



## Next Loc-An Approach for Mobile users Future Location Prediction

Joji Sebastian<sup>1</sup>, AvinashRajan<sup>2</sup>, Amal Mohanan<sup>3</sup>, Abhinath S<sup>4</sup>, Syamala S<sup>5</sup>

Mangalam College of Engineering Ettumanoor, Kottayam

UG students <sup>(1, 2, 3, 4)</sup>, Assistant Professor<sup>5</sup> Dept. of Computer Science and Engineering

A P J Abdul Kalam University, INDIA

{joji.s1997,avinashrajan07amalmohanan997sabhinath3}@gmail.com,syamala.s@mangalam.in

### ABSTRACT

Faster development in cellular networks provides faster and seamless services to mobile users. Mobility management is an important issue in the area of mobile communication. Within the cellular networks, movement track of mobile user is provided by the location management [1]. Location of mobile station has great attention and has potential for application and services to improve location-based services like prediction of the next location. Several researchers are worked to develop methods and algorithms which increase the positioning accuracy and prediction rate. One of the powerful features of modern Smartphone's is their ability to provide us with real-time, location based information such as weather updates, traffic, time to reach and so on..In this paper,a proposed system that can predict a user's next location using their location history, current location and the current time, has been developed.

**Key words:** Location prediction, CurrentLocation, Context-aware, Destination, Location-aware, date, Time.

### 1. INTRODUCTION

One of the powerful features of modern Smartphone's is their ability to provide us with real-time, location based information such as weather updates, traffic, time to reach and so on [2,3]. For example, our smartphones can predict when we are heading to work and give us an estimate of the travel time. While these features can be useful, they typically do not generalize to users with more complicated schedules. If our smartphones could predict our destination, they could give us more relevant information about the places we are going.

Imagine the following situation. You hop in your vehicle to head to the movies after work. Since, you know the route, you didn't turn on the navigation but there is a lot of traffic. If your phone knows where

you are going without telling it, it will warn you before you start driving and help you reroute. All this location prediction sounds a bit creepy, but if it is all happening on device, and giving the proper guidelines regarding the destination.

A number of challenges arise when working with real time data. Location history datasets are mostly small and noisy.

### 2. LITERATURE SURVEY

Prediction of user's mobility using Monte Carlo simulations and GPS coordinates are too noisy to be used to directly learn and develop movement patterns. To overcome the issue, computed the data into stay-points, or locations where the user used stay for some period of time. This gives a discretization of space into a fixed set of locations, simplifying the computation required for prediction [4]. Matrix Factorization and FPMC are used in the field of semantic location prediction; in the test dataset lack of common trajectory among the users are the major issue. Another method used for location prediction is the cellular symbolic location of a mobile user, the issue related to this method is that predictions based only on the movement history of a user are limited to a natural threshold[5]. Hybrid design of a prediction technique uses the sectorized approach of Location Prediction based on Sector Snapshot (LPSS) and Markov- Graph Cache Replacement Policy (MGCRP), the access pattern in the hybrid technique are generated using bi-clustering of the database which helps in prefetching the precise required data to reduce the network traffic and user latencies.

Another method used in future location prediction is based on mobile platform, here the system is used in future location prediction of mobile user which used to enhance LBS services based on mobile network operators and also used to enhance mobile network allocation resources, hand over process and mobility management operations.

In efficient fine-grained location prediction the mobility patterns are extracted and analysed and a supervised scoring model is used to evaluate the possibility of the given user's visit to the candidate location at a given time [6]. The prediction with HEM is very accurate at predicting very low and very high probabilities but are weaker at predicting values at the middle ranges.

Next Place Predictions Based on User Mobility Traces are commonly predicted using standard data mining techniques based on collected mobility traces. Given that these traces are collected over a large period of time they contain noise and tend to be incomplete [7]. A Probabilistic Approach to User Mobility Prediction for Wireless Services.

### 3. PROPOSED SYSTEM

The paper proposed an approach to predicting the movement of a mobile user based on historic data on their prior movements. In mobility management there are two key operations: location updating and paging. Location update is to collect mobile users current location while paging is used to locate a mobile user. The success of the method highly depends on the training dataset. Once a user's location has been identified the system identifies the users next location [8]. The 'Future location prediction' method is used so that the system can take action before the user arrives at the destination.

Location History keeps record of previous calculated locations. There are 2 reasons for keeping this type of context. First, for 'Location Conflict resolving' i.e., to significantly reduce calculation error by choosing the best of several possible locations. Second, For Location Prediction.

In Figure 1, Data of a number of people is collected and it is divided for training and test cases. Training data set is used for learning the system which is then further used for predicting the future location of the user [9]. Test data set is used to check the accuracy of the system similar way as that of the training data set which is then checked using the stats.

The training dataset already has labelled values which will be compared with the values obtained by the prediction system so as to check the accuracy of our system compared to other systems which formed the the training dataset.

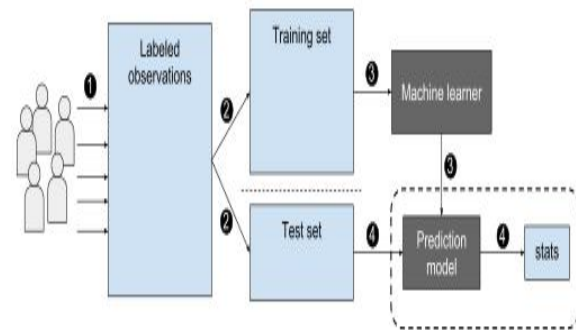


Figure 1: Prediction system model

### Requirement Specification

#### Hardware Specification

- Pentium Dual core processor or higher.
- 2 GB RAM or higher.
- 80 GB HDD

#### Software Specification

- IDE: Netbeans IDE 7.2.1 or higher
- JDK 7.0 or higher
- Java Enabled Operating Systems (Windows), Android.
- MySQL Database Management Platform.

### 4 . IMPLEMENTATION

The system provide the details of the weather conditions like temperature humidity and whether there is a chance of rain or not where the users destiny is been fixed [10] and the system provide the best routes and the traffic awareness to the user.

### 5 .CONCLUSION

The proposed system would work with higher accuracy rate than that of other location prediction systems .There are plenty of other features like category of location can be added and modeling the dataset with latent variables. Modeling this dataset as a series of state transitions from one location to another could give better results.

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