Teledroid Anti-Theft Application for Android Devices

Rekha Rao[*], Sahana B., Sahana V. Prabhu, Shamitha Ammanna, Chaithra

Department of Computer Science and Engineering, St Joseph Engineering College, Vamanjoor, India

Abstract   Lots of applications are developed to track a Smart Phone, but still it is a major concern. If ever the phone is lost, user has to manually report to the customer care to block the IMSI number of the lost phone. This work is reduced by our application. Our Android Application is deployed with initial registration of user mobile number, alternative mobile number, and passcode and email id. This application which runs in the background can be able to track the current location of the device. If the thief changes the SIM card, immediately SIM details, latitude and longitude of the location are sent to the alternative phone number of the original user through SMS. We can retrieve the contacts and critical files from the lost phone. We can retrieve important contacts by SMS and entire contact list through mail. We can also retrieve the critical files in the lost phone by using file transfer facility that is available in the application. Website provides location history of the phone and we can download the requested files.

Keywords   Location tracking, Android Smart Phone, SMS, Email

1. Introduction

In today's world, cell phones play an important role in everyone's life. The mobile OS used by modern smart phones include Android, Blackberry, Symbian which are the world's best OS. There are many differences between their features and performance. It provides multiple options like voice and video conversation, GPS tracking system and internet usage. Radio signals are constantly been broadcasted by cell phones and hence can trace a lost mobile phone. All cell phones constantly send signals to its nearest towers hence it is been possible to track lost phone accurately.

Anti-Theft application is a project which helps to track the location of smart phones. This application usually runs in the background. It consists of Android Client application which automatically sends SMS to alternate number when SIM card is changed. Position Tracker works on GPS (Global Positioning System) and GPRS (General Packet Radio Service) [1]. When SIM flipped, the application will fetch latitude and longitude from satellite and send it as SMS. Owner can send a message to the application in the predefined format. Application provides the requested services via SMS or Email.

Teledroid is an Android based software which helps us do some specific operations on a cell phone which is in a remote location that is accessed through a different user's cell phone; operations include retrieving contacts, retrieving files and tracking phone in case the user loses the phone. Owner can send a message to the application in the predefined   format.

Application provides the requested services via SMS or Email.

Location history of the lost phone and meta data of the requested file along with the downloading of the required file can be made available through the website.

2. Background

There are already several applications in the market that offer tracking systems and anti theft applications to detect non-authorized SIM cards. Most of these applications provide dedicated solutions using tracking methods to monitor a mobile device [2].

The application can be installed only on mobile phones with Android operating system. The existing systems which are available in the market are not protected by password, so the application can be uninstalled by the thief. This drawback is overcome by our proposed system in which we configure our application with a password during the installation of an application.

3. Proposed System

The proposed system tracks the location of the mobile phone using GPS. This application can be used even if the mobile is present in the moving vehicle. It can be installed on the mobile phones with the Google android operating system. Upon the SIM change by the thief, notification is sent to the pre-specified mobile number.

System Architecture

The architecture of the "Anti-theft application for Android devices" is as shown in figure 1. Upon SIM change by the

* Corresponding author:
rekharao193@gmail.com (Rekha Rao)

thief, notification is sent to pre-specified mobile number. Contacts retrieval and deleting of the files that are stored in lost phone can be obtained by sending predefined formatted SMS. The critical files in lost phone can be obtained by using file transfer facility that is available in the application. The file request must be sent from a smart phone with the GPRS facility enabled and the application installed in it [3].

4. Implementation

This section describes the modules required for implementing the system which is done in informal design. Formal design describes the internals of each module. It describes the logic implemented in that module to perform the desired function.

Our proposed system contains following module:

1. Configuration Module
2. SIM Monitoring Module
3. Information Fetching Module
4. Web Module

Configuration module

This module is used to acquire the current SIM information from the owner. The application is configured with the password from being uninstalled by untrusted user. In this module login page is created where owner specify the authorized SIM numbers. The owner also provides the password to protect predefined formatted SMS, alternate mobile number, current mobile number that belongs to owner and also the Email ID.

