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ENHANCED KEYWORD SEARCH USING SPATIAL QUERIES

MARAPATLA SRAVANTHI[#1] and K.V.DURGA DEVI[*2]

[#] *PG Scholar, Kakinada Institute Of Engineering & Technology Department of Computer Science &Engineering, JNTUK,A.P, India.*

[*] *Assistant Prof, Dept of Computer science& Engineering, Kakinada Institute of Engineering & Technology, JNTUK, A.P, INDIA.*

***Abstract*— Presently, the popularity of mobile computing gains wider attention among the mobile users. By the use of digital maps, the availability and accessibility location aware services is widely studied. Several applications make use of spatial queries to find the relevant data. The spatial database connects with the objects and discovers its texts. In this paper, we make a study about keyword search using spatial queries. The intention of this study is to find the independent objects based on the location of the queries and its keywords. The decision making process is a vital part in the mobile services. Depends upon the acquired keywords, the decision is made. An experimental result proves the effectiveness of the systems.**

***Index Terms*— Mobile Computing, Mobile services, Location aware services, Spatial databases and Decision making process.**

I. INTRODUCTION

Data mining is the method for separating information from a dataset for clients to utilize it in knowledgeable approach. Inspired by extracting the information, keyword searching becomes an eminent study. Generally, searching is a usual practices in the data mining process. The spatial objects are seeked from the spatial queries. The spatial databases consist of both spatial objects and spatial queries. It also associated with the spatial features to detect the spatial objects. The spatial objects is analysed using longitude and latitude of the user's location. The analysis over such sort of data is known as best keyword search.

In association with the mobile environment, the location based services is enabled to find out the crispier and relevant data. Conventional methods estimates the minimum distance between objects and thus keyword search is performed. In some cases, the nearest neighborhood distance is also used for finding the intermediate distance between two objects. For better decision making, concept of keyword rating was introduced along with its features other than distance. For such search, query will take form of feature of objects. It look for nearest neighbour based on a new similarity measure, named weighted average of index rating which combine keyword rating, keyword search and nearest neighbour search.

The rest of the paper is organized as follows: Section II describes the related works. Section III discusses the proposed works. Section IV describes the experimental results and at last, concluded in Section V.

RELATED WORK

Presently, the researchers explored the keyword based nearest neighbor search using spatial databases is studied by Ke Deng [1]. The relative distances between the objects were explored using keywords. Joao B Rocha [2] et al proposed spatial inverted index that specifically stores the keywords. Xin Cao [3] studied the idea of spatial keyword systems. The aim is to collectively study about the spatial query. The distance based keyword in spatial databases is studied by Gisli R [4]. Then an optimal aggregation algorithm in fast keyword search is studied by Ronald Fagin [5]. The distance based keyword to find nearest neighbors using tree structure as index is studied by Yufei Tao [6]. An index oriented keywords analysis is done by Lisi Chen [7]. The spatial query is stored in Boolean query that fall under category of spatial keyword. Then, this is further extended to the study of combined inverted index by DongXiang Zhang [9]. The processed queries are further effectively stored in spatial databases by Bolin ding [10].

From the reviews, the relevant data is obtained by spatial databases. The use of keyword or objects is taken as the input for keyword cover. For better decision making, concept of keyword rating was introduced along with its features other than distance. For such search, query will take form of feature of objects. It search for nearest neighbor based on a new similarity measure, named weighted average of index rating which combine keyword rating, keyword search and nearest neighbor search.

II. PROPOSED FRAMEWORK

The proposed framework explains the function and features of the system. The proposed framework is implemented into four phase.

A. Indexed Keyword Ratings (IKR):

Firstly, the collected data are stored in tree structure. A single data format is used for identifying the objects. Then the objects are treated as keywords. Relied upon the rating's status, the keywords are arranged in sequential order. A threshold level is defined for the system. To avoid this, we employs KRR* tree method where k_i is signified for KRR*K_i tree. In a period of time, the keyword is analyzed and the

ratings are measured. Though, it provides a limited changes, the result is like the R*-tree update.

