
A Case Study on Awareness and Implementation of Tracking

Dr. Poonam R. Shityalkar

Assistant Professor, Gharda Institute of Technology, Lavel

Email-poonam.shityalkar@gmail.com

Abstract: -In this age of significant telecommunications competition, mobile network operators. Constantly looking for new and innovative ways to make changes and increase profits. One the best way to achieve this is through the delivery of highly personalized services. Location based is the most powerful way to personalize mobile services. Location. It is important to have location information in order to provide location-based services (LBS) to the user commonly useful for coverage, deployment, routing, location service, and target tracking rescue operations. Positioning is one of the most obvious technologies behind LBS. The most widely accepted system is the Global Positioning System (GPS). I do not know subscription fee or setup rates for using GPS. This document provides details about the design it sends users the execution of a Java application that assigns the current location. Location shared with friends and family using SMS (short message service) location and view them on maps. Users can avail this app even in case of emergency circumstances with the emergency feature of this application. To get location coordinates, the application uses GPS (Global Positioning System) as the location provider. The design has five parts: a mobile client, a web server, a database, a GPS system, and a map service. Finds a mobile client application that includes a mobile and a GPS receiver his position to know the user's position. This location is for mobile sharing the client sends this location to a web server that other users can access must have user-provided authentication. The mobile client is implemented using J2ME. It is one of the most promising software platforms for mobile devices. Representatives of the Sun. It is estimated that 18 to 20 million mobile phones will support the J2ME platform. Analysts predict that over the next few years, this technology will become ubiquitous. Web server side Programming is done using PHP and the database is maintained by MySQL.

Keywords: GPS, LBS, J2ME, 3G, Google maps, PHP, mysql, GSM

Introduction: -Location Based Service (LBS) is considered to be the most profitable component Wireless value-added services. However, this is essential for the development of LBS data to be transmitted is strictly limited due to the limited bandwidth of the wireless network. With the advent of 3G, wireless network speeds have greatly improved, and it will provide more information to users easily, so LBS will be highly promoted. Today mobile communication devices are becoming more technological offers more advanced and more features than conversation. On cell phones, the Global Positioning System (GPS) tracking and sharing are some improvements. GPS-These systems can be used outdoors for activities such as hiking or camping. According to a new report from the research firm Berg Insight; "Income from mobile location-based services (LBS) in the European market increase by 34% per year 2622 million in 2010 "[1]. It shows how important space is Services (LBS) applications for mobile users are changing. For the past few years, mobile phones spread like wildfire. More than 2 billion phones worldwide and more. The mobile and mobile phone industry is growing faster than fixed line subscribers the world. Development is progressing from useless simple phones to smaller all-rounders high Resolution Color Display, Organizer, Integrated Camera, Global Positioning Service (GPS) receiver [2]. Features and services are the main reason for the rapid growth of the mobile business. A mobile phone can now give a day. It was only available on previous generation phones ability to communicate between multiple users and send text messages to fewer people number of inbuilt hardware. But now a mobile phone has the ability to take pictures and take videos recording, Bluetooth, File Sharing, Touch screen display, Low power consumption, GPS receivers for accessing location

coordinates and many other advanced features and built-in hardware. These eye-

catching features attract more users. Here we are only paying attention internal GPS receivers for mobile phones [3]. The GPS receiver can calculate location where the GPS satellite system is used [4]. For more information and access authentication [5] refers to GPS. Location based services are attracting more and more users. Benefits of these services.

A location-based service basically answers three questions: Where am I? What's around me? Then how do I get there? They determine the place the user uses one of several positioning techniques (such as GPS), and then use location and other information to provide personalized applications and services. For as an example, consider a wireless 911 emergency service that locates the caller. For automatic. Such a service would be very useful, especially for remote users home and local landmarks are unknown. Navigation assistance including traffic advice and maps directions and Roadside Assistance are natural location based services. Other services can sync current location with information about personal preferences to help users find food, accommodation and entertainment suitable for their tastes and pocket books. This app lets users know their own location and send it to any valid location mobile number used for short message service. Users can also share their location with friends and family. Additionally, users can take advantage of emergency features sent to users from current location to emergency numbers. Due to the rapid growth of JAVA activation we want to implement this application in the market using handholds, J2ME and PHPMYSQL. We use J2ME for the mobile client and we use PHP on the server side MYSQL. Our main goal is to show the implementation of such a system the paper is arranged as follows. Section 2 provides an overview of related work, while Section 3 is about related technologies. Section 4 shows the mathematics of location estimation. Section 5. This system is related to architecture. Section 6 provides a brief overview of its implementation. Section 7 gives the results and finally in section 8, we complete the whole project.

