

Smart Travel Planner with Real Time Integration

Prof. S. V. Phulari^{1,a)}, Ashwini Khedkar^{2,b)}, Jaywant Dudhale^{3,c)},
Abhishek Pandarkar^{4,d)}, Muddasar Shaikh^{5,e)}

*Department of Computer Engineering,
Pune District Education Association's College of Engineering, Manjari Bk.,
Hadapsar, Pune, Maharashtra, India – 412307*

Abstract - The Smart Travel Planner, powered by AI technology, presents a unified, customized, and effective solution to the challenges faced by tourists and travelers, in contrast to normal travel planning methods that often involve disconnected processes and manual exploration across multiple platforms. This innovative tool consolidates transportation, accommodation, and itinerary coordination into a unified interface, utilizes machine learning algorithms to generate personalized recommendations, and offers real-time adjustments and updates to ensure a frictionless travel experience. By integrating these features, Smart Travel Planner addresses the limitations of traditional approaches and provides a comprehensive solution for modern travellers.

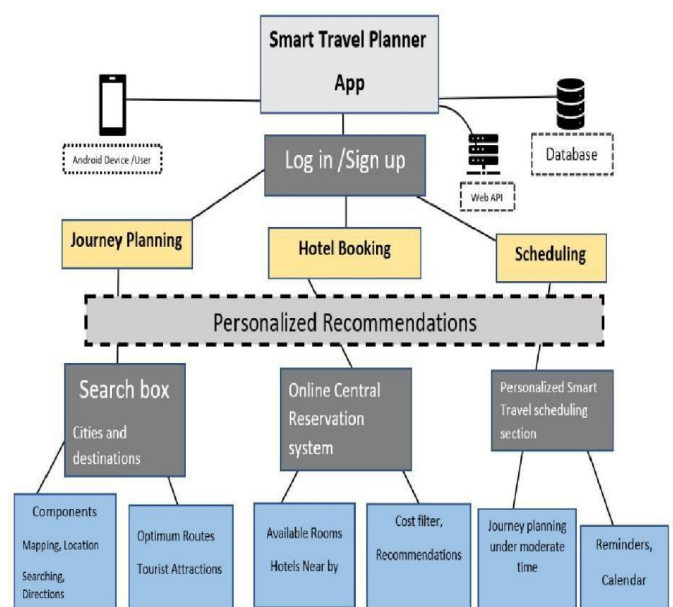
Key Words: tourist, travel, journey planning, web services, intelligent systems, real time integration.

1. INTRODUCTION - The burgeoning phenomenon of globalization observed in recent years has been facilitated by an unparalleled surge in both domestic and international travel, marked by a tendency to visit single this encompass multiple destinations at. Consequently, the formulation of a travel itinerary has evolved into an increasingly daunting, intricate, and time-intensive endeavor that encompasses numerous stages – to illustrate a few: selecting a time among various transportation modalities, identifying destinations and accommodations, researching tourist attractions at diverse locales, devising daily itineraries that incorporate intervals for meals and repose, evaluating culinary options, and finally, calculating the most efficient travel routes with minimal duration. Smart Travel Planner, as its nomenclature suggests, adeptly analyzes the user's preferences and aversions, along with the duration the user is prepared to dedicate to exploring a location, thus yielding exceptional outcomes in terms of maximizing temporal utilization. The Smart Travel Planner application, predicated on artificial intelligence, constitutes a web-based system aimed at streamlining the travel process through real-time integration. Unlike alternative applications that function primarily as calendaring tools, our system distinguishes itself by amalgamating all requisite information and functionalities necessary for comprehensive travel

planning within a singular software platform, which encompasses features such as calculating the optimal route between user-specified locations, verifying hotel availability, facilitating hotel reservations, and proffering sightseeing recommendations tailored to the user's specific requirements for meetings, flights, and locations, in addition to personal preferences for dining, relaxation, and accommodation. In the project, we have employed a weather API and Google Maps, in conjunction with the Foursquare API and a variety of technologies. For instance, Java has been utilized as it is the official programming language and is predominantly employed for Android development in this application, rendering it the most widely utilized language. A significant number of applications available on the Play Store are constructed using Java, and many receive support from Google

