

**“GOexp” - Landmark recognition, retrieval and predicting user
preferred restaurants**

Final Report

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18-107

Bachelor of Science Special (Honors) in Information Technology
Specialization in Information Technology

Department of Information Technology

Sri Lanka Institute of Information Technology
Sri Lanka

September 2018

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Dissertation submitted in partial fulfillment of the requirements for the B.Sc.
Special Honors Degree in Information Technology Specialization in
Information Technology Specialization.

Department of Information Technology Sri Lanka Institute of
Information Technology

September 2018

DECLARATION

“I declare that this is my own work and that this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning, and to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above Person has carried out research for the B.Sc. Special (Hons) degree in IT Dissertation under my supervision.

Signature of the supervisor:

Date:

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The Research study was Developed and carried out under the Comprehensive Design Analysis Project module. Project is done by all the group members, who work hard and higher level of commitment, have given in every single possible manner.

ABSTRACT

Tourist Industry in the World is at a standard stage now. There are trip planning sites, booking sites and all. But we are in lack of a dedicated online platform for the tourists to identify certain landmarks. They are always in need of a tour guide to do that. To solve this problem of identifying landmarks, we came up with a mobile-based application. Our app “GoExp” helps to ease this task of identifying landmarks by studying the pixels of an image taken by any smartphone device. It doesn’t deal with the metadata of the image but it deals with pixel information by using the techniques like image querying and also the app is providing the user with similar image retrievals (Content-based Image retrieval). In addition to this we are going to provide accommodation and dining suggestions for the user according to their interests by profiling the user using their Twitter profile. Plus, we are going to provide customers with a ranking of restaurants by using public ratings. Then the customers are getting a chance to select the best place out of the suggested places for accommodation or dining.

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LIST OF ABBREVIATIONS

GoExp - Name of the developing system.

REST API – Representational State Transfer Application Programming Interface

GIS – Geographic information System

API - Application Programming Interface

SDLC – Software development life cycle

1. INTRODUCTION

1.1 Background Context

The touristic landmarks are easily recognizable and well-known sites and buildings, such as a monument, church, etc., as shown in Figure 1. They are the pivotal part of people's tours, due to their notable physical, cultural and historical features. The explosion of personal digital photography, together with Internet, has led to the phenomenal growth of landmark photo sharing in many websites like Picasa Web Album (picasa.google.com). [1]



Figure 1: Examples of landmarks in the world

Picture recuperation is a focal issue in Computer vision: given a request picture, would you have the capacity to find similar pictures in a large database? This is especially basic for question pictures containing purposes of intrigue, which speaks to a colossal portion of what people get a similar out of the opportunity to photograph.

With the huge measure of milestone pictures in the Internet, the time has wanted Computer vision to consider historic points all around, in particular to assemble a point of interest acknowledgment system, on the size of the whole globe. This system isn't just to outwardly perceive the nearness of specific landmark points in a picture, yet in addition adds to an overall milestone database that sorts out and records historic points, regarding land areas, popularities, social esteems and social capacities, and so forth. Such an earth-scale point of interest acknowledgment motor is enormously helpful for some vision and mixed media applications.

1.2 Literature Survey

Most of the existing systems recognize the landmark images by using the meta-data of the image. So the accuracy when identifying the landmark is low. Also they use surveys to capture user interests and profile the users in order to filter the results accordingly. That is very inefficient and also users don't like to fill forms. So we mainly focused on those issues and came up with a better solution for that system with high reliability and better accuracy.

A. *Google Goggles*

Google Goggles is a mobile visual search application currently available for Android mobile phones that lets a user to submit a search query by taking a picture. [2] google goggles can identify some visual cues or "landmarks" in an image and generate relevant searches. This technology can also recognize barcodes and even some kinds of text in a photo, such as printed text on a captured page. This program can provide information about a photo taken with a handheld device and has been used in various commercial and educational projects. [3].

B. *Bixby Vision*

Bixby vision is a new feature on the Samsung galaxy s8 and s8+. You will need to be connected to a Wi-Fi or mobile network, and signed into your Samsung account on your device to use it.

- ❖ Shopping: Bixby vision can recognize products and search for information such as the product name and its price so you can find and purchase products even when you don't know what it is called.

- ❖ Nearby places: Bixby vision can recognize landmarks and share information about it and what's nearby.

- ❖ Text translation: need to know what a sign or menu says? Tap the translate icon to translate it.

