

TRACING REAL TIME LOCATION OF A FRIEND IN MOBILE SYSTEM

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Abstract

The application of this project is to track a number of people even in crowded natural environments. A system of this sort would be useful in a number of applications, such as human-computer interaction, surveillance, and mobile robots that work among people. The robustness of the system will be able to operate even with partial occlusions of the subjects, and recover from tracking errors where a subject is temporarily lost. Finally, the techniques will be implemented on standard available hardware, and run fast enough to track in real time mobile system. It can be used to assist users in tracking colleagues and friends within a campus environment.

Keywords: *Real-Time Location System (RTLS), BlackBerry Messenger (BBM), GPS.*

I. INTRODUCTION

A real-time location system (RTLS) is one of the emerging technologies that detect the current geolocation of a person (target), which may be anything from a vehicle to an item in a manufacturing plant. RTLS-capable products are used in number of sectors such as supply chain management (SCM), health care, the military, retail, recreation, and postal and courier services. RTLS is nothing but a GPS device which is typically embedded in a product, such as a mobile phone a PDA. Most such systems consist of wireless nodes that emits signals and readers that receive those signals. Current real-time location systems are based on wireless technologies, such as Wi-Fi hotspot, Bluetooth, Ultra-wideband.

II. NEED AND USE OF TRACING LOCATION

The whole idea of being able to locate and track my friends and co-workers via mobile phones is exciting. From both the personal world and the business world, one can easily understand the far-reaching benefits of this technology. One can imagine a variety of use cases from a business perspective. For example, "a company's manager wants to track his on-field employees (Postal services...)" [1]. Tracking and tracing is related with a process of determining the present and past locations (and other information) of a unique item or property. This concept can be supported by means of notifying the position of vehicles and containers with the property of concern, stored, for example, in a real time database [3]. This approach leaves the task to compose a coherent depiction of the subsequent status reports. The need of this application is to bring together people who want to find and communicate with each other. The other needs for this application include finding new places, a good navigation system, and business opportunities for entrepreneurs in advertisements.

This application will provide the user with features such as data-sharing, managing groups, communities and other location based services. If a person is new to a place he can rely on this application to get directed to his desired destination. It can also serve the needs of students in huge campuses, new employees, and fresh recruitments in companies. There is a constant need of increasing one's network or contacts, this need can be quenched by adding more contacts for example friends of friends, you can get connected with these people to form a web of connections that can give you leverage if you play your cards right. The notification features will

inform the user of a friend entering his perimeter. The presence of such features enhances the need of this application. The real-time tracking aspect of the application will cater to the needs of the people who distinctly and constantly want to stay connected with their peers. It's the cell phone, rather than the personal computer, that's the constant companion of the present man. Thus, this application may be developed on the BlackBerry mobile platform. It will include automatic location via the mobile network, which will make finding friends very convenient and user friendly. The Friend Finder will match the interests of youthful people in an intensive social life, where spontaneity is very important. The service is permission based. This means that only subscribers that have voluntarily joined the service can find and be found by friends that they have selected and approved themselves.

III. MOTIVATION FOR THE WORK

The purpose of development of this application is to become acquainted with the required superior technical skills and gaining expertise in the mobile computing and mobile applications. The concept of the Location tracer application has been inspired by the fictional novel Harry Potter by the author J. K. Rowling which includes the Marauder's Map which is a magical document that reveals all of Hogwarts School of Witchcraft and Wizardry. Not only does it show every classroom, every hallway, and every corner of the castle, but it also shows every inch of the grounds, as well as all the secret passages that are hidden within its walls and the location of every person in the grounds, portrayed by a dot. It is also capable of accurately identifying each person, and is not fooled by animagi, polyjuice potions, or invisibility cloaks; even the Hogwarts ghosts are not exempted from this. It can also reveal secret passages the Marauders or in other words the inventors of the map found [3].

Similarly like the marauder's map with the help of this application the user will be able to see the real-time movement of every person with this application. This application would provide the user with features such as data-sharing, managing groups, communities and other location based services. It appears that the mobile phone is actually a better platform for social networking than the PC and thus to cater to the above mentioned needs the application may be developed on the Blackberry Mobile Platform. The application will be deployed on the cloud to reduce overhead cost and maintenance.

IV. LITERATURE REVIEW

A recent study from Ruder Finn revealed that Americans are spending nearly three hours per day on their mobile phones where they are not just educating themselves, conducting business, managing finances, instant messaging, or emailing but the most interesting finding from the new data is the fact that more people are using the mobile web to socialize (91%) compared to the 79% of desktop users who do the same. It appears that the mobile phone is actually a better platform for social networking than the PC and thus to cater to the above mentioned needs the application will be developed on the Blackberry Mobile Platform. The constant worry among the existing systems and social-networkers is security. This is a big concern as information content might fall into illicit hands. This issue will be solved using the Blackberry services which provide powerful encryption techniques [2].

Social networking web applications are complex and contain lots of content. To integrate complex social networking sites on the small screen of mobile phones require superior technical skills and professional mobile application development expertise. Thus one of the purposes of development of this application is mastering these superior technical skills and gaining expertise in the mobile platforms. The idea behind the project is to attain a systematic and detailed study of the novel technologies along with the existing technologies and to utilize these technologies in building useful applications[4] [5]. Modularization of object oriented code is distribution of the software in to modules and these modules should communicate with each other through some application programming interface (API) [6]. The main problem is of communication between the modules. Generally this should be done through some application programming interface (API) [7] [8].

