Artificial Intelligence-Based Method to Improve Tourism with the Help of Android Studio

Anusha, Poorva Agrawal, Gagandeep Kaur

Abstract: Artificial intelligence is a new technology in the field of computer science and information technology. Artificial intelligence techniques are very useful and also applied in many businesses. There are many research areas and opportunities in the field of Artificial intelligence. Artificial intelligence refers to the simulation of human intelligence in machines. Artificial intelligence allows app developers to achieve better mobile application experiences and also helps to improve personalized selections for users. This paper explores the different areas of the artificial intelligence-based system in tourism. This paper presents important future research directions.

Keywords: Artificial Intelligence, Android Development, Tourism, Mobile App.

I. INTRODUCTION

Artificial intelligence-based tourism application development is an architecture of mobile tourist guide system for Android phones. Numerous people regularly travel now a days they love traveling. Individuals faces issue while knowing the specific area. The main idea behind the project is to make improvement and help tourists to find the better place in seconds.

In this application with the help of Artificial Intelligence, user will handily become familiar with the specific distance of the area close by food services, by utilizing this application client can design his outing without any problem. they can choose start time and end time, they can add or avoid food. They can likewise check for the theme park, ancient temples, historical places, garden, mall or zoo. user can choose food plan and cuisine. There is an AI chatbot to know the close by places and to explore client.

The extent of this task is basically to assist user with routes and planning trips. Utilizing this project will assist user with arranging the movement and they can choose start time and end time, they can include or exclude food. Client can create travel course design and can likewise see secure plan. In section II applications of Artificial intelligence in Android Application development. In section III literature review are discussed and summarized. In section IV proposed work. In section V project details at last in section VI conclusions with future scope of project.

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II. ARTIFICIAL INTELLIGENCE IN MOBILE APP DEVELOPMENT

AI was introduced by John McCarthy; Artificial intelligence techniques makes it possible for machine to learn from experience and AI also perform human-like tasks. In this paper we worked on Android Application using AI techniques. AI empower the evolution of mobile apps by making intelligent pieces of software that help to predict user behaviors and make accurate decisions. Artificial Intelligence allows applications to learn from data generated by user. We used Artificial intelligence recommendations techniques for planning the routes with given data by users and we also used Chatbot it helps us interacts with people.

III. LITERATURE REVIEW

The literature review presented and discussed in this research is based on a wide-ranging study of tourism-related papers that has been published from 1993-2015.

Ying Xu, Tao Hu, and Ying Li [2] proposed PRR (Proportional Rate Algorithm) algorithm to recommend the best and differently personalized traveling route for the user. they also use the IPRR algorithm to include user personal preference and real time traffic condition with a statistical crowd in places.

Alshattnawi, Sawsan & Doush, Iyad & Alsobeh, Anas [5], Proposed ABC BEE colony algorithm for tour planning and location selection, and POIs selection, the POIs selection is done using the ABC algorithm. In that initially, the hive location is the same as the starting tourist point and the final location is the departure tourist point. The algorithm is repeated several times until reaching the final destination. Initially, all the bees are on the source node, and the on-locker bees search for the next food source (i.e., location). The probability to select the next location is calculated using the equation. given below.

$$P_{ij} = \frac{[R_j]^\alpha \cdot [\frac{1}{d_j}]^\beta}{\sum_{j \in A_i}[R_j]^\alpha \cdot [\frac{1}{d_j}]^\beta}$$

(Equation 1)

This equation depends on the location and the distance between the user selected to the next location. The bees with a maximum p_{ij} will dance, which means that the location with the maximum rating value will be selected as the next location to be visited.

$$\sum_{i\equiv 1}^{n-1}[d_{ij} + D_j] \leq T_{max}$$

(Equation 2)

If equation 2 is not satisfied then the next higher value will be selected. The fresh selected location now becomes a source and these are repeated until we have the final tour plan. the departure point can be selected automatically based on the user's current location via Google API or Geo Coder API. Also, they proposed a method that can be compared with a multi-objective variation of the planned technique. Finally, a user communicating tool can be suggested, as users can add the rating to the selected tours and add new tourism spots.

