

An Anti-Theft Android Device Safeguard Application

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Abstract - The Device Safety application is mainly developed for device Security. Today we have heard so many cases related to attack of smartphones. They not secure in our country. The safety of device matters a lot for everyone. In case of android device many incidents are taking place now days. This is an Android application for the safety of android devices and this application can be activated by simply clicking on the application on your mobile screen. It is a smart application which will use GPS to provide the location of your stolen android device. Hackers and thieves will not able to access your precious data as this application locks your phone. This application is able to provide you the location details of your stolen device from your place. This application ensures the safety of device. It reduces the risk and helps us in need by identifying the location of person and also secure the device data.

Key words: GPS, Backstage Monitoring, Broadcast Mechanism, Anti-theft Tracking

1. INTRODUCTION

In today's digital world, it's not just the monetary loss that might worry you on losing a mobile device, but the data loss is more troublesome for anyone. Lots of Applications are developed to track a Smart phone but still it is a major concern. User has to manually report to the customer care to block the IMEI Number of the lost Phone. So that, Android Application is deployed with initial registration of Alternative Mobile numbers. It is of utmost important to provide some mechanism to protect the theft of smartphone devices and the personal data on them. These device protection mechanisms are called anti-theft mechanism. Anti -theft device android project is just like a tracker who will able to

provide you the location details and other advance features when your android phone will be lost or will be stolen from your place. Its name has been given Anti-theft as because using this feature, this app will not be visible on the start screen, after installing on your android device. When your android device will lost or stolen, you can lock your phone from remote location. It is a smart app which will use the GPS power and Google map to provide the exact location of your stolen android device. Hackers and thieves will not be able to access your precious data, as this anti-theft device security guard locks your phone.

2. TYPES OF EXISTING SYSTEMS

1. Find My Device - Find My Device is Google's native anti-theft app, and part of all Android phones. It lets you remotely lock your phone, sign out of your device, and wipe its content. You can also see your phone's location on a map and call it via the accompanying app. If you lock your phone remotely, you can write a lock screen message that your device will display permanently until you disable it. The Find My Device feature is enabled by default, but it's wise to check that you haven't accidentally turned it off. To check the status of Find My Device, go to Settings > Google > Security and tap on Find My Device. Slide the toggle at the top of the window into the on position if the feature is not active.

2. Cerberus - The app can locate and track your phone, lock your device, start an alarm on your phone, upload call logs, and wipe both internal and external memory. Cerberus will also help ensure anyone who steals your phone ends up in trouble with the law. It can secretly take photos and record videos of anyone who has your device, then upload them to the cloud for you to see. You can even record audio

from your phone's mic. The app also supports automatic actions. For example, you can make the phone lock itself if the SIM card is changed, or instantly receive a photo if someone enters the wrong PIN.

3. Life360 - Life360 is an all-in-one location-tracking app that helps you to track the location of your lost phones or tablets. It also allows you to stay connected with your friends and family members, thanks to its location-sharing feature. You can create groups, add people in it, and monitor their location on a private map that's only visible to the group members. It also enables you to view the location history of all group members.

4. iSharing - iSharing Location Tracker is another interesting app for tracking the location of a lost phone as well as keeping track of family members at the same time. The app is loaded with features to track the location of enabled devices. It allows you to create groups, communicate with group members, and monitor their location in real-time. It sends you notifications when a group member has left or reached an area. Also, you can view the location history of group members. What's unique? iSharing comes with an interesting feature called Panic Alert, which sends notifications to other members when you shake your phone.

5. Track View - Track View is an amazing security cum surveillance app that helps you monitor and find your lost devices as well. It allows you to locate and track the safety of your device as well as your house. It can send instant alerts or remote buzz to your lost device. Then, it has a two-way audio feature too. What makes Track View stand out from other apps on this list is its video monitoring feature, which lets you keep an eye on your device's surroundings through its camera.

