

## Remote Access through Android Devices

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### ABSTRACT

Growth in use of Android has led security of Android phone to be an important factor also various daily requirements of the user aren't satisfied by the preinstalled applications in Android. our application provides a user with access to various features of user's phone at a remote location. At certain scenarios, it is important for a user to divert all calls and change sound profile of his/her phone while it is at a remote location. Also, this application allows a user to track the phone if lost. Various other facilities like restriction on unauthorized shutdown to avoid scenarios where the phone gets stolen, getting the photo from the remote location. Every single possible way to check the safety of the phone is integrated into a single application that brings this application to a level where even the slightest amount of hope can lead to tracking of the lost phone or even preventing its robbery in first place avoiding the shutdown though.

**Keywords**—GPS, GSM, Location, Open Source, Remote Access, Security

### I. INTRODUCTION

“Remote access through Android” is an Android application that helps the user to remotely control certain features of a phone he is registered to. The core features are: Remotely tracking a phone's location, diverting all calls and SMS to a specified phone, modifying the sound profile of the phone, to monitor a phone's location by other phone and availability of website facility when no such application is available. Also to provide an offline mode which will be message based so that in case of no internet the commands can reach the target phone. Being a fact that most phones misplaced are always lost it can't be ignored that some phones can be left behind at home or office. In such cases, the user might be willing to receive all incoming calls and messages of that phone. This paper not

only focuses on such needs but also works to retrieve user's location as precise as possible.

Open source platform needs strong and rigorous security architecture to provide security. Android is designed with help of multilayered security which provides flexibility needed for an open platform, whereas providing protection for all users of the platform designed to a software stack, Android contains an operating system, middleware and core application as a whole. Android controls hundreds of millions of mobile devices in more than 190 countries around the world.

Various applications are introduced by large organizations for the security of Android mobiles. Organizations like Prey, Avast, etc. have developed applications with an intent to track the phone or to restrict an unauthorized user from tapping into the phone. Though all the security applications focus on privacy as well as the security of the user's phone, there are various permissions that aren't made available from Android to secure the privacy policies of Android operating systems and to avoid the violations of the inbuilt privacy features made available by Android itself. Still to allow total privileges will lead to complexity in maintaining privacy as well as the loyalty of the customers. Hence we have come up with an application that will get through this small loophole and get an integrated application that will ensure to get major security at the best probabilities available.

### II. LITERATURE REVIEW

An application was introduced which used GPS to track the position of the user's phone. Also, it uses a predefined perimeter of the user's phone so that if the phone leaves its perimeter then it alerts the user. This application introduces a better way to manipulate with the GPS coordinates.<sup>[1]</sup>

Another similar application with the use of GPS for tracking the location has a special feature that enables the user know if the phone is stolen and is being used by an unauthorized user. This is made possible by checking the sim card when it is inserted into the sim slot. If a new sim is inserted, then the authorized user is alerted. [2]

“mTracker” application is used to trace and record the positions that were monitored. They have developed a PC application that shows in the Google Maps the positions that were stored in the PDA, allowing the user to see when and where the device was. [3]

There is a project of an Android application which is developed to perform different tasks on your mobile phone from any other phone via simple SMS and control your Android phone remotely using SMS. The basic purpose of this application is, if we have forgotten our Android phone at any place we can still control that phone remotely by sending an SMS. [5]

This paper focuses on the proposed systems results. Also, this paper describes the actual implementation of the project as well.

### III. PROPOSED ALGORITHM

In our project, we used two different platforms. The first platform is Android application and the second one is web portal. In the Android application, it combines feature of various Android applications into a single application to provide a user with a secure single platform to secure their phone as well as access other features. The Major focus is on getting an accurate location of the misplaced phone under the circumstances when the battery is low or the phone is stolen. Various applications are available for Android Device Manager or third party applications like Prey, Avast anti-theft etc.

This application consists of two sections: offline mode and online mode. in this paper, we describe our project with help of activity diagram which is one type of diagram in UML model. This activity diagram is shown in the following diagram.

