

Android Mobile Security with Auto boot Application

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Abstract--This paper handles to create the application for android mobile to find a lost mobile. Once installed our application in the mobile, it starts to get the latitude and longitude value of the mobile by using the inbuilt GPS in mobile. The mobile moves from one place to another place the value of the latitude and longitude is taken and stored in the memory. Only the latest value is stored in the memory. Once the SIM card is removed from the mobile it wait for the other SIM card to be inserted. If other SIM card is inserted then, our application is going to compare both the SIM card number. If both the SIM card number matches, it should be in idle. If both the SIM card number is mismatched, then the present latitude and longitude value of the mobile is sent as the SMS to the specified phone number.

Keywords : Global Positioning System (GPS), Subscriber Identity Module (SIM), Short Message Service (SMS), International Mobile Equipment Identity (IMEI)

I.INTRODUCTION

Touch screen mobile devices uses an android operating system. Some of the touch screen devices are Smartphone's and tablet computers. This was initially developed by Android, Inc.

Android is the open source software and Google released the code for android under the Apache license. This permissive licensed open source code allows the software to be freely modified. So device manufacturers can use this open source code, modifies and distribute their product, even enthusiast developers uses this open source software. Android applications are written in java programming language. Android has large community of Android application developers developing applications ("apps") that enhances the functionality of devices. Approximately 700,000 apps are available for Android in October 2012, and around 25 billion applications are downloaded from Google Play, Android's primary application store.

In October 2010 the Android overtakes Symbian due to the above factors, and this technology companies for those who require a low-cost, customizable, operating system for high tech devices since it is not developed from scratch. Android applications are not only used for phones and tablets, it also used for the applications on televisions, gaming consoles, digital cameras and other electronic devices. Large community of developers uses Android's open source code nature and further encouraged the enthusiasts to use the open source code as a foundation for community-driven projects. It adds new features for advanced users or brings Android to devices with other operating system which were officially released and running.

The mobile phone tracking is done with the help of GPS. The GPS is Global Positioning System. It is a satellite navigation system based on space. The location and time information of a device is found using GPS in all weather conditions, anywhere on or near the Earth when there is a no obstructed line of sight to four or more GPS satellites. Global Positioning System is used in military, civil and for commercial users around the world. United States government maintains it and is free of access to anyone with a GPS receiver.

In this paper we discuss about the android applications for lost mobiles. For Mobile Tracking many more applications are available in the market. The most widely used method for tracking a mobile using IMEI numbers [1] in case of the lost mobile. If the SIM card is replaced, the Phone number alone automatically sent to the specified phone number as SMS. Exact location cannot be found. The location should tracks based on the tower signal. SMS will be stored in the sent items, so the user can see it.

In Android applications the tracking cannot be done without the knowledge of the user. In this paper we introduced about mobile tracking only for the lost mobile. The mobile tracking applications are installed in the mobile in prior to losing a mobile. Now a day's most of the mobile phones got a GPS facility in the market. This tracking application works only in the mobile with the GPS facility. A mobile with the GPS facility will store the current location in the memory all the time. The location information means the longitude and latitude value of the current location. Only the last updated information will be stored in the memory of the phone. If the mobile phone is lost, this application works. That is when the user changes the SIM card in the mobile, the

tracking application starts works then the latitude and longitude values of the current position of the mobile is sent as SMS to the particular mobile number without the knowledge of the lost mobile user, that is the sent SMS will not be stored in the lost mobile.

II.LITERATURE REVIEW

A.Android development kit

Using the Android software development process new applications are developed for the Android operating system [2]. Using Java Programming Language Android applications are usually developed by using the Android Software Development Kit, but also other development tools can be used. About Seven hundred thousand applications are developed till October 2012 and downloads are up to 25 billion. At the time of research publications in June 2011 indicated that over 67% of mobile developers used the android platform. In second quarter of 2012; around 105 million units of Android Smartphone's were shipped which gives a total share of 68% in overall Smartphone's sale till second quarter of 2012. For Microsoft Windows the Windows Android is the official Android Software Development Kit.

B. Mobile Tracker

Mobile phone tracking is tracking the current position of a mobile phone when the mobile phone can be in movable or stationary mode. Mobile phone Localization [3] may occur either via GPS or multilateration of radio signals between (several) radio towers of the networks and the mobile phone. To locate the mobile phone does not require an active call by multilateration of signals, to communicate the nearby antenna tower it emits the roaming signal. All mobile phone based on GSM. Mobile communication GSM is based on the communication by strength of the signals to nearby antenna masts.