3. PROPOSED SYSTEM

The proposed system is especially for the safety and overcomes the disadvantages of existing systems. A wide range of tracking systems has been developed so far tracking vehicles and displaying their position on a map, but none of the applications has been developed so far which tracks the mobility of a human being. Now a days tracking a person's mobility has become a crucial issue these days tracking criminals came on payroll or a system which is cost effective and can be used for tracking a human being a GPS. It is the new Anti-Theft android project by which it will be able to identify whether your android devices has been stolen or lost. If someone entered the incorrect password while

making login to your mobile, the anti-theft system will be activated and based on user moves, the system will act properly. In case, if your android device get lost and want to receive the information of your phone, add other mobile on which you want to receive. The app will be running on background but will not be visible on screen. By using this application you can lock your phone from remote location.

4. LITERATURE SURVEY

The literature survey of some existing systems is done:

1. Anti-theft application for android based devices: This paper puts forward a technique through which the thief, who steals any android based mobile phones installed with this application, gets captured and the user can make him/her stop misusing any confidential information. This application includes the latest technology like MMS (multimedia messaging service) where you can send video clips and photos to any other mobile phone, unlike SMS which includes only text. It gives the information about the thief by sending the snapshots and a small video clip of the thief to an alternate mobile number, which helps us to recognize the thief.

2. Smart Mobile Anti -Theft Tracker: In this paper an android based system is proposed to track a device by obtaining call logs, sms logs, pictures and its location. The proposed solution is also capable of remote controlling the device by sending a specific code that works in a client-server manner. The system uses either GSM or Internet to communicate with the client. The collected data is cached in the failure of both cases and flushed to a web server whenever Internet connection is established. The salient trait of the application is to minimize battery drain, CPU and RAM utilization.

3. Mobile Theft Tracking Application: This paper presents an anti-theft mobile tracking application. This project aims to find stolen or lost phone with the help of different GPS location, IMEI (International Mobile Equipment Identity) Number of phone. When the application is install it will work in background. This application stores the unique user id & password, SIM Number, alternative phone number, Email id, WhatsApp number, phones current location. When phone is stolen or loss user will get the images which are capture by front camera, GPS location on alternative phone number & also given mail id, with the help of these

information we can easily find out phone & the person who has stolen the smartphone.

5. APPLICATION DEVELOPMENT

- Login screen
- Welcome page
- Registration page
- Password Setup
- Device Admin Permission

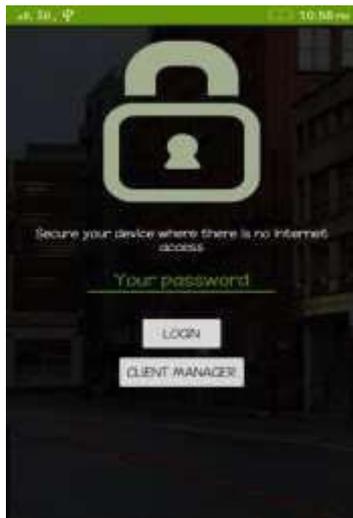


Fig. 1: Login screen

This screen is used for login. Owner of the device has to enter a password.

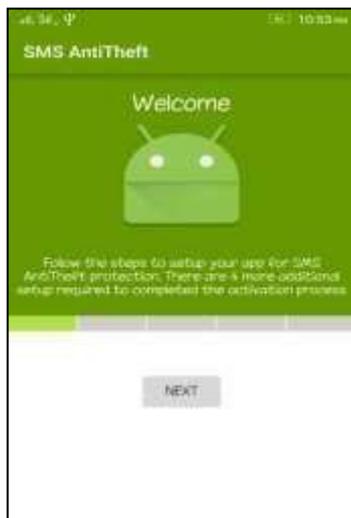


Fig 2: Welcome page

After entering password to login screen this welcome page appears on your device. Later there are 4 more additional steps to setup your app for Anti-Theft protection.



