

AI-Based Tourist Guide

Implementation paper of AI-Based Tourist Guide application

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Abstract: The amount of information available on the internet and its number of users have experienced a huge increase in the past last decade. All this information may be particularly useful or necessary for those users who wishes to plan for visiting an unknown destination. However, list of possibilities offered by web search engines or even specialized tourism sites maybe vast. The growth of this long list of option is very complex and time consuming for tourist in order to select the one that fits better with their need. The project objective is to design an intelligent AI-Based Tourist Guide system algorithm. In such a way that it will completely eliminate the middleman that is tourist guide and make the working Application which contains a task which can be covered by single guide and each individual can arrange their own trip independently

I. INTRODUCTION

AI-Based Tourist Guide systems and rapid transit systems are nerves of economic developments for any nation. In Today's World companies traditionally outside the tourism field are entering the sector, mainly from IT and media sectors. Industry features (mainly that IT and media are information- based businesses and are umbrella industries) might explain this trend, or even the change in consumer behavior. For example, consumers use IT not only for information gathering but also to order services over the Internet. A new type of user is emerging who doesn't just try one or two services but all kinds of travel and leisure services. Such users don't mind becoming their own travel agents, but given the extensive use of distributed systems on the Internet, there comes the urgent need to find, combine, and sift through the right pieces of information intelligently. Today, AI-based developments in the field are at the forefront, such as individualized pricing (priceline.com), reversed multi- attribute auctioning (my travel-dream.com), recommendations in bundling products (as described later), Semantic Web applications (Harmonise.org), and mobile applications (described later).

We can expect this innovation to continue—at both the business level (such as dynamic market structures and prices) and the technology level. In addition, the IT and tourism field represent the nucleus of a new industry that will produce new products, skills, and jobs. Regarding ontologies applied to the tourism sector, they are supposed to improve search and interoperability inside the vast amount of information available online, helping the categorization within the existing disorder. In addition, there are several kinds of ontologies, according to the degree of formality, complexity of the graph structure, and the expressivity of the language used to describe them.

This project reduces the manual work done by user to search information about the locations and will provide it as a one click solution

II. SYSTEM DESIGN

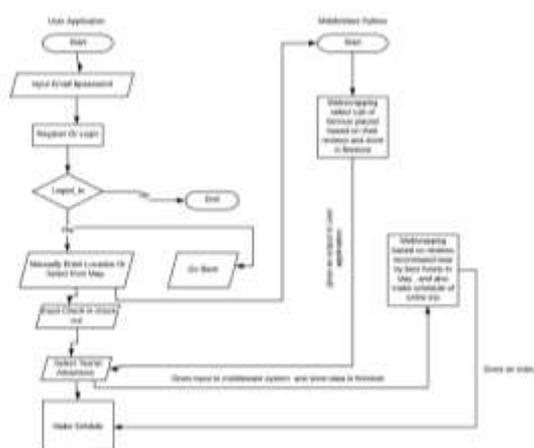


Fig: Block Diagram

Description:

Step 1:

User Have to Start the Mobile Application and must enter username and password to sign in the Application. User can Sign In through google account as well.

Step 2:

2.1) If Sign in Fails then go to the Step 4.

2.2) Else go to Step 3

Step 3:

User have to select location from Map or they can put location manually.

3.1) If entered City is valid then Middleware Python will start its work and scrapped the nearby location and show to the user.

3.2) User have to select the Tourist Attraction where they want to visit and this data is given to the middleware python. This will scrapped nearby hotels and other kind of data and gives it to the user.

3.3) User have to enter data such as Check In Check Out details, Number Of Persons along with hotel where they want to stay and this data is pass to the middleware python.

3.4) this will calculate the distance to reach each and individual places selected by user according to this it will make schedule for entire trip and gives to the user.

3.5) Also it gives path of how to reach your destination and recommendation about nearest best places.

Step 4:

Stop the Application

III. METHODOLOGY

We try to design an intelligent AI-Based Tourist Guide system algorithm in such a way that to completely eliminate the middle man that is tourist guide and make the working Application which contains a task which can be cover by single guide. Also we have customize the schedule of entire trip. And we are try to improve efficiency of existing Tourism system.

Project is divided into following modules:

- Module I: A Mobile Application (User Interface)
- Module II: Recommendation System
- Module III: Schedule Creation
- Module IV: Routing System

Module I: Mobile Application:

We build our UI in React Native and for database we have used Firestore for Data storage.

React Native is an open-source mobile application framework created by Facebook. It is used to develop applications for android, IOS, Web and UWP by enabling developers to use react along with native platform capabilities. An incomplete port for Qt also exists. Cloud Fire store is a NoSQL document database that's designed for your client- and server-side apps. its part of Google's Firebase suite of services, which includes services like Cloud Functions (for running server less apps), Hosting (for hosting your Web apps) apps), Authentication (for you to authenticate users in your apps), and more.

We are trying to design a user interface in such a way that it can be a more efficient and user friendly UI

- First User have to enter user name and password to sign in the application .user can sign in the application using their google account also user can create their own new account
- Also user can reset their password.
- After Sign in user can see the list of previous trips in details and can plan new trip
- For planning a new trip user have to enter start and end date of trip also user have to enter the location where they want to visit.
- Then after that this input is given to the recommendation system and user will get the list of tourist attraction places and the nearby hotel list (refer Module II)
- Based on this list user have to select tourist attraction places in sequence and have to select hotel where they want to stay.
- This data is given to the scheduling system as input. Scheduling system will process on it and make the schedule and this schedule is display on users application (refer Module III)
- Also user will get the shortest routing path through which they can route through the each places

Module II: Recommendation System

Our Recommendation System that is our middle ware is based on Python. Python is a widely used general-purpose, high level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It was designed with an emphasis on code readability, and its syntax allows programmers to express their concepts in fewer lines of code.

