Online Search and Recommendation in Consumer Market

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Abstract: Recommender systems are one of the new- generation internet based tools that help users in navigating through information and receive information related to their purchase preferences. To overcome the information overload of internet-based shopping customers, we introduce a semantic recommendation based procedure which is more efficient and easier to use than available methods in the market. The suggested procedure based its recommendation of the products to the customer and is originally based on data mining techniques, like associate rule mining and frequent pattern mining. The novelty of our approach lies in providing the information of geographically nearby local markets to the users. Purchase recommendations will be also based on locality reference, and user's purchase profile.

Keywords: Recommender System, (GSM) Global System for Mobile Communications, (GPS) Global Positioning System, ID3 (Iterative Dichotomiser 3), Machine learning, (NLP) Natural language processing.

I. INTRODUCTION

Recommender System are new generation internet tool that help user in navigating through Information on the internet and receive information related to their preferences. To overcome the product overload of Internet shoppers, we introduce a semantic recommendation procedure which is more efficient. The suggested procedure recommends the semantic products to the customers and is originally based on Web usage mining, product classification, association rule mining, and frequently purchasing. The system will have product information from local market. All products related data will be stored with it. Depending upon customers GPS location recommendations will be given to him using GSM. Also the recommendations will be formed on the base of reviews of product. And while giving recommendation to customer his salary will be considered. Hence we will be developing a system to give recommendation about electronics product from local market. Shops, these days, are using all available media of commu- nication. In existing system the advertisement is done on all media of communication. Advertising Competition is rising in all industries. But problem is that the ads become irrelevant if needy customer cannot reach them. And every time it's not possible to have all details of every reachable dealer or shop. The main purpose of this is to give nearest shop providing required services to customers and to notify the customers about new schemes and discount offers at that shop. To achieve this we are considering the current location of the customer. We are marking that location and from there we will be searching for required services providing shops. The name and location of shop along with the related offers. User will have to give the required service and shops with the tags will be searched along with geo-co-ordinates. User will get shop information along with more exciting schemes, hence to help that customer for shopping. This will increase number of customers getting exact required services and shops will get genuine customers definitely.

II. LITERATURE SURVEY

A. G. Singh, "Framework for Location Based Emergency Service in India," Master Thesis, International Institute for Geo-information Science and Earth Observation, Enschede, Netherlands, 2004

These days, with the rapid growth in mobile computing and wireless communications, Location Based Services are being used more than ever. One of the most important issues in this field is providing the most appropriate content to users according to their interests and characteristics. However, in traditional LBS systems, the location of the mobile subscriber was the only criteria, which has been used to determine whether to notify the user or not. In this paper we have proposed a new intelligent targeted advertising method in LBS environments based on Bayesian networks and Fuzzy TOPSIS. With the help of this method we can provide an adaptive system to meet the user's individual needs.

B. Microsoft Advertising, http://advertising. Microsoft. Com/en-us/splitter.

The mobility revolution introduced by the smart phones has created new advertising channels for e-businesses. However, these new channels are exploited by the unethical adpublishers to practice click spam in fraudulent ways affecting the mobile end users in terms of time and money. Ad networks are also experiencing great loss in their revenues under utilizing the computing resources.

This emphasizes the identifying and detection of click-spam leveraging appropriate data mining techniques.

C. Xu, Heng, Lih-Bin Oh, and Hock-HaiTeo. "Perceived ef- fectiveness of text vs. multimedia location-based advertising messaging." International Journal of Mobile Communications 7. 2 (2009): 154-177

