

# Incorporating Location Based Remainders and Friend Locator into Geo-Social Applications

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**Abstract:** -- Now days, geo-social applications have become a part and parcel of our lives. These applications may be misused by someone to extract our personal information. This paper puts forth LocX that provides ameliorated privacy and at the same time gives precise results. The prime concept is to utilize secure coordinate transformation. This transformation could be used only by friends of a particular utilize. Here the distance metrics are maintain by coordinate transformations the queries are perform enhancing the task of servers on transformed data. This transformation is a safe one, since the secret is the key to the data, which is available only to the user's group. Here, we endeavor to show that LocX has the capability to provide privacy to do the task efficiently, making it proximate to idealize for the applications of the present day. It sanctions the server to work congruously and correctly without using the private data of the utilizer. There are users where there is not a desideratum for impulsive pairs of users to be resolved. Hence, by spotting such location data through users' convivial groups further transformation can be applied on location coordinates.

**Keywords:** - Security, Efficiency, Location privacy, location-based social-application

## I. INTRODUCTION

With billion peoples are downloads a Smartphone applications for many uses for example social applications ,study applications, personalized applications and games etc., here the geo social applications have more number of privacy issues are raised. So this paper resolves that the privacy protection techniques have come up during last few years. In this privacy protection techniques not able to do perfect privacy techniques .so users privacy is not secured .third party hack their location and target them .In order to provide service or for contextual advertising loc X (location to index mapping) is a new approach to achieve user privacy with full accuracy, here the location data will be partition by two social groups. After which, transformation are perform on location data before storing untrusted servers.

Here users only know the transformation keys of location data[3]. By this transformation of location data third party doesn't k now the keys. These transformations are protected and efficient. This application build on loc x are light In this paper we use two scenarios to identify the key adequate of geo-location privacy preserving systems:

### 1.1 Scenarios

Here shabby and other friends are using same application in same city; here friend locator feature will be added to our application. In this application we can use longitude and latitude values to get coordinates from web browser .By adding this feature we can easily find our friend. Here we can set range with in 5 km around you .This feature is new and advance in social applications[4]. Scenario 2.1.2 In day to day life many people busy their works and it might be a common thing to be some work will be forgot in day to day life. In this system new feature will be added which is location based remainder. In this we can add a remainder into a system. The system automatically generates a notification alert to our device. This feature is very helpful for users[3].

## II. SYSTEM FEATURES

The key features of loc x system are weighted and perfect for today's computer devices. 2. Scenarios and System Features In this paper we use two scenarios to identify the key adequate of geo-location privacy preserving systems:

### 2.1 Scenarios

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### 2.2 system features

The key features of loc x system are

1. Strong location privacy, server is not able to trace the location of users.
2. Location and user unlink ability .If two records are found of the same user at different places then server should not able to link user with data.
3. The server can't fetch the user data of particular location.
4. System provides efficiency, bandwidth, computation and latency

### III. RELATED WORK

The constant need for improvement in location privacy has led to the development of new techniques. The present and proposed systems are discussed here:

#### 3.1 Existing System of Project

Existing system has mainly three approaches to strengthen location privacy in geo-social systems[1]. The challenge, then, is to design mechanisms that efficiently protect user privacy without sacrificing the accuracy of the system, or making strong assumptions about the security or trust worthiness of the application servers.

##### 3.1.1 Limitations

1. Introducing instability or inaccuracy into location data.
2. Depending on other trusted servers to user private data.
3. Depending on heavy-weight cryptographic techniques.

#### 3.2 Proposed system

This paper introduces two new features which is location based remainder and m friend locator to build in loc X system (short form for index mapping from location. This system is a modernistic approach to gain user privacy and more accuracy in location base application. In this loc X only friends are involved with each other's along with location data. Here we can split data into two partition .This data can be stored on un-trusted servers.

This system can do transformations on location coordinates. The user only knows transformation keys to all of his friends, yet transformations are secured. The location values easily associate with transformed values. Finally transformation of location data is efficient and this is minimum overhead on the location based application .This makes the location based applications are light weight and suitable for today's mobile devices.