- ❖ Wine information: Bixby vision can tell you a wine's vintage chart, food pairing and world ranking from the bottle's label.

- ❖ Similar images: search for images similar to the Bixby vision is looking at.

- ❖ QR codes: quickly view the information from QR codes. [4]

C. *Trip Advisor*

A popular tourist destination mobile software tool to plan and support the implementation of the trip is the mobile travel application "TripAdvisor", which contains information about the most popular tourist destinations, places of accommodation, food, entertainment, etc. It has a good travel

community for users to store and share their trip stories. Some main advantages are easy to search, access the community forum and explore info about your next destination, Great UI, Maps, directions and even Street view. Some disadvantages are, it doesn't always include off-the-beaten-track spots, it shows only the most popular tourist spots, it can't find anything new in a city. If a person visits a city for the first time and he/she just want the highlights, this is not the best app for the first use. [5]

D. Foursquare

“Foursquare” [6] [7] is a local search and discovery service mobile app which provides search results for its users. Foursquare provides recommendations of the places to go according to the user's current location. It has a defined list of "tastes" in particular food items, styles of cuisine or environmental aspects, which users may add to their profiles to let the service know what they like. New users are presented with a list of words and phrases describing recognized tastes and they may select the ones that appeal to them. Users can change their tastes at any time and can add and remove items from their profile. Foursquare uses natural language processing to match a user's tastes with the tips at nearby venues that mention them. It is then able to recommend nearby places to the user that match their tastes. “Swarm Foursquare”

E. City-Scale landmark identification on mobile devices

With recent advances in mobile computing, the demand for visual localization or landmark identification on mobile devices is gaining interest. We advance the state of the art in this area by fusing two popular representations of street level image data—facade-aligned and viewpoint-aligned and show that they contain complementary information that can be exploited to significantly improve the recall rates on the city scale. We also improve feature detection in low contrast parts of the street-level data and discuss how to incorporate priors on a user's position (e.g. given by noisy GPS readings or network cells), which previous approaches often ignore. [8]

Table 1: Comparison of the existing system with proposed system

Features	GOexp	Google goggles	Camfind-Visual Search Engine	Bixby Vision
Recognize landmarks of the images	✓	✓	✓	✓
Recognize various objects of the images. (Such as products, letters)	X	✓	✓	✓
Mainly focused on identification of the landmark of the images.	✓	X	X	X
Use dataset that contains around 30,000 unique landmarks.	✓	X	X	X
Retrieve the similar kind of images based on the given image.	✓	X	✓	X
Suggest Accommodations options based on the area that landmark located.	✓	X	X	✓
suggest accommodation based on user preferences.	✓	X	X	X

1.3 Research Gap

We are in a need of well-designed solution that would allow us to use a single standardized System for Landmark recognition and Retrieval in World. In the current available system can identify and give the location. They used Google Map by using mobile devices for this purpose. Also they divide segments in input image compare their database and show them what that landmark is.

In current system like Google Goggles – Search by taking a picture: point your mobile phone camera at a painting, a famous landmark, a barcode or QR code, a product, or a popular image. If Goggles finds it in its database, it will provide you with useful information (name, country)

Existing studies [4,5,6,7] does not recognize the landmark images by using pixels. They only compare that input image is same as their data base image and retrieve it. Also they do not Consider several human features. It uses data from the survey that has to be filled by the user and predict the places according to that particular area. We mainly focused on those issues and came up with better solution for that system with high reliability, better accuracy

1.4 Research problem

As mentioned earlier, there are major problems with the current system. When we see some images of place that we are interested of visiting or go for some more images on that same landmark but the image retrieval is fundamental problem in computer vision make a barrier to retrieve the image with correct landmark from large databases.

Also if we have any collection of images where we visited while ago but no extract memory right now like what is the name of this temple I visited? Who created this monument I saw in there? And also we are curious of the more details on that monument or the temple. Build models that recognize the correct landmark (if any) in a dataset is challenging task. Then Consider several features from the survey that has to be filled by the user and predict the places according to that particular area.

With the huge measure of milestone pictures in the Internet, the time has wanted Computer vision to consider historic points all around, in particular to assemble a point of interest acknowledgment system, on the size of the whole globe. This system isn't just to outwardly perceive the nearness of specific landmark points in a picture, yet in addition adds to an overall milestone database that sorts out and records historic points, regarding land areas, popularities, social esteems and social capacities, and so forth. Such an earth-scale point of interest acknowledgment motor is enormously helpful for some vision and mixed media applications.

