



ANTI-THEFT MOBILE PHONE SECURITY SYSTEM WITH THE HELP OF FIREBASE

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Abstract

With the development of technology now mobile devices can perform different official activities beside the personal ones. People can store password, valuable documents, pictures, videos and many other private and confidential contents inside their mobile devices. Moreover, high performing mobile devices are very costly. But mobile devices being stolen or missed is a worldwide daily affair, which incurs great loss upon people. In this paper, the idea of an application has been proposed which helps to strengthen the security of mobile devices. It retrieves geological location, and the new SIM's number from the lost device, and finally sends this information to the actual owner of the device and registered numbers through SMS of the new number inserted in the device. This information is helpful to find the exact location and other details of that lost mobile device. Thus this proposed application acts as a security tool for the smart phones and other mobile devices. The contribution of this proposed application is that it would be very convenient for people of developing country for its cost effectiveness and will be independent from telecom operator

Keywords: SIM, geological location

I INTRODUCTION

Smart phones changes the way we live and it has become an integral part of our lives. It has also changed the way we communicate with each other by providing an advantage of communicating with anyone virtually through email, video-conferencing etc., and it also provides a facility to store data, files, email,

contact numbers in phone memory which minimizes the concept of File-System to store personal contacts. Smart phones are acting like a mini palm computer, it is used to store documents, information etc., and also can be shared with anyone through internet. Smart phones provides a large number of functions and utilities for hand-held devices through which it acts as a mini computer in our pocket. Because of its open-source nature a large number of useful functionalities has been developed an android operating system is getting used in many mobile phones

Android application is booming nowadays due to the expansion of Smartphone devices. With the incorporation of GPS devices in smart phones, Geo Location has become a trend in the past few years. Using this application, the lost mobile's current location will be retrieved and then use the acquired data to provide information for that location. The Firebase Real-time Database is a NoSQL, cloud-hosted database that uses data synchronization to automatically receive new information in real-time from every connected client, without requiring user to setup own application server. It capture the GPS location by mobile and send the latitude and longitude every minute.

Location privacy has become a major concern due to the proliferation of GPS devices, web location services, WLAN and cell ID based positioning technologies. The ability to locate a wireless device has been looked into by several researchers. Localization can be active or passive. In passive localization, the users do not carry any device (having radiofrequency transmitter) but in active localization the users carry devices, where is the users where about

are known to others. The location with the help of some basic components like mobile devices, mobile communication network, service provider like the Global Positioning Service (GPS) and Geographical Information System (GIS) etc. Even a mobile device without a GPS monitoring system can able to send the location information to the user with the help of radio signal transmission

II. RELATED TECHNOLOGIES

A. Android Operating System

Android is an operating system based on the Linux kernel, and originally designed for smartphones and tablet computers. Android applications can be implemented in Java programming language using the Android Software Development Kit (SDK). The Android SDK provides API libraries and set of developer tools which are necessary to build, test, and debug an android application

B. XML (eXtensible Markup Language)

XML is a text-based markup language derived from Standard Generalized Markup Language (SGML). XML tags identify the data and are used to store and organize the data, rather than specifying how to display it like HTML tags, which are used to display the data. XML is not going to replace HTML in the near future, but it introduces new possibilities by adopting many successful features of HTML.

C. JAVA

Java is a programming language. Java is used to develop mobile apps, web apps, desktop apps, games and much more. Java platform includes an execution engine, a compiler, and a set of libraries. JAVA is platform-independent language. It is not specific to any processor or operating system. Java compiler does not produce native executable code for a particular machine. Instead, Java produces a unique format called bytecode. It executes according to the rules laid out in the virtual machine specification.

D. SQLITE

SQLite is a open source SQL database that stores data to a text file on a device. Android comes in with built in SQLite database implementation. SQLite supports all the relational database features. In order to access this database, there is no need to establish any kind of connections for it like JDBC, ODBC e.t.c

E. FIREBASE

Firestore is a real time database which allows to store tree of lists of objects. It allows to synchronize data between different devices. It is a NoSQL JSON database. It is a platform for mobile developers to develop awesome-quality apps, quickly grow a user base, and monetize apps. It includes a hell lot of features that developers can use to fulfill their goals. **Firestore** helps developers in development, growth and monetization of your mobile applications.

