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Finding Optimal Nearest Venue for Reservation using Location Aware Recommendation

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Abstract— Due to extensive use of internet most of the people are buying and selling the product online. Now a days the reservation of venue is done through some private agencies and venue providers. There are websites for particular venue is available in urban areas, if the venue is not available user have to search for other websites. So no such system is design that can show variety of venues in a single system and which are not user friendly. So to find the best venue/location was difficult to user. The system should design for user, they can enter in a single system and have variety of option (venue's) for reservation and which is user friendly. In proposed system, it is use for reservation of venue/location like functions, parties, weddings, meetings etc., it gives best venue/location to the user using KNN algorithm, it find the current location of the user and provide nearest location(Venue).

Keywords— LARS, venue information management, reservation system, nearest location, GPS, Position Detection

I. INTRODUCTION

In the 21st century most of the users are using internet for purchasing the product online. Due to rapid use of internet the user have reduce purchasing there product through stores. Smartphones are using internet is increasing massively. Smart phones are becoming increasingly popular due to its wide applications in the field of computer science. As the Android smart phone introduces in the market, they find more popularity of smart phones. Android apps is easier way to interact with the end-user. The users also can easily interact with the app. Android apps are available at Google Play Store, for both free and premium download bases. One can develop the app through SDK (Software Development Kit) or Android studio provided by android.

The objective of the system is to reserve a venue for functions, parties, weddings, meetings etc., user can enter into a single system for reservation which provides availability and profile of different venues. In agencies access may be limited to physical hours of operation Websites are there but only about particular venue. If that particular venue is not available they have to go to other website which is a time consuming process. Last another is directly contacting the venue provider. But they can give information only about their private venue and is time consuming as the user checks with multiple services on their own.

All this consumes lot of time. Consider a user who wish to book a wedding hall for the wedding of her daughter. The first thing that user does is to visit the owner of wedding hall, discuss with him about the services offered by the hall and then negotiate the deal for booking the hall.

Furthermore there may be some services which are not provided by the wedding hall owner, so for that the user has to enquire and get there services from a third party, such services can be like decoration of hall, orchestra, photographer etc. So in the proposed system we aim to gather the entire venue for all types of function and also the services. By this user will have much more options to successful complete his event. In this he can compared various venues according to parameters like cost,

accommodation, electricity, water etc. He can also view the information provided and reads the reviews posted by previous customers, which can make decision making easier. Again user information and interest is increasing we are storing there information for better owner-consumes relationship.

II. LITERATURE SURVEY

First paper we referred for literature survey, “**LARS: A Location-Aware Recommender System**” (Justin J. Levandoski, Mohamed Sarwat, Ahmed Eldawy, Mohamed F. Mokbel) which contains a position alert recommender structure that uses position-based ratings to generate references. LARS achieves Customer rating positions through user partitioning, a technique that influences recommendations with ratings spatially close to querying users in a manner that maximizes system scalability while not sacrificing recommendation quality. [1]

Secondly we referred “**Position Detection and Tracking System**” (Mahesh Kadibagil, Dr. H S Guruprasad) which proposed the Self-directed location recognition and tracking method enhances the correctness of finding friends and family member’s locations by using GPS and typical web technology. This design includes a mobile client, a repository, a web client and a map service. The mobile user is used to discover location and conduct a notification SMS to user when his/her friends or family members come nearby the user’s zone of path. This location material can be sent to the server and the same information can be achieved and observed using the web consumer by other customers. [2]

Third paper we referred “**Design and Implementation of Cinema Online Booking System**” (Bo Hang) with the hasty improvement of Internet, people's day-to-day life has basically been attached from the Internet. After the Internet, without resolution, whether entities or industries, both clients and industrialists, are made on the network of expectation, this new expectation is to get through the network of the greatest things the inexpensive, most practical to find the fastest information, the most money-making products to sell up. As people's lives getting better, but also many lifestyle changes. But the film still has not changed predilections. Since the film is more and more people see more votes to sell more and more people queuing. [3]

Fourth paper we referred “**Automated Location Based Services**” (Vedang Moholkar, Prathamesh Hule, Mandar Khule, Sumit Sourabh) which tells about Position based Services offer many benefits to the mobile consumers to recover the information about their current position and manner that data to get more useful information near to their position. With the help of GPS in phones and through Net Services using GPRS, Position based Facilities can be fulfilled on Android based smart phones to provide these value-added services like handset profiling, scheduling alarms. Position based services are a general class of computer program level services used to include specific controls for position and time data as control features in computer programs. [4]

III. PROPOSED SYSTEM

Our system mainly works on GPS technology. It is consist of four main modules which consist of Client Application, Venue Provider Application, admin and the Database server which is located at central local system. Here, the customer application and the venue provider application has different functionality which are commonly connected via database server. The system architecture is given below for better understanding (Figure 3.1).

3.1 System Design

A. Client Application:

The client application is most important of this design. Here, the client can access the system by using Android mobile phone. Client application contains services like login, registration, checking user’s current location, checking nearby venues, checking details about selected venue, venue booking etc. using GPS system. It is important that the user mobile phone must be GPS enabled.

B. Venue Provider Application:

Venue provider also perform his work from an Android Device. The venue provider will response to client requests. Venue provider will provide services like venue location details, database configuration (update, remove, insert new venue details). In the system the venue provider also have login and registration portal from his application.

