

Proposal of a Recommendation System Tourism in Ciudad Juarez

Karina Hernandez-
Casimiro
Universidad Autónoma de
Ciudad Juárez
al159045@alumnos.u
acj.mx

Alberto Ochoa
Universidad Autónoma de
Ciudad Juárez
alberto.ochoa@uacj.
mx

Rosa Suárez
Universidad Autónoma de
Ciudad Juárez
al147855@alumnos.u
acj.mx

Raymundo Camarena
Maestría en Cómputo
Aplicado.DEyC, IIT.UACJ
ray.camarena@gmail.
com

Sarahí Peralta
Universidad Autónoma de
Ciudad Juárez
al150298@alumnos.u
acj.mx

ABSTRACT

There is a large class of Web applications associated with trip planning involving prediction according to user responses and recommendations made in previous trips and associated with travel options required by the tourist (user). This type of innovative applications is called: an intelligent recommendation. In this research, we analyzed a survey instrument presented as the most important examples of trips made in a frontier society. However, for the problem is properly focused, two good examples of a recommendation system can be presented as:

1. Offer travel relators potential tourists and submit it online, based on a prediction of previous recommendations of users with similar profiles associated with the user's interests.
2. Offer tourists associated with different services and products associated with the trip to perform and suggestions online about what they want to buy, based on your purchase history and / or products in searches performed by them in other previous trips.

Recommender systems use a number of different technologies. We can classify these systems into two groups (Systems flirtation content and based on the context of the required information systems). This proposed system uses contextual travel information.

Keywords

Recommender systems; user; planning tourist Ciudad Juarez.

1. INTRODUCTION

Today tourism is developed in a dynamic and changing context, which is important to adapt to technological advances, as more and more tourists frequently rely on them when making a trip [13]. This is mainly due to the daily use made today of technology such as the internet.

When tourists travel to any country, region or city for sightseeing, you want to make the most of your visit and see the greatest possible number of things and interesting places. If you have enough time, it is exciting to go slowly and discovering them for

yourself. When time is limited a good guide is essential that advice and allow them to make a selection (Plaza, 1997). This is where the Internet use as a means to get tourist information about the place you visit [7].

Recommendations systems are tools that generate recommendations on a particular object of study, from the preferences and opinions given by users. The use of these systems is becoming increasingly popular in Internet because they are very useful to evaluate and filter the vast amount of information available on the Web in order to assist users in their processes information retrieval. In this research we will have a review of the fundamental characteristics and aspects related to the design, implementation and structure of recommendation systems analyzing various proposals that have appeared in the literature.

The internet provides a lot of search engines that provides tourist information, such as; Augmented reality, reservation systems, e-commerce, web 2.0, big data, among others [16]. However, the results presented are regularly inadequate because they do not consider specific information for each individual, for this reason emerge recommender systems, which considering specific information for each individual build a user profile to provide the resource that is supposed Fittest to your need and preference [9].

Considering the above, in this research, the methodology for the design of a recommendation system that allows providing information tourism resources as a tool for visitors, which recommended attractions you can visit, suggest itinerary of activities described, accommodation, buying souvenirs, among other services and products that can be enjoyed, all according to the different profiles that may have tourists and so this enjoy your day stay and also recommend to their known experience in place visited, promoting the tourism boom in Ciudad Juarez.

2. CURRENT PANORAMA TOURISM

Tourist activity represents 9% of world GDP, Mexico ranks as one of the ten countries that receives more tourists globally (SECTUR,

2014). Mexico considers the national tourism as one of the four pillars for the development of the country, which poses the Mexican government tourism policies which might involve the regional improvement. Under the order of the regional, the value of tourism results in the vocation of the destination to be a component that affects the dynamics and transformation not only of the local economy, but in respecting the cultural and historical heritage, giving spaces reaffirmation of identity and reconstruction of the social fabric [15].

In this sense Ciudad Juarez, Chihuahua, has been considered within 44 destinations in tourism development in Mexico, since it is a border town that is characterized by trafficking with El Paso, Texas and surrounding areas bidirectionally. The city has positioned itself as one of the main borders of Mexico thanks to trade, the Consulate of the United States, hospital trusts, the maquiladora industry (Cuevas-Contreras, 2010), and not forgetting that frequently hosts international events, receiving tourists of this kind.

Tourists when they travel to Ciudad Juarez, have a degree of ignorance about the tourist information offered in the city, which is one of the limitations to enjoy the ride, making your visit to the city is not fully satisfactory [3]. So when travelers use the Internet as their main source of information for planning your trip [8]. However, the great tourist information you can find about this destination visited, makes it harder to stay in the City, as not how to make a good choice of activities to be carried out in accordance with their interests or how you want to enjoy your stay in fate, here comes a problem for tourists.