For Mobile positioning, the technology used by telecommunication companies is location based services(LBS).Which needs to give the information about the coordinates of mobile phone user, where the mobile phones is located and its user temporarily resides. By measuring the power levels of antenna and its patterns mobile phone tracking technology works. Mobile phone always communicate[4] with wirelessly with one of the nearest base station, by knowing the base stations location to which a mobile phone communicates with, the location of the mobile phone can be tracked.

Some advanced system determines the sectors in antennas in which the mobile phone located and also estimates the distance to the base station. Approximate estimation can be done by finding the intermediate point of signals between the two adjacent antennas in base station.

Different types of Localization-Based Systems are available. They may be Network-based, Handset-based, SIM-based or Hybrid. Network-based techniques identify the location of the mobile location by using the service provider's network infrastructure. From mobile operator point of view this technology can be implemented without affecting the mobile phones is the main advantages in this network-based technology.

The network-based techniques has the accuracy is based on the base station cells. The base station in urban areas has the highest possible accuracy and implementation of the current timing methods. The main key challenge in network-based techniques is the installation of hardware and software in service provider's infrastructure.

Handset-based technology needs the installation of software on the mobile phones to find the location of a mobile phone. In this technique the location of the mobile phone can be computed by identification of cell, strength of the signal in current cell and adjacent cells. This information is sent continuously to the carrier. In addition to this, if the mobile phone has the GPS facility [5] then more exact location is sent from mobile phone to carrier. From mobile operator's point of view in this technique the software must be installed on the mobile phones is necessary is the main disadvantage. As well as the mobile subscriber has to cooperate for installing the software and the software installed on mobile phone should be able to support the operating system in mobile phones. The Operating System such as Android, iPhone, BlackBerry Os, Windows phone, Symbian should support the mobile tracking software on a mobile phone with these operating systems. By installing embedded hardware and software on the mobile phone during the manufacturing time, mobile tracking can be done, but it is not cost effective, because the cooperation should be there in different manufacturer.

The next technique is the SIM-based technology. Strength of the signal, cell-id can be measured using the GSM SIM and UMTS mobile phones. It is possible to get the radio measurements from the mobile phones. The information obtained through mobile phone will differ from the information obtained through SIM.

The next technique for finding the location of mobile phone is the Hybrid positioning systems. It is based on both network-based and hand-set based technology. To compute the location, this technology uses both the GPS assisted mobile phone and network information.GPS locate the mobile phone using satellites and also cell information is sent via the network.

III. MOBILE SECURITY APPLICATION FOR LOST MOBILE

Once we install mobile tracking application, its starts to get the latitude and longitude value of the mobile by using the inbuilt GPS in mobile. The mobile moves from one place to another place the value of the latitude and longitude is taken and stored in the memory. The current value alone stored in the phone memory.

Once the SIM card has removed from the mobile phone it waits for the other SIM card to be inserted. If other SIM card is inserted then, our application compares both the SIM card number.

If both the SIM card number matched, it's not doing anything. If both the SIM card number is mismatched, then the present latitude and longitude value of the mobile will be sent automatically as an SMS to the specified phone number.

IV. SYSTEM DESIGN

A. System architecture

The system architecture diagram for mobile tracking application is shown in the following figure 1.

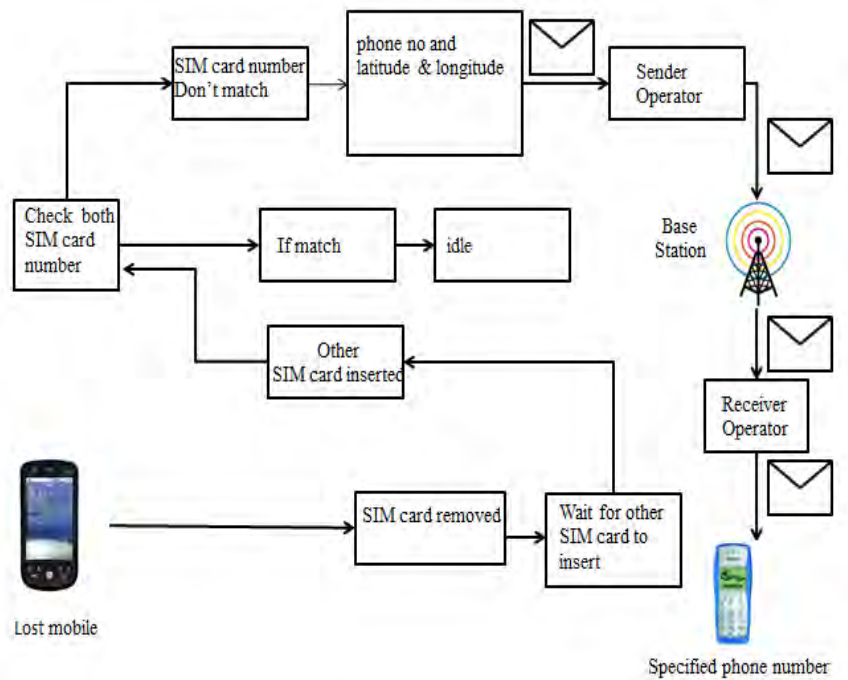


Fig. 1. System Architecture

V. SYSTEM IMPLEMENTATION

A. The implementation is done with the following task.

- Getting the Latitude and Longitude value
- SIM card number Comparison
- Automatic message sending