Technologies available to cater the same concept:

1. Real contact (BlackBerry)
2. navXS (Navigation Exchange Service)(BlackBerry)
3. XL friend finder (Blackberry)
4. Google latitude (iPhone)

V. GETTING STARTED WITH THE APPLICATION

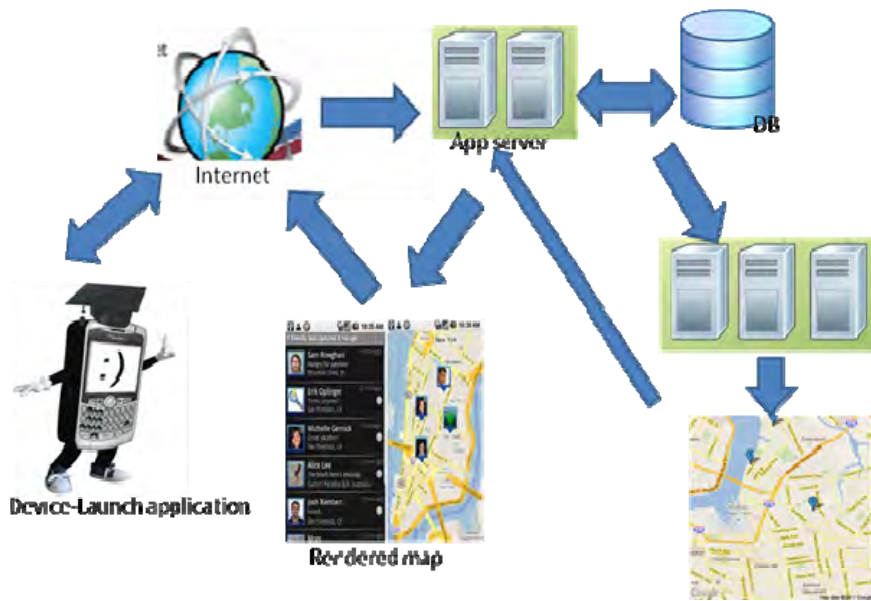


Figure 1. Locating friends

EXPLANATION OF FLOW

1. Initially the user runs the application, the application checks for the BBM connectivity.
2. If the BBM connectivity is there the application proceeds otherwise throws an exception.
3. After getting connected to the service the application server traces geolocation of the user.
4. The application server stores the data in the database.
5. Then accordingly the data is forwarded to the Google map server.
6. The Google map server then locates the user on the map.
7. The location is stored in the application server.
8. The application server then renders the map on the mobile phone of the user.
9. Then locations are displayed on the users mobile and nearby friends are also marked.

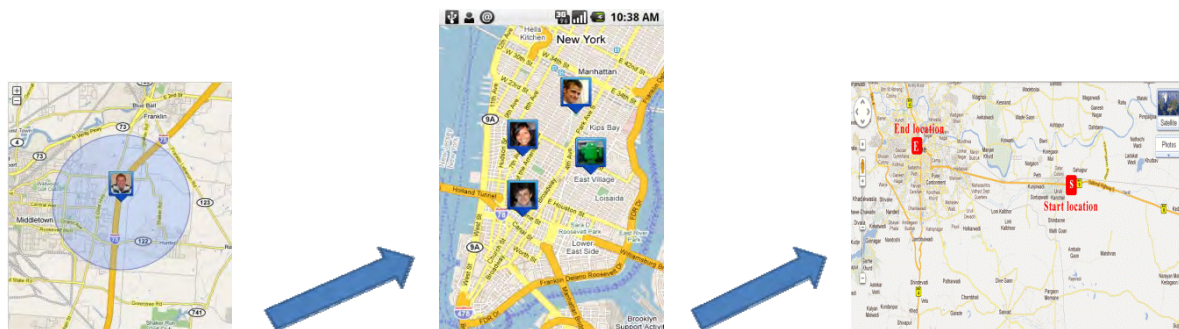


Figure 2. Locating on Maps

In the above figure it the user will select some radius in kilometers. Accordingly the other user present in that radius will be shown on the map and if anyone wants to meet the user then he will guided by appropriate root indicator.

VI. THE FEATURES OF THIS APPLICATION

1. Allows the user to maintain a friend's list (Add/Remove/Edit friends from the list)
2. User shall locate the nearby friends
3. User shall be able to track the specific friend.
4. User can look for nearest Meeting Point such as Restaurants/Coffee Shops/Pubs/Recreation Halls etc.
5. User can upload his/her snap on to the server which can be viewable by friends.
6. User can get the route directions and map of the Meeting Point.
7. User can send the directions / MAP as text SMS /MMS to the friend.
8. Supports to invite all the nearest friends at one go.
9. Privacy management System:
Voice call can be initiated directly from the application to a friend or Meeting Place.
Preferences:
10. Radial distance at which friends need to scan is parameterized.

VII. UTILITIES AND CHARACTERISTICS OF THE PROPOSED WORK

This system will allow the user of the application to have choices as described below:

- [1] **Add a friend to the group:** Using this feature the user is able to add a friend to his contact list which will allow him to have access his friend's profile.
- [2] **Locate friends on the map:** Using this feature the user is able to give a look at which of his friends are present in the specified area and their activities in real time.
- [3] **Trace a friend's move:** This feature allows the user to have a look at the move of his friend i.e. in which direction is he moving and where is he heading to etc.
- [4] **Chat:** This feature of the application allows the user to chat with his friends who are online on the application.
- [5] **Share files:** This feature allows the user to share images amongst the group members.
- [6] **Notify a friend or a group:** The user can notify his friends that what activity he is doing, at which place etc. He can also direct another friend to reach to a specific location or feed data about the nearby restaurants, hang out places and other famous meeting points.

VIII. CONCLUSIONS

In this paper the system is proposed where the user may get the friends location or they may trace the location. The system also proposes that the user may direct the other friend to reach a specific location or may also feed data from his knowledge. BBM services will be important for the implementation of the proposed system.

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