed system attempts to bring these functions together in one user-facing application.

A. Research Gap The existing work provides useful solutions for individual parts of travel planning. Recommendation systems can suggest places, itinerary systems can organize activities, and map services can provide routes. However, a traveller may still need to move between different services to complete the entire planning process.

The gap addressed by this project is therefore the integration of personalised itinerary planning with practical travel utilities. The proposed system does not claim to introduce a completely new recommendation algorithm. Instead, it focuses on creating a single travelplanning environment in which personalised planning, maps, weather, places, transport, budgeting, and travel planning

III. PROPOSEDSYSTEM

The proposed AI-Powered Personalised Travel Planner is a web-based application designed to help users prepare and manage a trip from a single interface



The process begins when the traveller provides basic trip information. This includes the destination, duration, budget, traveller type, and preferred activities. These details form the basis for preparing the itinerary.

The system then creates a personalised day-wise travel plan. Instead of presenting only a list of attractions, the application organizes activities according to the available days and presents them in an easy-to-follow format.

The itinerary is connected to several supporting modules. Users can explore attractions, hotels, restaurants, transportation, weather information, and maps. The system also provides budget-related features so that users can keep track of expected and actual expenses.

A live route feature provides additional support during the trip. When the user selects an activity, the application can use the current browser location and the selected destination to display a route on an interactive map.

The proposed system therefore consists of the following major components:

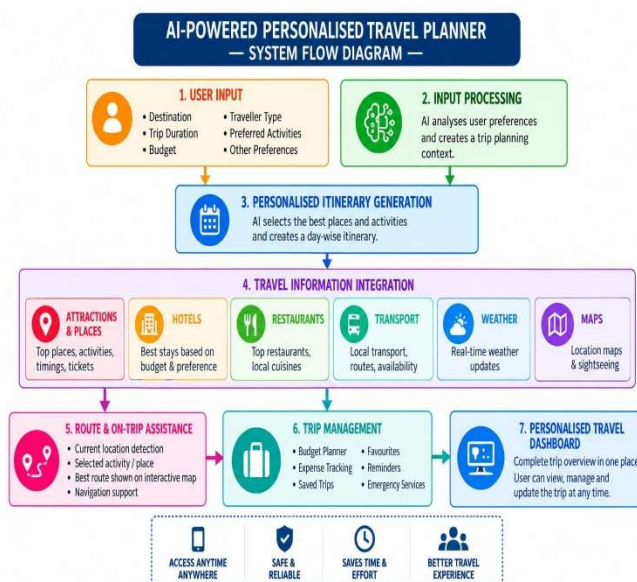
- User input and preference collection

- Personalised itinerary generation
- Attraction and place discover
- Hotel information
- Restaurant information
- Transport information
- Weather information
- Interactive maps
- Live route assistance
- Emergency-service information
- Budget and expense management
- Saved trips and favourites
- Reminders and trip export

The system is designed so that these components work around the same trip rather than functioning as completely separate applications. ReviewSphere AI offers a scalable, extensible, and privacy-preserving approach to intelligent automated code review by combining parallel multiagent analysis, structured reporting, and context-aware reasoning.

The proposed AI-Powered Personalized Travel Planner is designed to make trip planning easier by creating a travel plan based on each traveller's individual needs and preferences.

IV. FLOWDIAGRAM



he proposed system starts by collecting the traveller's destination, trip duration, budget, traveller type, and activity preferences. These details are used to

prepare a personalised day-wise itinerary. The generated itinerary is then supported with information about attractions, hotels, restaurants, transport, weather, and maps. When the traveller selects an activity, the route module can connect the current location with the selected destination and display the route on an interactive map. Finally, budget management, saved trips, favourites, reminders, and emergency-service information help the traveller manage the trip before and during the journey.

V.METHODOLOGY

The methodology of the proposed system follows a structured planning process. The overall approach is inspired by the planning-oriented organization of the primary reference paper, but the problem is adapted to human travel planning.

A. User Requirement Collection

The first stage is to understand what the traveller wants from the trip. The user provides information such as:

- Destination
- Number of travel days
- Budget
- Traveller type
- Preferred activities
- Travel interests

These inputs provide the context for the itinerary.

B. Personalised Itinerary Generation

The itinerary generation stage uses the collected requirements to prepare a day-wise travel plan. The activities are organized according to the available days. Each activity can include information such as its name, location, description, expected duration, and other available details. The purpose is to provide a schedule that is easier to understand.

C. Attraction and Place Discovery

The user can explore attractions and other places related to the destination. This module allows travellers to inspect individual places before deciding whether they should remain in the itinerary. Therefore, the generated itinerary is not treated as a fixed decision. The traveller remains involved in selecting the final activities.

D. Weather Information

Weather information is included because weather can affect travel decisions, especially for outdoor activities. The system provides weather information for the selected destination. This information is presented as supporting information and should be considered together with the traveller's own judgement.

E. Map and Route Planning

The map module helps the user understand the geographical relationship between different activities. The live route feature can use the browser's current location after permission is granted. The selected destination is resolved through location services, and a road route is displayed on an interactive map. This allows the user to move from: Current Location → Selected Activity → Route Display The route feature is particularly useful during the trip because it connects the planned itinerary with the traveller's actual location.