B. Getting the Latitude and Longitude value

Once our application is installed in mobile phone, its starts to get the latitude and longitude value of the mobile phone by using the inbuilt GPS in mobile phone. The mobile moves from one place to another place the value of the latitude and longitude is taken and stored in the memory of the mobile phone. The application always stores only the latest latitude and longitude value of the mobile phone in the memory.

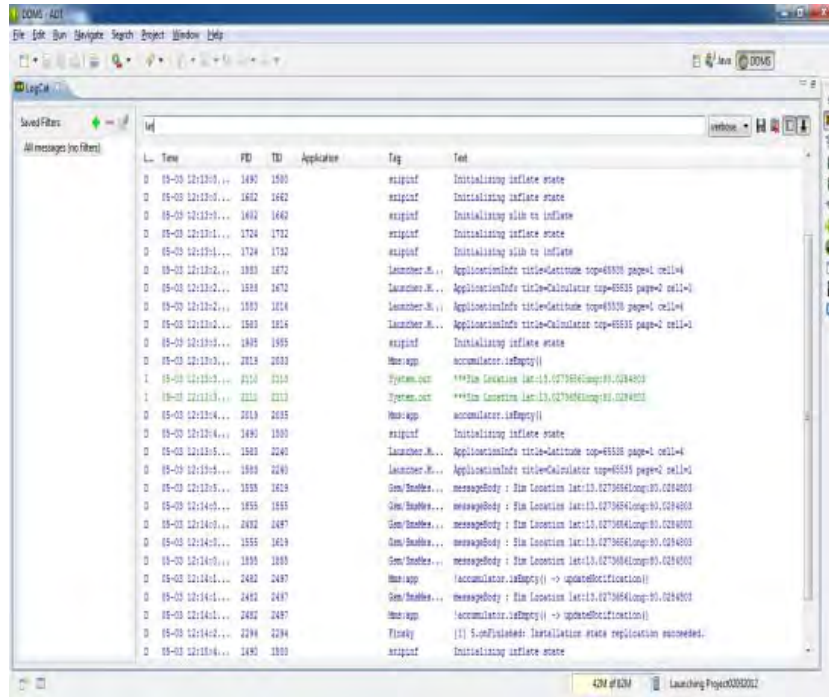


Fig. 2. Getting the Latitude and Longitude Value

C. SIM card Number Comparison

In lost Mobile, Once the SIM card has removed from the mobile it wait for the other SIM card to insert. If other SIM card is inserted then, our application compares both the SIM card number.

D. Automatic message sending

If both the SIM card number matched, the application remains quite. If both the SIM card number mismatches, then the present latitude and longitude value of the mobile will be sent as SMS to the specified phone number. Every five to ten minutes the updated latitude and longitude value is sent as an SMS to the tracker phone number. The SMS which is displayed on the tracker mobile is shown in the following figure 3.

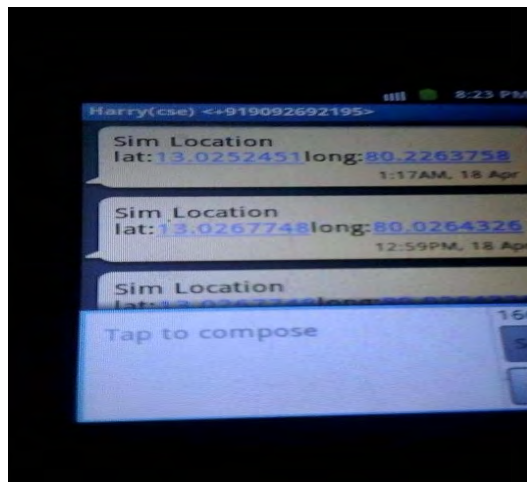


Fig. 3. Automatic message sending

VI.CONCLUSION

In this paper the android application for tracking the mobile phones is created and installed in a mobile. This application works with the help of in built GPS in the mobile phones. When the user changes the SIM card in that mobile phone, the current longitude and latitude information is sent as SMS to the specified phone number without the knowledge of user. Using the longitude and latitude values the exact location can be found using Google maps.

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