Real-time location based service for tracing mobile using Android Application

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Abstract: The main theme of phone finder mobile application is to provide an android application to the users that act as anti-theft as well as remote control too. This android application basic functionality is providing protection from the theft. The application has capacity to send the SMS along with location coordinates (longitude, latitude) to the registered mobile number. This application also has capable to execute the tasks by processing the SMS from the parent mobile (registered mobile).The user can control the mobile functionalities like WLAN, mobile modes (general, vibrate, silent).It has the capacity play an alert sound even through it was in silent mode. This helps the user to find the mobile if he misplaced somewhere in surroundings.

I INTRODUCTION

This paper primarily aims at encouraging students to focus on developing applications that not only can they use but also can help the society in general. This way, students will be able to fulfill their responsibility toward society in addition to developing expertise in their preferred subject.

A. Organization of the paper:

Phone finder is an android application designed to trace the mobile thief.Phone finder app can detect the SIM change in android mobile and it can send the location (if GPS is enable) of the thief to the registered mobile number. It can execute specific tasks by processing the SMS from registered mobile number.

II OVERVIEW OF PHONE FINDER ON ANDROID

The main theme of phone finder mobile application is to provide an android application to the users that act as anti-theft as well as remote control too. This android application basic functionality is providing protection from the theft. The application has capacity to send the SMS along with location coordinates (longitude, latitude) to the registered mobile number.

Android is an open source and Linux-based Operating System for mobile devices such as smartphones and tablet computers.Android was developed by the Open Handset Alliance, led by Google, and other companies. Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android.

A. Advantages of Android:

- Messaging

SMS and MMS are available forms of messaging, including threaded text messaging and Android Cloud to Device Messaging (C2DM) and now enhanced version of C2DM, Android Google Cloud Messaging (GCM) is also a part of Android Push Messaging services.

- Java support

While most Android applications are written in Java, there is no Java Virtual Machine in the platform and Java byte code is not executed. Java classes are compiled into Dalvikexecutable and run on using Android Runtime or in Dalvik in older versions, a specialized virtual machine designed specifically for Android and optimized for battery-powered mobile devices with limited memory and

CPU. J2ME support can be provided via third-party applications.

- Multitasking

Multitasking of applications, with unique handling of memory allocation, is available.

B. System/Application Architecture:

The proposed system act as a anti-theft application to protect the mobile from being theft. Initially the user need to register with the application by providing details like mail id and alternate mobile number. Once registration is done the user can login to the application after entering the security PIN.

If SIM change is detected the app will send the SMS to alternate mobile number. If the GPS is enabled app will send location co-ordinates via SMS.

C. Android features:

- Beautiful UI: Android OS basic screen provides a beautiful and intuitive user interface.
- Connectivity: GSM/EDGE, IDEN, CDMA, EV-DO, UMTS, Bluetooth, Wi-Fi, LTE, NFC and WiMAX.
- Storage: SQLite, a lightweight relational database, is used for data storage purposes.
- Media support: H.263, H.264, MPEG-4 SP, AMR, AMR-WB, AAC, HE-AAC, AAC 5.1, MP3, MIDI, Ogg Vorbis, WAV, JPEG, PNG, GIF, and BMP.
- Messaging: SMS and MMS
- Web browser: Based on the open-source WebKit layout engine, coupled with Chrome's V8 JavaScript engine supporting HTML5 and CSS3.
- Multi-touch: Android has native support for multi-touch which was initially made available in handsets such as the HTC Hero.
- Multi-tasking: User can jump from one task to another and same time various application can run simultaneously.
- Resizable widgets: Widgets are resizable, so users can expand them to show more content or shrink them to save space.
- Multi-Language: Supports single direction and bi-directional text.