As mentioned above, the tourism sector must be able to store and manage all the information generated by their customers in real time, anticipating their expectations, avoiding problems during their stay and making the destination a unique experience [6]. Adapting to the technological changes that are about to happen, the tourism industry can satisfy an increasingly demanding clientele.

3. DESCRIPTION OF THE RECOMMENDATION SYSTEM

3.1 Recommendation Systems

Today with technological advancement in computer systems is more common that tourists seek information before making a trip, or stay about the destination, this accordingly familiarity with using the internet, as part of your lifestyle [5].

In recent years the artificial intelligence community has developed an intense work around the recommender systems. These systems help people find what they especially need on the web and have been widely accepted among users [1]. Figure 1 shows the basic operation of a recommender system shown, the goal of these agents is to explore and filter the best options from a user profile considering a number of different possibilities, many of them from the Web. This involves the construction of a model or user profile which can be obtained implicitly or explicitly. A detailed taxonomy of recommender systems can be seen in "A taxonomy of recommender agents on the Internet" [4] and the main techniques for development can be grouped into the intelligent system [12].

1. Content-based filtering: The recommendations are based on the knowledge we have about the items that the user has valued and will recommend similar items that may like it or interest.

2. Demographic Filtering: These recommendations are made based on the user characteristics (age, sex, geographic location, profession, etc.)

3. Collaborative filtering: is to see that users are similar to the active user and then recommend those items that have not been rated by the active user and have been well appreciated by similar users.

4. Hybrid Filter: Mix one of the two aforementioned filtered to make recommendations and even combine it with some artificial intelligence technique can be fuzzy logic and evolutionary computation.

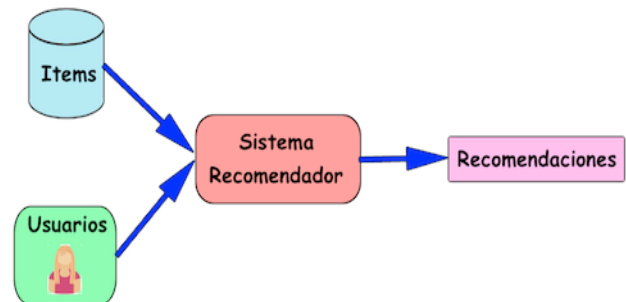


Figure 1. Schematic of basic operation of a recommender system

Examples of major global companies using recommender systems are given, as in the case of:

Amazon is a store that recommends items that might be interesting to buy, with a variety of things like technology, books, cooking, sports, among others, Amazon recommends that the user is interested in, and then recommends things related to it who wants to buy, saying "maybe I can interest take these things" or "Customers who bought this also bought" when he gives these options, in the first case uses the flirtation by content because the system is taking into account what you are buying and the things that can be complementary to it, in the second case, is using a collaborative approach because it is looking for users who took certain things when choosing certain item, then as they liked the system thinks you too may be interested.

YouTube recommends video, if the user makes choices of a certain genre of films or music after you enter the main page a series of recommendation from videos that says "recommended for you" appear, recommend related to what video the genre that you you like, use a content-based approach.

Recommendation problems are complex and varied as they require a high knowledge of the tastes and preferences of the user to provide recommendations that are satisfactory [10]. Also they are considered of great interest both in the scientific aspect as applied. Therefore, the development of techniques for efficient and adaptable recommendation in different application domains is the goal of many research papers.

No matter how much technology applied to a recommender system, it is important that this complies with the main objective, which always will: guide the user to the resource most to your preference or necessity [9] suits.

3.2 Recommendation Desk Systems

As mentioned above, recommender systems are increasingly used in many domains. Therefore, they are research topics of various projects in the area of artificial intelligence and this research will focus on the tourism sector of Ciudad Juarez.

In the field of tourism, recommender systems try to emulate the interactivity of users with tour agents, making personalized recommendations that suit their needs, interests and preferences, using the knowledge of the tourist area [11].

A recent example is the system of tourist recommendation based on artificial intelligence techniques, called troovel.com, developed by the Research Group Information Technology and Artificial Intelligence at the Polytechnic University of Valencia [GTI-IA UPV], which analyzes the interaction between the user and the application itself and depending on type preferences and similar tastes of other users, recommended places to visit with detailed information about each of them, this system has a comprehensive database that allows offer recommendations in several countries, also adds recommendations initially chords that can surprise the user [14].