In Wanmai Yuan, Nuwan Ganganath, Chi-Tsun Cheng, Guo Qing, and Fracis C.M. Lua [7], they proposed grid-based maps introduced to represent speed limitation in outdoor places.

Kanak Divya's study and reviews of smart city-based tourism mobile app [9] were about developing an android mobile application to help the traveler to get information about places. They worked on this app for the newcomer in any city that app not only tells user distance between from places but with all small details like the specialty of places, things that is famous for. This app is easy to use. For this app, they used GSM and GPS services, for location services. GPS is a global positioning system is a satellite radio navigation system used to accurately get the geographical location where GSM is a global system for mobile communication is an open digital technology used for transmitting voice and data services. With these services, users can get or find the exact location easily. In a survey of these applications from different countries, they also add two different features apart from others that already have in the app.

Achaliya, Prag. (2012) Smart travel guide: application of android mobile [10] their main focus on to develop detailed videos, pictures, and text with proper guidance information for the user to understand tourist location and make decision suitably. They worked on getting the proper exact location by the mobile, distance between locations, and weather reports, but most of the data of traveler information are mainly picked from newspapers and magazines. the main drawback is that the app does not give precise/right output. After going through this paper, the main problem, they mentioned and all the systems they proposed all try to work on the current location, getting exact information, the distance between two places, and weather reports.

Chin-Jung Hung, Ying-hong lin[12] described smart travel destination as build on a set-up of state of the art technology. In that they also suggest the promising sustainable development in tourist places, easy to user, increase the quality experience destination and improve staying quality.

S.Shekhar, A.Kohli and M.Coyle [15] proposed three path planning algorithm these generate a graphical path, accessed on graphs representing roadmap. These are Dijkstra single source path planning algorithms. In main theory in that paper is that to improve the case performance of single path computation to compare the length of the path to the diameter of the graph.

These are the features from existing systems and also, we added a few of them to ours:

- Proper exact information about traffic.
- Map view for locations
- Start and end time with other preferences, it will create a route for the user.
- Calling services to call and communicate.

Apart from these features we also saw that some of the above-proposed updates about neighbourhoods and events. It'll update you with news about the specific location and eye-catching spots to the traveller.

Drawback or problem with existing system:

1. Time-Consuming/ Slow system.
2. Difficulty in planning the trip.
3. Problems in tracking maps.
4. Chances of getting not-accurate data.
5. Not user friendly.

IV. SOFTWARE DESCRIPTION

A. Android Studio

Android Studio is an app development software used to build, run, design application. It also supports all APIs to create applications. Android studio is Gradle based build system to which supports all APIs and support performance features. To test the application Android Studio also provides an emulator to run or we can connect our devices over USB. In this, you create many Virtual devices. It accommodates a built-in Google cloud platform. Android Studio is free of cost and easy to use in Windows, MAC, Linus as well as Chrome OS.

B. Sql Servers

SQL Server is a relational DBMS from Microsoft. The main function is to store and recover the data, requested by other software application which runs either on the same computer or another computer. It is free of cost to download and use.

C. Google Map Api

Google Map is a set-up of API and SDKs that allow developers which give access to Google maps into mobile apps. Google map offers 200 $ free credit to use maps, routes, places, etc. Google Map APIs allow you to make location-based applications.
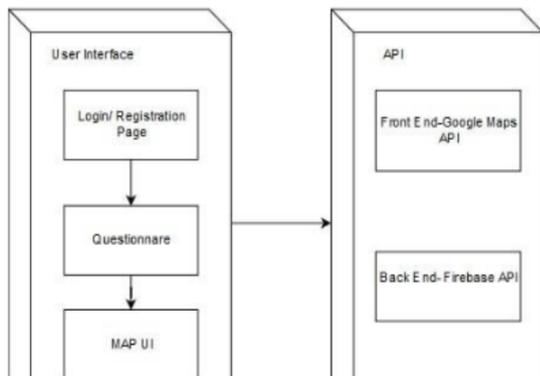
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Fig.1. User page.