- GCM: Google Cloud Messaging (GCM) is a service that lets developers send short message data to their users on Android devices, without needing a proprietary sync solution.
- Wi-Fi Direct: A technology that lets apps discover and pair directly, over a high-bandwidth peer-to-peer connection.
- Android Beam: A popular NFC-based technology that lets users instantly share, just by touching two NFC-enabled phones together.
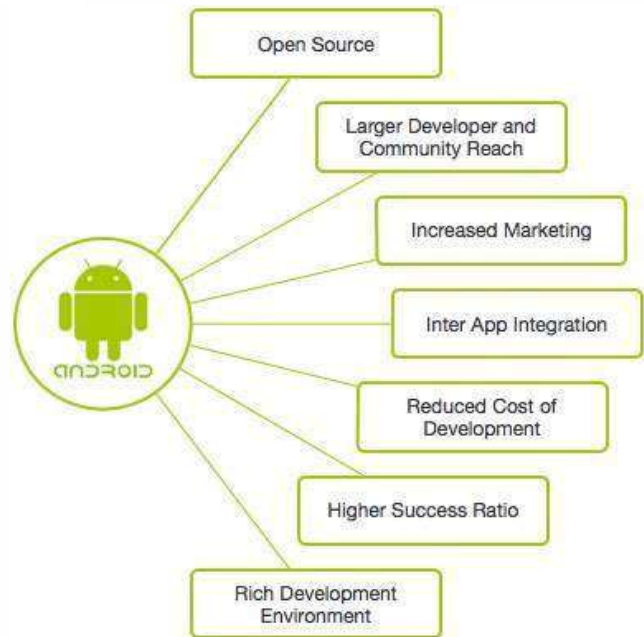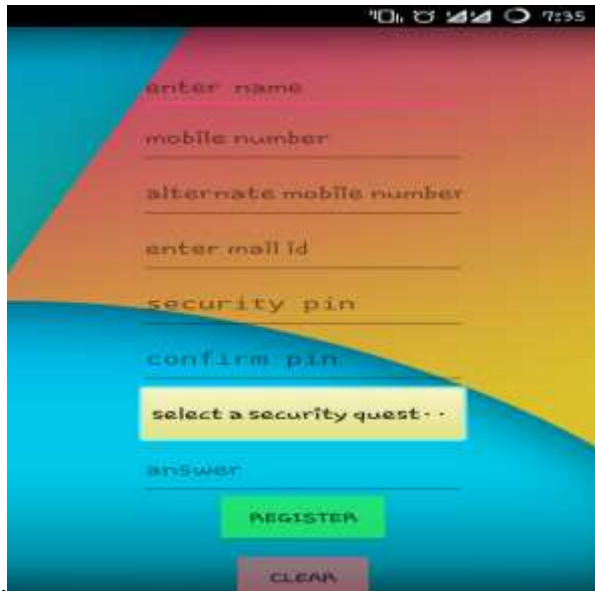

Fig 1: Android Features

This is the registration page. It will display at first run only. The user needs to fill all the details to register.

Fig 1.1 Registration form

Once registration is done user redirected to this dummy page. This page is designed to prevent the thief from keep away from application. This page show the tutorial like follows at first time only.

The user can enter into login page only after long press on the button that is located on top right. Whenever single click on that button works as a flashlight button.

Fig 1.2 Dummy screen

The following page is login page.The user can enter into main application only after he provide valid security PIN.

If the user forgot the PIN he/she can click on 'Forgot PIN' button. It will redirect to page which contains security questions and some other fields to check the weather user is valid or not.
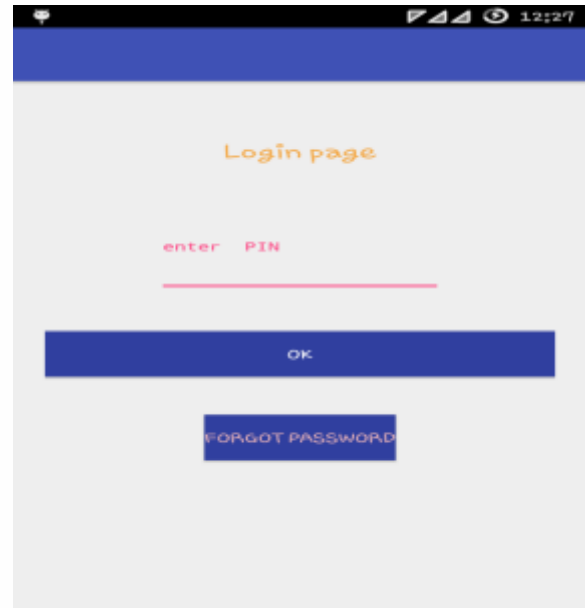

Fig 1.3 Login page

After entering the valid PIN click on the 'OK' button. The system will redirect to this page.

Fig 1.4 Main screen

If the user clicks on settings it will display the following page.