Related work: -This section handles some of the existing work related to the specific mobile.

The solution is, essentially, tracking systems via GPS or GSM cell. In the paper [21], we discussed the detailed design specifications of this system and dealt with them in the paper [20] with detailed implementation of this system. In the paper [22], the author suggests an application to find friends and family. Mobile phones with Global Positioning System (GPS) based on client-server architecture helps users locate their family members and receive alerts when their friends are nearby. The mobile application was implemented using J2ME with the latest APIs and more. Older APIs have been integrated to make all types of applications more reliable mobiles. The server was executed using PHP because PHP guarantees that the server will run do not overload. MySQL was the type of database used on the system. In paper [17], a technology is provided to send the GPS coordinates of a mobile phone via SMS. Other mobile phones. There can be two algorithms, the Kalman filter and the Velocity Renewal used in conjunction with GPS, it is used as a basis for location tracking. First coordinates generated from a GPS enabled mobile on Google Maps, this location will be sent later SMS to someone else. The exact location of the sender for the second can be seen on his map with an accuracy of 0.57 m. The paper [18] describes two technologies for locating and tracking cellular phones. Digital cellular mobile telephony networks. The first technology is based on arrival time methods with at least three base stations (TOA) are required, but the latter angle is used Arrival (AOA) methods, which require only two base stations, although more accurate. It is possible with three. TOA and AOA methods were tested for a multipath fodder Environment. There are already many applications on the market that offer tracking systems and anti-theft applications. Anti-theft apps like mGuard. Tracking applications like mobile tracking System 1.14 [23], AccuTracking [24], PhoneBak (also an anti-theft application) [25], is already well established in the mobile phone market. As seen in the systems mentioned above, most of them

are dedicated solutions using tracking methods to monitor a mobile device. Our suggestion is a standard mobile phone with a GPS. Unlike the systems mentioned

above, important. The feature of our application gives the user the ability to find him and send him through his own location SMS and share his location with friends via a web server.

Related Technology: -We have collected suggestions for approach to building the described system categories provided. The proposed solution can provide better performance, and it is much better easy to deploy on a standard mobile phone with a GPS receiver. For user security, the GPS Locator app can be useful in emergencies, for example kidnapping and hijacking, giving the user the option to send his location calls SMS.

3.1 GPS:-The Global Positioning System (GPS) [6] is a satellite-based navigation system. A network of 24 satellites launched into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but was introduced by the government in the 1980s. The system was made available for civilian use. GPS works in any weather, around the world, 24 hours a day. There are no subscription fees or set fees to use GPS. The GPS system has three parts.

3.1.1 Satellites: GPS satellites orbit the Earth twice a day in very precise orbits. Transmit signal information to ground.

3.1.2 Receivers: GPS receivers take this information and use a triangle (method) Estimate the exact location of the user.

3.1.3 Software: Application software is used to command devices such as handhelds. Take advantage of computers and both of the above services.

3.2 GPS satellite system:-There are 24 satellites orbiting the earth which belong to the GPS space category 12,000 miles above us. They are moving continuously, less than two complete orbits more than 24 hours. These satellites travel at a speed of about 7,000 miles per hour. GPS satellites are powered by solar energy. They have backup batteries when solar eclipses occur, run them when there is no solar energy. Small rocket boosters on each satellite fly them in the right direction. Here are some other interesting facts about GPS satellites (also known as Navstar, the official U.S.

Name of the Department of Defense for GPS:

The first GPS satellite was launched in 1978. Achieved a complete galaxy of 24 moons in 1994. Each satellite is built to last about 10 years. Replacements are ongoing built and launched into orbit. A GPS satellite weighs about 2,000 pounds and is 17 feet wide solar panels stretched. Transmitter power is 50 watts or less.

