TRAVELPRO – A TOURIST'S COMPANION

[1] DR. BALIKA J CHELLIAH, [2]ASWATHY GOPALAKRISHNAN, [3]OVIYA SIVAKUMAR, [4] P.SAI PRASANTH
[1]ASSOCIATE PROFESSOR (Sr.G), [2,3,4] UG SCHOLERS
DEPARTMENT OF COMPUTER SCIENCE
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

Abstract: **TravelPro is a mobile phone application that serves as a travel guide for tourists. This application's primary purpose is to provide information about places to tourists who haven't visited the places before, along with other information such as hotel locations, location, restaurants, modes of transport to the tourist location, etc. Google maps API is integrated into the application for navigation, which uses the GPS component integrated into the phone. This shows directions to the user on being connected to the internet. The information is neatly classified into categories and this makes access easy for all the users.**

Keywords—mobile phones, tourism, travel, navigation, GPS.

I. INTRODUCTION

People never go anywhere without their mobile phones. They use it for a lot of things, like calling, messaging, organizing, etc. Mobile devices with GPS receiver are also used to navigate. Mobile phones can also be used to obtain information. This application provides just that, specifically, information about tourism. Information related to tourism such as a list of museums, the most famous historical objects, restaurants to visit, is provided along with constraints to travel by bus and by foot. The system should find a path that fulfils search criteria, show the results on screen, show names of objects, some short descriptions and photos of them and possible entrance and travel costs. It should also be able to estimate the time needed to travel from one place to the next and if it is possible, suggest bus routes or other public means of transport. This app is primarily targeted at users who visit new places about which they don't have much information about. Search results are only a proposition for the trip. An additional feature of this application is that it can provide users with tour plans. The user has to provide start and end dates and a place of interest.

The application will provide the user with information on how many places there are to visit, along with restaurants and modes of travel. Also, a schedule is suggested to the user which will help cover most of the places of interest within the dates provided. People who visit new places face a lot of difficulties such as language barriers which lead to a lot of communication difficulties. The existing applications and other guides that are available are not always authentic. The users have to use different applications for travel, accommodation, etc. which makes it very inconvenient for the users. In case of emergencies, especially health-related, it becomes a problem having multiple apps for the same. TravelPro is a combination of all the important things that a tourist will look for. It provides directions, nearby places, hotels, food, etc. The app is created using Android Studio. Since everything required is included in the same app, users don't need to download several apps, this makes it much easier, especially in areas of poor internet connectivity.

The map feature makes it all the more convenient for users to keep track of where they are and where they need to go, along with the routes to take. The map feature gives an estimate of how long it takes to travel from current location along with the route. This application has a straightforward UI, which makes it simple for individuals of any age to utilize. The administrator has a different login, and the administrator can alter the substance of the application, including new data about spots frequently. TravelPro helps in making trouble free tourism designs since it outfits the customer with the key information concerning a particular place. Enrolled clients get suggestions in view of their inclinations. One can likewise add spots to their list of things so that they can return to it on a future date.

II. RELATED WORK

Alexander Smirnov, Alexey Kashevnik, Andrew Ponomarev, Maksim Shchekotov and Kirill Kulakov published the paper Application for e-Tourism: Intelligent Mobile Tourist Guide which is about a mobile app that helps tourists in a region by showing them the popular tourist locations and pit-stops. The application is accurate and highly functional. The downside is that the application may or may not contain the information the tourist is looking for. The application has to be updated regularly. The paper titled Design and Implementation of Tourism Information System Based on Google Maps API written and published by Yimeng Wu, Zhixue Liang and Liming Liu [2], emphasizes on the importance of collecting information of data sets for tourism guides for adding them to the map using Google's map API. Maps API will enable the usage of maps on the app and will deliver the complete Google maps Experience to the user while still keeping in mind the scalability factor of different phones. This will not work without a strong and proper internet connection. An Automated Feedback Based Approach to Support Mobile App Development, a paper by Simon Scherr [3], emphasizes on the importance of data-sets and user feedback and also on the development cycle of an app and how much the time constraints devalue the worth of the app. This helps to understand the needs of a user and hence make changes and develop the app without putting off the final release of the product. But there is no guarantee that the feedback system will bring success, even though there will be an improvement. The paper about GPS, titled GPS Tracking System by Amany El Gouhary, Richard Wells and Anthony Thatcher [4], mainly focuses on what GPS is and how it works and how it can be used to benefit all of us. GPS has many real-world usages such as vehicle tracking, personal tracking and map direction advice. However, there are chances of inaccurate information being displayed, though the probability of that is low.

