

Find your Lost Device by Hide & Seek

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Abstract- *In the last few years the market of Android smartphones has escalated to such an extent that almost everyone now owns or aspires to own a smartphone. In such a scenario, the security of the phone assumes paramount importance. Misplacing or losing cell phones is very common amongst mobile phone users and therefore it is essential to have applications that aid in locating the devices. There are a few applications with basic features that assist the users to locate their devices. However, there is a surge in the demand to have more reliable features installed within these applications. In lieu of this, 'Hide and Seek', the application we propose to develop, will have the features of profile switching via SMS and phone call, GPS tracking, spam number detection (reject and update), fingerprint support for buzzer and website support for editing and managing profile. Moreover each of these features will work according to varying scenarios.*

Keywords- Android, Android's Location Based Services, Broadcast Receiver, Buzzer, GPS, Fingerprint Authentication, Formatting Data Mobile Tracking, Sound Profile Switching, SMS, Spam Number Detection, Spam Number Rejection, Spam Number Updation, Telephony Manager, Website Support

I. INTRODUCTION

Along with the phenomenal rise in the number of Android smartphones, its significance in our everyday lives has increased too. Android has been the most widely sold operating system on mobile devices the world over with nearly two billion monthly active users (MAU) and the largest installed base of any operating system.

All the financial transactions, online banking, military domains, health care and data storage that are conducted through the mobile apps require security and dependability. It is no wonder then that these users demand reliability of mobile applications as the thought of losing all the stored information by way of theft or misplacement is indeed very frightening.

With rising numbers of smartphone owners, the incidences of theft or loss are daily occurrences and are also increasingly on the rise. A whopping 3.1 million mobile phones are missing every year across the world and causes a lot of anguish to the users in terms of loss of valuable data, contact

details, financial loss or identity thefts; it is imperative for the users to get back their mobile phones.

This research will propose a system for phone tracking on the android platform which will be open source and most of the mobile phone users can use this in their android device

II. LITERATURE SURVEY

According to the study

The literature suggests measures to locate the misplaced Android device through client server model. It provides a mechanism to retrieve, monitor, and control the client's smartphone using server capabilities and by establishing connection with it. [1]

The literature study further provides tracking the location by using the Android's location based services and SMS based system of Android. [3]

The link of the location is sent to the registered number. The availability of the profile switching (i.e. from silent or vibrate to ringer) means from current profile to ringer profile. Here the broadcast receiver receives the message and switches the profile from one mode to another using telephony manager. [2]

Clearing SD-card data is also proposed in the literature study in case of mobile phone theft. [6]

Many literatures have provided the features of image capturing of the thief and transmitting the image as an MMS or an email or the message to authenticated number's Whatsapp. [4, 5]

The studied literatures specify different features for locating the lost device. However, most of them are not implemented real-time and systems too are not robust. The dependency on the server machine makes the architecture more complex and difficult to comprehend. Moreover, the systems have vulnerabilities related to securities as the Client-Server framework is provided.

III. PROPOSED METHODOLOGY

Our proposed system ‘Hide & Seek’, overcomes the drawbacks of the previously available research. ‘Hide & Seek’ application implements the basic features of previously implemented systems and also some additional features , for more security and reliability.

Profile switching is done via trustworthy numbers which are nothing but the numbers from where one can locate the lost device.

Implementation of modules is as follows –

Account Creation

1. Sign Up.
2. Enter the Name.
3. Enter the Mobile Number.
4. Enter the 8 digit Password.
5. Enter Email Id.
6. Profile created

Account Login

1. Login
2. Enter the registered Mobile Number.
3. Enter the registered Password.
4. Authentication of entered data.
5. Grant access if it is matched.

Profile creation

1. Enter trustworthy number 1.
2. Enter trustworthy number 2.
3. Space for anonymous number is reserved for real-time data.
4. Profile creation is completed.

Phone tracking

Tracking of the lost device is categorised according to different scenarios.

i.e. application should not turn the profile unnecessarily when the user has deliberately set it to the silent mode.