Fig 3: Registration Page

This Screen is used for first time registration of user on this application, they need to fill the phone numbers. User has to fill two phone numbers along with country code. You can also click on the contact button to directly add numbers from your contact list or you can enter the number manually. So, this app will only accept the command from these phone numbers only.



Fig. 4: Password Setup

After entering phone numbers you have to set two password first password is App Password which is used to open this application and second password is used to validate the command every time when you send the SMS from authorized number.



Fig. 5: Device Admin Permission

This screen will be used to activate the admin service to accept lock, erase and other admin remote commands details

5 .IMPLEMENTATION

1. Language Detection Algorithm: A language detection algorithm is pretty self-explanatory: we'll take text as input and decide which human language the text is written in. We'll be using Algorithm's Language Identification algorithm to give it a try. A second example application of the Language Detection algorithm lies in the web search arena. A web crawler will hit pages which are potentially written in one of many different languages. If this data is to be used by a search engine, the results are going to be most helpful to the end user if the language used in the search is the same as the results. This Algorithm is used for Voice Recognition in this application.

2. Hashing Algorithm: A hash algorithm is a function that converts a data string into a numeric string output of fixed length. The output string is generally much smaller than the original data. Hash algorithms are designed to be collision-resistant, meaning that there is a very low probability that the same string would be created for different data. This algorithm is using for Encryption and Decryption.

3. Kalman and Localization Improvement Algorithm: This algorithm that uses a series of measurements observed over time, containing statistical noise and other inaccuracies, and produces estimates of unknown variables that tend to be more

accurate than those based on a single measurement alone, by estimating a joint probability distribution over the variables for each timeframe. The filter is named after Rudolf E. Kálmán, one of the primary developers of its theory. The algorithm is recursive. It can run in real time, using only the present input measurements and the previously calculated state and its uncertainty matrix; no additional past information is required. Localization improvement algorithm is used for tracking. By this we can easily track the person.

4. Search Algorithm: Search algorithm is any algorithm which solves the search problem, namely, to retrieve information stored within some data structure, or calculated in the search space of a problem domain. This algorithm is used for Sorting contact details

5. Map Matching: Map matching is the problem of how to match recorded geographic coordinates to a logical model of the real world, typically using some form of Geographic Information System. The most common approach is to take recorded, serial location points (e.g. from GPS) and relate them to edges in an existing street graph (network), usually in a sorted list representing the travel of a user or vehicle. Matching observations to a logical model in this way has applications in satellite navigation, GPS tracking of freight, and transportation engineering. Map matching algorithms can be divided in real-time and offline algorithms

6. FUTURE SCOPE

This application can be integrated with the law enforcement data base, which includes all the phone number of regional cops. Some use cases such as rescuing victim, when the mobile network is not available, after initial alert or switched off condition. Further it can be developed for IOS and windows mobile platforms thus this application can help the victim in a big way from unsafe conditions

- It can be used for high security in banks and other organization
- Connecting more devices.
- Provision to store several mobile numbers.
- Video recording once the alarm gets triggered.

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7. OBJECTIVE

The main objective of the project is to develop highly reliable security system for the android devices. This system will help to locate device location and prevent our confidential information. It also choose Global System for Mobile Communication (GSM) for information transmission and acquisition of device location information (latitude, longitude). This will be also used as:

- Ensures device safety.
- Used for tracking device location
- It will enable user to use his android based smartphone with freedom of getting stolen.
- It will enhance the security of android based smartphone.

8. CONCLUSION

In this paper we have implemented safety approach towards mobile security. This project presents a anti-theft application for android based devices. The application deploys an enterprise security solution that meets users immediate and long term requirements by providing the location of the thief, which makes easy for the user to identify the location and make him/her get caught and arrested. We are enhancing this application by providing the phone locking feature. With the advent of time, technology is evolving every day. Our application will further be developed and improved.

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