There is also a paper for web view-based mobile applications – Recommendations for Web View Based Mobile Applications on Android published by Pinku Hazarika, Rahul Raj CP and Seshubabu Tolety [5]. This is a study on the feasibility of Web views of applications and their limitations in terms of real-world usage. This has several advantages such as lowest development & amp, maintenance cost, maximum code reusability, etc. But there are disadvantages like higher loading time on server fetch, limited application management, etc. A Web and Mobile based Tourist Travel Guide System for Fiji's Tourism Industry, a paper by Vineet Singh [6], emphasizes on the importance of collecting proper data sets on existing tourism platforms before planning to integrate a app that will combine all the existing platforms into one. The paper discusses on the app made for Fiji's tourism industry. Tourism being the prominent means of income for the country on account of the country's large number of scenic spots and vitality centres. However, the downside of the paper is the fact that the authors did not consider to fully research on the existence of prior tourism packages and also the fact that they didn't consider the fact that not every location or hotel has a electronic booking system. This leads to problems when trying to integrate the app with the existing booking systems that are present in the hotels. An Expert System for Tourists Using Google Maps API, a paper by Aleksandar, Pejiü; Szilveszter, Pletl; Bojan, Pejiü [7], emphasizes on the importance that google maps plays for a tourist. The paper more specifically discusses on the presence of the google maps API call and how that call can be integrated into an app through the API key. The paper though uses an local WAMP server that acts as a mock server onto which the database is loaded onto. So, no real world tests were made conclusive.

III. TRAVELPRO

We have proposed a system that provides directions, information about nearby places, hotels, food, etc. Since everything required is included in the same app, users don't need to download several apps, this makes it much easier for the people and convenience has been given top priority. This app has a simple user interface, which makes it easy for people of all ages to use. The map feature provides the current location of the person using the app and locations where they need to go, along with the routes to take. The map feature gives an estimate of how long it takes to travel from current location along with the route. The admin has a separate login. The admin takes care of all the editing of the content of the application. And editing is done regularly to keep the application up to date. TravelPro helps in making hassle-free tourism schedules, since it provides the user with the essential information regarding a particular place. Registered users get recommendations based on their preferences. Users who have created an account or signed up can also add places to their Wishlist so that they can refer to them on a later date if and when they need it. To sum it all up the app will have the following features:

1. It provides detailed information about the city including all the cultural and regional places.
2. It provides a map for further navigation through the city.
3. It will also provide the current location and directions to nearby popular places.

The structure flow of the app and the system architecture are explained in Fig 1 and 2 respectively.

The Google Maps API call plays a vital role in the app since it constitutes a major part of the app. The app uses various forms of the existing google maps platform and adds all of it together to function as a single working travel app. The Maps SDK is used to call the google maps data onto our app. This is done by means of an API or a application programming interface call. This SDK (Software Development Kit) handles the access to the google map servers, downloading the data onto the app, the map display and most of the map gestures such as pinching to zoom in and out. We can also use the API call to add markers or overlays onto our client map display or we can use it to change the user's view of a particular map area. This maps SDK also includes the built in Talkback accessibility feature. When users enable this feature, every swipe on the map display is read out by the device. For example, if we select a location on the map, the device will read out all the text associated with it.

Another API call that we are using in this app is the Maps static API. This API call will enable us to embed a google maps image onto a webpage without requiring any additional JavaScript or dynamic page loading. This API works on the basis of pre-allocating the map data onto the website by means of URL parameters. The allocated map is then called by passing a set of standard HTTP requests that returns the map as an image on the webpage. Even though we haven't implemented any website for this app on this iteration, we plan to implement this feature on the future expansion of our app.

