Map based Virtual Tourist Guidance with PoI Algorithm

Sanket U. Shrawagi[1], Kundan S. Patil[2], Jayesh V. Bari[3], Priyanka A. Patil[4],

Ashish T. Bhole[5]

[1,2,3,4] Under Graduate. Student, Department of Information Technology, SSBT's College of Engineering and

Technology, North Maharashtra university ,Jalgaon, India

[5]Associate Professor, Department of Information Technology, SSBT's College of Engineering and Technology,

North Maharashtra university ,Jalgaon, India

Abstract: Mobile performs the important role in today's lifestyle of human being. All the convenient things are done through the mobile applications and the development of different application has been increasing day by day. In existing system, a tourist visits famous city to know more about the place and hires a guide and tourist don't know best hotel, restaurant and famous attraction of the preferred city. The proposed architecture of "Virtual Tourist Guide" system based on Web app which is able to provide tourism related information to the mobile users conveniently. By providing a geographic based information system, anyone can understand how to reach their preferred location like restaurants, hotels and other attractive places Mobile performs the important role in today's lifestyle of human being. All the convenient things are done through the mobile applications and the development of different application has been increasing day by day. In such applications, location dependent systems have been detected as an important application.

Keywords: Web app, Places, Travel, Tourist guide.

I. INTRODUCTION

The aim to design and develop the project is to produce a tourist guide for to facilitate domestic and international tourists Due to unavailability of proper tourist guide, tourist face many problems. As traditional practice when a tourist visits they have to engage professional tourist guides. So sometimes the guide also could not give proper information to the traveller because of human nature they cannot remembers facts and figures which is required[1]. The tourist guide can show the map of the desired location, calculate distance between two locations and shows basic information of tourist spot using android based smartphone It is freely available any time whenever a tourist need. Tourist can easily understand where the place is, how the place is and he can visit that place whenever he wants. The objective of our framework is to give make a tour data to tourist at whatever time and anyplace in the event that they utilizes this application. Framework give tourists to have more in- formative and also interactive experiences by recovering virtual data cultural heritage image. The tourist to know more information about visited place and utilize an mobile phone to extract information about a place or city. Users get detailed information about any hotel, restaurant and attraction by just clicking its picture. We use Google map for users a convenient and filter system to find specific types of hotel, restaurant and attraction/ monument. Our aim to provide "Geotagged Images" by just clicking its picture get detailed information.

II. LITERATURE SURVEY

1.   Tourism is dependably the most grounded industry in the worldwide economy world that leading an approximated 11 percent of the world wide gross domestic product (GDP) and utilizing close around 200 million individuals and servingapproximated seven hundred million overall tourists which is expected to almost double by the year 2020.

2.   Recent developments of information and communication technologies allow tourists to get interesting information via the Internet during their trips. Smartphones are mainstream in this area with active iOS and Android devices surpassing 700 million globally by now. Global Mobile data traffic is growing rapidly to an impressive share of 13% ofthe Internet traffic in 2012.

3.   Tourism is one of the most significant industries in many countries and its importance is rapidly growing nowadays. To guide tourists, there exist various types of tour guide methods. Among them, paper-based tour booklets are the most commonly used ones to provide tour routes and heritage information for tourists.

4.   Virtual Tourist Guide can play an essential role in preventing the total suspension of many tourism activities during crisis periods, by creating new business models and providing various opportunities for different entities in the tourism ecosystem.

III.   RELATED WORK

This Application "VIRTUAL TOURIST GUIDE", aims to help the tourist to know more information about the visited place. The aim to design and develop the project is to produce a tourist guide for tourists the application is to be user friendly tourist guide over operating system is helpful for the tourists. Nowadays people prefer to use android application due to easy, conveyance usage. To change the traditional techniques of human guides by using printed maps and written information. The traditional technique might create problems while decision making due to lack of information of guide. Because in only in summer people working as guide. To avoid getting services from people which we need to engage as guides Tourism is one of the important and fastest growing industries. To guide tourist, there are various types of tourist guide techniques available such as paper based tour guide, various tourism websites and mobile applications etc. Paper based tour guide system presents static photo copied images with limited information, so they have limitations of intelligent representation and precise navigation and it is traditional one[1][2]. The websites is that they increases users memory load. The application consists of mobile tour guide system with augmented information. The application will help the tourist to find the information about the required places and it will also provide the augmented view so that the interaction between the tourist and the place will be easy. The objective of this mobile application is to help and motivate tourists to visit different exciting tourist places. This tourist guide project is application which uses Google map API and Internet. The system takes latitude and longitude of the location and shows the location on map. The application will help to provide modern technology for tourism industry and helps to boost the tourism.