### IV. ALGORITHM USED

The algorithm used here provides better security to the data. The encryption and decryption process is discussed:

#### 4.1 Encryption Process

In this encryption process cipher key was arranged in 4\*4 matrix .The matrix row is used to each operation of the propose modification. The cipher key of the matrix is used to alter sub bytes rounds of first three rows. Here last row is passed down to mix columns round. The Rijndaels key and Add Round Key step program are original advance encryption standard (AES) remains constant. The plain text is set in 4\*4 matrix .this is called State Matrix (M).

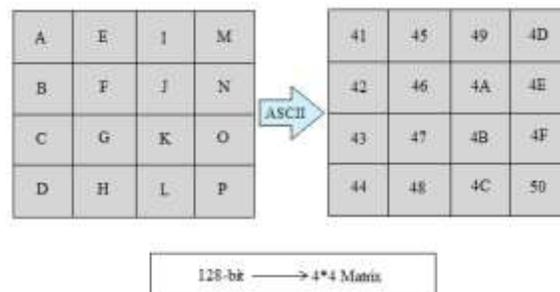
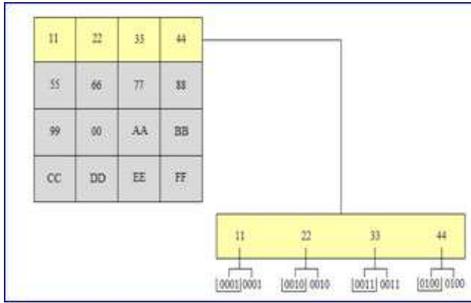


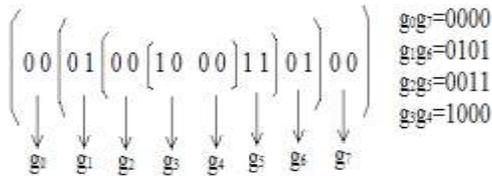
Fig 1: The text is converted to its equivalent ASCII form called State Matrix

#### CIPHERKEY:

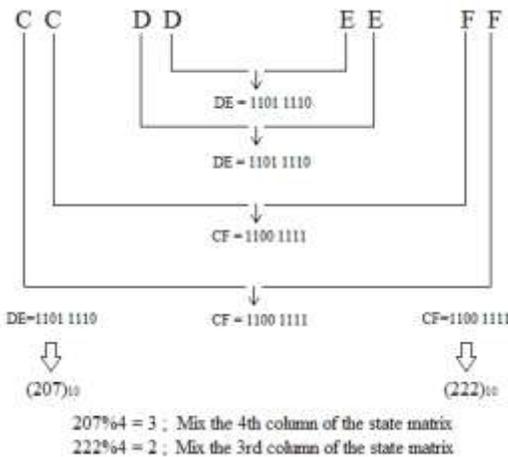
11223344556677889900AABBCCDDEEFF  
(128-bit cipher key)



**Fig 2: First 4-bits from each 8-bit value are Separated**



**Fig 3: Grouping of bits is done**



**Fig 4: Operations performed on fourth row**

**4.2. Decryption Process**

The decryption process is exactly opposite order of encryption process. When the encrypted data recalls the receiver, the receiver first XORs the data arranged in the 4\*4 matrix with the key matrix. The result access is subjected to the rounds.

**V. SYSTEM IMPLEMENTATION**

The description and functionality of each module is discussed below:

**5.1 LocX module**

Loc X is a new implementation in location based applications. In this loc X the location data can be split into two spans: encrypted location to index and mapping from index to encrypted data. This span helps loc X is efficient. Second, friends store and retrace through untrusted proxies. Here redirecting of data through proxies significantly enhances location privacy in loc X

**VI. EXPERIMENTAL RESULTS**

The results obtained by implementing the above concepts are demonstrated as follows:



**Fig 5: Current location page.**



**Fig 6: Sharing details to friend's page.**

Latitude Coordinate:

Longitude Coordinate:

Secret Key:

**Fig 7: Encrypted Latitude and Longitude values.**



**Fig 8: Found location Page.**

## VII. CONCLUSION

Here this paper concludes that description of loc X and implementation of loc X. It is system architecture for location based applications while preserving user location privacy has been successfully achieved. Loc X is a new system to provide location privacy for overall effectiveness of system. In this loc X, a user can easily transform his location data and shared with server here encrypted location data keep in server using symmetric keys. Only friends have exact keys and decrypt the users data. Finally loc X system added two new features that is location based reminders and friend locator. This system if full privacy protected & effectiveness

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