C. Database server:

Third and most important module in our system is Database server. Here all customer data and venue provider details are stored. Database server is handled by and Admin. We can say that, the venue provider is the client of database admin and the customer is the client of venue provider.

D. Admin:

All database management, configuration and maintenance is covered by Admin. Admin can perform basic activities like adding new venue and venue provider to database. Beyond this an admin can keep records secure and flexible. This makes communication between customer and system much faster.

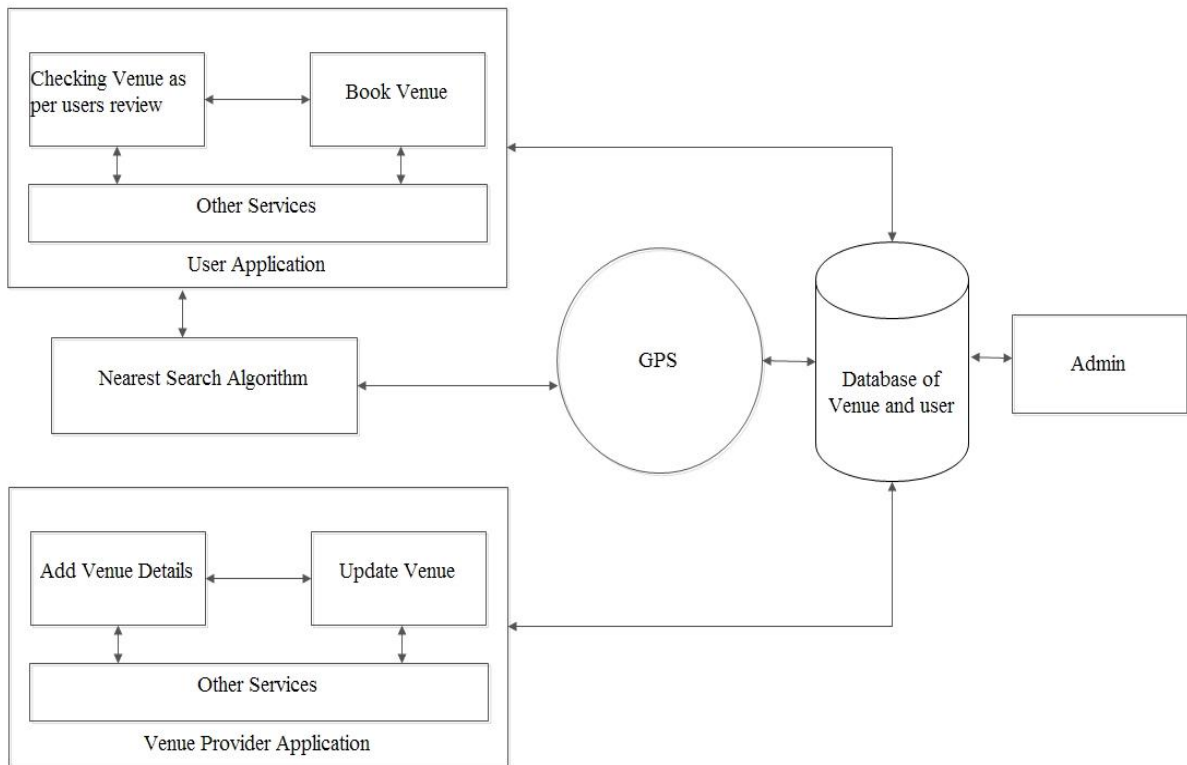


Figure 3.1: System Architecture

IV. ALGORITHM

4.1 KNN ALGORITHM

In design recognition, the **k-Nearest Neighbours algorithm** (or **k-NN** for short) is non-parametric method used for classification and regression. In both cases, the input comprise of the k closest examples in the feature space. The output hang on on whether k-NN is used for classification or regression.

In k-NN classification, the output is a class association. An entity is classified by a common vote of its neighbors, with the entity being allocated to the class most common among its k nearest neighbors (k is a positive integer and typically small). If k = 1, then the entity is simply allocated to the class of that only nearest neighbour.

In k-NN regression, the output is the property value for the entity. This value is the average of the values of its k nearest neighbours.

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K-Nearest Neighbour
Classify (A, B, a) // A: training data, B: Class labels of A, a: unknown sample
For i= 1 to m do
    Compute distance d (Ai, a)
End for
Compute set I containing indices for the k smallest distance d (Ai, x)
return majority label for {Bi where i ∈ I}
    
```

4.2 KALMAN FILTERING OF GPS COORDINATES ALGORITHM

The Kalman filter is over 50 years old but is still one of the most significant and mutual data fusion algorithms in use nowadays. Named after Rudolf E. Kalman, the great achievement of the Kalman filter is due to its small computational necessity, elegant recursive things, and its status as the optimal estimator for one-dimensional linear systems with Gaussian error statistics.

The Kalman filter is a well-organized, recursive, scientific algorithm that processes, at each step, incorrect opinion input data and produces a statistically optimal estimate of the subjacent real system state, by employing a calculation model and an observation model. The best guess we can make of the position of the train is providing by joining our information from the guess and the dimension.

V. CONCLUSION

To overcome the existing system problems we came up with an idea to implement a system called Online Venue Booking. This proposed System that is developed will help the users to plan their venue reservations for functions, parties, weddings, meetings etc., by not receiving into troubles through some agencies. They can enter into a single site which provides vacancies and profile of different venues. This proposed system we developed an application for online venue booking. It is very helpful for user and whole information about the venue can easily available at any time.

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