Although there is some review system in landmark applications, they are no perfect analyzing system. So the travelers are facing difficulties in choosing suitable places for their travelling. Most importantly sometime the travelers do not expect an occurrence of a natural catastrophe so they may face some difficulties. Because of these problems they are not satisfied with their visit most of the time. The GoExp has the feature of prioritizing the user reviews by using twitter account and rating according to the user levels based user contribution, suggesting suitable places to visit and providing what are the highest rating locations to users stay.

1.5 Objectives

1.5.1 Main objective

Provides a systematic solution to predict the landmark details of the images and a way to find (query) images containing the same landmarks to help people better understand and organize their photo collections.

Also the system predicts the accommodations and dining suitable for the customer by his preferences and the real time update of the place they are willing to explore.

1.5.2 Specific objectives

Predict user reservations by profiling

User profiling is used to personalize the online experience of the user while using the app. Twitter provides an API to access the publicly available information. The words, Hashtags, Retweets etc. can be accessed from the user profile and they can be used for the profiling

Twitter offers the data through two channels, the Stream API and the REST API. By using the python package called Twython we can connect the both APIs to collect data. Also we use GIS technology here to get the location of the captured image of the landmark and it will be further used to provide the user with Restaurants and dining places around that particular area. But, the results will be displayed according to the user preferences we obtained through Profiling. For example, user can go directly to the restaurant which offers his/her favorite food rather than going to every restaurant and check for their favorites

2. Research Methodology

The goal of implementing this mobile application is to give a comfortable experience for the people who are interested in traveling. It makes their life easier.

The people who are traveling to other countries and if they are struggling in finding the right accommodations and dining, here is the ideal solution for them. We suggest the preferable accommodations and dining for the particular user.

The main operations

- Identify the user preferences
- Provide suitable accommodations and dining options by matching user preferences

User profiling and suggesting nearby accommodation and hotels accordingly

User profiling is used to personalize the online experience of the user while using the app. Twitter provides an API to access the publicly available information. The tweets, hashtags, retweets etc. can be accessed from the user profile and they can be used for the profiling. Twitter offers the data through two channels, the Stream API, and the REST API [9]. By using the python package called “Tweepy” [10] we can connect the both APIs to collect data. Also, we use GIS technology here to get the location of the captured image of the landmark and it will be further used to provide the user with Restaurants and dining places around that particular area. And, the results will be displayed according to the user preferences we obtained through Profiling. So the user can go directly to the restaurant which offers his/her favorite food rather than going to every restaurant and check for their favorites.

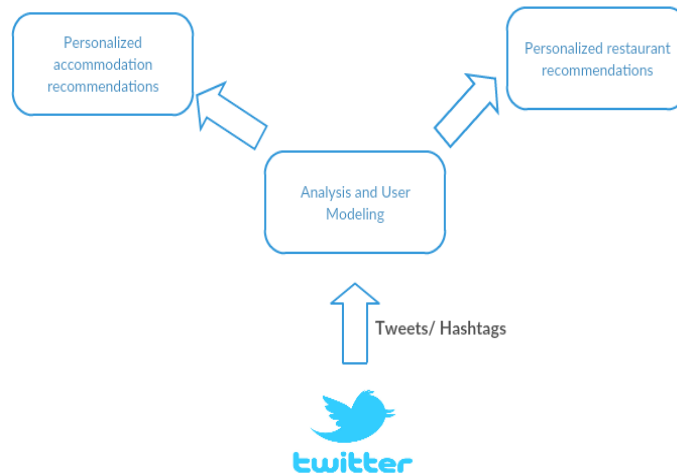


Figure 2: User profiling with Twitter

2.1. Requirements Gathering and Analysis

As the target users of “GoExp” mobile application are who are interested in worldwide traveling and most of them are willing to maintain memories of the past traveled places. We need to implement a higher user friendly, efficient and accurate landmark recognition and retrieval system. To develop the sub component which is known as Provide suitable accommodations by matching user preferences and reviews User operation we collected some useful information using different methods. In order to collect the relevant information regarding requirements and functionalities, the team used the following methods.

- Read and analyze the research papers, journal articles and books which are relevant to the research domain Provide suitable accommodations by matching user preferences and reviews User operation:

The main goal was to identify the existing solutions for the problem and gain a broad knowledge about the research domain.

