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Effective Tracking System Based On Android

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ABSTRACT

To furnish the need of people who always want to be in touch with their closed ones to keep themselves safe, a location tracing system that can be used in real time is presented in this paper. The system is based on Blackberry operating system. The proposed system is more secured and reduces security risk due to the use of Blackberry operating system. The striking feature of the application is the integration of Blackberry messenger that has several social networking users with the system. The main idea behind the system is to locate many people even in a busy environment. Other services that are provided by the system are data-sharing, creating and organizing groups, etc.

***Keywords* – DFD (Data Flow Diagram), Plug-ins, SDK (Software Development Kit)**

I INTRODUCTION

After the emergence of internet in voice telephony in early 1990's, the idea of delivering valuable services other than communication began. Certain services are provided based on the geographical location of the mobile device. Such services are called Location Based Service (LBS). LBS provide custom services based on the present location of the mobile clients. Also LBS creates new opportunities for cellular service network operators, service providers and developers. Additionally, value added services like providing route information, providing users with nearest shopping malls, etc. are provided.

There are 2 techniques to implement LBS.

1) Processing location data present in server and forwarding the response of the clients

2) Finding data related to location that can be used for mobile based application

The application is used to provide people with services and to keep them connected with their peers. Also new places and business opportunities can be searched and tracked. A person can depend on this system to reach the destination when they are in a new place. As the need of expanding one's network is increasing, this can help anyone to achieve it.

The most enhancing feature of this application is that when a friend enters into our perimeter, the notification feature notifies. As the application provides social services too, this gains the attention of youth.

II BACKGROUND

In recent years in India, the smart phones have dominated the market over the Symbian phones of Nokia. Also the smart phones have the A-GPS feature that provides the spatial coordinates of the user location. Using the cell tower andwi-fisignals.

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location information is provided by Android's Network Location Provider. This service works both indoor and outdoor and also provides fast service with less utilization of batterypower.

To improve the performance of standard GPS, Assisted GPS (A-GPS or AGPS) is used in devices that are connected to the wireless network. This can be done in 2 ways:

i) The "Time To First Fix" (TTFF) can be found much faster. There is no need for the information to be downloaded through satellite as A-GPS obtains and stores information about the satellite location through cellular network.

ii) When GPS signals are weak, the A-GPS helps to locate the device's position.GPS signals cannot penetrate walls, etc leading to unavailability of signals. When GPS signals are unavailable the proximity to cellular towers is used in A-GPS to locate the device.

The wireless network problems are addressed with the help of other services. This technology can help in various ways in a smart phone. The A-GPS gets help from GPRS and also service provider network information to track the current location exactly. By diverting certain work to the assistance server, the amount of CPU and programming required by a GPS phone is reduces.

The A-GPS phone uses GPRS or any other mode to connect with the A-GPS assistance server. Based on the usage of GPRS by a user, the amount is paid not considering the service provider network. The utilization of 3 standby satellites of GPS connections is prevented for A-GPS server.

The amount of memory and hardware required to integrate with the mobile devices is minimized. Hence, the device has become simpler and provides longer battery life.

III RELATED WORKS

The inconsistencies in certain similarly available technologies have raised the need to develop this application. The other technologies that provide the same service are:

A.Real Contact

To keep in touch with all the BBM friends, this application is used. Firstly, the application has to be installed in the blackberry phone. Then, a request is sent to a BBM friend. By this, the location of each other can be seen. This feature is not available for eastern countries.

The advantages of this system are-

i) To share the location, battery level, etc. with each BBM contact, the privacy level can be set for the application

ii) By changing the settings, the privacy can be managed.

The drawbacks of the system are-

i) BBM6 and Blackberry maps are required.

ii) After every 100 meters, the friend in mobile is updated to us.

iii) There are no shortcuts.

B.NavXS(Navigation Exchange Service)

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This feature is available only in a blackberry phone. This application allows the formation of a network like Skype, etc. In this system not only the text messages are exchanged but also location based information can also be exchanged.

The advantages of this system are-

i) Friends present on Skype, ICQ, etc. can be added.

ii) This application does not require downloading of other messengers.

iii) Can work on several platforms.

The drawbacks of the system are-

i) Not friendly to user

ii) Platform dependent

C. XL friend finder

Once the application is installed, the contact with XL friend present in the phone book can be made.

The advantages of this system are-

i) Does not require any data services

ii) Even when the BBM is not activated, the work doesn't stop.

The disadvantages of this system are-

i) Switching off the mobile is the only way to switch from this service

ii) Only the address is provided and not the real time location on map.

IV PROBLEM DEFINITION

Getting aware of the highest technical skills and gaining the most knowledge in mobile computing domain is the objective of the application. The Harry Potter novel is the source of inspiration for the Location Tracer application. The marauder's map helps to find the location of classrooms, etc. in the novel.

Similarly, with this application the movement of each person can be seen with the help of this application. Managing groups, communities, sharing data, etc. can be done with the help of this application. The mobile phones have become a better platform than PC for social networking. To minimize the overhead and maintenance cost, the application is deployed on a cloud.

V METHODOLOGY FOR SOLVING THE PROPOSED WORK

Several components have to be implemented to attain the required functionalities in the proposed application. From blackberry 5 version onwards, the application works. To access all the features of the application, BBM service has to be activated on one's device. To obtain one's location, GPS is used.

Two kinds of information can be provided by a location system namely- physical and symbolic .The physical location is provided by GPS. To obtain the real time location information, the common approach used is GPS tracking.

The radio signals of short pulses are emitted periodically by the satellites and are received by GPS receivers. To estimate the distance, a GPS receiver receives signal from minimum 3 satellites. To find the 2-dimension position, triangulation technique is used. For the computation of three- dimension i.e. latitude, longitude and altitude, at least

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four satellites are required. The average traveling speed and direction can be estimated, once the location is computed. Hence, to give position to a device the main technology used is GPS.