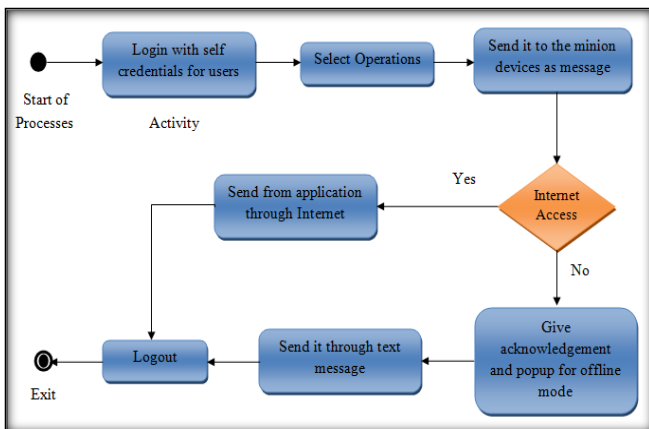


Figure No 1: Activity diagram.

In offline mode, it is necessary that user must have an application installed on both the sides which is client and controller side. As the application will be preinstalled, the user will have to keep a password that would help him for authentication to access this application. In this mode, the controller will be made to input client password for authentication followed by the option for an operation to be performed at the client side. Also, a keyword can be introduced to keep the messages unique from messages received by any other applications. At the client side, the phone will have a broadcast receiver listening to the messages being received on the phone. The message with unique keyword shall be considered and string in that message will be parsed. Fragments would be made separating the authentication password. If password authentication is successful, then the other fragments of command would be used to execute the specified operation in command.

In online mode, the user would be allowed to register his/her phone to a server which will help the user to authenticate his/her phone through application as well as website. After authentication, the controller device will give user few scopes of operation for tracking the minion devices. Once the operation is chosen, the controller device will generate unique keyword which will specify an instruction to be performed. The controller will send that unique keyword to the minion device. If a minion device doesn't have access to the internet, then it will give an acknowledgment to the controller device and show the popup message for performing an operation in offline mode. Otherwise, it will send via application to application through internet. At the minion side, it will recognize that received unique keyword and performed the instructed operation.

The second platform is the website. We developed the website in PHP language and designed with Bootstrap & CSS3. In the website, the user can only log in. they can't register because we need register the user's Android mobile and it is possible to register through own Android mobile with installing our application. While registering the Android mobile it accesses the mobile's basic information like mobile number, IMEI number, mobile model name and its version. This information is displayed on the website when a user is a log on the website. After logging a user, it gives the few options to access own Android mobile remotely. We can edit self-profile that is only personal information not the device information on the website.

The most important thing in this website is that we can take backup of our Android device through the Google and store it on drive or user can store it on website's database which is trusted. This option is important when the Android device is lost and can't track it. At that time, we take the backup of important data from a lost Android device which is most important. With the help of this option, we secured user's important data.

#### IV. IMPLEMENTATION AND RESULTS

Basically, our project, Remote Access through Android device, is implemented in 2 different platforms that are Android Application and web portal using PHP. We use the Android Studio v2.3 IDE for Android applications. This application is run on the Android lollipop 5.0 and above version. SQLite is used as a backend for Android application. The PHP language is used for a website as frontend. Also, we used Bootstrap and CSS3 for design the website. The backend for the website is MySQL and the server for development is XAMPP 3.1.0.

Now, the following points show the experiment and their result after developing the project. First, we take experiment on the Android application which are as follows:

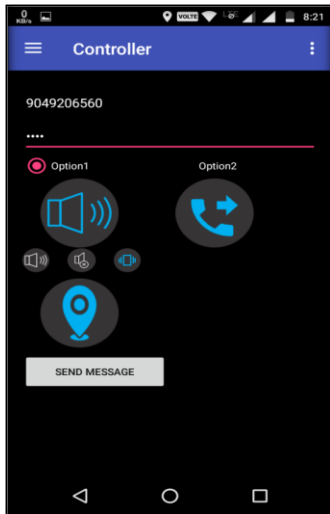


Figure No. 2: Controller Device

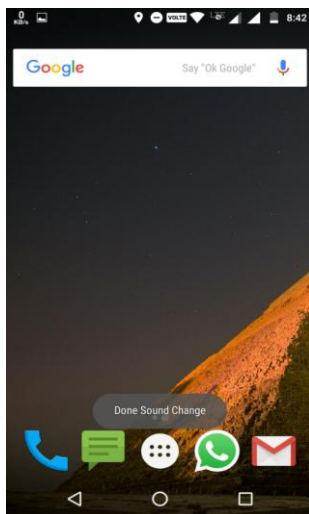


Figure No. 3: Result of Sound profile modification

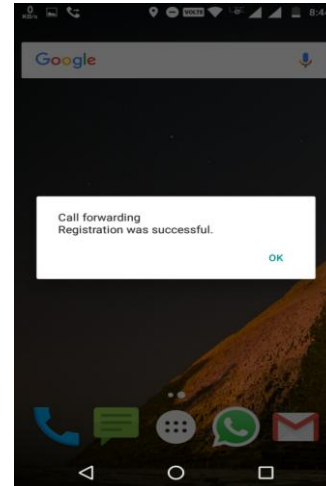


Figure No. 4: Result of Call diverts Function

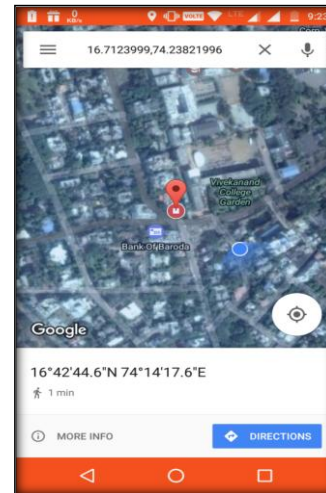


Figure No. 5: Result of location tracking.

In the second part, we take experiment on the website. We can access self-Android mobile through this web portal. The following list is describing the experiment on the website.

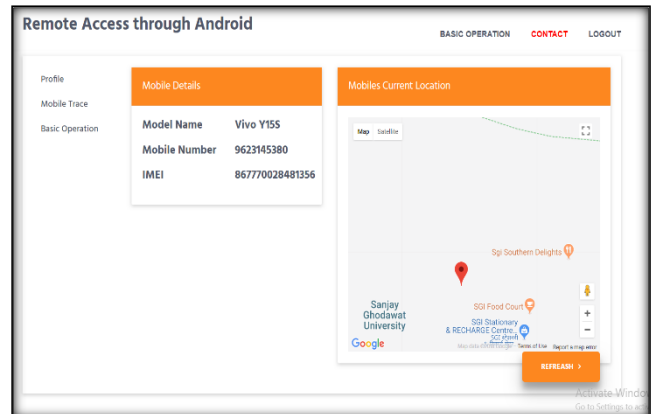


Figure No. 6: Location Tracing through Website

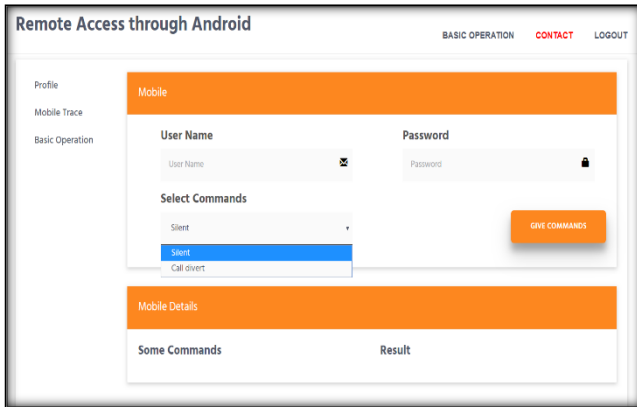


Figure No. 7: Controller view on Website.

The above figure no. 2 shows the controller device with some of the options and the output. And figures 3, 4, 5 show the output of the application at minion(receiver sides). Figures 6 and 7 show the location tracking and controller view on the website. The location tracer at website uses GPS to and a PHP service to get the location from the minion phone.

## V. CONCLUSION

As a result of restricting various permissions from Android developers which might help secure the phone, the Android security applications are forced to develop a scenario where the phone either doesn't get stolen or may be retractable.

Through this system, the user will be able to access his/her remotely located the device and also manage different profiles of devices. This internet-based system and the offline system will help user secure his/her device and receive the calls and messages on desired cell phone. This application gives access to a camera of lost cell phone and access it to fetch the picture of its surrounding to know the pictographic view of the location. This system improved the security through taking backup.

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