

Smartphone Tracking Application Using Short Message Service

N.ZahiraJahan MCA.,M.Phil.¹, R.Vinodhini²

Associate Professor¹, Research Scholar²

Department of Computer Applications,

Nandha Engineering College/Anna University,Erode.

Abstract:

Smartphone users are increasing rapidly in this ICT enabled society. With the phenomenal growth of Smartphone usage, the burglary of such tiny device is also increasing. Smart phones are easily lost, stolen or misplaced. Security is one of the main concerns for Smartphone users today. This paper proposes a model to return smart phones from any kind of missing. Smartphone become more valuable useful device because it contains more and more sensitive information. Considering the stored information, users are very much concerned to return their phone to maintain regular communication and sharing.

Keywords — Information, misplaced, remote access, Smartphone security, Mobile theft protection.

1. INTRODUCTION

Nowadays, usage of mobile has become a vital part of day-to-day activities of people. We can refer the current time as the era of Smartphone's. Suppressing all other traditional communication purpose, smart phones are now at the peak of popularity in their usage of accessing the internet which includes mail access, social networking, mobile shopping, mobile banking etc.

Smartphone's contains critical and sensitive data of user like automated call records, photos, videos and saved passwords of WebPages. So losing the Smartphone means a very high amount of irrecoverable data loss which may not be affordable in many cases. This claims the need of an intelligent application to be run in mobile to eradicate mobile theft and track the mobile even after change of the SIM also.

The major objectives of the research work have identifying thefts mobile number and to get that Smartphone. Locate the mobile and track it. The mobile location can be tracked using the proposed approach.

2. BACKGROUND STUDY

Smartphone's bringing together connectivity and a diverse collection of hardware and software-based functionality. This means devices become highly customized personalized platforms for communication, organization, information production and content management[1][2].

Whilst Smartphone's are only pocket size, they incorporate computing power and memory capable of running complex software and storing huge amounts of data. Functionality including full qwerty keyboards, cameras, audio recorders, gesture-based input, and high resolution displays, is complemented by a wide range of apps which include support for office productivity, location-based interactivity, media production, web browsing, social media, communication and entertainment.

Smartphone contains more and more sensitive information for a user .Personal data are always kept in Smartphone. Smartphone's may very high price but there is no security to protect the Smartphone from theft. Unfortunately this phone may be stolen[3].

Smartphone's can conveniently and directly connect to the Internet through protocols including Wi-Fi and 3G and indirectly through Bluetooth. This connectivity allows data to be accessed from anywhere at any time.

3. RELATED WORK

Most of the above-mentioned systems, provide dedicate solutions using tracking methods to monitor a mobile device. But by just enabling the cell phones with GPS system and retrieving the information about the new SIM would be insufficient to track the Smartphone. Hence came the idea of developing SAPt - A Stolen Android Phone Tracking application, an efficient and unique application with few more features which help in controlling the lost android Smart phone and retrieving it back. This application uses location-based services (LBs) like GPS or global system for mobile (GSM) network to track a mobile device.

4. METHODOLOGY

We have proposed two methods to track location and catch the theft and give return the stolen smartphone to the user. One is the basic method and other one is advanced. The basic method just only include the mobile tracker in which whenever someone changes the SIM the user will be notified about thief's mobile number via SMS messages sent on mobile numbers stored in mobile tracker.

4.1 Basic Method

In the first basic method, we can suggest to develop an android application using the SIM serial number. The SIM serial number is unique, so it will be better to develop an application using SIM serial number. In the application we must insert a number to get notification from the stolen mobile.

SIM card then the previous SIM serial number will not match with present serial number, so we can give a condition when this mismatch will occur

then a notification will be send to the user's predefined SIM number from the theft number. Thus the user can know number the theft phone number.[5]

4.2 GPS Tracking System

In the advanced method, we can suggest to develop an application by adding GPS system with the first method. We are hoping for advancement of technology in future so that tracing the exact location of any mobile number is possible. GPS (Global positioning system) is a great boon to anyone who has the need to navigate either great or small distances. GPS receiver help us to navigate back to a starting point or other predetermined location without the use of maps or any other equipment. The apps will keep updating the location of the stolen phone after every 10 minutes, and each times the location changes, it will send an email to the user. However, the location is sent only on the email address. Basically, the app doesn't require one to configure the settings or create any account. When we developed an application according to the second method, this application will provide theft's current location to the user's predefined email address. Thus the user can know the theft current location and catch the theft and get return his lost smartphone[6].