B. Keyword nearest Neighbor expansion:

With the assistance of baseline algorithm, the enhanced keyword search is processed. The output obtained from tree set is pruned. This activates us to develop a new keyword nearest neighbor expansion. By finding the region of interest, the algorithm is designed. Along with that ROI, the basic information like location, attributes etc are discovered. The Region Of Interest (ROI) consists of

- Select POIs from one of their attributes (e.g., Category, Name,…)
- Retrieve POI attributes (e.g., Location and Description)
- Get dynamic content for a given POI.
- Add custom POI to the map display
- Import new POIs and POIs categories from local file.

C. LBKC computation:

Based on the user's location, different types of keywords are derived for objects. These keywords with multiple locations ate migrated to the spatial databases with a unique index. In turn, we conclude that the number of keyword covers generated in baseline algorithm is much more than that in keyword-NNE algorithm. This conclusion is independent of the principal query keyword since the analysis does not apply any constraint on the selection strategy of principal query keyword.

D. Weighted Average of keyword ratings:

By the use of LBKC computation, the storage computation is very less. Each group is associated in single object. When further processing a candidate keyword cover, keyword-NNE algorithm typically generates much less new candidate keyword covers compared to BF-baseline algorithm.

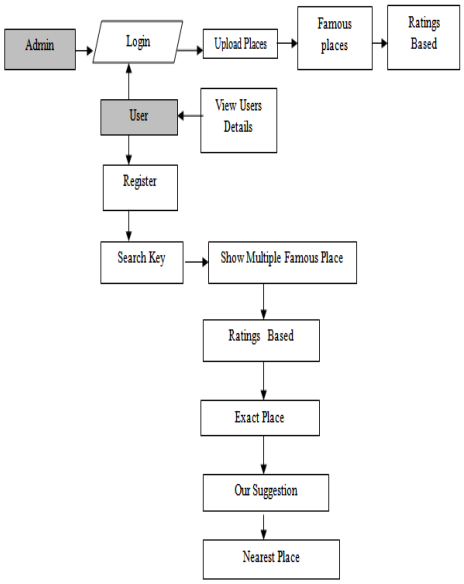

Fig.1 Proposed workflow

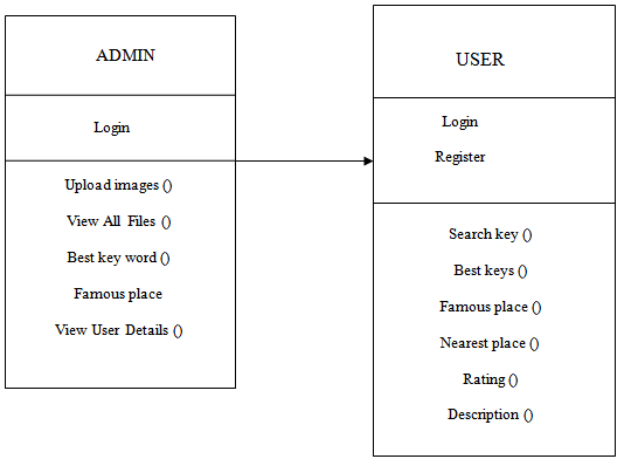

Fig.2. Role of each user

III. EXPERIMENTAL RESULTS

In this section, we explains about the experimental analysis and results via hotel booking system.

Fig.3 Based on the ratings, the topmost hotels are searched and displayed.

Fig.4. Viewing the list of food and rooms details of the specified hotels

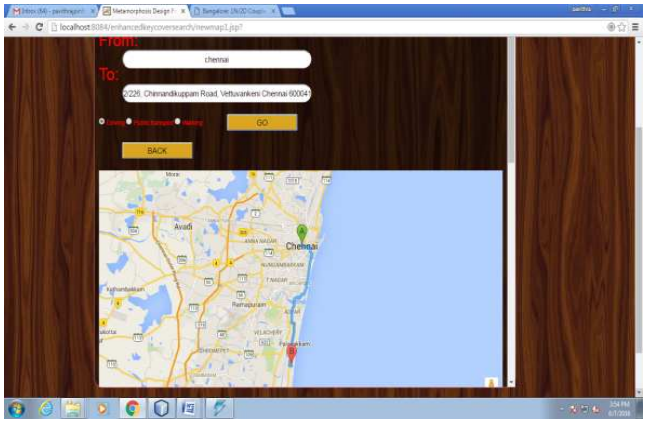

Fig. 5. Depicting the path from source to destination for user. It helps the user by showing route from public transport, walking and driving