Ex – when the user is attending a seminar or meeting.

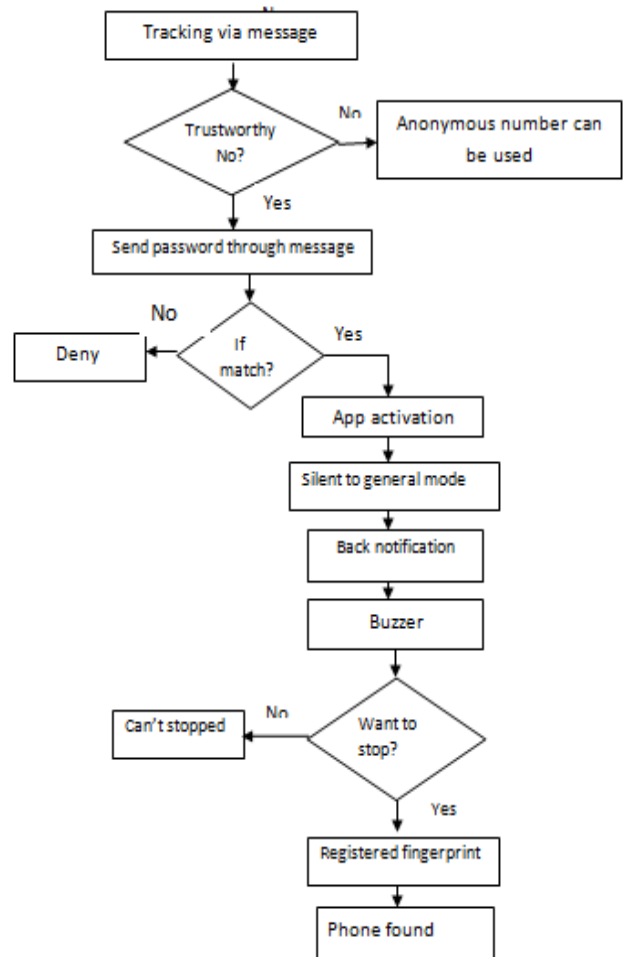
A. Via message (High authentication) –

This implies converting profile from silent to general. This feature provides high authentication because it is protected with a password string.

It means if the password is correct then only the outsider will be allowed to have the access to the system.

The person won’t be disturbed unless and until the application is activated by the specified message i.e the password string which is registered in the database.

The work flow of this kind of tracking is shown in the figure below.



Flow of phone tracking via message.

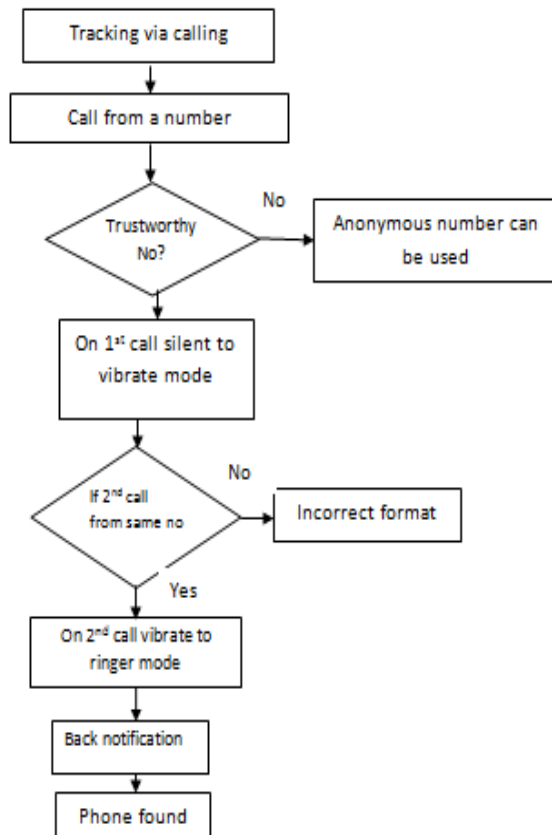
B. Via phone call (Low authentication) –

This converting profile from silent to vibration, suitable for meeting mode.