We have also added the directions API and the places SDK in our app. The directions API does exactly what the name suggests. It calculates the distance between locations and also searches for several modes of transportation such as driving, walking and cycling. We can access the directions API through a HTTP interface, with the requests constructed as a URL string, text string or by using latitude and longitude coordinates to identify the locations along with the API key. The API key is a automatically generated key by google that we use to integrate google maps into our app. This key is unique for every project and comes with a dashboard where we can add several API keys. In the case of the TravelPro app, we have added the Google Maps API, the maps static API, the directions API and the places API. The places SDK allows us to build location aware apps that will respond to local businesses and other places near the user's location. The places API covers the PlacePicker UI widget, the Autocomplete UI widget, the GeoDataClient and the PlaceDetectionClient. The places API recognizes anything we find on the map as a place. These places include places of interest, geographical locations and local businesses. On the map a place includes information such as the name and its address, geographical location, place ID, number, website URL and more.

IV. ARCHITECTURE

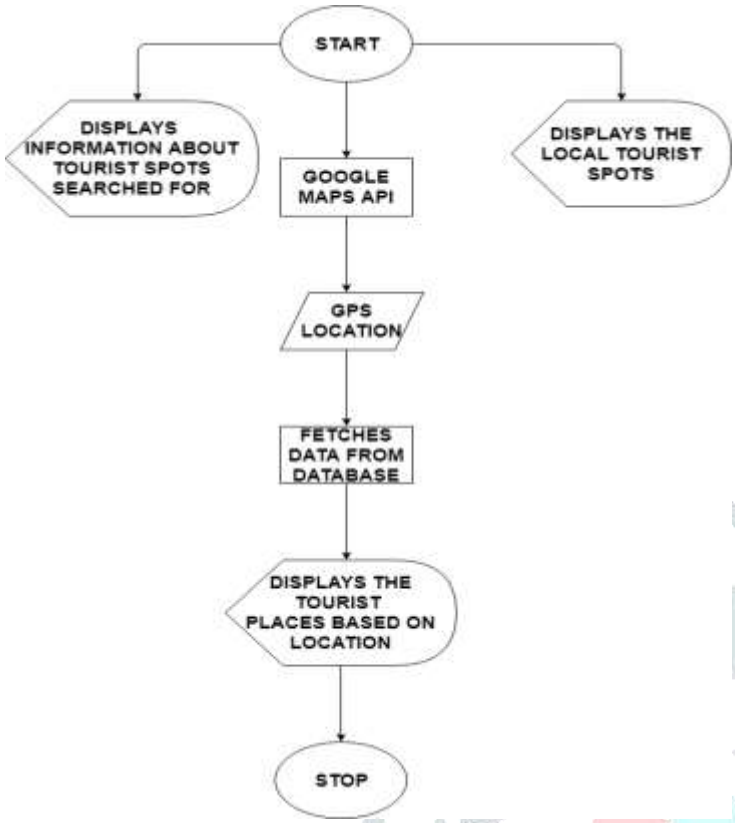

Fig. 1: The Proposed model for real-time usage

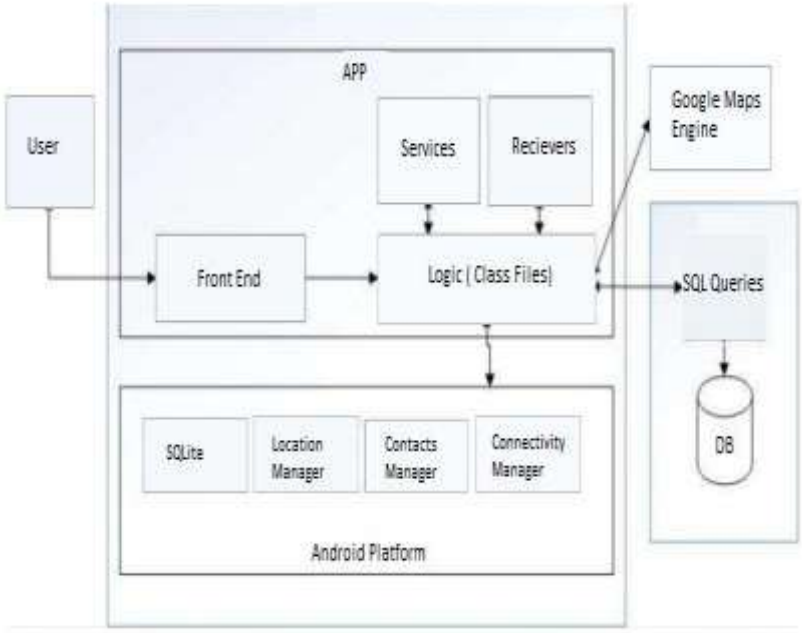

Fig. 2: The System Architecture

V. FUTURE WORK

In our app, we have implemented all the systems proposed in the model and have improved over the systems in the related works. We have observed that there is a need for a notification system which will alert the user if he is near any popular location as indicated in the system. We are also trying to implement a pseudo-admin account that will be handed over to local guides who can update our repository and also expand the reach of the mobile app. We will also try to extend the current reach of the app by adding more cities to the current roster of the app. This will attract more people who might use the app. Also, we will improve the current quantity of places and locations in the app. The locations will all be checked for authenticity in case of any falsification.