IV.   METHODOLOGY

The system is designed around two main components, the mobile application and the web server. The web server serves the stored information through the mobile application. This is used to provide location information to the mobile device. Google Maps is used where map based services are required.
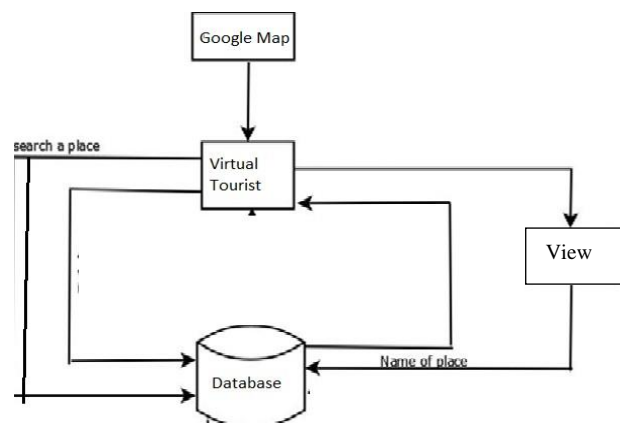

Figure 4.1: System Architecture Diagram

The mobile application is designed to operate in modes; Map view Map view provides three main functions, Path selector, information provider and Virtual tour. view is developed using the Google Maps API. By selecting the interesting places marked on the map, the user is able to get access to the stored information.[3] Tourist can click on clickable tab to get more information about restaurants, hotels and landmark. This application used Tourist advisory api of Rapid API. So when click on clickable it goes to Rapid API. And get information on place. This tourist guide project is application which uses Google map API and Internet. The system takes latitude and longitude of the location and shows the location on map. The application will help to provide modern technology for tourism industry and helps to boost the tourism. Users get detailed information about any hotel, restaurant and attraction by just clicking its picture. We use Google map for users a convenient and filter system to find specific types of hotel, restaurant and attraction/ monument. Our aim to provide Geotagged Images by just clicking its picture get detailed information.

POI Algorithm for Location

The steps for POI algorithm are as follows
1. All tags are created to appear on the screen for each POI in respect to determined type and distance.
2. All POI tags are made visible. (All of them are created, because it is faster than recreating them at each device)
3. The difference between the POIs and devices latitude is calculated as Latitude and the difference between thePOIs and devices longitude is calculated as diLongitude.
4. These differences are compared. If (diffLatitude, diffLongitude), then the POI is defined in North or South. If(diffLatitude ¡= diLongitude), then the POI is defined in East or West.

Algorithm to find Latitude Longitude

Given a project of places of Jalgaon with Latitude + Longitude locations, such as 40.8120390, -73.4889650. It doesn't seem very efficient to select all locations from the Google map and then go through them one by one, getting the distance location.
1. Continue will a low-accuracy, fast distance calculation that assumes spherical earth.
2. The great circle distance d between two points with coordinates {lat1,lon1} and {lat2,lon2} is given by:$d = acos(sin(lat1)*sin(lat2)+cos(lat1)*cos(lat2)*cos(lon1-lon2))$
d is the distance in radians
3. distance_km ≈ radius_km * distance_radians ≈ 6371 * d
4. This method computational requirements are mimimal. However the result is very accurate for distances.