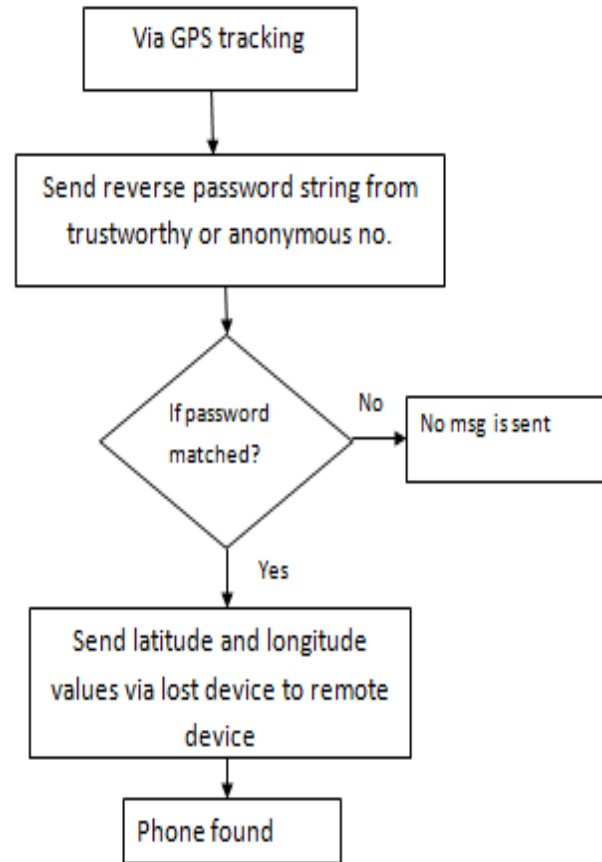
It means it will change the profile directly from silent to vibrate instead of changing it to the ringer mode.

This overcomes the limitation of our own feature i.e phone tracking via message.

The figure below shows the functionality of the above feature.



Flow of phone tracking via calling function



Flow of phone tracking via use of GPS

C. Via GPS tracking –

Global Positioning System is one of the Android’s Location based services.

If the phone is lost and is not able to be found via sending a password or by calling then tracking the geographical location of lost device is essential.

The GPS works according to the internet settings of device.

Along with the internet availability, the GPS provides more accurate and reliable location of the lost device. [7, 8, 9]

This feature of Hide & Seek will be worked if the same password is sent in as a reversed string

Ex if dog is the password then profile will be changed with the password DOG and the location will be sent unless and until the reversed password string is sent as a message from one of the trustworthy numbers or incase of anonymous number i.e GOD.

The work flow of the feature is as follows.

Avoid access to spams

Detecting the unauthorised number is very essential like sometimes the customer care people call up and the application can’t be activated due to this scenario.

1. Detect the unwanted number.
2. Check with the existing Spam Number Dataset.
3. If matched, reject the call.
4. Update the existing spam list by adding the new numbers.

Website Support

1. Editing profile.
2. Managing account.

Clear data (if stolen and not reachable)

1. Send a ‘clear’ message keyword.
2. If correct, clear the SD card.
3. Else, reject the request.

Our application provides different features that will run in different situations. Support for anonymous number is provided in case of absence of any trustworthy numbers. Security provided is such that the anonymous number cannot be entered into the system more than once, unless and until the user has removed from the block.

IV. PRODUCT DESCRIPTION

Hardware Requirement

1. Android smartphone device.
2. Memory requirement – 10Mb.
3. Min. OS version – Android Oreo(8.0)

Software Requirement

1. Android SDK.
2. Android Studio.
3. Emulator for testing the application in a fast manner.

V. APPLICATION AREA

For individual use: for students and people who have misplaced their cell phones

VI. CONCLUSION

From the above study of literature considering the drawbacks of other applications, we can conclude that 'Hide and Seek' has provided different alternatives for the drawbacks and limitations of previously done work. Most importantly, it offers a high reliability in case of locating the lost device.

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