Then the team discussed about the suitable technologies required to develop the solution for the identified research problem.

- Browse through web sites and web forums related to Provide suitable accommodations by matching user preferences and reviews User operation.

Internet is a place where we can find lots of information and gain lots of knowledge about any research area. So our team browsed through trusted websites and blogs related to user rating and prediction which are conducted by researchers, authors etc. And using those websites we gathered information about user profiling, provide suitable accommodations by matching user preferences and

reviews User operation like that and many more. Not only that but also we gathered information about current products too. Technical information was also gathered using internet.

2.2 Design

System design is the process of defining the architecture, modules, interfaces, and data for the application required to satisfy specified requirements. For designing, I used Unified Modeling Language (UML) for designing the system. Use case diagrams [Appendix B] and the use case scenarios (Appendix C) were to help developers to determine which features to implement. The activity diagram [Appendix A] describes the activities of the system by presenting the system's users, their attributes, operations and the relationships among the users. In application level system design is divided in to three parts as below.

- User interface design:

This section was use to design a simple and user friendly Graphical User Interface which allows user to easily understand the navigation of the system. When designing the GUI, we considered mainly about the colors, content in a single page and themes. simple and quick to start the detection since the users are travelers, tourists. The mobile application consists of login page, configuration pages and then a page which allows user to start the image detection. Under that the “Find nearby accommodation and dinning” buttons are available. When a user clicks on that button he/she will land on the particular page which has an integrated google map to show the locations. Home page contains icons to navigate to these pages easily while the side pane contains relevant menus.

- Database design:

Firebase cloud database was used to store the trained models and datasets that I used to profile the users.

2.3 Testing and implementation

The complex component of a mobile application is testing. Its critical to have full-developed testing framework by processing and accessing whether the functionalities of system satisfies with the actual requirement or not, so identifying requirements software testing process will work. So basically, software testing can be mentioned as

Static testing

- Review
- Inspection
- Checking the documents manually
- walkthrough

Dynamic testing

- Unit testing
- Component testing
- Integration testing
- System testing

So, software testing process also must include strategy, performance, usability, functional and nonfunctional, security and one of the major testing strategies is testing the network connection and strength of the connection when it comes to a place where there is no network connection (This situation is possible in some rural areas or with different network providers). For the requirement we won't be able to test with emulators because we deal with the real data environment, so the best testing strategy is real user monitoring

Unit Testing

Each unit individually to test whether it's fit for use. This is used to identify the part of problems in earlier stages of testing, and most important thing in unit testing is identify the bug than correcting it.

Component Testing

Each component testing done in the application separately. Also it is known as the program testing. Here the founded bugs or defects are corrected.

Integration Testing

Each module of the software combined and tested as a group. It must be tested after unit testing.

System Testing

This is the level of testing where complete software and integrated software is tested. It is verified as a system whether it meets the requirements or not. This will ensure the quality level of the system.

Testing process using Test cases

A typical software application should be tested from creating test cases of the system.

The stages of few test cases in mobile application are as follows.

Test Case ID	Description	Precondition	Test Steps	Input	Expected output
01	User signup If for the first time using.	System should be connected with the internet	Type user name and password and other details	User name: John Password: 123	Message Signup is successful
02	User login to the Application	System should be connected with the internet	Type user name and password	User name: John Password: 123	Message Login successful
03	User select a suggested place in the map	System should open the integrated google map and show the place on the map. And here the System should be connected with the internet	Click on the Find nearby restaurants button	-	List of the suggested places

Table 2: Test cases with only expected output

2.4 Implementation

User profiling is used to personalize the online experience of the user while using the app. Twitter provides an API to access the publicly available information. The words, Hashtags, Retweets etc. can be accessed from the user profile and they can be used for the profiling.

Twitter offers the data through two channels, the Stream API and the REST API. By using the python package called Twython we can connect the both APIs to collect data. Also we use GIS technology here to get the location of the captured image of the landmark and it will be further used to provide the user with Restaurants and dining places around that particular area. But, the results will be displayed according to the user preferences we obtained through Profiling. For example, user can go directly to the restaurant which offers his/her favorite food rather than going to every restaurant and check for their favorites.