4.3 Architecture

Changing SIM card in that smartphone will be detected by the boot up listener and will be informed to remote user if it so. Database handler will do all the read and write operation of the database. Boot handler will receive the mobile boot up so that the application will be started automatically when the mobile boots up.

4.4 Limitation

All of the demand of the users can not satisfy. Every application or software has some lacking's or limitations. This app has also some limitations. When the theft change the smart phone user's SIM by his own SIM, then a short message will be sent. If his SIM has no

balance, then no message will be sent to the user predefined number.

An expert thief may change the version or format the smartphone, then the installed apps will be deleted and can't send any SMS.

The apps cannot find out the location of the thief. It can only identify the new SIM number that is currently used in the stolen device in exchange of old SIM number. So to find out the thief help of the administrator is important.

4.5 Challenges

Although the use of smart phone is increasing rapidly, there are some challenges. A smart phone is needed but it is impossible to have such type of phone for all persons as our poverty country Bangladesh because of higher cost of smart phone. To operate a smart phone some applications are necessary. Applications developer is needed and development is also a high cost. Security is an important issue for the smart phone to prevent the unauthorized access.

4.6 Security Issues

Today's Smartphone's are designed for business, education, entertainment, personal use etc. Smartphone's provide instant access to the web. Many of these devices allow employees to sync with their desktop computer in offices or at home. Employees can store and access documents. They can also receive and respond to emails as they arrive in their inbox on their home computer with real-time push email. Smartphone is a convenient stuff, but if lost, it would lead to a troublesome problem to its user. Smartphone is considered an electronic storage medium containing various information, such as information of one's own, prepaid money with the wallet capability, movies/image data taken with a camera, moving images, music, application data purchased by oneself, friends' information (e.g., registered in the address book), and even the information obtained through corporate activities (e.g., client information, sales & marketing information); so it is analogous to a USB

stick that has many functions.

As a matter of course, if lost, it might lead to information leakage. So security is most important for smartphone [7].

4.7 why we choose smartphone security

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5. Implementation

5.1 Methods

The method adopted to develop the application to manage both personal and group expenses are

proposed in earlier section of this paper. However, this section will elaborate those method used to obtain results using inputs from the users and this would also use data from database to evolve results like trends and estimations.

5.1.1 Splitting expenses

This is done by using division of the total expenses with number of group members. However, this would change with the choice of users on number of members to divide between[15]. This is application of simple arithmetic operations.

5.1.2 Trends Representations

This is one of the unique feature of application, here we use the records from database and group them month wise. The sum of all expenses monthly of all previous months and also sum of expenses based on expenses type separately.

After calculating the sum, we divide total by no. of months to achieve average.

This will give the trends of expenses in total and trends for each expenses type for each month on average.

Here, to make analyzing expenses trends easy to users we choose to represent those figures graphically (bar graph)[9].

5.1.3 Estimations

This is also a unique feature of expense manager. The estimations of expenses of user are suggested to them. This would help the user to adjust his spending accordingly. Our application will estimate the expenses using the records of

the user expense from database tables. This works similar to the evolving trends in above method but here we avoid some expense types and also avoid expense that doesn't occur frequently like buying electronics, which are not recurring expense.

The proposed model for smartphone security has been implemented in the Android 4.2.2 platform Operating System .This application helps the user by informing him about the theft SIM number from the stolen smartphone.

5.2 Results of research

5.2.1 Splitting expenses

Each and every individual will have their actual debts and credits who used to share in a group or individually. The splitting expense results in hassle free calculation of shared expenses occurred in a group[10].

5.2.2 Trends Representations

Here we use the records from database and social event them month insightful. The aggregate of all expenses month to month of all prior months moreover entire of expenses concentrated around expenses sort autonomously.

In the wake of discovering the total, we parcel signify by no. of months to perform typical. This will give the examples of expenses out and out and designs for every one expenses sort for consistently generally.

Here, to make breaking down expenses floats easy to customers we choose to identify with those figures graphically (reference chart).

5.2.3 Estimations

This is also a unique feature of expense manager. The estimations of expenses of user are suggested to them. This would help the user to adjust his spending accordingly within their budget. However, this application will not consider some expense types like buying electronic appliances, automobiles and other expensive products which do not occur frequently.