2. Body of Paper

2.1 SYSTEM ARCHITECTURE:



Smart travel planner app using artificial intelligence-based modules. The app is developed to make Additional in making the planning easier and more enjoyable Also, this paper uses Collaborative Filtering with several technologies to design and implement this system. In this app the users firstly have to signup/login in order to access the app which is the first step indeed. The overall architecture of the system include 3 layers as the main modules which are journey planning, hotel booking and scheduling. After this is the main layer personalized recommendation through which the users are reviewing as well as analyzing the places based on their interest about his journey. Then once the user decides then there are 2 sub modules for each one which is again taken down to make it easier for user to plan the journey. After the journeys finalized then personalized recommendation is given. search box to search for various places in users didn't find any that user can search components like mapping, search for directions. The user can also search for top places in the area and then get best way to reach there.

Journey Planning

Here the first module of all smart travel planner (AI) app for user to plan his journey. This is where the user can plan the journey based on his preference. It will begin by querying the user if he or she wants to go in city or visit just outside. Finally, once the user select destination it will ask the user to enter and accordingly information will be coming now. The user has to figure out how many days the trip should be planned for. It has also search field for different places, if user not find any of his interest lands.

Hotel Booking

Once the journey is planned and the destination and dates are decided the user can go to the next module which is the hotel booking. If the user is living in the same city and has to visit nearby places which lie there then he can skip this module but for those who are visiting outside for them it is essential to find a stay. So, this module shows the best recommended hotels of the places along with its cost per day. Then the user can select based on the recommendation given or can search also. Once the hotel is booked then it will show the reservation system but first it will check for room availability and also the cost will be displayed. If the rooms are obtainable then the reservation can be done.

Scheduling

This is the last module in which once the journey planning and hotel booking is done the user has to schedule the journey by which dates he should start and accordingly, alerts and reminders will be set to remind him about the journey based on the times and dates entered. This will also complete the journey planning

process as well as the overall overview of the journey along with time to reach specific places will be cleared

3. ALGORITHMS & TECHNIQUES:

Proposed System:

Firstly, the user will start and create an account and login the system will receive the input from the user after that main page will show the main modules after successful login then the user can choose according to his preferences. First is the journey planning where the user will add our search for the preferences of where to go for holiday. Based on the city or places that the user has entered the app will show the optimum route to reach there. Once the place and route are decided then you have to enter the start time of your journey and when to end it. Now here the condition is applied that the journey duration should be greater than 2 hrs and less than 25 hrs if it is so then the journey is planned else it will show the message that invalid range. This is because 2 hrs is very less to travel and 25 hrs range is quite long. After the time is set and journey is planned then it comes to an end and the user's feedback is taken about it. Simultaneously, the other modules work means once a journey is planned then there is hotel booking where you can book hotels to stay if you are visiting outside your city. In which we search for hotels in your area after selecting one is then it will check for rooms if the rooms are available then it will confirm the booking and you will make the payment and then the journey ends. After doing this both the third is the alert it is not mandatory, once these 2 things are done then you can set the alert to remind you of the journey for that it will first search for your event and then you will set the date and time and all the details will be fetched and accordingly you will be reminded of your journey.

Algorithms :

Step 1: Start

Step 2: Create an account login

Step 3: Then Select the option {Journey Hotel Booking and Alert}

-If we select Journey,

Then add preference like (city, Restaurant Park, Mall, Historic Place, lunch and Dinner)

Enter Start time and End time

If all information is valid then it calculates the paths and then automatically set

alarm, which is start to ring before the journey.

Once the journey is done it shows the done.