3.3 Applications:-Although actually a military project, GPS is considered a dual-use technology. That means it has significant military and civilian applications. GPS has become widespread useful and useful tool for commercial, scientific applications, tracking and monitoring. GPS facilitates daily activities like timely banking and mobile phone activities. Even the control of power grids. Farmers, surveyors, geologists and countless others perform their work more efficiently, safely, financially and accurately. The mobile application targets the Java platform. We decided to expand application using JAVA 2.0 micro version. This includes large programming libraries and solutions for common problems. We are developing this application under CLDC 1.1 [6] device configuration

And the MIDP 2.0 [7] device profile. Software selected for the development of this application. The Java (TM) ME platform is SDK 3.0. The SDK is free, so anyone can develop it on their own. Applications, market it. We use the Mysql database and the PHP language to host the database on the server site. We use PHP because it works on the server side and reduces overhead back from the mobile tool. We used WAMP SERVER software that includes MYSQL and PHP for local hosting. Apache HTTP server in one package. This includes PHPMYADMIN. With help these are the things we do locally for our

project. To show coordinate on the map, we use a third-party Google Maps API. It's a lot of activities for managing Google Maps online. **Location Coordinate Estimation:** In a very simple approach, each satellite sends signals content as follows: I am Satellite X, my location is Y, this is where the information was sent time Z. In addition to its own location, each satellite sends data about its location other moons. This orbital data (ephemeris and Almanac data) is stored by GPS receiver for subsequent calculations. To determine its location on the ground, the GPS receiver compares the time the satellite sent the signal along with the time the signal was received. From this time on the difference between the receiver and the satellite can be calculated.

If data from other satellites are taken into account, the current position can be calculated by trilateration (meaning determining the distance from three points). This means at least three satellites are needed to determine the location of the GPS receiver on Earth's surface. The calculation of a position from 3 satellite signals is called 2D-position fix (2D positioning). It is two-dimensional because it has to be received suppose it is located on the surface of the earth (one plane is two-dimensional). By means of an absolute position of four or more moons in a three-dimensional space can be determined. A 3D-position fix also results in a height above the Earth's surface. Simplified, the positioning via a GPS works on the same principle: divide the distance by lightning. Measures the time between lightning and thunder below. Delay between time due to very high speed of light the flash falls to the ground and the observer can ignore the time he sees the flash. The speed of the noise in the Earth's atmosphere is about 340 m/s . This means that for example the difference of 3 seconds between thunder and lightning is about 1 km distance to lightning. However, this procedure is not yet a determination of a position, but only a determination of a distance. If different individuals are in certain positions, a time limit will be set between them. Lightning and thunderstorms will allow you to determine the location of the flash land. The following is an explanation of how GPS positioning works. For simplification, in the first step we assume that the earth is a two-dimensional disk. This allows us to make some understandable sketches for illustration. The principle can then be transformed into a three-dimensional globe model. In the example on the left, the time required for a signal to travel from the first of the two satellites to receiver is 4s. (Actually this value is very high signals travel at the speed of light ($299\,792\,458 \text{ m/s}$), the real time range of signals is 0.07 seconds from satellite to receiver.) Based on this information, we can state that the receiver is located somewhere in the

A. A 4-second circle (left circle) around the first satellite. If we do the same procedure with the second satellite (right circle), we get two points of intersection. The receiver must be located at one of two points. Now we have used two satellites but this process is called triplication, not dilatation, so we do not need a third moon? We may use a third satellite, but we can assume that the receiver is located somewhere close to the Earth's surface is not deep in space, so we can ignore point B and know where to find the receiver point A. The area in the image above is shaded gray is the area where GPS signals should be "realistic". Locations outside of this area are abandoned, and so is point B. If the third satellite is taken into account for the calculation of the position, the other intersection point is obtained: If all the clocks are perfectly accurate, point A will be received according to the actual location of the receiver. If the receiver clock is 0.5 seconds earlier, three intersection points B are obtained. In this case the clock error is immediately noticeable. If now is the time of the receiver clock the three intersection points were changed until they merged into BA, and the clock error was corrected. The receiver clock is synchronized with the atomic clocks on the satellites. The GPS receiver can now be considered as an atomic clock. Distances up to the moons, which were previously considered pseudo-ranges, are now matched to real distances the fixed position is accurate. In practice you will get a two-dimensional positioning (2D-fix) with three satellites. Position is bound to be located on the surface of the earth. Is the fourth satellite geocentric; the distance to the "fourth satellite" is 6360 km (Globe). Also provided is the fourth satellite required for the calculation, but the calculation is restricted to terrestrial locations. However, the earth is not a perfect sphere. In this case, the surface of the earth means the geoid, which is the surface of the earth. If the

receiver is located on a mountain, the specified location is again affected by one the runtime of satellite signals is inaccurate.