5.2.4 Usage of collected data

Entire usage of collected data will be used only by third party for the purpose analyzing expenses and will have no direct involvement of user. The results obtained this will help market strategist to plan accordingly so that it stabilize the demand supply in the market benefiting all the stakeholders.

6. PERFORMANCE ANALYSIS

6.1 Analysis of results

The results obtained seem to be accurate on the preformed operations on the application. The application delivered efficiently in calculating split expenses and recording the expenses along with date and time.

The application is accurate as the sum of expenses after split is always equal to total expenses. The sharing of expenses according to users, which is also accurate.

6.1.1 Trends

The mobile application is working correctly for resulting of trends based on previous monthly records. Those results are just average of expenses monthly for both group and personal expenses from database tables.

6.1.2 Estimations

The mobile application is working approximately estimating results based on previous monthly records. Those results are just average of expenses monthly for both group and personal expenses from database tables. This only considers recurring expenses of the particular user

6.1.3 Collection of data

This is not part of client side application and solely server side application. These are always hassling free because it is handled by people with technical knowledge.

Evaluate our authentication scheme from side to side both theoretical examination and reproduction parades. It will equate to this current scheme with the bivariate polynomial-based symmetric-key scheme designated in [17], [18]. The fair assessment amongst this current scheme and the scheme current in [19] should be accomplished within nodes.

7. Result Discussion

The aim of the apps is to find out the stolen smartphone by sending short SMS that contain the new SIM number that is used in stolen smartphone by the theft instead of old SIM number that was used by the owner of the smartphone. The whole work of the apps is described in the methodology term. Here users of the apps firstly create an

individual account with user name and password. In the individual account a user inserts the mobile number that is used for SMS sending, which is sent from the stolen smartphone. User can also update or delete the mobile number. This apps help to find out the stolen device or smartphone without accessing the internet.

8. CONCLUSION

In this paper, we propose an efficient model to track the lost/misplaced Android phone. The application is expected to perform the defined action based upon the incoming SMS send from a different mobile in a predefined format which will help the end user to locate the lost mobile. The proposed model has been implemented in android operating system. It was tested in SONY Xperia L smartphone. This provides the encouraging result. The model can be implemented in other smartphone platforms like windows, apple, etc.

expenses can be classified and can be used in market analysis and planning.

This application will not only helps users to manage their expenses but also help marketing executives to plan marketing according to the needs of users.

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REFERENCES

[1] Kaur S. and Kaur M., Review Paper on Implementing Security on Android Application, *Journal of Environmental Sciences, Computer Science and Engineering & Technology*, **2(3)**,

- (2013)
- [2] Polla M.L., Martinelli F., and Sgandurra D., A Survey on Security for Mobile Devices, *Communications Surveys & Tutorials, IEEE*, **15(1)**, 446–471 (2013)
- [3] Survey about mobile theft in UK: http://news.bbc.co.uk/2/hi/uk_news/1748258.stm
- [4] Chao-Lin Chen; Kai-Ten Feng; "Hybrid Location Estimation and Tracking System for Mobile Devices" IEEE 61st Conference on Vehicular Technology Volume 4, 2005.
- [5] Survey about mobile theft in India: <http://asiarelease.asia/norton-survey-reveals-1-in-2-indians-is-avictim-of-mobile-phone-loss-or-theft/>
- [6] W. Enck, M. Ongtang, and P. McDaniel. Understanding Android Security. *IEEE Security and Privacy*, 7(1):50–57, 2009.
- [7] Tesfay W.B., Booth T., and Andersson K., Reputation Based Security Model for Android Applications, Trust, Security and Privacy in Computing and Communications, *IEEE Computer Society*, 896-901 (2012)
- [8] Adrienne Porter Felt, Erika Chin, Steve Hanna, Dawn Song, and David Wagner. 2011. Android permissions demystified. In Proceedings of the 18th ACM conference on Computer and communications security (CCS '11). ACM, New York, NY, USA, 627-638
- [9] Luis C.M Varandas; BinodVaidya; Joel J.P.C Rodrigues; "mTracker: A Mobile Tracking Application for Pervasive Environment" IEEE 24th International Conference on Advanced Information Networking and Applications Workshops.2010.
- [10] Sangwoo Cho; HaekyungJwa; Joohwan Chun; Jong Heun Lee; Yoon Seok Jung; "Mobile position location