F. Transport Information

Transport is organized into categories such as:

- Flights
- Trains
- Buses

This makes it easier for the user to compare travel options related to the destination. The system organizes transport information but does not claim that every external booking is completed directly within the planner.

G. Accommodation and Restaurant Information

Accommodation information is included so that travellers can inspect hotel options around the selected destination. Restaurant information is also provided because food is an important part of travel planning. The system therefore gives the traveller a broader view of the trip rather than focusing only on sightseeing.

H. Budget Management

The budget module helps users organize expected spending.

The main categories include: Accommodation

- Food

- Transport
- Activities
- Shopping

Users can also record actual expenses during the trip.

I. Emergency Services

Travel planning should also consider situations in which the traveller needs basic services. The application provides access to categories such as: • Hospitals • Police stations • Pharmacies • Fuel stations

J. Saved Trips and Favourites

The user can save useful travel information for later use. Favourite places and saved trips reduce the need to search for the same information repeatedly. The planner can therefore remain useful after the initial itinerary has been created.

VI. FUTURE WORK

The current travel planner provides the main features needed to prepare and manage a trip, but there is still room to improve the system. In the future, the planner can make better use of a user's previous choices and saved places to provide recommendations that are more suitable for their interests. The itinerary can also be changed automatically when conditions such as weather, traffic, or transport availability change.

The route feature can be improved by including live traffic information so that users can receive more practical routes while travelling. Voice interaction can also be added, allowing users to ask for travel information or make changes to their itinerary without typing. Supporting different languages would make the application more useful for travellers from different regions.

Another useful improvement would be group-trip planning, where the preferences of several travellers can be considered while preparing one common itinerary. The budget section can also be improved to give more realistic estimates for accommodation, food, transport, and activities. In addition, the system can consider factors such as attraction timings, travel

distance, activity duration, and weather while arranging activities for each day.

Finally, the system can be tested with real travellers to understand how useful the recommendations and itinerary are in practice. Their feedback can help identify problems and improve the overall experience of the application.

VII. RESULTS AND DISCUSSIONS

The developed AI-Powered Personalised Travel Planner was tested by going through the main features of the application. The system accepts details such as the destination, number of days, budget, traveller type, and preferred activities and uses these details to prepare a personalised day-wise travel plan. The itinerary gives the user a clear view of the activities planned for each day and makes the overall trip easier to organize.

The application also provides information about attractions, hotels, restaurants, transport options, and weather. These features are connected to the selected trip, so the user does not have to start a new search for every type of information. This makes the planning process more convenient and keeps the important details of the trip in one place.

The map and live-route feature adds another useful part to the system. After selecting a destination, the user can view the route from the current location to the selected place on an interactive map. This is helpful when the user is already travelling because the planned activity can be connected with the actual location of the traveller.

The budget section allows users to keep track of expected expenses as well as expenses made during the trip. The application also provides saved trips, favourite places, reminders, and emergency-service information. These features make the system useful not only while preparing the trip but also while travelling.

From the overall testing, the main benefit observed was the connection between the different travel features. The user can move from the itinerary to places, weather, transport, maps, routes, and budget

information without having to prepare the same trip again in another application.

There are still some limitations. Some of the information displayed by the application depends on external services, so the results can change depending on the availability and quality of those services. Route information may also differ from actual travel conditions because traffic and road conditions can change. The generated itinerary should therefore be treated as a recommendation, and users should verify important details before travelling.

The current project focuses mainly on checking whether the implemented features work together as intended. A specific recommendation accuracy percentage has not been reported because the project does not currently include a benchmark dataset or a formal user study for measuring accuracy. In future, testing the application with real travellers can provide more detailed information about planning time, usefulness of recommendations, user satisfaction, and overall usability.

VIII. CONCLUSION

The AI-Powered Personalised Travel Planner was developed with the aim of making trip planning easier and less time-consuming. The project brings different travel activities into one application instead of requiring the user to search for each type of information separately. The system takes details such as destination, trip duration, budget, traveller type, and preferred activities and uses them to prepare a day-wise travel plan.

Along with the itinerary, the application provides information about attractions, hotels, restaurants, transport, weather, maps, and routes. The live route feature allows the traveller to check the route from the current location to a selected place. Features such as budget tracking, saved trips, favourite places, reminders, and emergency service information provide additional support while planning and during the trip.

The main result of the project is a single platform where the important parts of a trip can be planned

and managed together. This reduces the need to collect information from many different applications and makes the travel plan easier to follow.

The current system still depends on external travel services for some information, and the generated travel plan may need to be checked by the user before making final decisions. Even with these limitations, the project provides a useful base for further development. Future improvements can include better personalisation, real-time traffic and travel updates, multilingual support, group-trip planning, improved expense estimation, and testing the application with real travellers.

The project provides a practical starting point for making travel planning simpler and more organized. Some information still depends on external services and may change with real-world conditions, so users need to check important details before making final travel decisions. Even so, the developed system shows that bringing itinerary planning and common travel services together can reduce the effort involved in preparing a trip. In the future, the system can be improved by adding better preference learning, realtime travel updates, multilingual support, group-trip planning, and more detailed testing with actual travellers.

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