III PROPOSED SYSTEM AND MODULE DESCRIPTION

In this application the mobile user have login. Using the login, the user will be able to enter the details in the app. There are also options for editing and deleting the already existing details. The user will also be able to enter the contact details, and the other numbers registered in the app will receive an SMS from the new SIM number that is entered in the app and live location can be tracked

Proposed system is to start the GPS service to track the live location .This application also enables us to delete the confidential data in the lost mobile phone. With this app, your mobile is immediately enabling the application upon receiving the predefined template message from the pre-registered mobile numbers. When SIM card on your phone is changed, the location is automatically shared with the server. The role of the user in this application is to set the mode as safe when he changes the SIM card and to send SMS to the Android Smart phone having this application installed in it, when it is stolen or lost. The syntax of SMSs that can be set by the user and its functionalities are as follows.

1. If the SIM is changed, the backup number receives the SMS details of new SIM inserted.
2. If system is restarted, then the backup number receives the GPS value of the lost cell in live tracking to your friends mobile.
2. If phone is switch on by same SIM card means, send SMS as enable application to enable the anti-theft application.

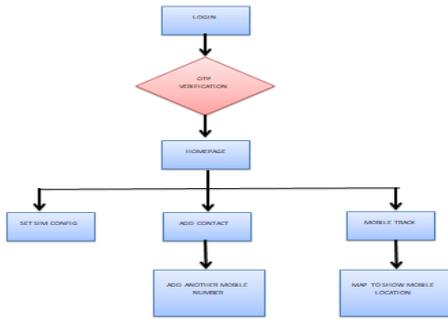


Fig 1.Block Diagram

3.1MODULES

LOGIN MODULE: Login process is done by OTP verification by Firebase authentication API configuration. Application Installation makes the function to fetch the SIM card Geo Location information of the android mobile.

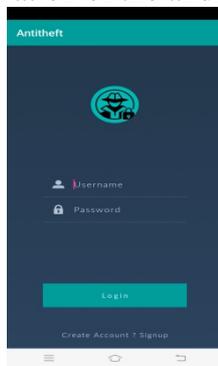


Fig 2.Login Module

REGISTER MOBILE NUMBER OF YOUR FRIENDS: When the mobile number get registered the value store in Shared Preference. Shared Preference instance pointing to the file that contains the values of Preference.

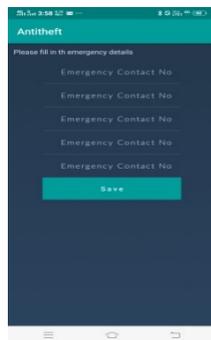


Fig 3.Register Module

GPS LOCATION: Send live location to the register Mobile number in this case the Register Mobile should have this application. Instead of that it will not work. The firebase concept was mostly used for live tracking in android



Fig 4.GPSModule

SIM CHANGE DETECTION: This service starts automatically in stealth mode when one SIM is removed and another is inserted. It will receive information as data from the database and check the SIM Serial Number with the database data. If SIM Number does not match with the database, then automatically capture the snapshot of current user without user interaction.



Fig 5.SMS Module

IV. CONCLUSION AND FUTURE ENHANCEMENT

The “Mobile Theft Tracking” application solves the traditional method of mobile theft problems. This application will provide significant details in order to be easily reached by users and is capable of providing live tracking of the device lost The application deploys security solution that meets user’s immediate requirements by providing the information regarding the new sim details that is added to device via SMS , which makes easy for the user to identify the thief.This application is suitable for all android devices of all versions. This “Mobile Theft Tracking” application is provided with significant details to reach the user and in future enhancement the application will be developed with the technology of both email and message indication to the user whenever the mobile is restarted and the application may also be developed with the advanced technology of screen monitoring where the synced mobiles will be connected with front cameras so, while connected through screen monitoring it is very much easy for the user to identify the thief.

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