

Design of an Android Application to provide Emergency Service

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Abstract: Location based Service have advantages to the mobile users to retrieve the information about their current location. There are many reason to retrieve the information about current location such as finding missing children, kidnapping of woman's or finding the location of friends who are in critical condition. For that, the way is to find the location of lost person is mobile tracking system. In this one problem is that Client Server system is used to locate and track their friends and receive the alert message This paper proposed an android based application to locate a lost person in real time without using internet. Android application for location based service is based on mobile operating system Android, GPS technology and Java technology (J2EE).

Keywords— LBS, GPS, Android operating system, Google Maps, SMS applications

I. INTRODUCTION

In today's world, children around the age of eight or seven, owns smart phones [1]. This is due to many reasons. One is the remarkable features and capabilities that new smart phones offer Android based smart phones. With that feature, the need for resourceful applications rises. GPS offers outstanding capabilities in locating position and this can be used to develop resourceful application that helps in locating missing or lost children. Consequently, the project is designed to be used by parents aimed to help locating missing or lost children. It takes advantage of the fact that many children bring Smartphone's which is convenient for this kind of situation. In this GPS is combined with basic service of a smart phone which is GSM, more specifically SMS. An application at the parent side will allow parents to send a location request to a child then retrieve the location from the request reply and shows it on a map. On the other hand, the application at the child's side gathers the necessary information of the smart phone that will be used to locate the smart phone. Information such as GPS coordinates and time are gathered and sent to the parent smart phone that pre-registered on the application. The communication between the parent and the child is done using Short Message Service (SMS).

One of the main problems is the lack of spread of the wireless network into the countryside. In developing country like India, the wireless technology is in very nascent stage. In metro cities and areas, the problem of network congestion is also an important issue. The percentage of service operators not meeting the congestion rate

benchmarks has risen subsequently[2]. Location based services are used more frequently by the mobile users. A location based service is a location provider that is used to track the location of any mobile node through the mobile network that includes vehicular tracking system called fleet net. In mobile communication the tracking of location plays a major role using this LBS services.[3]

II. RELATED WORK

The application makes utilization of a cellular telephone or PDA which is given GPS receptor and GSM system. This

application empowers the client (a) to track a cell phone and send cautions messages to a predefined number by means of short message administration (SMS) if the cell phone is not display in the predetermined sweep or in an investment area span (b) to send upset calls to a predefined number by means of SMS by simply pressing one key from the keypad (c) for recognizing an unapproved SIM card in the cellular telephone and to send a cautioning message by means of SMS from the current GSM cell and GPS position. mTracker likewise keeps up a record of the positions which are as of now observed. This permits the clients to check when and where the cell phone was spotted utilizing Google maps. The application utilizes two client profiles the director and the client to be followed.

Presently days in this quick life where everybody in is rush to achieve their destination. Sitting tight for transport is a boisterous and even a hefty portion of us are ignorant of the transport timing, consequently to defeat this issue we have thought of framework "Transport Locator by means of SMS

Using Android Application" which intends to fabricate an Android application that mechanizes all the angles identified with the school transport arrival[4]. Essentially, this application at customer side brings the co-ordinates by utilizing Google Maps, sends the co-ordinates to server, then server send SMS Alerts to understudies who are enrolled for this administration, likewise server gives Graphical Map of current Bus Location by having markers on to the Map. It likewise runs out of sight so understudies are allowed to utilize their telephones for different exercises. The primary center of our exploration is to diminish the general expense of following in view of GPS framework as it is a satellite based administration which is accessible 24X7 all over the place on the planet.

Programmed Vehicle Location (AVL) is a propelled technique used to track and screen any remote vehicle outfitted with a product unit that gets and exchanges motions through GPS satellite [2]. The whole transmission component of AVL setup included three components. The primary component is finding equipment, which is the segment important to distinguish the position of a vehicle on the world's surface. The following is the correspondence bundle, which takes the positional information and transfers it back to the focal office and the last component is a showcase framework, which uncovers the area of the vehicle as it goes progressively. . For travel, the real constant position of every vehicle is measured and its area is transferred to a control focus.