"LBA is marketer-controlled information customized for recipients' geographic positions and received on mobile com- munication devices (Bruner II and Kumar, 2007). It can be viewed as a part of a larger form of Location-Based Ser- vices (LBS) that utilise geographical positioning information to provide users with pervasive flexibility to be uniquely reachable and to access networks and services while on the move. The mechanisms of LBA content delivery can be either pull or push (Bruner II and Kumar, 2007). In pull-based LBA, consumers request for some information or use some service on a one-time basis and in the process are exposed to commercial messages (MMA, 2005). This type of LBA may be seen in some 'on demand' services where the consumer dials or signals a service provider for specific information/service such as the nearest Auto-Teller Machine (ATM) or Starbucks store. In these services, the location information is ephemeral and useful only to complete the transaction requested (e.g. informing the user of the nearest ATM or Starbucks store). The other approach to LBA is called push-based LBA and it amounts to the marketer working with the carriers and delivery networks to send advertisements to the users based on the tracking of the device's location (Bruner II and Kumar, 2007). This type of LBA may include sending users advertisements based on their known proximity to a store or service centre via a wireless device. In the push-based approach, location information is used to target users and they are sent the related advertisements when they get within the vicinity of the merchants"

D. L. Aalto, N. Gothlin, J. Korhonen and T. Ojala, Bluetooth and WAP Push Based Location-Aware Mobile Advertising System, The 2nd International Conference on Mobile Systems, Applications, and Services: USA, pp.49-58, 2004.

"In this paper we investigate the problem of localizing a mobile device based on readings from its embedded sensors utilizing machine learning methodologies. We consider a real- world environment, collect a large dataset of 3110 data points, and examine the performance of a substantial number of machine learning algorithms in localizing a mobile device. We have found algorithms that give a mean error as accurate as 0.76 meters, outperforming other indoor localization systems reported in the literature. We also propose a hybrid instance- based approach that results in a speed increase by a factor of ten with no loss of accuracy in a live deployment over standard instance-based methods, allowing for fast and accurate local- ization. Further, we determine how smaller datasets collected with less density affect accuracy of localization, important for use in real-world environments. Finally, we demonstrate that these approaches are appropriate for real-world deployment by evaluating their performance in an online, in-motion experi- ment."

E. O. Ratsimor, T. Finin, A. Joshi and Y. Yesha, eNcentive: A Framework for Intelligent Marketing in Mobile Peer-To- Peer Environments, 5th International Conference on Electronic Commerce, ICEC, pp87-94, 2003.

"The purpose of this research is to explore the consumer's experience of fun in mobile commerce (m-commerce) service environments (Laukkanen and Lauronen, 2005; Park, 2006). This is because such services have rapidly become an im- portant aspect of consumers' daily consumption behaviour (Pantzar, 2003; Davis and Sajtos, 2008). Many researchers, such as Kumar (2004), have projected exponential growth in mobile phone users (Barnes, 2002b) and the m-commerce mar- ket (Siau et al., 2001; Ghosh and Swaminatha, 2001; Ingram, 2001; Sliwa, 2001; Siemens Mobile Marketing Intelligence Department, 2002; Barnes, 2002a). While this growth has been attributed to the utilitarian versatility of such services and technological advancements that give consumers the ability to conduct complex transactions ubiquitously, little attention has been given to other factors, such as those that are related to the consumer's hedonistic desire to use m-commerce services (AlShaali and Varshney, 2005) and experience fun intrinsically. For example, customers who routinely engage in mobile banking (Zarifopoulos and Economides, 2009) may also be interactive with the banking brand by using their mobile messaging service to respond to a campaign. In essence, while engaging in telic-serious goal-directed behaviours (e.g., checking an account balance) they can also experience the paratelic-fun of the brand. Experiencing fun is important for consumers as it creates a state of enjoyment that can be described as the subjective feeling that is the physiological response to the cognitive evaluation of the service experience"

III. PROPOSED SYSTEM

A. System Introduction

Recommender System are new generation internet tool that help user in navigating through Information on the internet and receive information related to their preferences. To overcome the product overload of Internet shoppers, we introduce a semantic recommendation procedure which is more efficient. The suggested procedure recommends the semantic products to the customers and is originally based on Web usage mining, product classification, association rule mining, and frequently purchasing. The system will have product information from local market. All products related data will be stored with it. Depending upon customers GPS location

recommendations will be given to him using GSM. Also the recommendations will be formed on the base of reviews of product. And while giving recommendation to customer his salary will be considered. Hence we will be developing a system to give recommendation about electronics product from local market.