4. System Architecture: -The current location of the user is calculated using the phone's inbuilt GPS receiver. The user's calculated coordinates are shown on the map by a third party GoogleMaps API called MIDMAPS. Additionally these coordinates can be sent to any valid mobileNumber via an SMS. This is because the user cannot edit the text messageSecurity reasons. The application architecture and its working principle are focused on the use of GPS. That's it the most common technology for these types of applications. There may be other possible approaches include a combination of GSM cell ID, wireless hotspots, or other LBs via Bluetooth. Cross data from all LBs should provide a more accurate location of the device. Also, unlike GPS, it has GSM cell ID, wireless hotspots and Bluetooth tracking. The location of the device can be achieved even inside the house. Centralized database server users can coordinate database so they can get the location of friends and relatives

Updating its own position on the server. Purpose of choosing centralized data sharing to reduce the storage overhead on each phone. Or, instead of using it centrally database each mobile phone can store and share its own database on the phone databases between different users. The Internet is a medium used to transmit user data and service requests the requested information will then be returned to the mobile server. The top 5 components that make up a system are the GPS system, mobile clients, and Web server and database.

4.1 Mobile Clients (Mobile): -Mobile frequently requests its location from the Global Positioning System it sends it to the server over the communication network. The user can request the location of a family member at any time from the server. It can also be sent to the mobile customer current location via SMS to any mobile number. The mobile client also has an internal database for storing application settings. The mobile client application is called GPSLocator.

4.2 Server: -The server accepts users' location and updates the user about the family location members.

4.3 Database: -The database contains all the users who have subscribed to the service with their location. The database stores the user's mobile number and the other user's mobile the number where the user shares his location. The database duplex has six main attributes i.e. R, R, latitude, longitude, height and time stored by the user's mobileNumber, the mobile number and latitude of the other user to which the user shares his location. User Position Coordinate, User Position Longitudinal Coordinate, Height Coordinate, User location and when the user updates his location. Occasionally, user updates. His location time has also been updated.

4.4 GPS: -Each time the user position on the mobile phone server is updated, it is requested location of the user from the GPS receiver. The GPS receiver determines the longitude and latitude with the help of satellite system.

4.5 Map service: -The map service provides Google Maps and many more map management functions. What the user needs. However, the map service is an indirect part of this system Distributed through an external source. Then sent to the mobile phone. Data from Application Settings and Emergency Contacts is stored in a database file. When the application starts; The data is loaded from the file and will applyAct according to those parameters. The main requirement of the GPS locator shown is location based usageServices like GPS (LBs). GPS Locator allows users to perform a number of similar functions you can view these coordinates in addition to your own current position (latitude, longitude, altitude) MidMapsapi [15] is used for the J2ME platform on Google Maps. More users can send it information via SMS via a GSM / CDMA network to any valid mobile phone number anywhere in the world. It also provides location sharing capability between GPS locators two or more people through one web server. If a user wants to share his location with one of his friends. All you have to do is select Share Friend and enter his friend's mobile phone numberOption from the list, press the OK button. To see friends, the user has to choose what to get friends location option from the

GPS locator list menu. Suppose there is a user A and a user B sharing their location. Hence, the time at which A and B can see each other's location the user has updated his location and can see this location on the map. GPS locator continuously updates the web server database with the user's current location using ENABLE sharing command. After this, the GPS locator calculates the current location of the user

It sends to the server and updates the associated user's location attributes database list. To reduce battery overhead due to GPS receiver, this allows the app's developers to update the database after a certain period of time instead of constantly counting GPS data. The user can also cancel the sharing bond with any friend whose user shares his location.

5. Implementation: -Implementing this application is not fully implemented activity mentioned in previous topics. It was its perfect application this is not strictly possible within the time frame of the project. Instead, implementation the only proof of the idea of purpose is to show that it is possible to run the entire system. The mobile application was implemented using J2ME while using PHP implements server functions and uses MySQL for database. Implementation this task can be easily understood by dividing it into several stages. We will see first let's take a look at the implementation of mobile clients and then how the web server and database work we are integrating the external map service with our application.

Mobile Client Side Implementation: The mobile client is a Java supported handheld provided by a GPS receiver. Lots of features for the user. The mobile client programming language and IDE is Java and JAVA ME Platform SDK 3.0. The Java ME platform is a collection of technologies features that can be integrated to create a complete Java runtime the Java ME platform is divided into two basic configurations, one suitable for small mobile devices and the other for targeting environment specific needs. More capable mobile devices such as smartphones and set top boxes. Configuration targeting resource-intensive devices such as mobile phones is called connected. Limited device configuration (CLDC) [6]. It is specially designed to meet the needs for Java platform to work on devices with limited memory and processing power graphical skills. For a CLDC, MIDP [7] environment, this is what it usually is implemented on most mobile devices today, a MIDlet is created later. Is a middlelet. An application created by a Java ME software developer, such as a game or business app or other mobile features. Let's write and run these MIDlets once all available devices are compatible with the features of Java ME technology. The various functional implementations of the mobile client are as follows. Mobile the class diagram of the client application is represented by the corresponding UML class this is based on the Fujaba Tool Suite RE 4.2.0 [26].