III. PRAPOSED SYSTEM

Android stage are viably utilized as a part of area based administrations through GPS which send scope and longitude through SMS administrations. A novel system for sending GPS directions to different mobiles through Short Message Service (SMS) in light of Global Positioning System (GPS) innovation was produced and the application empowers the clients to get their current area coordinates (scope, longitude and elevation), see their areas on the Google maps and empowers the client to impart his area to their companions through a web server utilizing web network as a part of their handhelds. The primary point of the proposed framework is to distinguish most limited way between the two distinctive advanced mobile phones through the guide utilizing the current scope and longitude of the versatile, which can be recognize by the GPS arrangement of the portable which offers the office to view current scope and longitude of the versatile with the assistance of satellite framework. It lessens the errand of seeking the specific area manual hunt. Utilizing GPS the client can know his present area organizes Any sort of client can utilize this application productively.

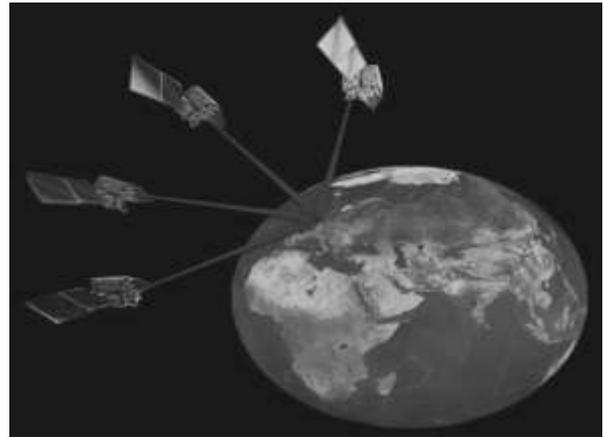


Figure 2 GPS System

IV. LOCATION BASED SERVICES

Location-based services (LBS) application provides information to users based on their location. From social networking to navigation to banking, consumers are being offered a range of new location-based services.

What are the privacy implications of LBS, and how can businesses, policymakers, public interest groups, and consumers work together to update the laws and create stronger policies so that consumers can feel confident using these services

Location Tracking

This component stores the location trace of individual users. LBS contains the data that allows a user's route to be determined and potentially predicted. This component would typically support the following functionality:

1. Keep records on user's current and past locations.
2. Notify other components when a specific user has moved, or when they move in or out of an area.
3. Determine which users are within a defined location this supports geo-casting features.
4. Queries of location trace to generate user movement

1. Models

GIS Provider

This component provides geospatial functionality for many LBSs including map information, map visualization and directory services. Google Maps with its API can be considered a GIS provider. Location Collection Service This component performs location collection to get a latitude and longitude for a specific user. Depending on the technology, this component may be accessed via the LBS Middleware (e.g., mobile network triangulation via a service provider) or directly (e.g., via GPS receiver in the Smartphone). Android provides access to the above components to facilitate the implementation of LBS

1. Location Manager
2. Location Provider

3. Geo-coding
4. Google-Map

V. GLOBAL POSITIONING SYSTEM (GPS)

The Global Positioning System (GPS) is a space-based satellite route framework that gives area and time data in all climate conditions, anyplace on or close to the Earth where there is an unhindered viewable pathway to four or more GPS satellites. The framework gives discriminating capacities to military, common, and business clients around the globe. The United States government made the framework, looks after it, and makes it openly open to anybody with a GPS beneficiary [3]. The GPS satellite is utilized for route reason and it is joined with LBS is utilized to track the area of cell phone and the genuine work of GPS is to figure the position in the measure of directions like scope and longitude values through the GPS collector. When all is said in done this GPS meets expectations in open space territories just and utilized for radio route reason through radio flags the GPS is a little gadget that can be inserted in any gadgets like mobiles .