WordNet is a lexical database for the English language. It groups English words into sets of synonyms called synsets, provides short definitions and usage examples, and records a number of relations among these synonym sets or their members. WordNet can thus be seen as a combination of dictionary and thesaurus. While it is accessible to human users via a web browser, its primary use is in automatic text analysis and artificial intelligence applications. The database and software tools have been released under aBSD style license and are freely available for download from the Word- Net website. Both the lexicographic data (lexicographer files) and the compiler (called grind) for producing the distributed database are available.

Natural language processing (NLP) is a field of computer Science, artificial intelligence, and computational linguistics concerned with the interactions between computers and human (natural) languages. Natural language processing, a branch of artificial intelligence that deals with analyzing, understanding and generating the languages that humans use naturally in order to interface with computers in both written and spoken contexts using natural human languages instead of computer languages.

Sentiment Analysis is extract subjective information usually From a set of documents, often using online reviews to determine "polarity" about specific objects. It is especially useful for identifying trends of public opinion in the social media, for the purpose of marketing.

The Global Positioning System (GPS) is a space-based Satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the earth where there is an unobstructed line of sight to four or more GPS satellites.

The system provides critical capabilities to military, civil, and commercial users around the world. The United States government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver.

- The system will have product information from local market.

- All Product related data will be stored with it.

- In proposed system, firstly user will have to register and login into application. Then user will be asked to enter specific category of services or exact item needed (e.g. Laptop)

- After starting the search, user location will be fetched from GPS in the form of longitude and latitude.

- Then longitude and latitude of that location will be compared with longitudes and latitudes of shops having the required service tag.

- The shop database will be already stored with shop name, address, discount offers and longitude – latitude of that shop.

- Using Haversine formula, nearest location will be found compared to user's current location.

- User will get output as, shop name and address with information of any discount offer.

- User will get multiple choices of shops as output accord- ing to availability.

- Also the recommendations will be formed on the base of reviews of product.

- And while giving recommendation to customer his salary will be considered
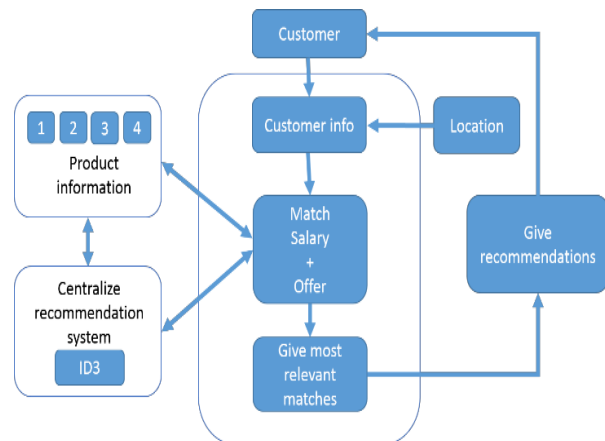
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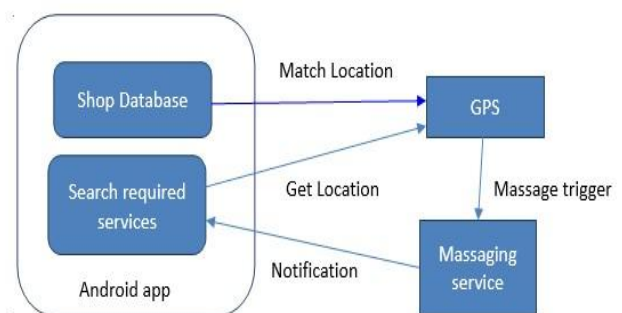

Fig. 1.   Architecture Design

Fig. 2.   GPS Notification

IV. CONCLUSION

Hence we will be developing the service which will help users to find their needed product in local market. The appli- cation will recommend the products to the users according to their interest from the current user location as well. We will be using GPS services. And user will get notification as output, showing list of nearest shops with their information.

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