One Round Privacy Preserving Meeting Location for Smart Phone Applications

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Abstract: The theme of this project is to reduce the communication the widely adopted GPS technology in mobile devices, users enjoy many types of location services. As a recently proposed application, determining the optimal private meeting location with an aid of a location server has been an interesting research topic. The challenge in this paper is due to the requirements of security and privacy because user locations should not be revealed to the honest-but-curious or semi-trusted location server. Adding the security and privacy protection to a location service will inevitably introduce com- computational complexity and communication overhead. In order to introduce robust location service and make this location service practical, we propose an efficient optimal private meeting location determination protocol, which needs only one round communication and light computation. Our proposed protocol satisfies the requirement of location privacy against outsiders, the semi-trusted meeting location determination server, and the semi-trusted group users. In order to study the performance of our protocol in a real deployment, we simulate our scheme on smartphones. The simulation results and the performance comparison with another scheme demonstrate its advantages in communication and computation efficiency.

Keywords: GPS (Global Positioning System), ENMP (Efficient Notification Meeting Point).

I.INTRODUCTION

The main aim of this project is to design efficient algorithms for computing these safe regions, as well as develop compression techniques for representing safe regions in a compact manner. In this emerging world user's are totally dependent upon the mobile phones (smartphones) through which they are scheduling their day to day activity & plans. In order to that to arrange meeting users can utilize their mobiles So that they can know about their whereabouts. In this project ENMP technique used to send a notification to the member's who are needed to attend meeting after knowing about the location of the members with which the admin can plan the meeting location and timing so that, the meeting can be organized without any delay. In applications like social networking services and online games, multiple moving users from a group and wish to be continuously notified with the best meeting point from their locations. Efficient Notification of Meeting Points (ENMP) for multiple moving users: ENMP is motivated by many applications in social networks, location-based games, and massively multi-player on-line games. This project proposes solutions based on safe region technique. In this emerging world user's are totally dependent upon the mobile phones(smartphones) through which they are scheduling their day to day activity & plans. In order to that to arrange meeting users can utilize their mobiles So that they can know about their whereabouts.

II.RELATED WORK

A. *A Location-Aware Recommender System*
This paper proposes LARS, a location-aware recommender
a system that uses location-based ratings to produce recommendations. Traditional recommender systems do not consider spatial properties of users nor items; LARS, on the other hand, supports a taxonomy of three novel classes of location based ratings, namely, spatial ratings for non-spatial items, non-spatial ratings for spatial items, and spatial ratings for spatial items. LARS exploits user rating locations 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. LARS exploits item locations using travel penalty, a technique that favors recommendation candidates closer in travel distance to querying users in a way that avoids exhaustive access to all spatial items. LARS can apply these techniques separately, or together, depending on the type of location-

based rating available. Experimental evidence using large-scale real-world data from both the Foursquare location-based social network and the Movie Lens movie recommendation system reveals that LARS is efficient, scalable, and capable of producing recommendations twice as accurate compared to existing recommendation approaches.

B. *Location Privacy with Road network Mix-zones*

Mix-zones are recognized as an alternative and complementary approach to spatial cloaking based approach to location privacy protection. Mix-zones break the continuity of location exposure by ensuring that users' movements cannot be traced while they reside in a mixing zone. In this paper, we provide an overview of various known attacks that make mix-zones on road networks vulnerable and illustrate a set of counter measures to make road network mix-zones attack resilient. Concretely, we categorize the vulnerabilities of road network mix-zones into two classes: one due to the road network characteristics and user mobility, and the other due to the temporal, spatial and semantic correlations of location queries. For instance, the timing information of users' entry and exit into a mix-zone provides information to launch a timing attack. The non-uniformity in the transitions taken at the road intersection may lead to transition attack. An example query correlation attack is the basic continuous query (CQ) attacks, which attempt to break the anonymity of road network aware mix-zones by performing query correlation based inference. The CQ-timing attacks carry out inference attacks based on both query correlation and timing correlation, and the CQ-transition attacks execute inference attacks based on both query correlation and transition correlation. We study the factors that impact on the effectiveness of each of these attacks and evaluate the efficiency of the countermeasures, such as non-rectangle mix-zones and delay tolerant mix-zones, through extensive experiments on traces produced by GTMobiSim at different scales of geographic maps.