A.BBM SDK to develop and simulate the application:

BBM SDK with Eclipse plug-ins is used to develop this application. The user requests are handled using an application server code. Black berry java SDK is included in the Blackberry java plug-in for eclipse. Blackberry is a java-based device. All the built in applications and APIs available in a Blackberry device are written in Java. Some kind of Application Programming Interface (API) is used to communicate between the modules. The only functions that can be called outside the module are API functions. The other functions cannot be called outside the module. The simulator provided with SDK helps to get an idea of how the application would be when run on a phone. Java ME APIs and Blackberry specific APIs are included in the Blackberry JavaSDK.

Several features are provided by Blackberry APIs like integrating with existing applications, creating database with SQLite, protecting contents using cryptographic functions, embedding location based features.

B.Use of cloud computing to host the application

To mark the location of a friend on a map, the GPS id will be used. Then, it can be shown using Google map. To perform this task, initially the application server needs to interact with the database. The static map services are used to locate and track friends on the map. Certain additional functionalities like chatting, etc. are also provided. By deploying the system on cloud, database can be maintained and web services can be provided to various mobile users from anywhere.

Extending cloud computing with new ad-hoc infrastructure based on mobile devices is known as mobile cloud computing. Utilizing the cloud computing techniques for storing and processing data in mobile devices is the goal. Google App Engine hosts the application server. An application that runs reliably even under heavy load and with large amounts of data can be easily built using Google App Engine. After this, interaction with google static map services is made to get the map. The user is considered to be at the center of the map and locations are mapped accordingly. The real time feature is supported by constantly updating the database. The application server handles the interaction between BBM services and Google static map services. The application server collects the information and constantly updates the database based on the user activities using BBM services.

VI STRUCTURE OF APPLICATION

The flow of the application during the tracing procedure is depicted in the figure below.

The application server collects the information and constantly updates the database based on the location coordinates that will be represented on a static map. The social networking services provided by the application can also be controlled by the user.

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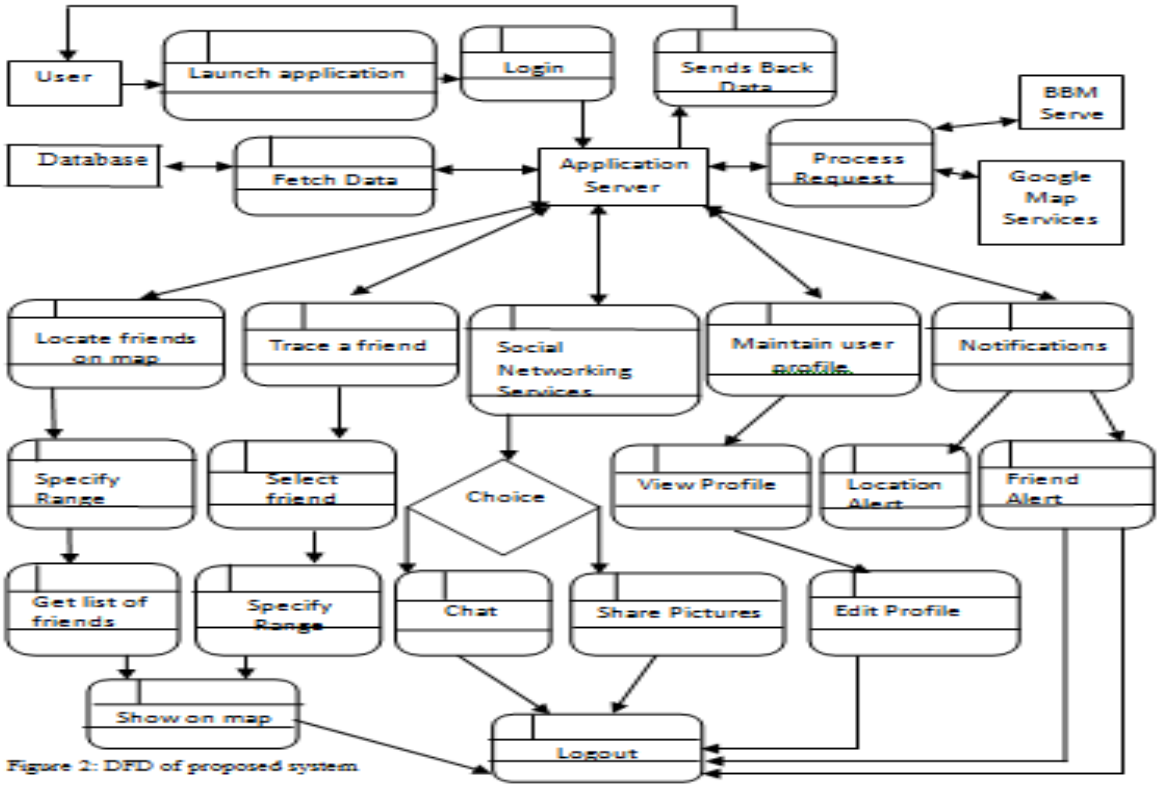

Figure 2: DFD of proposed system

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VII APPLICATION

Artificial intelligence networks, human-computer interaction, detection techniques using examination are some of the applications of this system. The physically challenged and elderly people can be tracked through the location-based service of this application. In nuclear labs where there is a large need of safety to the employees, this application there helps to keep track of the employees and keep them protected from hazards. In military operations, the soldiers of the team can be aware of each other through this application.

VIII CONCLUSION

The main concept that is proposed in the paper is tracing the people. People in various environments like calamity prone areas are the places where this application would be very useful. Making the application platform independent is the future of this application.

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