VI. CONCLUSION

This paper showcases the mobile-based application TravelPro, which is a tourist guide app. This provides the user with all sorts of information about tourism in any place, including hotels, restaurants, shops, etc, all neatly organized into separate categories. There are pictures added as thumbnails for easy identification of the places. The map feature integrated into the app uses Google Maps API which shows tourists spots and other locations around the user's location. The map also allows the user to navigate in and around places by displaying routes. The information and map are accurate with proper functionality.

VII. REFERENCES

[1] Alexander Smirnov, Alexey Kashevnik, Andrew Ponomarev, Maksim Shchekotov, Kirill Kulakov, "Application for e-Tourism: Intelligent Mobile Tourist Guide ", 978-1-4799-9958-3/15 $31.00 © 2015 IEEE, DOI 10.1109/IIAI-AAI.2015.190.

[2] Yimeng Wu, Zhixue Liang, Liming Liu, "Design and Implementation of Tourism Information System Based on Google Maps API", IEEE, 2013.

[3] Simon Scherr, "An Automated Feedback Based Approach to Support Mobile App Development", 978-1-5386-2141-7/17 $31.00 © 2017 IEEE, DOI 10.1109/SEAA.2017.45.

[4] Amany El Gouhary, Richard Wells, Anthony Thatcher, "GPS Tracking System", IEEE, 2015.

[5] Pinku Hazarika, Rahul Raj CP, Seshubabu Tolety, "Recommendations for Web View Based Mobile Applications on Android", ISBN No. 978-1-4799-3914-5/14/$31.00 ©2014 IEEE.

[6] Vineet Singh, Akeshnil Bali, Avinesh Adhikthikar, Rohitash Chandra, Web and Mobile based Tourist Travel Guide System for Fiji's Tourism Industry, IEEE, 2014

[7] Aleksandar, Pejiü; Szilveszter, Pletl; Bojan, Pejiü, An Expert System for Tourists Using Google Maps API, IEEE 2014

[8] Antero Juntunen, Eetu Jalonen, Sakari Luukkainen, HTML 5 in Mobile Devices – Drivers and Restraints, 1530-1605/12 $26.00 © 2012 IEEE, DOI 10.1109/HICSS.2013.253

[9] Web View for app received from Google documentation, https://developer.android.com/reference/android/webkit/WebView

[10] Google Map API implementation obtained from Google Documentation, https://developers.google.com/maps/documentation/android-sdk/intro

[11] Dataset information for the app obtained from http://www.tamilnadutourism.org/places/citiestowns/chennai.aspx