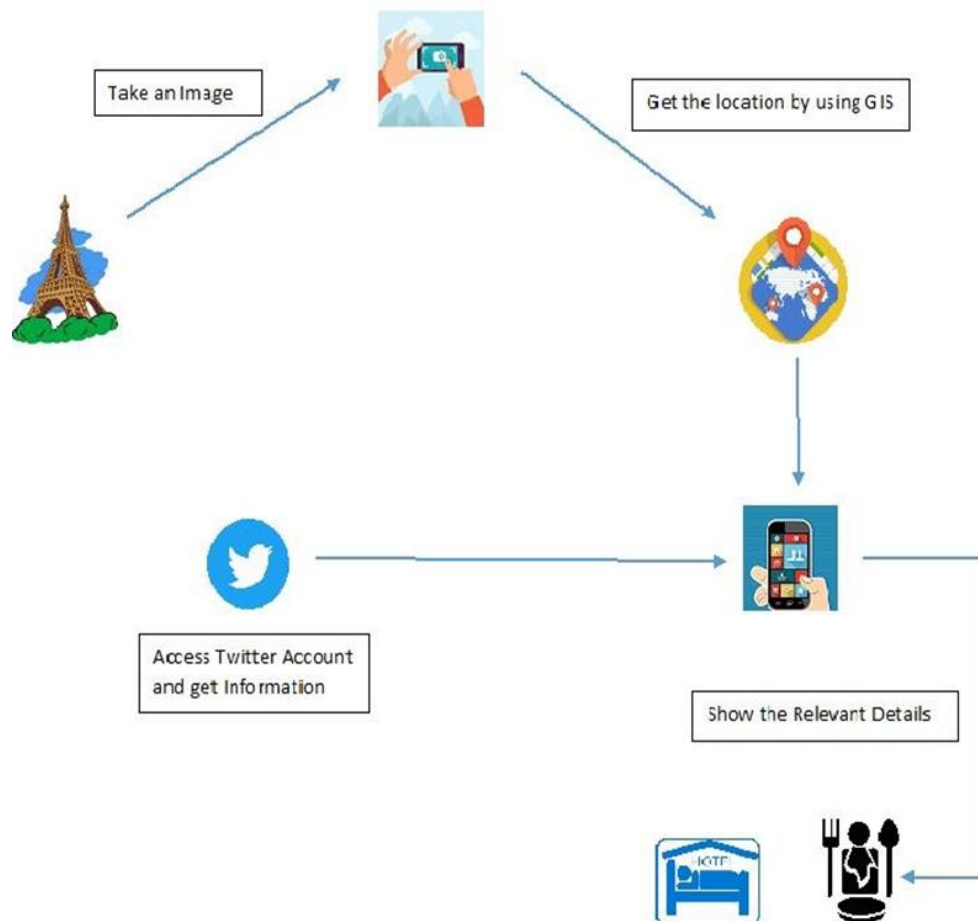


Figure 3: Overview of user profiling

3. Results and Discussion

3.1 User Interfaces

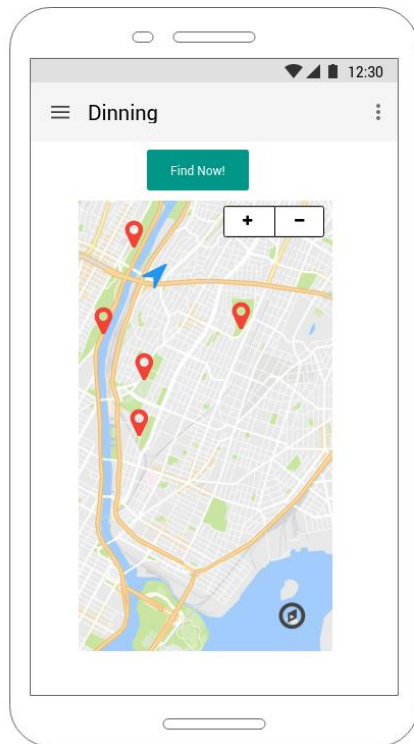


Figure 4: Find nearby Dinning interface

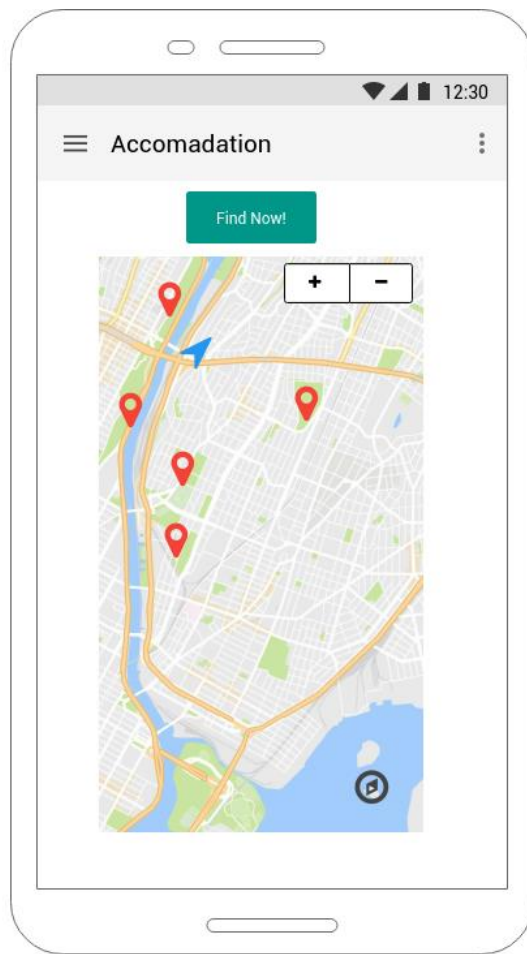


Figure 5: Find nearby Accommodation interface

3.2 Discussion

The results of the developed system prove to be satisfactory on an average level; this discussion is regarding the results and accuracy of work level. As mentioned in the earlier Test cases when the actual results are different from the expected result then all the actions were taken in order to make sure the systems run without any defects.

I referred to the similar existing systems and referred so many research papers blogs, websites, articles in order to get the user profiling knowledge using twitter also there are no similar functionality's comparing to our system.

When the system is finally developed, testing is taken into action in some places with well-known landmarks in order to test the accuracy level and to reduce the defects.

3.3 Conclusion

“GOexp” is a trip guidance app which facilitates the user to get the feeling that the app is made is exactly for him/her. We are allowing the user to upload an image of a landmark and get relevant information about that place. For example, what makes that place special? Who builds the place? etc... and also when the user selects a place that they wish to travel, the app suggests some other nearest landmarks they can visit too. By the image retrieval, the user can see those landmark images in different angles and views before they visit to a particular place. So it helps them to decide whether it is an interesting place to visit or not. Plus, the app is maintaining a user profiling part as well which will improve the user experience of using the app. We use Twitter stream APIs to collect data and profile each user with the data collected. That data will be tweets, hashtags etc. The people who are traveling experience many problems in finding accommodations and dining places