The portable that is implanted with GPS collector figures the accurate longitude, scope and height qualities and those qualities can be utilized by LBS for discovering the area .GPS additionally gives data like time to figuring sender and beneficiary areas in light of the data got from the satellites. Utilizing GPS collector as a part of the cell phone we can even set the route way from source to achieve a specific destination [3]. As indicated in Figure 2 underneath, GPS uses the signs discharged from a system of 24 satellites, which are grabbed by a beneficiary put inside the vehicle. The satellite framework covers the entire world, therefore, wiping out the need to place transmitters/recipients along any course.

GPS framework can be utilized to get area which incorporates subtle elements like scope, longitude values alongside the timestamp points of interest etc [5]. It's a free of expense administration accessible to each person. So as to track the area of the Bus we have utilized Google Maps for mapping the area sent by the cell telephone. The cell telephone which brings the GPS area corresponds with server utilizing General Packet Radio Service (GPRS). This is an ease administration gave by the administration suppliers which is a remote information correspondence framework. Cellular telephones furnished with GPS beneficiary are effectively accessible in the business sector now days and is a blasting innovation. This phone innovation has empowered us to convey pretty much all aspects of the world over the limits. The GSM/GPRS is one

of the best and least expensive modes of correspondence present nowadays and in future.

Every GPS satellite ceaselessly telecasts a sign (bearer recurrence with tweak) that incorporates:

A pseudorandom code (succession of ones and zeros) that is known to the beneficiary. By time-adjusting a beneficiary produced rendition and the recipient measured form of the code, the time of entry (TOA) of a characterized point in the code grouping, called an age, can be found in the collector clock time scale

A message that incorporates the time of transmission (TOT) of the code age (in GPS framework time scale) and the satellite position around then Theoretically, the recipient measures the TOAs (as indicated by its own particular clock) of four satellite signs. From the TOAs and the TOTs, the recipient structures four time of flight (TOF) values, which are (given the pace of light) pretty nearly comparable to beneficiary satellite reach contrasts. The collector then figures its three-dimensional position and clock deviation from the four TOFs.

Practically speaking the recipient position (in three dimensional Cartesian coordinates with beginning at the Earth's core) and the counterbalance of the beneficiary clock in respect to GPS framework time are registered all the while, utilizing the route mathematical statements to process the TOFs.

The beneficiary's Earth-focused arrangement area is generally changed over to scope, longitude and stature with respect to an ellipsoidal Earth model. The tallness might then be further changed over to stature relative the geoid (e.g., EGM96) (basically, mean ocean level). These directions may be shown, e.g. on a moving guide presentation and/or recorded and/or utilized by other framework (e.g., vehicle direction). GPS is a route framework utilizing around the world .It gives precise exactness and higher precision. The framework comprise of systems of 24 satellites insix diverse 12 hour orbital ways separated so that atleast five are in perspective from each point on the globe and their ground stations[6].

The current GPS comprises of three noteworthy fragments. These are the space fragment (SS), a control portion (CS), and a client section (US). The U.S. Flying corps creates, keeps up, and works the space and control portions. GPS satellites telecast signals from space, and every GPS collector utilizes these signs to ascertain its three-dimensional area (scope, longitude, and height) and the current time.

The space section is made out of 24 to 32 satellites in medium Earth circle furthermore incorporates the payload connectors to the promoters needed to dispatch them into space. The control portion is made out of an expert control station (MCS), an other expert control station, and a large group of devoted and imparted ground radio wires and screen stations. The client portion is made out of a huge number of U.S. furthermore united military clients of the protected GPS Precise Positioning Service, and countless common, business, and exploratory clients of the Standard Positioning Service (see GPS route gadgets). Figure 2 GPS System