-If we select Hotel Booking,

Here we search the hotel room availability then we book the rooms if available.

-If we select the alarm then we set the alarm.

A. Collaborative Filtering

Through this filtering we can recommend many products, places etc., to the user's having similar interest based on their preferences. This method is being used in building recommender system of big data. There are basically four types of these techniques through which we can build various recommender systems. In this project we have used collaborative filtering for filtering various places, restaurant according to the multiples user's reviews and similar preferences of two user's based on the area of interest.

B. Tag Filtering

Tag Filtering is a technique is used for collecting nodes that have some specific tag assigned. We can use this tag filter to tag persons, products, places etc. Through this tag filtering multiple peoples come to know about some particular places, persons etc. Tag filtering is used to increase the area and form a broader connection with large no of peoples. In our project we have used this for tagging persons, places, hotel so that multiple users using our app will get to reviews as well as more information about the particular things through another user's. This will increase our users as well as more people will come to know about the traveling journey if there are willing to plan one.

C. RSS Filtering

Rss stands for Really Simply Syndication. It's an n easy way for you to keep up with information to you, and helps you avoid the conventional methods of browsing or searching for information to you, and helps you to avoid the conventional methods of browsing or searching for information on websites or apps. An RSS reader is a small software program that collects and display RSS feeds. It allows you to scan headlines from a number of sources in a central location. Some browsers, such as the current versions of Firefox and safari have to build in RSS readers. If you're using a browser that doesn't currently support RSS, there are a variety of RSS reader available on the web; some are free to download and others are available for purchase.

D. Mathematical Model

Association Rule Mining: Association rule technology is also known as shopping basket analysis. Its proposed purpose is to find a certain internal connection between database items from a large amount of data, so as to improve the decision support ability of the application system. The association rules are defined as follows: If the item sets are $X \subseteq I$, $Y \subseteq I$ and $X \cap Y = \emptyset$, the implications of the form $X \Rightarrow Y$ are called association rules, which means that a transaction T containing x item sets is also likely to contain Y item sets. them, X is called the former item set of association rules, and Y is the latter item set of association rules. If $c\%$ of the transactions that contain X also contain Y , then the

confidence of the association rule $X \Rightarrow Y$ is called $c\%$; if $s\%$ of the transactions in D contain $X \cup Y$, then the support of the association rule $X \Rightarrow Y$ is called $s\%$.

E. Tag Filtering

Tag Filtering is a technique is used for collecting nodes that have some specific tag assigned. We can use this tagfilter to tag persons, products, places etc. Through this tag filtering multiple peoples come to know about some particular places, persons etc. Tag filtering is used to increase the area and form a broader connection with large no of peoples. In our project we have used this for tagging persons, places, hotel so that multiple users using our app will get to reviews as well as more information about the particular things through another user's. This will increase our users as well as more people will come to know about the traveling journey if there are willing to plan one.

C. RSS Filtering

Rss stands for Really Simply Syndication. It's an n easy way for you to keep up with information to you, and helps you avoid the conventional methods of browsing or searching for information to you, and helps you to avoid the conventional methods of browsing or searching for information on websites or apps. An RSS reader is a small software program that collects and display RSS feeds. It allows you to scan headlines from a number of sources in a central location. Some browsers, such as the current versions of Firefox and safari have to build in RSS readers. If you're using a browser that doesn't currently support RSS, there are a variety of RSS reader available on the web; some are free to download and others are available for purchase.

D. Mathematical Model

Association Rule Mining: Association rule technology is also known as shopping basket analysis. Its proposed purpose is to find a certain internal connection between database items from a large amount of data, so as to improve the decision support ability of the application system. The association rules are defined as follows: If the item sets are $X \subseteq I$, $Y \subseteq I$ and $X \cap Y = \emptyset$, the implications of the form $X \Rightarrow Y$ are called association rules, which means that a transaction T containing x item sets is also likely to contain Y item sets. Among them, X is called the former item set of association rules, and Y is the latter item set of association rules. If $c\%$ of the transactions that contain X also contain Y , then the confidence of the association rule $X \Rightarrow Y$ is called $c\%$; if $s\%$ of the transactions in D contain $X \cup Y$, then the support of the association rule $X \Rightarrow Y$ is called $s\%$.