according to their preferences, especially when they are in different countries. This app solves those problems by suggesting their preferable places by using the predictions done with their own Twitter profiles using user profiling techniques. Addition to this the app is going to rank those preferable places according to a public opinion. By doing so, the user can get an idea about where those places stand among the general public. Ultimately, the user will be benefited with the best accommodation and dining around the area that he/she visits.

4. References

- [1] Y. Avrithis, Y. Kalantidis, G. Tolias, and E.Spyrou, "Retrieving landmark and non-landmark images from community photo collections," *Proc. Int. Conf. Multimed. - MM '10*, p. 153, 2010.
- [2] D.Petrouetal " Search by sight: GoogleTMgoggles," 2010 IEEE Hot Chips 22 Symp. HCS 2010, 2016.
- [3] "What is Google Goggles? - Definition from Techopedia." [Online]. Available: <https://www.techopedia.com/definition/25993/google-goggles>. [Accessed: 09-May-2018].
- [4] "What is Bixby Vision and how do I use it? | Samsung Support UK." [Online]. Available: <http://www.samsung.com/uk/support/mobile-devices/what-is-bixby-vision-andhow-do-i-use-it/>. [Accessed: 10-May-2018].
- [5] "City Guides Catalog",," [Online]. Available: <https://play.google.com/store/apps/details?id=com.tripadvisor.android.apps.cityguide.catalog>
- [6] "Foursquare — Best City Guide," [Online]. Available: <https://play.google.com/store/apps/details?id=com.joelapenna.foursquared&hl=en>
- [7] Foursquare,[Online].Available: <https://en.wikipedia.org/wiki/Foursquare>.
- [8] D. M. Chen *et al.*, "City-Scale Landmark Identification on Mobile Devices," *2011 Ieee Conf. Comput. Vis. Pattern Recognit.*, pp. 737–744, 2011.
- [9] "Consuming streaming data" [online]. Available <https://developer.twitter.com/en/docs/tutorials/consuming-streaming-data.html> [Accessed : 09-June-2018]
- [10] "Tweepy Documentation — tweepy 3.5.0 documentation" [online]. Available
 1. <http://tweepy.readthedocs.io/en/v3.5.0/> [Accessed: 24-July-2018]

