

EnviroAI: An AI-Driven Intelligent Travel Planning and Risk Assessment System Using Route Analytics, Environmental Intelligence, and Budget Optimization

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Abstract : When you plan a trip you usually have to look at a lot of things like routes, traffic, weather, where you will stay and how much it will cost. That is why we made EnviroAI, a travel planning system that puts all these things in one place. EnviroAI looks at all the routes you can take and compares them based on how they are, how long they take, traffic, weather, air quality and other things that might affect your trip. It helps you choose a route. Then it uses intelligence to look at the risks and make suggestions for the route you choose. EnviroAI also thinks about hotels, fuel stations, emergency services places to visit and what your destination is like when it makes your trip plan. Depending on how you want to travel it gives you plans and budget ideas for driving your car or taking public transportation. EnviroAI wants to make planning a trip easier and more personalized for people by using intelligence to look at all the travel information. EnviroAI is like a helper that makes trip planning more convenient, for users. EnviroAI does this by combining all the information you need to plan a trip with intelligence.

Keywords: Artificial Intelligence, Intelligent Travel Planning, Route Optimization, Risk Assessment, Weather Forecasting, Air Quality, Traffic Analysis, Budget Optimization, Personalized Travel, Sustainable Tourism.

I. INTRODUCTION

When you plan a trip it is not always easy. You have to think about things. You need to know how long it will take to get especially if there is heavy traffic. You also have to check what the weather will be like. You must decide where you will stay. You should think about what you can do when you arrive.. You need to figure out how much the trip will cost. Usually you can find this kind of information on apps and websites.. It can be hard to look at all of them. You have to switch between apps. You have to read pages. You have to compare details. It becomes confusing. It becomes stressful. Making a decision becomes difficult.

That is why we need something that brings all the information together in one place. Something that makes planning easier. Something that works for you. EnviroAI is a travel planning system. It is designed to solve this problem. It takes all the information about your trip. Puts it in one place. It looks at the route you will take. It checks how bad the traffic is. It checks the weather. It checks how clean the air is. It checks what is around you. It shows you everything in one view. With EnviroAI you don't have to search. You don't have to worry about missing something. You can see all the facts. You can make choices. You can plan your trip, with confidence.. Of just showing you one way to get there EnviroAI looks at all the different ways and tells you what you can expect from each one. This way you can make a decision about how to get to where you are going. Another important thing about EnviroAI is that it uses intelligence to look at how safe your trip will be. It looks at things like the weather and traffic. Then tells you if there are any problems you should know about. Once you choose a route EnviroAI can tell you about all the things you can do and see along the way like hotels, gas stations, hospitals and interesting places to visit. This makes EnviroAI more useful than a map

because it thinks about your whole trip not just how to get there. EnviroAI also helps you plan what to do when you get to where you're going. It can tell you about places to stay, how to get things to do and what the weather will be like. It even thinks about how money you will spend and how that might be different depending on how you get there. For example if you are driving your car you will spend money on gas but if you are taking the bus you will not.

Overall EnviroAI tries to make planning a trip easier by putting all the information you need in one place. It is not about finding a way to get somewhere it is about helping you understand what your trip will be, like and making a good decision based on that.

Now EnviroAI uses a simple math formula to figure out how much traffic will slow you down. It looks at how it would take to get somewhere if there was no traffic and how long it will take with traffic. Then it subtracts the two numbers to find the difference.

The formula is: $D_{\text{delay}} = T_{\text{traffic}} - T_{\text{normal}}$

Where:

D_{delay} is how much traffic will slow you down

T_{traffic} is how long it will take to get there with traffic

T_{normal} is how long it would take to get there with no traffic

Then it converts the answer into minutes and shows it to you. If the traffic is not bad it will say "No delay."

II. LITERATURE SURVEY

Jeevan Pradish S., Prathish S., Sanjutha M., Tharunika R. C. And S. Bharaninayagi created a trip planning system in 2025. They developed a system that understands what people like such as where they want to go when they want to go how money they have and how they want to travel. This system helps people plan their trips better and gives them personalized ideas.. It does not look at the environmental impact of the trip or check for traffic problems. It also does not plan the trip, just the itinerary [1].

N. Malarvizhi, Aditya Dwivedi and Utkarsh Kumar Sharma made Smart Safar. Intelligent Trip Planner in 2026. Their system uses intelligence to make travel planning easier and more personalized. It looks at how people like to travel and gives them ideas based on that. This system is good because it makes travel planning easier.. It does not look at the weather or environmental conditions when planning a trip [2].

D. Tarun, S. Karthika and S. Aniruddh proposed A Modular Multi-Agent Framework for Trip Planning in 2025. Their system uses small agents that work together to plan a trip. This makes it easier to plan trips.. It does not look at environmental risks or give detailed information about the route [3].