- After user enter the location where they want to go, those data is comes here and act as input System will take this data as input and search for tourist attractions places near by the location
- Based on the reviews it will filter the location and make list of best places and this list is give as output to the user.
- After that the list of places selected by user will act as input for the system for further functionality. Based on this input it will it will again search for nearby best hotel to stay and give this list as output to the user
- Also while travelling system will suggest nearby things or other recommendation gives to the user

Module III: Schedule Creation

- Check in and check out date of trip is given as input for scheduling system
- The list of tourist attraction places and the nearby hotel where user want to stay this is given as input to the Schedule system.
- First system will calculate the distance between each tourist attraction places and the hotel selected by user.
- If the number of hours is less than the days of trip then each day we will select one place as visiting place else we will divide by 2 3 and divide the places with respect to number of days
- And make schedule which contains time to reach the destination and approximate or basic time for dinner launch and breakfast
- This schedule given as output to the user

Module IV: Routing System

Routing system will always track the location of user and when they reach the destination it will find the shortest path to reach the destination and will provide it to the user

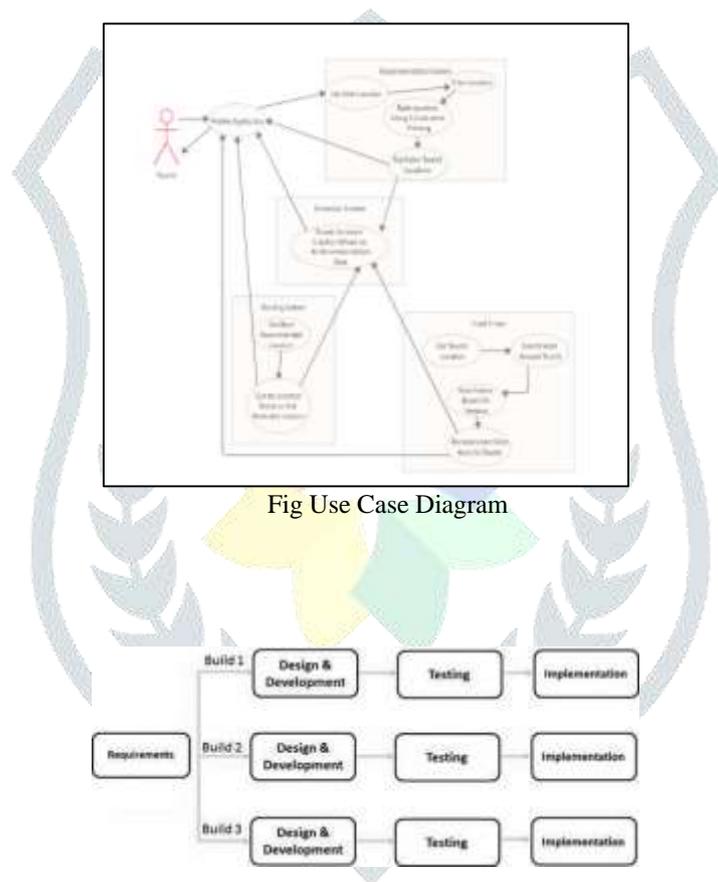


Fig Use Case Diagram

IV. PROCESS MODEL

Fig: Iterative Model

We will be using iterative model in order to develop our project. The reasons for using iterative model are as follows:

- Generates working software quickly and early during the software life cycle.
- More flexible – less costly to change scope and requirements.
- Easier to test and debug during a smaller iteration.
- Easier to manage risk because risky pieces are identified and handled during its iteration.
- Each iteration is an easily managed milestone

V. RESULTS



Fig: Home Screen



Fig: Select Location



Fig: Trip Info Screen



Fig: Best Places Screen



Fig: Hotels Screen

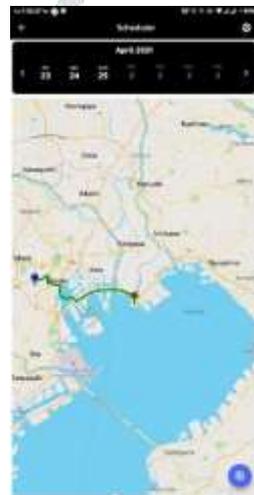


Fig: Hotel Info Screen



Fig: Scheduler Screen



Fig: Navigation Screen

VI. CONCLUSION

Conclusion:

We are designing an AI-based tourist guide application which consist of new technologies like Artificial Intelligence, programming languages like react native and python which is more efficient.

We are giving recommendation system in which if I supposed to go travel new work which is completely unknown for me then I need to visit travel agency then they will assign me a guide like which is traditional way.

So we are designing app in such a way that we are trying to completely eliminate the middle man agent .and whatever the work done by that guide it can be done by our application So it's more efficient and user friendly application.

Our application will provide a complete guide and planning for all the journey needs of the users.

Future Scope:

We are playing to add image based classification in the application which will help us to classify the location more based on the output which we get from it.

This will help us to get the approximate time which the users spend on particular location which will in return help us to make our scheduler more efficient

This will increase the accuracy of our system thus increasing its usability

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