

Smart Tourist System

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Abstract: The tourism industry of a country is important to its economy and is ever expanding. It is a very diverse industry that accommodates even very particular interests. Like any other industry, it has its fair share of online representations of the real world at present. However, there isn't sufficient intelligence in these very static systems. "Smart-tourism" is something that must be further explored. There is so much potential in both, the information available online and in the tourism industry, waiting to be harnessed. A combination of the two along with a recommendation engine will give it all, a much needed, human touch.

Keywords: Tourist based, recommendation, database.

1. Introduction

The project is a smart tourist based application. First the user must login with the necessary details, a login-id and a password. He will then be given two options. In the first case, after filling out a questionnaire, a few of the best results will be fetched from the online database. Each result will be suitably elaborated with pictures alongside a description. The second option will provide a manual search option to browse through the various places in our database. The data will be scraped/taken from suitable tourist websites and stored in our database. Using this data, all the above operations will take place. Recommendations will also be given from the data present in the database.

2. Defining Web Scraping and Recommender Systems

The process of web scraping is defined as the extraction and subsequent creation of a structured representation of data from any website. The language used most widely for web pages, HTML, which gives a meaningful structure to the data present on these web pages, is itself what is updated to reflect any sort of change that is required. The techniques that are in existence for web scraping are too dependent on the mark-up, and could even lead to extraction of incorrect data if even minor changes are made. An apt replacement thesis is based on the tree edit distance

and the constrained derivatives for the scraping of web pages. A suitable pruning algorithm will be used to deal with the high time complexity of using a tree algorithm. This algorithm will be used to exploit the HTML grammar. The T{D} must thus be pruned along with the use of heuristics for the guidance of the approximate tree pattern matching algorithm.[3]

The objective of Recommendation systems is to try and predict the "preference" or "rating" a user would give to an item. Recommender systems are a subclass of information filtering systems. There are two possible approaches to recommender systems. The approach in which the nature of the user itself is characterized and then recommendations are given based on that profile is called the content-filtering approach. For example, a book profile would include its author, number of copies sold, the genre, etc. Users could be asked to fill out questionnaires and this demographic information must be included in their profile. It is using these profiles that the users are associated with various matching products. A possible disadvantage to this strategy is that external information that might not be available or easy to collect is requisite. The success of the system lies in matching consumers with the most suitable product, thus yielding customer satisfaction. Many retailers are beginning to show interest in these systems, because they could not only lead to an increased number of hits

or successes, but also add another dimension to the overall user experience.

3. The Need for Smart Tourist System

The Indian economy is growing and so must its tourism industry. The industry requires change, it needs to evolve. It must match that of the rest of the world as well as have a healthy competitiveness within the country itself.[1]

Information and communication technologies (ICT) are what are going to enable this evolution. They offer greater flexibility with respect to the changing patterns of tourism and offer more attractive travel experiences to a greater range of tourists, each of whom are increasingly seeking even more personalised tours. Consumers expect relevant and high-quality information that at the same time is precise and easily accessible.[2]

A Smart Tourist System would make choosing a place much easier than before and cancellation of plans will reduce. Also, an easy-to-use UI will mean even a layman can use it productively.

4. Existing Systems

There are many tourist applications and websites that provide facilities like places, accommodations etc. about several places. These systems only provide static information that is mostly already known and provide just numbers and directions to it.

Systems working on tourist systems are:

makemytrip.com: Created to empower the Indian traveller with instant booking and comprehensive choices, the company began its journey in the US-India travel market. It aimed to offer a range of best-value products and services along with cutting-edge technology and dedicated round-the-clock customer support. MakeMyTrip offers the broadest selection of travel products and services in India. MakeMyTrip is the dominant market-leader with 47% market-share (PhocusWright, 2013).[4]

Tripigator: Tired of paper travel guides and big maps that nobody understands, the founders of TouristEye began in 2009 with the objective to create a guide for mobile devices tailored to each person. In July 2010 TouristEye launched its first version to market, achieving a major impact on the media. They work to meet the needs of their users and learn from their suggestions, launching a second version of the product in August 2011 with a much clearer focus in the process of inspiration and planning the trip, keeping the offline access to information from the

mobile devices and letting the user to share his trip journey in real time with the people around him.[5]

amazon.com: The e-retail giant uses recommendation system so that the users who buy products from the website don't have to go looking again because mostly customers will choose the same co-products that go with it. E.g. Scratch Guard with a phone. In the site, the recommendation works in two ways, one for similar products and one for products purchased by similar customers.

5. Implementation

Firstly there are the set of users and web pages that come as part of the input for the data scraping module. This data will be interpreted and stored in the database. The actual user comes into the picture and interacts with the user interface. The system provides a short questionnaire which the user fills up. This information is passed to the recommender engine module which accesses the database in turn and then produces a result which is presented to the user by the user interface module.

5.1 Smart Tourist System Process:

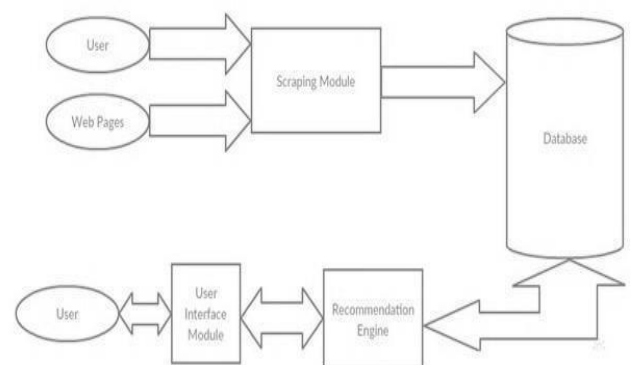


Fig. 1: Smart Tourist System Block Diagram

5.1.1 Scraping module

Using algorithms, we scrape data in this module from a website. Only relevant data is taken depending on the user search. This data is then stored in the database.

5.1.2 Database module

The database will consist of the various information our system has to provide like places information, hotels, restaurants etc. the scraped data is stored and arranged in this module.

5.1.3 Recommendation Engine

Various questions are asked in this module and based on the user's answers; an algorithm generates three places from the database which is best suited to the traveller. The answers are then displayed to the user.

5.1.4 User Interface Module

It will be a simple user interface where the user can click on the recommended places to check out the various places, restaurants in that place etc. that our system offers. A feedback can be given for further improvement of the system and further additions to the system.

6. Conclusion

There are many tourist applications and websites that provide facilities like places, accommodations etc. about several places. The main disadvantage of those systems is that they only provide static information that is mostly already known and provide just numbers and directions to it. The main idea is to let people explore new places depending on their mind set and sentiments of people who have already been to those places. The application will make tourism more fun for people wanting to explore new places and even save money and time to some extent.

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