V. RESULT AND DISCUSSION

By using this application, user is able to get a visualization of the place before the visit. This is an attractive feature for tourists which encourage them to actually visit the place. Tourists doesn't need any printed guide booklet to find out the path and any interesting information during the visit.
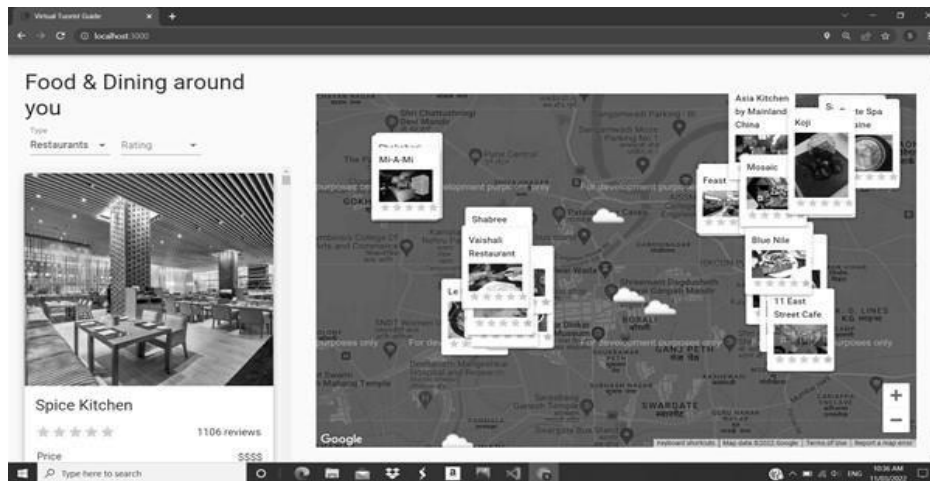
Result about virtual tourist guide system.

Fig 5.1 Option of Restaurants, Hotels, Attraction rating Inside view before visit

Fig 5.2 local mall and shopping location

Discussion
1.   Advantages
1.   Making use of the Google API's to get the accurate location of a building and its 3D view is made available to the user on the map.
2.   Quickly and an alternative route to their destination.
3.   Directing across while also feeding with information about the buildings or monuments, on the way.
4.   Restaurants can also woo their customers using these services.
5.   Provide users with digital content to view from a wide range of the source, by their location.
2.   Disadvantages
1.   While using cloud recognition, it will take a while longer for the content to be downloaded from the server.
2.   When the mobile network issue is moved away from the marker, AR experience disappears SSBT's College of Engineering and Technology, Bambhori, Jalgaon (MS) 40 and the trigger location gets error.
Could not help 100 percent accurate location.

V.   CONCLUSION

The Virtual Tourists guide is an important tool for a traveller. Most of the traditional methods are time consuming and required skilled human resources who suppose to guide the tourist in field. The main purpose of the proposed project is to ensuring to save the time of tourist, provide proper guidance and directions to the tourist.

REFERENCES

[1]   Leonard, J. "Mobile robot lacalization by tracking geometric beacons." IEEE Trans. Robot. Autom. 7, no. 3 (1991): 89-97.
[2]   Bailey, Tim, and Hugh Durrant-Whyte. "Simultaneous localization and mapping (SLAM): Part II." IEEE robotics automation magazine 13, no. 3 (2006): 108-117.
[3]   Li, Jie, Lei Cheng, Huaiyu Wu, Ling Xiong, and Dongmei Wang. "An overview of the simultaneous localization and mapping on mobile robot." In 2012 Proceedings of International Conference on Modelling, Identification and Control, pp. 358-364. IEEE, 2012.

[4]   Choi, Heeseung, Gyu Chull Han, and Ig-Jae Kim. "Smart Booklet: Tour guide system with mobile augmented reality." In *2014 IEEE International Conference on Consumer Electronics (ICCE)*, pp. 353-354. IEEE, 2014.
[5] Heeseung Choi, Gyu Chull Han, and Ig-Jae Kim, IEEE International Conference on Consumer Electronics (ICCE),2014- "Smart Booklet: Tour Guide System "
[6] Ma Chang-jie, Fang Jin-yun, "LOCATIONBASED MO- BILE TOUR GUIDE SERVICES TOWARDS

DIGITAL DUNHUANG, "Laboratory of Spatial Information Technology.

[7] Aguilera, J., Alonso, F., Gomez, J. 2014. "Generating Three-Dimensional Virtual Tours from Two-Dimensional Images." United States Patent No. US 8,705,892 B2. https://patents.google.com/patent/US8705892B2/en (accessed July 25, 2020).

[8] Fornell, C., Larcker, D. 1981. "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error." Journal of Marketing Research 18 (1): 39–50.

[9] Carvajal, D., Morita, M., Bilmes, G. 2020. "Virtual Museums. Captured Reality and 3D Modeling." Journal of Cultural Heritage 45:234–39.

[10] Chung, N., Han, H., Joun, Y. 2015. "Tourists' Intention to Visit a Destination: The Role of Augmented Reality (AR) Application for a Heritage Site." Computers in Human Behavior 50:588–99.