6. Evaluation and evaluation

6.1 User experience and application interface this subsection presents a general concept of the mobile application (GPS locator) as well as its use in practical deployment. To facilitate user interaction with GPS the locator and interface are kept as simple as possible. 'S main window The application is very intuitive. The interface displays a list of functions that a GPS locator can perform eye, Get Friends Location, Emergency etc. The left soft key allows the user to terminate Enables application and right soft key Enables sharing mode.

6.2 Application Evaluation

The purpose of the evaluation is to show that the implemented system satisfies the initial requirements. The GPS locator (and MIDMAPS) were evaluated using comprehensive running tests performed during design to collect debug. Information and change as needed. We used an original device with all the tests, NOKIA 5235 equipped with SIM card and GPS receiver.

7. System result: -This mobile application system adopts Nokia 5235 as a test mobile inbuilt GPS receiver. It

shows the current location and map of the user this location is located in the center of the mobile screen. Users can also browse the map. The map can be zoomed in / out. When zoomed in, the map automatically switches to its next level maps. The user must enter the correct one password to access his friends' location. It is marked with a red pointer.

8. Conclusion: -Using a Location Based Service (LBS) application for Java enabled mobile phones global Positioning System (GPS) is presented in this paper as a location provider. The application assigns the user his current location coordinates and displays it on Google Maps on mobile phone. The application is also implemented as a client a server system that helps users find their friends or anyone they want share his position. Location using this system is believed to be average accuracy Within two meters. The application only works in open spaces rely on GPS. Future extensions may look for other options, such as getting location from the service provider. Location accuracy will also decrease in this case depending on the size of the cells where the user is located. There may be other extensions in the future summarized as follows: 1.Excellent user interface design; 2.External Bluetooth GPS receiver interface; 3.Accelerometer, proximity, compass; 4.Improved accuracy with new algorithms; 5.Emergency services using centralized databases

References

- [1] G.Lawton, "Moving Java into Mobile Phones", Computer, vol. 35, no. 6, (2002) June, pp. 17-20.
- [2] J. McNamara, "GPS for Dummies", For Dummies, 1st edition, (1998).
- [3] What is GPS, <http://www8.garmin.com>, (2012) July.
- [4] <http://hyperphysics.phy-astr.gsu.edu/hbase/gps.html>, (2012) July.
- [5] <http://www.gps.gov/>, (2012) July.
- [6] Connected Limited Device Configuration (CLDC), <http://java.sun.com/products/cldc>, (2012) July.
- [7] MobileInformationDeviceProfile(MIDP),<http://java.sun.com/products/midp/whatsnew.htm> 1, (2012) July.
- [8] Deshmukh, Jaya & Gandhar, Shivcharan & Jabade, Mangesh & Bhambal, Ankita. (2023). ASSESSMENT THE KNOWLEDGE & PRACTICES REGARDING DENGUE FEVER & ITS PRACTICES AMONG ADULTS RESIDING IN SELECTED RURAL AREAS IN THE PUNE DISTRICT. European Chemical Bulletin. 12. 2870-2876. N. R. Nair, "2-D Airborne Vehicle Tracking Using Kalman Filter,"Proceedings of IEEE International Conference on Circuit, Power and Computing Technologies, ICCPCT2016.
- [9] Gandhar, Shivcharan & Deshmukh, Jaya & Pawar, Shruti & Shep, Neha & Chavhan, Nikhil & Kolekar, Rahul. (2024). A study to assess effectiveness of video assisted teaching programme on knowledge regarding good touch and bad touch among school going children in selected schools of Pune city. International Journal of Research in Paediatric Nursing. 6. 186-190. 10.33545/26641291.2024.v6.i2c.188. Dr.Yogesh Kumar Sharma et.al :International Journal of Research in Advent Technology, Vol.7, No.4S, April 2019 E-ISSN: 2321-9637
- [10] Chavan, Mrs & Gandhar, Shivcharan & Mahan, Mamta & Deshmukh, Jaya. (2024). "A STUDY ASSESS THE KNOWLEDGE AND PRACTICE REGARDING EXCLUSIVE BREASTFEEDING AMONG PRIMIPARA MOTHERS AT SELECTED HOSPITAL OF PUNE CITY."