ISSN:2320-0790

An International Journal of Advanced Computer Technology

Private Mobile Search Engine Using Various Locations

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Abstract: Mobile search engine is a meta search engine that imprisonments the user's favorite in the form of concepts by mining their clickthrough data. It excerpts the importance of location information in mobile search and categorizes these concepts into content concepts and location concepts. By positioning by GPS, user's locations are used to addition the location concepts in search engine. The user favorites are organized in ontology based, multi facet user profiles, which are used to familiarize a Personalizing ranking function for rank revision of search results. Mobile Search Engine typifies the diversity of the concepts related with a query and their significance's to the user's need. It associated with four entropies are presented to balance the weights amid the content and location facets. Based on the client-server model, it contains a detailed architecture and design for operation. In this design, the client gathers and stores locally the clickthrough data to protect confidentiality. It discourses the privacy issue by restricting the information in the user profile exposed to the server with two privacy parameters are min Distance and expRatio. It prototypes search engine on the Google Android platform. It is an innovative approach for personalizing web search results. By mining content and location concepts for user profiling, it utilizes both the content and location preferences to personalize search results for a user. Mobile Search Engine incorporates a user's physical locations in the personalization process. It is using a GPS location helps to improve retrieval effectiveness for location queries.

Keywords: Clickthrough data, abstraction, location search, mobile search engine, ontology, user profiling

I. INTRODUCTION

Most present day search engines have a deterministic behaviour in the sense that they return the same search results for all users who submit the same query at certain time. They do not take the users interest and preferences into account in the retrieval process. Integrating user context in the retrieval process can help deliver more targeted search results, thereby providing a personalized search experience to the user. Personalizing web search involves the process of identifying user interests during interaction with the user, and then using that information to deliver results that are more relevant to the user. This approach involves building an ontological model of user interest on the user mobile device based on this interaction with web search results. Personalization of search results is achieved by re-ranking search results returned by a standard search engine (Yahoo) based on proximity to the users interest model. The ability to recognize user interest in a completely non-invasive way and the accuracy of personalized results are some of the major advantage of this approach. A major problem in mobile search is that the interactions between the users and search engines are limited by the small form factors of the mobile devices. As a result, mobile users tend to submit shorter, hence, more ambiguous queries compared to their web search counterparts. In order to return highly relevant results to the users, mobile search engines must be able to profile the users' interests and personalize the search results according to the users' profiles. A practical approach to capturing a user's interests for personalization is to analyze the user's clickthrough data [1], [2], [3], [4]. Leung, et. al., developed a search engine personalization method based on users' concept preferences and showed that it is more effective than methods that are based on page preferences [5]. However, most of the previous work assumed that all concepts are of the same type. Observing the need for different types of concepts, PMSE, this represents different types of concepts in different ontologies. In particular, recognizing mobile search, separate concepts into location concepts and content concepts. The client is responsible for receiving the user's

requests, submitting the requests to the Search engine server, displaying the returned results, and collecting his/her clickthroughs in order to derive his/her personal preferences. The server is responsible for handling heavy tasks such as forwarding the requests to a commercial search engine, as well as training and reranking of search results before they are returned to the client. The user profiles for specific users are stored on the Search engine clients, thus preserving privacy to the users. It has been prototyped with clients on the Google Android platform and the Search engine server on a PC server to validate the proposed ideas.

II. Related Work

Providing a way to check the integrity of information transmitted over or stored in an unreliable medium is a prime necessity in the world of open computing and communications. Mechanisms that provide such integrity checks based on a secret key are usually called message authentication codes (MACs). Typically, message authentication codes are used between two parties that share a secret key in order to authenticate information transmitted between these parties. This standard defines a MAC that uses a cryptographic hash function in conjunction with a secret key. This mechanism is called HMAC and is a generalization of HMAC as specified in [6] and [7].