E. Tag Filtering

Tag Filtering is a technique is used for collecting nodes that have some specific tag assigned. We can use this tag filter to tag persons, products, places etc. Through this tag filtering multiple peoples come to know about some particular places, persons etc. Tag filtering is used to

increase the area and form a broader connection with large no of peoples. In our project we have used this for tagging persons, places, hotel so that multiple users using our app will get to reviews as well as more information about the particular things through another user's. This will increase our users as well as more people will come to know about the traveling journey if there are willing to plan one.

F. RSS Filtering

Rss stands for Really Simply Syndication. It's an n easy way for you to keep up with information to you, and helps you avoid the conventional methods of browsing or searching for information to you, and helps you to avoid the conventional methods of browsing or searching for information on websites or apps. An RSS reader is a small software program that collects and display RSS feeds. It allows you to scan headlines from a number of sources in a central location. Some browsers, such as the current versions of Firefox and safari have to build in RSS readers. If you're using a browser that doesn't currently support RSS, there are a variety of RSS reader available on the web; some are free to download and others are available for purchase.

G. Mathematical Model

Association Rule Mining: Association rule technology is also known as shopping basket analysis. Its proposed purpose is to find a certain internal connection between database items from a large amount of data, so as to improve the decision support ability of the application system. The association rules are defined as follows: If the item sets are $X \subseteq I$, $Y \subseteq I$ and $X \cap Y = \emptyset$, the implications of the form $X \Rightarrow Y$ are called association rules, which means that a transaction T containing x item sets is also likely to contain Y item sets. Among them, X is called the former item set of association rules, and Y is the latter item set of association rules. If $c\%$ of the transactions that contain X also contain Y , then the confidence of the association rule $X \Rightarrow Y$ is called $c\%$; if $s\%$ of the transactions in D contain $X \cup Y$, then the support of the association rule $X \Rightarrow Y$ is called $s\%$. The calculation expressions are: Support ($X \Rightarrow Y$) $P(X \cup Y)$ Confidence ($X \Rightarrow Y$) $P(Y|X)$.

Steps for Working of Google map in app.

1. Calculate the distance between the places (Google API Distance Matrix).
2. Mark all the nodes an unvisited. Set the initial node (start place) as the current node. Create a set of unvisited nodes called the unvisited set consisting of all the nodes (start place) and the destination node (destination node).
3. For the current node, consider all the unvisited neighbors and search for the nearest one.
4. Mark the current node as the visited; add it to result tree and remove it from the

unvisited set. Then set the current node to the nearest node.

5. If the unvisited set is not empty, go back to step 3; otherwise go to the next step (step 6).

6. For the destination node (start place), add all of its neighbor, except the initial node (start place) to a set called the unfit set.

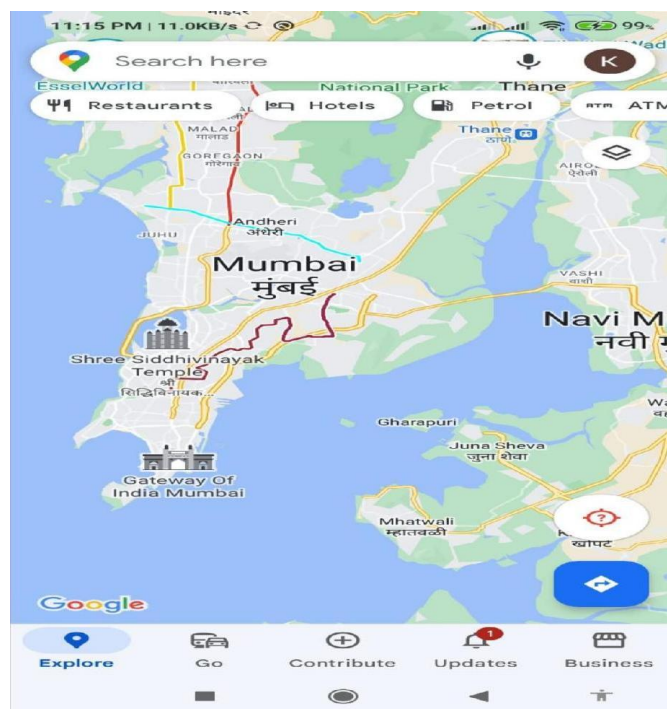
Search the unfit set for the farthest node for the destination node.

