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Tour Guide System using Mobile Augmented Reality

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***Abstract*—**This is an android application which consists of a mobile tour guide system which is based on Mobile augmented reality. Augmented information will be provided to the tourists in the form of 360 degree panoramic view of the location.With the help of this view users using this application will have a complete idea of the location /tourist spot.Along with this ,users will get a feel that they are actually viewing that location.

Keywords-*Augmented Reality, 360 degree panoramic view, Android Application*

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I. INTRODUCTION

Tourism industry is one of the fastest growing industries in the world. There are various and different types of tourist guides that are available to provide guidance to the tourists about different places, locations, hotels and all the other things which are required by the tourists. Different types of tourists guides that are available are paper based tourist guide, tourism websites , applications etc. Out of these the paper based tour guide system is very traditional tour guide ,it consists of images and information about various places along with the maps.But the main drawback of this paper based tour guide is that the information in it cannot be updated easily and a lot of time is required to update and change the information and then print it all over again. Also to find the location with the help of maps which are printed on the paper becomes very difficult and inconvenient. Websites and applications that are available are not having the 360 degree panoramic feature that provides the augmented feel to the users.To overcome some of these drawbacks , smart booklet application is proposed. This application will help the tourist to find different tourists locations also the information about these locations like where they are located, popularity, historic significance(if any) and it will also provide the augmented view(360 degree panoramic view). With the help of this application users can also give their own comments and ratings and can view the comments and ratings of other users who have already visited the place and in this way the user can have a bit more clear idea about the various places.

II. LITERATURE SURVEY

The smart booklet is today's need for tourists. There are articles on websites and blogs to teach how the augmented reality works. There are reputed websites which also provides the information of tourist places. Other than these reputed websites there are some android applications they also used as tour booklet. Almost all work done on augmented reality is surveyed and studied the challenges and how can better systems developed [1]. A review of ten years of ISMAR is done [1]. Other than this a booklet is made using 3d rendering for a stand-alone device [2]. Another approach for implementing the augmented reality is the gesture recognition technology [3], based on the 3D motion tracking of human. The human interaction with the virtual world is implemented [4]. In this project the coordinate system and 3D rotation matrix transformation is used to support the virtual approach. As the AR is very wide area there are various approaches to implement it.

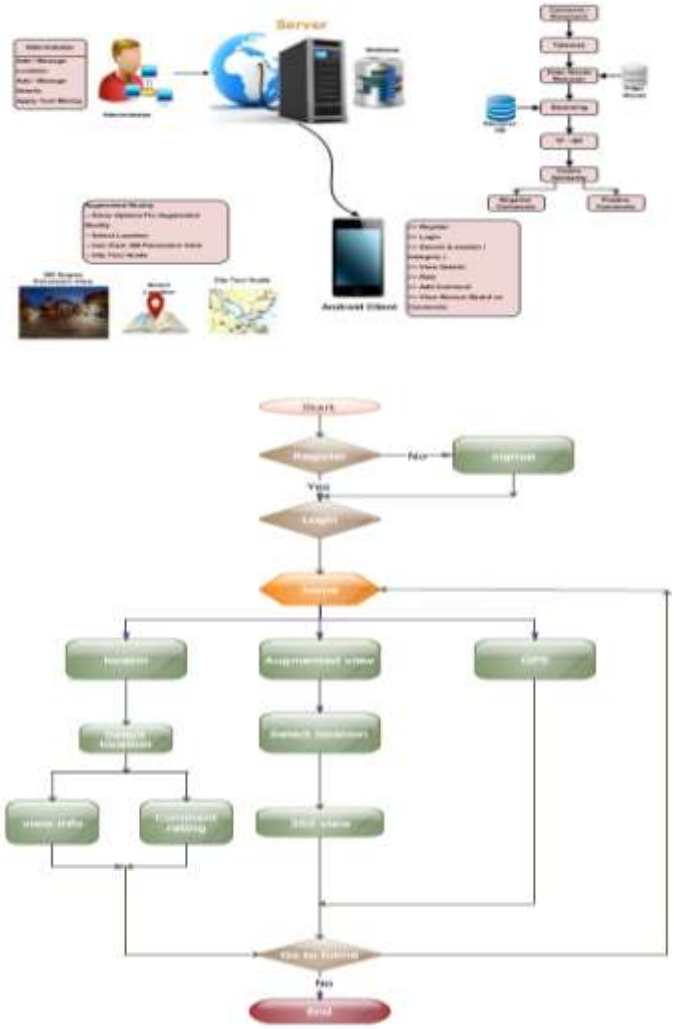
III. PROPOSED METHODOLOGY AND DISCUSSION