SIM monitoring module

This module is used to continuously monitor the SIM change. The application stores the owners SIM serial number during the installation process. This SIM serial number is checked against the current SIM serial number. If the SIM is flipped then SMS notification is sent to the predefined mobile number that was given during configuration process. This feature will be continuously running in the background checking for the SIM change. [4]

Information fetching module

If the SIM is flipped the application sends SMS regarding the details of the new SIM to the predefined mobile number. If the owner wants to get the information from lost phone, then the role of the user is to send predefined formatted SMS to the lost android smart phone having the application installed in it from any alternate mobile. Even though the SIM is not flipped these predefined formatted SMS can be used to fetch the information from the lost smart phones. Files from the lost phone can be obtained from file transfer facility which requires an alternate smart phone with GPRS facility enabled. [5].

Web module

Web module provides the alternative way to check the requested files; user can download the files from the web once the request has been placed. It also helps the user to track the location history of the lost mobile. [6].
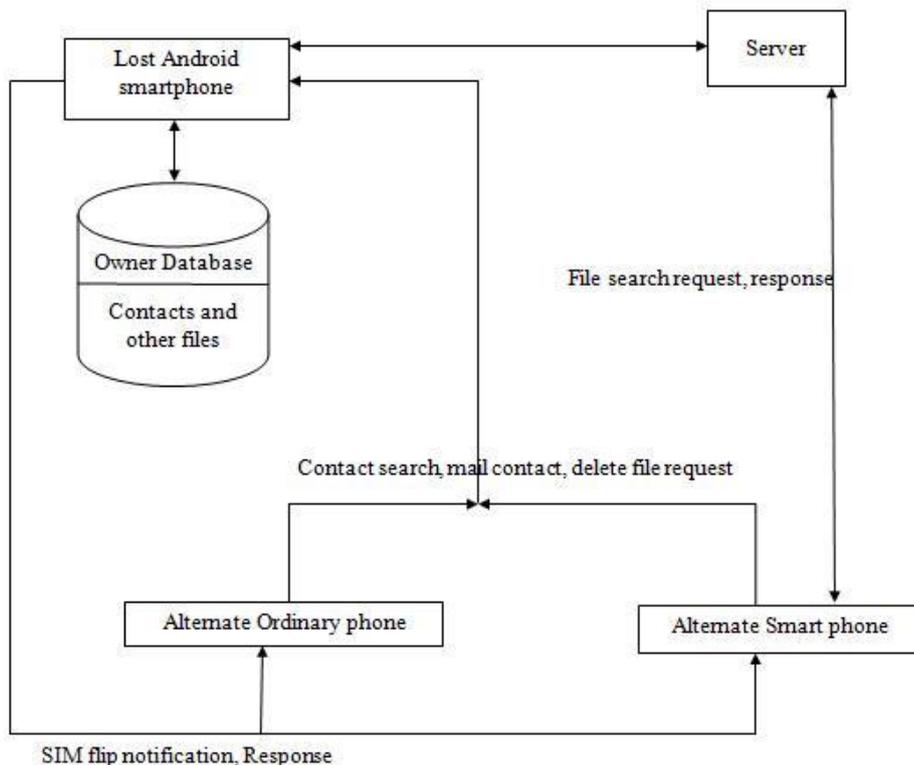

Figure 1.   System Architecture

5. Results

Figure 2- 6 shows the snapshots of the proposed method.

Figure 2.   Registration Page
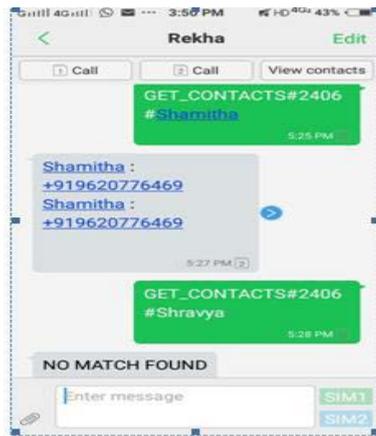
Figure 3.   Contact retrieval through SMS
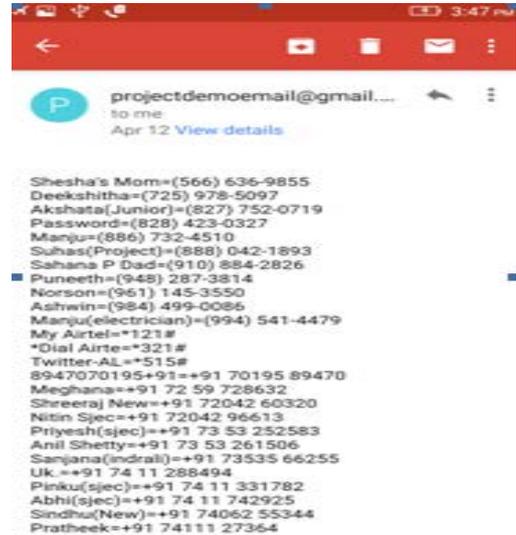
Figure 4.   Entire Contacts retrieval to e-mail