Reference: "Smart City Traveler", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.7, Issue 2, page no.279-284, February 2020, [18].

V. PROPOSED SYSTEM

Considering all differences in existing system in paper we review, we developed whole app on Android studio using Java programming language with the help of SQL server and Google map API.
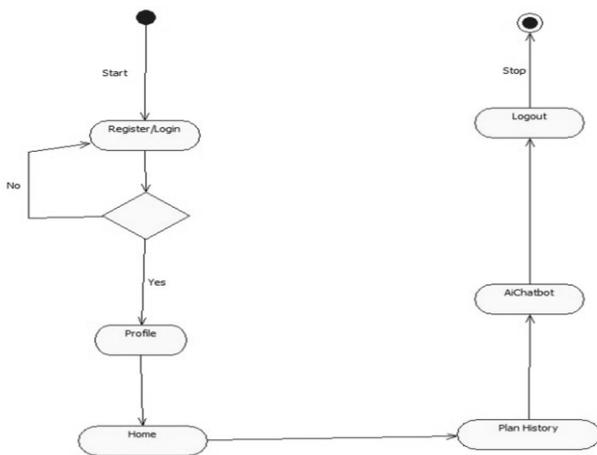

Fig.2. Activity Diagram

In above figure (2), shows the activity occur in the system with some conditional branches which occur in other working scenarios.

VI. RESEARCH METHODOLOGY

User needs to register first to use the app with their login credentials for example Email ID, name, age, password and address. User also have to select food and drink preference, starting registering and logged in user have to select start and end time. User have choices to select to travel whether he or she wants to travel historical place, ancient temples, garden-theme parks or zoo after this system will generate 3 planned routes to travel.

We have added Artificial intelligence Chatbot to get detailed information about places nearby and to call or

message to book or to get details. Project is fully loaded in Android Studio using JAVA programming language. Project is developed using Android Studio, used for coding and designing the application. SQL server used to form and maintain database, in that we create tables, to write query to store and record data of data. To access google map server google map API used. Map server google map API used.

The system has been developed with care that it is free of errors plus it is efficient and less-time consuming. The important thing is that the system is robust. The application technologically advanced has been designed and run to satisfy the necessities and needs of the organization as well as the users. The whole system is secured.
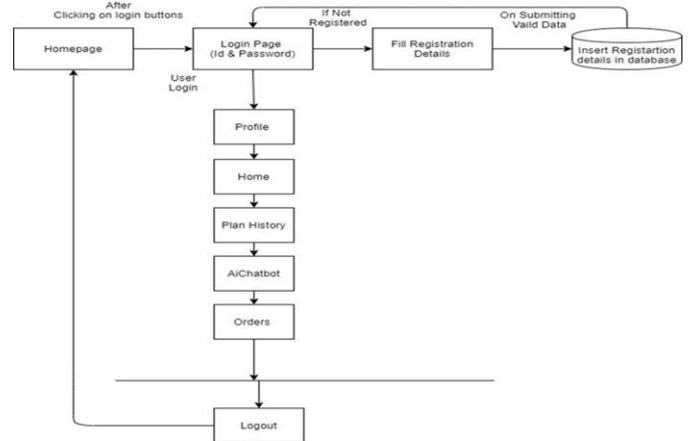

Fig.3. System Architecture

VII. CONCLUSION AND FUTURE SCOPES

Paper, on Artificial Intelligence-based method to improve tourism with the help of Android Studio highlights the literature studies related to tourism-route planning using artificial intelligence techniques. Survey shows that different architecture, approach, programming language, software/hardware requirements were used in each study. Each study has its own strengths and limitations.

For the future work the world is growing fast, running toward digital gadgets or apps, etc. nowadays people travel more than ever and apps like this can be handy and easy to plan a route for a specific time. This project can also connect with third-party applications like UBER, AIRBNB, OYO, OLA, TRIVAGO, MAKE MY TRIP, etc. by this for users traveling will be trouble-free and fewer scams. This application provides every detailed of information about a place with a click. So, that traveler doesn't need to ask for information.

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