Android clients need to register themselves to the application .Then authentication of client will be performed by administrator after successful registration. If they are already registered then they will just login by using the UID and password. When the client will log in to the system ,the client will view three options.The first option will be having the list of the different tourist locations and places,the second option will be the augmented view option which will have the augmented(360 degree panaromic view) of the different locations and the third option will be the GPS option. Whichever option the user selects that information will be sent to the server.Thes server will then request the system and will provide the required result to the android client. If the first option is selected then the list of locations will be displayed out of which the user can select anyone location which he finds interesting and then he will be able to view the positive and negative comments given by different people who have already visited the location,rating of the location and some information about the location. But if the user doesn't finds the location interesting and worth visiting then he can just move back to the list and select another location.The same

information about the other location will be displayed.Then if the user finds the location interesting and wants to view that location then the user can go back to the window that displays the three options and select the augmented view option. By selecting that option the user will be able to view the 360 degree panoramic view of the location which will give the user a feel that he is already present in that location. Apart from all this with the help of GPS option the user can access information like where exactly that location is , near by hotels , ATMs , bus stations etc .

IV. SYSTEM ARCHITECTURE

The implementation of whole system, sever, database, Augmented view, GPS, Ratings as show in below figure.



V. IMPLEMENTATION

1. 360 DEGREE PANAROMIC PROJECTION

1. Read the image from the SD card
2. Load the panorama image(spherical image) by using the JSON protocol. JSON stands for Java Script Object Notation . JSON is lightweight data-interchange format that can be easily read and write and for machines to parse and generate. JSON is mainly based on the object notation of the JavaScript language. It does not require JavaScript to read or write because it is a text format that is language independent
3. Then the setting of the RGB colour format ie the image colour format is done.
4. Rendering of the image needs to be done.
5. Set the height, width of the image.
6.Then the division of the image into spherical, spherical 2,cylindrical is done This depends on the type of the image format.
7. Setting of the reset properties is done which includes the values like number of touches, shake and threshold of the image.
8. Set the scrolling properties which includes minimum distance to enable scrolling in pixels.
9. Set the inertia that is the time interval in seconds with which the image will move.
10. Set the accelerometer parameters like sensitivity, left-right, up-down movements and set the CGpoint for performing image rotation.
11. The sensorial rotation will be done by setting the sensor parameters.
12. Camera Settings need to be done:

2. Comments and Rating

The rating for each and every location which will be decided on the basis of positive and negative comments that are given by different users the Porter Stemming algorithm and the Binary Term Frequency algorithm will be used.
The rating will be obtained as follows
1The file which will have comments entered by the different users will be taken as input.
2.The file will be parsed which means sequentially word by word and line by line it will be loaded.
3. The file will be tokenized in the form of words.
4.Then the porter stemmer algorithm will be applied which will find the root word of every word present in the file.
5.Then after that preprocessing will be performed in which all the stop words which means words like this,that,was,were etc which do not indicate whether the comments is positive or negative will be removed and only those words which decide whether the comment is positive or negative will be shortlisted.
6.After this the Binary Term Frequency algorithm will be used which will count the number of positive and negative words(these words are the root words which are obtained by the porter stemmer algorithm).If the word is positive then it will be marked by 1 and if the word is negative then it will be marked by 0.
7.Cosine similarity will be performed in which the total number of 1's and 0's will be counted. Which means the number of positive and negative words will be counted.
8.By doing so if the number of positive words are more then the comment is considered positive and if number of negative words are used then the comment is considered negative.
9.Finally based on the number of positive and negative comments regarding a particular location the rating to that location will be given.

VI. RESULTS

CONCLUSION

Due to increase in tourism people need to know the information and popularity of the location they are visiting. We have implemented an android application of tour guide using augmented reality. Our system successfully helps touriststo get the exact information and proper visualisation of locations. We have applied our system in area of tourism and it helps visitors to get the detailedpanoramic view of that location

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