5. APPENDICES

Appendix – A – USE CASE DIAGRAMS

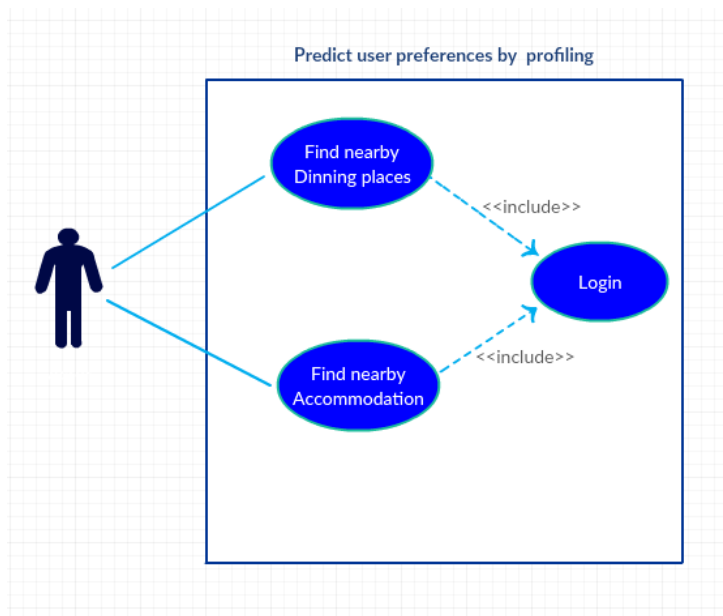


Figure 6: Predict User Preferences Use Case diagram

APPENDIX – B: USE CASE SCENARIOS

Table 3: Register

Register

Use case	Register
Preconditions	User should have an email address
Actors	User
Flow of events	<ol style="list-style-type: none">1. When user launches the app for the first time.2. System displays Sign-up interface.3. System prompts the user to sign-up with GIIRA4. User is navigated back to his "GIIRA" profile.5. Use case ends.

Extensions	<p>3. A. User clicks on sign-up with Have a GIIRA.</p> <p>5. A.1. User enters email and password.</p> <p>3. A.2. User clicks on sign-up.</p> <p>3. A.3. User's email address is validated.</p> <p>3. A.4. User is redirected to his GIIRA profile.</p>
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Login

Use Case No	01
Use case	Login
Preconditions	User must be registered in the system.
Actors	User
Flow of Events	<ol style="list-style-type: none"> 1. Use case starts when user launches the app. 2. System displays Login interface. 3. User enters username and password. 4. User clicks on 'Login' button. 5. User is validated. 6. Use case ends.
Extensions	<p>5. A. User is not validated.</p> <p>5. A.1. System displays an error message.</p>

Table 4: Login

View Profile

Use Case No	02
Use case	View profile
Preconditions	User should be logged into the system.
Actors	User
Flow of events	<ol style="list-style-type: none">1. Use case starts when the user clicks on profile icon.2. System lists the user's fiends' activities.3. System suggests other users to be the user's friends.4. User clicks on add friend icon to add other users as his friends.5. Upload the image and view the ratings6. Use case ends.

Table 5: View Profile

Select nearby dining

Use Case No	03
Use Case	Select nearby dining places
Actors	Mobile app user
Pre-Condition	User must be a logged in user.
Flow of Event	<ol style="list-style-type: none">1. Provide a button as “Find nearby dinning” to find nearby dinning places.2. Tap on the button3. Back end mobile application processes the inputs by accessing the dataset and sends the response back to the front-end view of the application
Post Conditions	Show the nearby dinning places arranged according to the user preferences

Table 6: select nearby dinning places

**Select nearby
Accommodation**

Use Case No	04
Use Case	Select nearby accommodation
Actors	Mobile app user
Pre-Condition	User must be a logged in user.
Flow of Event	<ol style="list-style-type: none"> 1. Provide a button to click and find the nearby Lodges or restaurants which provides accommodation 2. Click on the button 3. Back end mobile application processes the inputs and sends the response to front end Application .
Post Conditions	Show the nearest places which matches to the user preferences
Alternatives	Show both preferred and other options available around the area

Table 7: select nearby accommodation