C.P. Akshata, A. Jyotsa, V. Rakshitha, D. Vaishnavi, L. Swetha and Sanjeevakumar M. Hatture made an Intelligence-Enabled Travel Planner in 2025. Their system uses intelligence to help people plan trips. It shows how artificial intelligence can make travel planning easier and more personalized.. It does not compare different routes based on traffic, weather or environmental conditions [4].

D.Manasa Spandhana, Kamsani Sneha, K. Shreya Reddy, K. Vennela Kadari Sai Sindhu and Jetty Sri Vaishnavi proposed a Smart Travel Itinerary Generator in 2026. Their system generates travel itineraries based on what people like and need. It helps people organize their trips and makes planning easier.. It does not give detailed information about the route or look at environmental conditions [5].

Evis Plaku, Gerald Lici, Silviu-Iulian Nicolaescu and Arben Cela proposed Safe Urban Route Planning in 2026. Their system plans routes in cities using special graphs and neural techniques. It considers safety when planning routes, which is different from systems that only look at distance and time.. It does not plan the whole trip, just the route [6].

Indramuthu Sundaram, Marwan Bidkash and Venkatesh Pandey proposed a Behavior-Aware Multi-Modal Trip Planner in 2026. Their system gives route recommendations based on how people behave and travel. It considers modes of transportation and user behavior.. It does not look at environmental conditions, destination recommendations or budget planning [7].

From these studies we can see that researchers have looked at parts of travel planning such as making personalized itineraries using artificial intelligence for recommendations and planning safe routes.. Most of these systems only look at one part of travel planning. The proposed EnviroAI system wants to combine things, such, as comparing routes looking at traffic and weather considering environmental conditions and planning budgets into one platform.

Table 1: Comparative Analysis of Reviewed Intelligent Travel Planning Systems

S.No	Research Paper	Main Approach Used	Route Planning	Real-Time Information	Safety / Risk Analysis	Environmental Information	Overall Score
1	N. Malarvizhi <i>et al.</i> (2026) [2]	AI with optimization and real-time travel data	High	High	Medium	Low	8
2	D. Manasa Spandhana <i>et al.</i> (2026) [5]	AI-based travel itinerary generation	Medium	Medium	Low	Low	7
3	Evis Plaku <i>et al.</i> (2026) [6]	Semantic graphs with neural-based route cost analysis	Very High	Medium	Very High	Low	8
4	Indramuthu Sundaram <i>et al.</i> (2026) [7]	GTFS, OpenStreetMap, and reinforcement learning	Very High	High	High	Low	9
5	Jeevan Pradish S. <i>et al.</i> (2025) [1]	AI-based personalized tourism itinerary planning	Medium	Medium	Low	Low	7
6	D. Tarun <i>et al.</i> (2025) [3]	Multi-agent AI using Google ADK	High	High	Medium	Low	9
7	C. P. Akshata <i>et al.</i> (2025) [4]	AI-based travel planning and recommendations	Medium	Medium	Low	Low	7

III.FINDINGS

I find that the literature survey indicates that Artificial Intelligence, machine learning, real-time data and location-based technologies are key to improving travel planning systems [2] [3] [6] [7]. Researchers have examined methods including personalized itinerary generation, AI-based travel recommendations, multi-agent systems, neural route planning, reinforcement learning, GTFS and OpenStreetMap data, all aimed at making travel planning easier and more tailored to each user [1]–[7].

I notice that several studies show that personalized planning and smart route selection can cut down the work travellers must do when getting ready for a trip [1] [2] [4] [5]. Multi-agent and reinforcement learning methods also provide ways to manage complex travel needs and various transport choices [3] [7]. Likewise safety-focused route planning shows that factors, beyond distance and travel time can be considered when picking a route [6].

I see that reviewed systems concentrate on narrow parts of travel planning like itinerary generation, route optimization, personalized suggestions or safe routing. Reviewed systems do not deliver a travel planning process that merges all these parts into one system [1] [4] [5]. In particular the reviewed works offer integration of route-level weather data, environmental details, traffic analysis, AI-based risk checks, travel facilities, destination ideas and budget planning.

I think a comprehensive travel planning system is needed—one that can look at different journey conditions before and after choosing a route. The proposed EnviroAI system fills this gap by merging route comparison, traffic and weather data, conditions, route-specific risk analysis, destination suggestions and travel-mode budget planning into one platform.

I think the new EnviroAI system is a way to plan trips. The EnviroAI system uses Artificial Intelligence, smart route analysis, weather forecasting and traffic information to give you a picture of your journey. It also looks at data and AI-based risk assessment to make sure everything is covered. I like how the EnviroAI system compares different routes so you can pick the best one for your needs. You can choose a route based on how it takes how bad the traffic is, the weather, safety and what facilities are nearby. The EnviroAI system even helps with personal destination planning. Gives you route-based recommendations. You can even plan your budget based on how you choose to travel. These features help people make travel decisions without all the hard work of manual planning. It really makes a journey safer and more convenient [1]–[7]. You can see how the EnviroAI system performs compared to intelligent travel planning systems, in Figure 1.