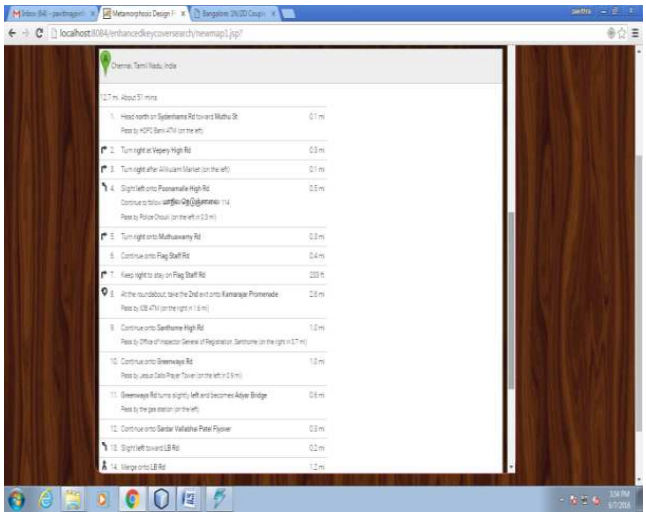

Fig.6. Showing the direction for the user

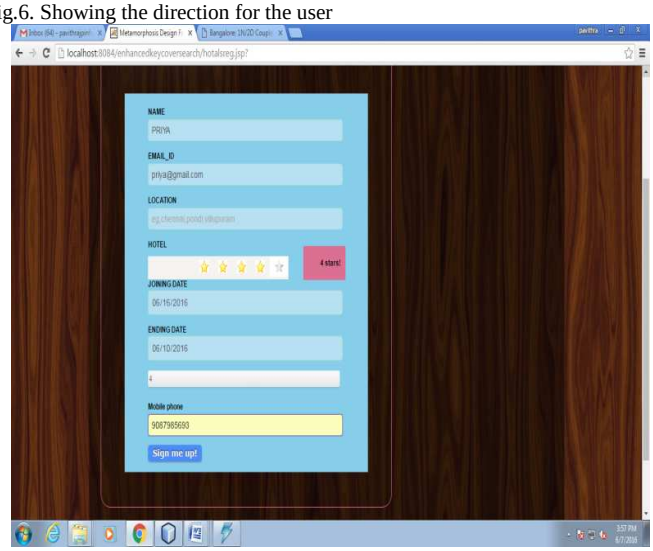

Fig.7. Entering the user details to book the room

IV. CONCLUSION

The advancements in mobile computing create a revolution in IT world. The objective of this project is to find the best location with maximum rating and minimum inter object distance. The baseline algorithm is motivated by the techniques of Closest Keywords search which is derived by exhaustively bringing together objects from various query keywords to generate candidate keyword covers. When the number of query keywords increases, the working of the baseline algorithm decreases drastically as a result of massive candidate keyword covers generated. To attack this drawback, much more scalable algorithm called keyword nearest neighbour expansion (keyword-NNE) is used. Experimental result is compared with the baseline algorithm; keyword-NNE algorithm significantly reduces the number of candidate keyword covers generated.

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MARAPATLA SRAVANTHI, is a student of Kakinada Institute Of Engineering & Technology affiliated to JNTUK, Kakinada pursuing M.Tech (Software Engineering). Her Area of interest includes DATA MINING and its objectives in all current trends and techniques in Software Engineering.

K.V.DURGA DEVI, M.TECH, is working as Assistant Professor, Department of Computer science & Engineering, Kakinada Institute of Engineering & Technology, JNTUK, A.P, INDIA.