III. PROPOSED SYSTEM

Efficient Notification of Meeting Points (ENMP) for multiple moving users. ENMP is motivated by many applications in social networks, location-based games, and massively multi-player on-line games. private meeting location determination protocol, which needs only one round communication and light computation.A special case of location sharing service is fair meeting location determination among a group of users. The location leakage is a serious problem in this service. The user's location or the shared meeting location may be captured by the outsiders and the location service provider; one group member's location may be leaked to another member in the group. By employing the encryption schemes.In their fair meeting location determination algorithm, firstly each user's distances from his own preferred location to the other users' locations are computed. Then each user's longest distance is picked out. Finally, from all the users' longest distances, the shortest one is chosen as their fair meeting location.We first propose circular safe regions that represent each safe region as a circle and are easy to compute. GPS is used to trace the location of the people. ENMP is used to notify the meeting location and time to the members. ENMP continuously reports the meeting point location. GPS is used to trace the location of the people.ENMP is used to notify the meeting location and time to the members.ENMP continuously reports the meeting point location. To calculate the distance of the user and easy to compute the location.
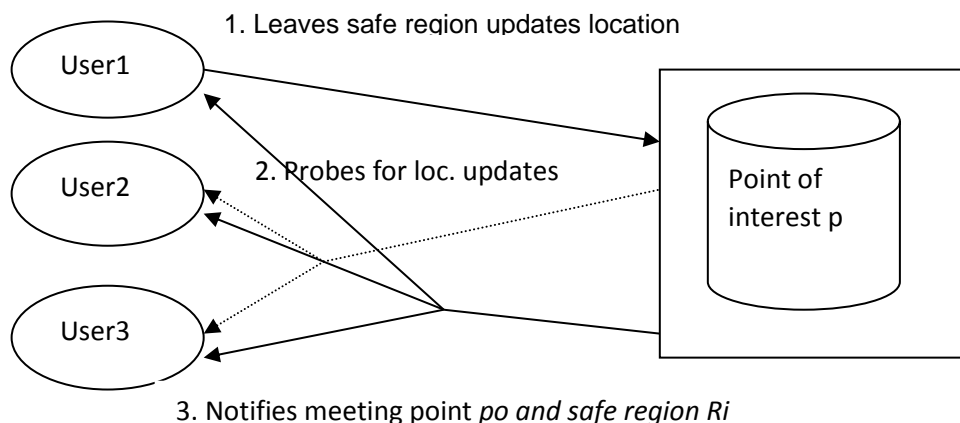
IV. SYSTEM ARCHITECTURE

Fig. 1 system architecture of meeting location for moving users

V. MODULES IN OUR PROJECT

A. *Verification & Phone Number validation*

 Create an account in meeting point using the android app on your mobile, a user has one account and to verify the phone number for registration phase .server send an OTP for mobile number verification after entering the correct OTP user account is created. Once the account is created user can able to add group and post event in group member.

B. *Group creation*

Create a group using mobile contact number, once the user creates a group he/she can post any event in the group. Group admin/member post event they can receive the common point for meeting location, and then he/she choose the particular place for meeting in common point. After choosing the place Event shares all group members. The group receives the post and identify the location using our meeting point application. A group can contain any number of user/person; the user can have friends or relative in the group list.

C. *Location tracking (Global Positioning System)*

The GPS system provides critical positioning capabilities to military, civil and commercial users around the world. GPS is can be used to locate positions anywhere on the earth and point locations such as wells, buildings, and landscape features. The built-in GPS functionality of your smartphone or tablet to track your location on the design.

D. Notification through ENMP technique
ENMP(Efficient Notification Meeting Point) is used to notify with best meeting point from their locations. The efficient meeting location can be fixed at low computation and communication costs. The advantage of ENMP technique in circular safe regions. The technique is to reduce the communication frequency.

E. Monitoring Current Location
To monitoring the current location of the moving users through GPS (Global Positioning System).To continuously calculate the distance of the user's current location

CONCLUSION
The conclusion of the project is one-round Privacy meeting location for smartphone applications among mobile device users. .A special case of location sharing service is privacy meeting location determination among a group of users. The user's location or the shared meeting location may be captured by the outsiders and the location service provider; the firstly each user's distances from his own preferred location to the other users' locations are computed. Then each user's longest distance is picked out. In this project ENMP technique used to send a notification to the members who are needed to attend meeting after knowing about the location of the members with which the admin can plan the meeting location and timing so that, the meeting can be organized without any delay.

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