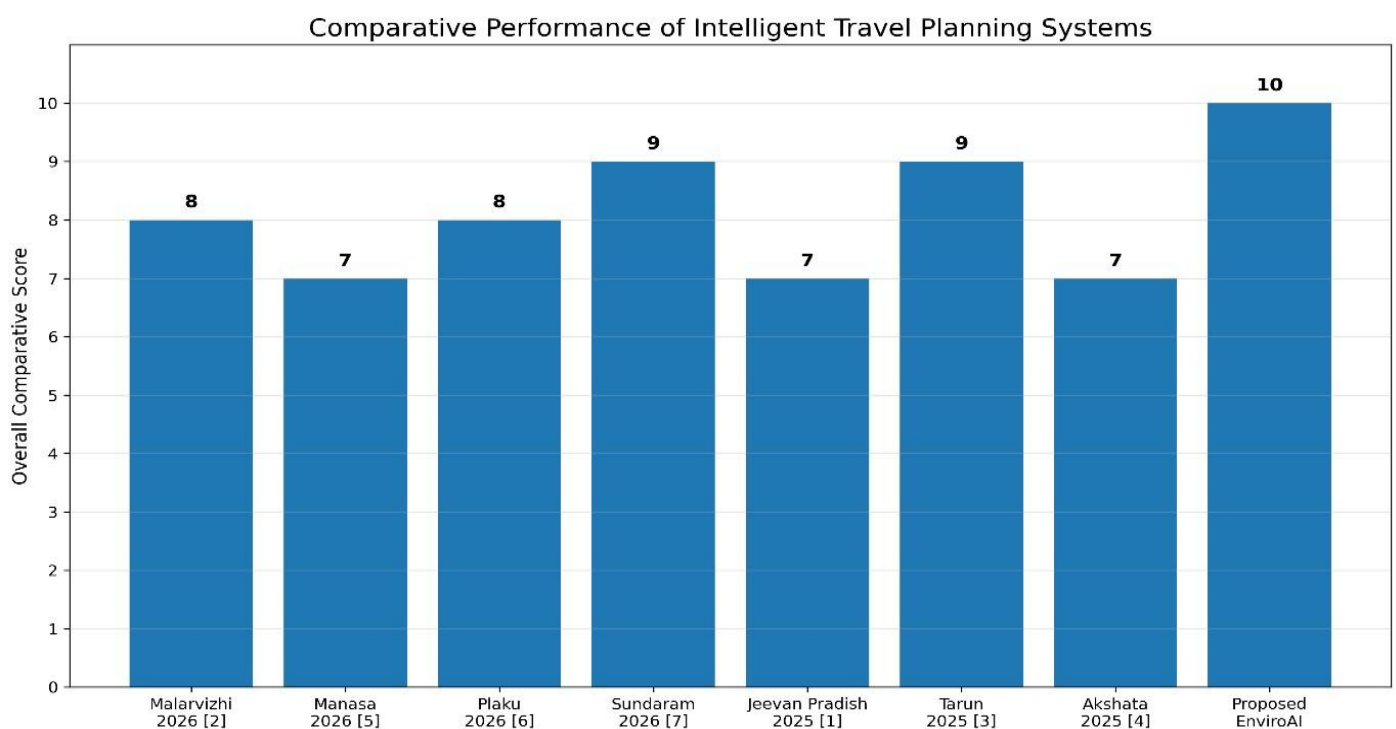


Figure 1: Comparative Performance of Intelligent Travel Planning Systems

IV.CONCLUSION

I think the new EnviroAI system is an idea for a smart travel planning tool. It helps people make better choices before they leave and while they are on the road. EnviroAI works by mixing planning with route comparisons GPS data, traffic updates, weather reports and even environmental facts and safety risks. By putting all these things in one place EnviroAI wants to save you a lot of time and hard work when you plan a trip.

With EnviroAI you can look at different routes and see what the conditions are like for each route before you pick one. Once you choose a route EnviroAI tells you about the traffic, the weather, hotels, gas stations, emergency spots, shops and cool places to see along the way. This way you actually know what to expect on your journey of just looking at how far it is or how long it takes to get there.

The system also changes how it helps you based on how you're traveling. If you are using your car EnviroAI looks at driving distance travel time, road conditions, nearby facilities and your budget to make a plan. If you are taking transportation EnviroAI focuses more on the cost of travel info about your destination, where to stay things to see the weather and how many days you will be away.

In the end EnviroAI wants to make travel planning feel more personal and useful. It does not just look at distance like old maps do. By looking at route information, weather, nearby places and safety risks EnviroAI helps you truly understand your journey so you can plan better.

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