VI. ANDROID OPERATING SYSTEM

Android's source code is released by Google under open source licenses, although most Android devices ultimately ship with a combination of open source and proprietary software, including proprietary software developed and licensed by Google. Smartphones are new generation mobile devices. Smartphones becomes more popular. Smartphones run with software system. This operating system designed for smart devices that should have sufficient energy with fewer memory footprint and more development and optimizations Android is the first platform and operating system for mobile phones that open, complete and free [3]. Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. Android's open nature has encouraged a large community of developers and enthusiasts to use the open-source code as a foundation for community-driven projects, which add new features for advanced users With a user interface based on direct manipulation, Android is designed for touch screen mobile devices such as smartphones and tablet computers, with specialized user interfaces for Android TV, Android Auto, and Android Wear. The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Android operating system is a stack of software components which is roughly divided into five sections and four main layers as given below

1. Libraries
2. Android Runtime
3. Application Framework
4. Applications
5. Linux Kernal

VII. GOOGLE MAPS

Google Maps is a desktop and mobile web mapping service application and technology provided by Google, offering satellite imagery, street maps, and Street View perspectives, as well as functions such as a route planner for traveling by

foot, car, bicycle (beta test), or with public transportation. Also supported are maps embedded on third-party websites via the Google Maps API, and a locator for urban businesses and other organizations in numerous countries around the world. Google Maps satellite images are not updated in real time; however, Google adds data to their Primary Database on a regular basis. Google Earth support states that most of the images are no more than 3 years old

Android application uses Android SDK API to manage the GPS Sensor, Google Maps API to show the Map powered by Google Maps to display the markers about, to events on the, Map.

The first and most important part is acquiring the User's Location. It's important to manage it properly because the aim is to get the most accurate location and use the least Battery possible. The Google Places API is a service that returns data defined within this Web Service as, spatial locations, or preferred points of interest using HTTP Requests. Place response specifies locations as Latitude/longitude coordinates [7].

VIII. VIII SMS APPLICATION

Now-a-days we do most of the communication with SMSs. Today in the era of technology we want most of the things to be automated. Imagine that it would be great if we could perform various functions in our mobile phones even if it is far from us or it could respond a automatically like an intelligent device. So now this can be achieved by our SMS software application which is developed for android mobile platform. By using this application we can operate many functions via sending a SMS to the mobile phone which is far from us without interception of operator and in this way our android mobile phone will act as intelligent device. This application establish client-server relationship between mobile phones in which the mobile requesting operations by sending SMS will act as client and mobile serving those operations will act as server. Various operations that can be performed by this application are listed as storing and fetching contact numbers, fetching the device's location, sending SMS to other mobile phones through our remote mobile, auto responding to the incoming messages, finding and fetch the details about SIM and mobile like and we can also switch off our mobile via sending a SMS to it. This application makes the use of both traditional and advance technology like telephony and location based services (LBS) [8]. These services are also used in various applications but we are presenting them in very different way from there conventional use. There are some issues that have gotten more attention like convenience to the user, security which is very important and necessary aspect of this application and efficiency. . The communication between the client and

server is done using Short Message Service (SMS). SMS offers the system unique features. It will allow the system to work without the need of internet connection thus allows the application to be implemented on smart phones that don't support GPRS, 2G or 3G internet connectivity. The system sends the location of child's smart phone to parent's smart phone when the parent wishes to check on the child. SMS is very common and widely used way of communication.

IX. CONCLUSION AND FUTURE WORK

In this paper, many application based on Location based service to track and locate the mobile device using geographic coordinates of the user as a location provider it helps the user to locate their friends and receive alerts. android platform are effectively used in location based services through GPS which send latitude and longitude through SMS services. A novel technique for sending GPS coordinates to other mobiles through Short Message Service (SMS) based on Global Positioning System (GPS) technology was developed and the application enables the users to get their current location coordinates (latitude, longitude and altitude), view their locations on the Google maps and enables the user to share his location with their friends through a web server using internet connectivity in their handhelds. The proposed application relies only on two main services, Google map and location, thus eliminating the need for internet connection or a dedicated server .Any user can effectively use this application.

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