1) HMAC shall be used in combination with an Approved cryptographic hash function.
2) HMAC uses a secret key for the calculation and verification of the MACs. The main goals behind the HMAC construction [7] are:
    a) To use available hash functions without modifications; in particular, hash functions that perform well in software, and for which code is freely and widely available
    b) To preserve the original performance of the hash function without incurring a significant degradation
    c) To use and handle keys in a simple way
    d) To have a well-understood cryptographic analysis of the strength of the authentication mechanism based on reasonable assumptions on the underlying hash function, and
    e) To allow for easy replace ability of the underlying hash function in the event that faster or more secure hash functions are later available.

III. Existing System

To incorporate context information revealed by user mobility, we also take into account the visited physical locations of users in the PMSE. Since this information can be conveniently obtained by GPS devices, it is hence referred to as GPS locations. GPS locations play an important role in mobile web search. Most of the previous work assumed that all concepts are of the same type. Observing the need for different types of concepts, we present in this paper a personalized mobile search engine (PMSE) which represents different types of concepts in different ontologies. In particular, recognizing the importance of location information in mobile search, we separate concepts into location concepts and content concepts.

Disadvantages of the existing system

1) In an existing system, GPS location is in some difficulties.
2) Some obstacles in the privacy.

IV. Proposed System

Search engine results & clickthrough data is used for ontology updating. Clickthrough data of user is collected from user search history. Implicit user profiles are created using extracted content concepts, location concepts & GPS data while explicit user profiles are self-managed by users. When a user gives a query on the mobile client, the query together with the user's content and location feature vectors are forwarded for training to assign weight vectors. These weight vectors will be used to rerank search results.

In PMSE's client-server construction, PMSE clients are dependable for storing the user clickthroughs and ontologies copied from the PMSE server. Easy tasks, like updating clickthoughs and ontologies, making feature vectors, and showing reranked search results are controlled by the PMSE clients with less computational power. On the another hand, difficult tasks, such as RSVM instruction and reranking of search results, are controlled by the PMSE server. In order to reduce the data conduction between client and server, the PMSE client only need to submit a query together covering the feature vectors to the PMSE server, and the server automatically send a set of reranked search results depending on the priority in the feature vectors. The cost of data transmission is decreased, because only the crucial data (i.e., feature vectors, query, ontology and results of search) are broadcast between client and server at some point in the personalization process.

To store clickthrough ontology are used. Two types of ontologies are used; one for storing contents and other is for location. Once ontology is created then it atomically gets updated. Reranking is used for rerank the links that user visit and to show links as per user preferences. It matches the results which collected from backend search engine like Google, Yahoo, etc. and user preferences and rerank result is send to PMSE server. SpyNB is prediction algorithm used for checking the query weather it is content or location concept.

1) User can input query, explicit preferences, and location data using middleware.
2) Middleware will forward this data to the backend search engine which will provide search results.

These search results will be used for ontology updating & clickthrough data collection.

V. IMPLEMENTATION & RESULT

The PMSE will provide efficient search results by supporting the multiple preference of the particular user. PMSE maintaining good ranking quality and the data transmission among the user and the search engine should guarantee quick and effective processing of the search. The user queries are stored as a clickthrough data collection in the client database. Using the clickthrough database user preference can be extracted. This preference can be analyzed with the result of backend search engine and provided re-ranked search results.

VI. CONCLUSION

A secret cryptographic key was generated which encrypted the message, the encrypted lock command was sent to the mobile device. The device decrypted the key and authenticated the message. After successful authentication the lock command was executed in the device and the access was denied to the device. We observed that security can be provided to the sensitive data on the phone by denying access to it from a remote server and message authentication code technique will prevent malicious users from launching denial of service attack. A personalized mobile search engine with enhanced security using MAC (Message authentication Code) technique is proposed. The experiments have been conducted on the Android Virtual Device. The Android device is remotely locked from a server and the device was set to restore factory to wipe the personal data from the device. Message authentication code technique was used to provide security, to prevent denial of service attack.

VII. REFERENCE

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