7. If the unfit set is not empty, go back to step 7; otherwise go to next step (step 10)

8. The result tree shows the shortest path between the start place and the destination place. An expanded overview of the problem encountered during the system and their resolution is provided here. We were unable to find the API available free that might give us the information of countries and the state and provinces/state mentioned in them. We did find the database maintained by google containing the accurate list of cities. However, this database could. not be exported, we had to manually run SQL script to obtain the data from this database.

of the city, state/province and country names. A frequent issue was preventing the page from refreshing when the user chose a country to load its associated states and again to load the cities associated with those states.

Fig. 2.2 Interface for calculating the user-required places.



3. CONCLUSIONS

This paper describes about the Smart travel Planner app based on AI how it makes travelling journey easy for the travelers as well as save their time by providing various features for journey planning. This App Is Smart Travel Planner Based On AI , An AI-Base Intelligent System that Assist Travelers Planning For Their Trips By Providing Them With A Single Application With A Unified Interface For Accessing An Overwhelming Amount Of Travel-Based Information Scattered Throughout The Internet And Also Enables The To Create Itineraries, Calculate Routes And Block Personal Time Slots As we are extending our work in future by providing more features in calculating route ,traffic etc.. Similar to we are contemplating utilizing semantic web technologies to return results better customized to user preferences. We also aim to port this application to a mobile platform. in this case, GPS information from the mobile device may be used to determine the user Information relevant to his current context. Since the performance of any performance of any application can be improved by storing static data in a local database avoiding the need for constantly refreshing this information, we will thoroughly examine our system to determine which data can be locally stored and also explore what if any, other optimizations can be applied to enhance the system's performance. As many performances of any applications can be improved by storing static data in a local database avoiding the need for constantly refreshing the information and we will thoroughly examine our system to determine locally stored anexplore.

REFERENCES

- [1] RabiraJafri, Amal Saad Alkunji,Ghada Khaled Alhader -:Smart travel Planner: A mashup of travel-related webservices,2013
- [2] Feng Rong :Design of tourism resources management based on artificial intelligence ,2017.
- [3] Demis Hassabis, Dharshan Kumaran, Christopher Summerfiled.Neuroscience:InspiredArtificialIntelligence[J].Neuron
- [4] Luc De Raedt Kristian Kersting ,Sriram Natarajan ,Statistical Relational Artificial Intelligence: Logic Probability and Computation.Synthesis Lectures on Artificial Intelligence & Machine Learning, 2016, 10(2):1-189.
- [5] Matthew Hutson. Artificial intelligence faces reproducibility crisis [J]. Science, 2018, 359(6377):725-726.
- [6] Jiang, F, Jiang, Y, Zhi, H. Artificial intelligence in healthcare: Past, present and future [J]. Stroke & Vascular Neurology, 2017, 2(4):230.
- [7] Lichun Li, Rongxing Lu, Kim-Kwang Raymond Choo. Privacy-Preserving

Outsourced Association Rule Mining on Vertically Partitioned Databases [J]. IEEE Transactions on Information Forensics & Security, 2016, 11(8):1-1.