Fig 1.5 Settings screen

The user can change the SMS codes for each individual task as hewant.Click on SMS code for trace it will display like this.
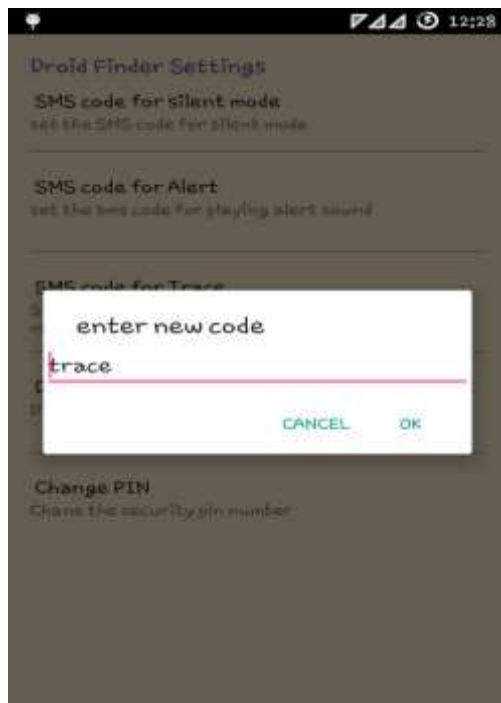

Fig 1.6 Changing SMS code

The user alloweddefining own code. After enter uses own code press ok to save

changes.Pressing cancel button will not effects the code.

The user can change the PIN by clicking on the 'Change PIN' in settings screen.
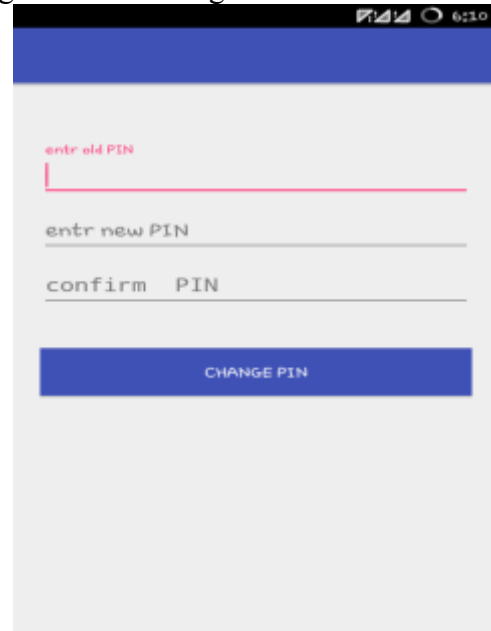

Fig 1.7 Change PIN

Enter the old PIN in 'Enter Old PIN' text box.Enter new PIN in 'Enter new PIN' text box. Again enter new PIN in 'Confirm PIN' Click on 'Change PIN' button to change the PIN.
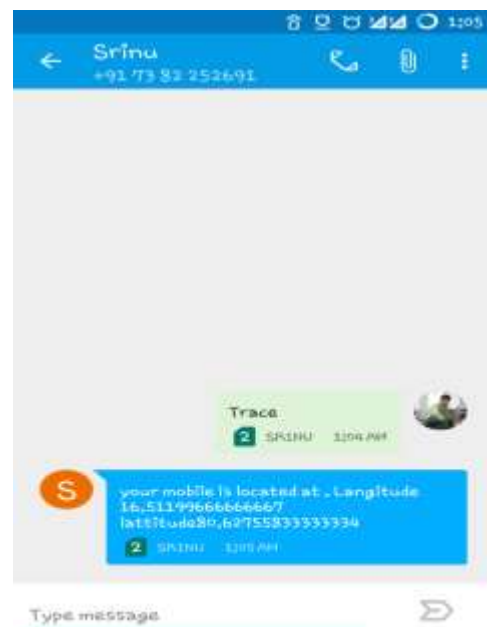

Fig 1.8 Tracing location by SMS

Above scree is the working of phone finder application. Whenever it receives message from alternate mobile number it will process the SMS to execute tasks. In the above screen app send the user location co-ordinates to alternate mobile number as it receives the' trace' SMS.

IV. Conclusion

This android application is useful in daily life to prevent the mobile from being theft and to trace the mobile in case of theft. This application can trace thief location by SMS service and it can play alert sound to identify the thief in public areas. This app will very helpful for many android users.

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