Figure 5.   File retrieval create request

Latitude	Longitude	Date Time	
13.070466995239258	74.79381561279297	2015-02-03 19:32:19.0	View in Google Map
13.070466995239258	74.79381561279297	2015-02-04 10:49:24.0	View in Google Map
13.070375442504883	74.79360961914062	2015-02-04 13:55:05.0	View in Google Map
13.070380210876465	74.79360961914062	2015-02-04 13:57:05.0	View in Google Map
13.070379257202148	74.79360961914062	2015-02-04 14:01:15.0	View in Google Map
13.070380210876465	74.79360961914062	2015-02-04 14:03:16.0	View in Google Map
13.0703763961792	74.79360961914062	2015-02-04 14:07:25.0	View in Google Map
13.070375442504883	74.79360961914062	2015-02-04 15:16:10.0	View in Google Map
13.070377349853516	74.79360961914062	2015-02-04 15:46:26.0	View in Google Map
13.0703763961792	74.79360961914062	2015-02-04 15:53:17.0	View in Google Map
13.070378303527832	74.79360961914062	2015-02-04 15:55:19.0	View in Google Map
13.070379257202148	74.79360961914062	2015-02-04 17:16:26.0	View in Google Map
13.0703763961792	74.79360961914062	2015-02-04 19:18:12.0	View in Google Map
13.070377349853516	74.79360961914062	2015-02-04 19:28:47.0	View in Google Map
13.0703763961792	74.79360961914062	2015-02-04 19:30:51.0	View in Google Map
13.070375442504883	74.79360961914062	2015-02-04 19:36:03.0	View in Google Map
13.070377349853516	74.79360961914062	2015-02-04 19:38:44.0	View in Google Map
13.070378303527832	74.79360961914062	2015-02-04 19:40:45.0	View in Google Map

Figure 6.   Location History

6. Conclusions and Future Scope

This paper presents a novel anti–theft application for android based devices. The application deploys an enterprise security solution that meets user's immediate and long term requirements by providing the message and location via website.

On theft detection the application will send a notification SMS to the owner alerting him with the information about the new SIM inserted by the thief and the location information without the knowledge of thief. Other information that is stored in the lost phone can be fetched using SMS or email facilities. Also it is possible for the owner to delete the secret information that is stored in the lost phone.

It stands different from the existing system as it not only uses GPS and text messaging features but also the GPRS facility that is available in the smart phone. Thus the developed application is a unique and efficient application which enhances the existing mobile tracking application.

The Anti-theft application is implemented on Android, it can be enhanced to enable the application to work on other platforms. The application will not work if the lost phone gets switched off. So additional work can be done to switch on the phone after certain period of time and thus helps in efficient tracking of the lost phone.

REFERENCES

[1] Sangwoo Cho; Haekyung Jwa; Joohwan Chun; Jong Heun Lee; Yoon Seok Jung; 'Mobile position location with the constrained bootstrap filter in a cellular communication system' Conference Record of the Thirty-Fourth Asilomar Conference on Volume 1,2000.

[2] Sonia C.V & A R Aswatha; 'SAPt: A Stolen Android Phone Tracking Application'; ITSI Transactions on Electrical and Electronics Engineering (ITSI-TEEE).

[3] A Mondal; Md. A. Masud; N. K. Biswas; 'Smartphone Tracking Application using Short Message Service'; International Journal of Electronics, Electrical and Computational System (IJEECS).

[4] Jalil Ghahramani; Masoud Sabaghi; Hamed Shams Oskouie; 'Design an Intelligent Monitoring for Anti-theft System using GPS/GSM'; Indian Journal of Engineering, volume 1, number 1, November 2012.

[5] Mahfuzulhoq Chowdhury; Talemul Islam; Parijat Prashun Purohit; 'Tracking a cellular phone in a stolen phenomena'; International Journal of u- and e- service, Science and technology, 2014.

[6] Android, A Programmer's Guide. (0-07-159988-6); Jerome (J.F.) DiMarzio.