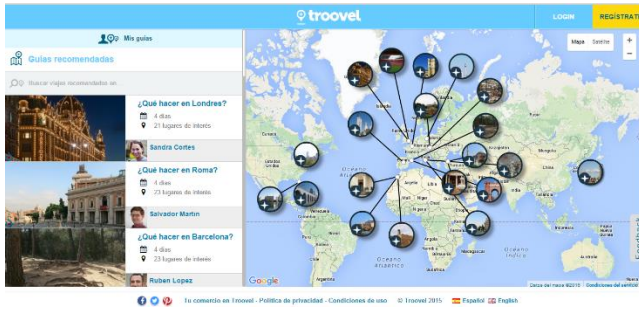


Figure 2 troovel.com

Basically, tourism involves choosing both the destination to visit, the means of transport to be used, the activities to be performed, the housing is to be used, etc. This occurs because tourism is an activity that we are not doing every day and that has a limited duration. [2]. Because this, tourists expect to make the best choice for your vacation, and what better than a recommendation system to advise them what the best activities in the city, the most interesting visits for tourists or the best restaurants, all tailored to the preferences of each user [2].

In this study we describe a number of methods of recommendation are commonly used in Recommendation Systems, but we must bear in mind that they are not mutually exclusive to each other, but complementary, ie, in the same Recommendation Systems we may use one or several of these methods. Principle enunciated in the three simple methods:

Pure recovery or no recommendation, the system offers users a search interface through which they can make queries to a database of items. It is, therefore, a search system so technically is not a recommendation method, although it appears to users as such.

Other systems use manually selected recommendations by experts, such as publishers, artists or critical recommendations in the case of movies or music tracks. Experts identify items based on their own preferences, interests or objectives, and create a list of items that are available to all system users. Often these recommendations accompanying text comments that can help users evaluate and understand the recommendation.

In other cases, the systems provide statistical summaries calculated based on the views of all users, so they are personalized either. For example, you could have the percentage of users who have satisfied or have purchased an item, number of users recommend an item, or an average evaluation of all users regarding the item into account.

4. METHODOLOGY

For the design of a tourist recommender system in Ciudad Juarez, it is intended to apply the following methodology, which was based on the literature search architecture recommender systems in other fields domain, and analysis of various elements.



Figure 3 Methodology proposal for the implementation of a system of tourist recommendation

Referencing the figure above, the project follows arises:

Activity 1 - Collect information, tourism resources with which account Ciudad Juarez, there is no defined and generally accepted method for inventorying resources, depending on the method of the place in question and the resources themselves. (Boullon, Roberto)

Activity 2 - Integration of information, creating an index file for classifying each of tourism resources.

Activity 3 -Store information in a repository database to provide it to the user when it is requested, depending on their profile.

Activity 4 - Identification of the most appropriate to use in the system recommendation, to solve the problem of user technical

Activity 5 - Generation User Profile

Activity 6. Conduct a computational algorithm recommender.

Once developed the proposal design recommender tourism system in Ciudad Juarez, allow a number of possibilities for future developments and investigations continue, that allow the implementation of innovative tools as a tourist recommender system, improving management same for both the city and for tourists, as the sector will empower and enrich the tourist experience during their stay according at the differences of each user and their interests and hobbies, as is shown in figure 4.

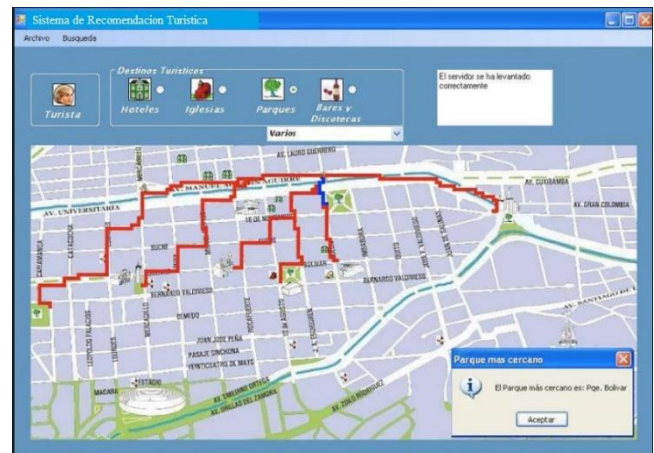


Figure 4. Graphical User Interface of Intelligent Recommender System.

5. CONCLUSIONS

XXI century tourists are increasingly demanding information tailored to their preferences, continuous development and especially fast new technologies, tourism help to offer new experiences and new tools to improve the development of tourism.

Recommender systems are a tool very important decision support in any field, therefore their development should be a thorough process that defines well what kind of information will the items to recommend, so that the quality of the recommendation satisfies the greatest extent possible user need and look filled their expectations.

In designing the tourism recommendation system, a lifting inventory of tourism resources will be made, based on the planning method Roberto Boullon. The research presented here aims in future work this application as a tool that offers personalized offers and even can anticipate that customer own demands increasingly informed and increasingly demanding.

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