Providing Security Features To Android O.S. With Multiuser Facility

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Abstract

Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android provides the tools and APIs necessary to begin developing applications on the Android platform using programming language. Android is a widely anticipated open source operating system for mobile devices that provides a base operating system, an application middleware layer, a Java software development kit (SDK), and a collection of system applications. Android has a unique security model, which focuses on putting the user in control of the device. To achieve multiuser system in android, we have implemented an application which allows to have more than one users in one android phone, So that the admin of mobile can share his mobile with anyone without any hesitation. As the phone sharing for playing games and all is very common nowadays. And if some unauthorized user comes and try to put wrong password more than 4 times then his will be detected using LBS system and photo will be captured using both front(if available) and back camera. Cynogenmod ROM is available on internet by which we can replace existing OS of the android phone. We first added our application in this ROM and then we boot the mobile through this ROM so that this application will be like built in for that device and no one can uninstall this application.

Keywords: App Authentication, Location Based Service, Multiuser System, Switch User, Unauthorized user.

1. Introduction

In today’s world of technology everyone wants his own privacy. And in past few decades the technology Has been advanced so much in the field of computers and mobiles. So the question arises about the security about these technical equipments. Already there is so much security in computers like password system, allowing having more than one users on one PC etc. The same facility of having more than one users is possible in android smart-phones. To have the facility of more than one users in android smart phones, we have created an app called User Accounts. This app enables the admin of the mobile to create more than one user accounts and specify user account separate access to the installed applications on mobile.

To enhance the security feature we have also added the location tracking of unauthorized users by using location based services. And if the unauthorized user enters the wrong password more than four times then his will be detected using LBS system and photo will be captured using both front(if available) and back camera. Cynogenmod ROM is available on internet by which we can replace existing OS of the android phone. We first added our application in this ROM and then we boot the mobile through this ROM so that this application will be like built in for that device and no one can uninstall this application.

2. Motivation

Many years before only windows started the multiuser system on computer. But when we started our searching about this system on android phones we found that it is not available on android. We had belief that if we could able to implement this on android it is will be greatest advantage in terms of security to smart phones. Thus we decided to make an application which supports multiuser system.
3. Multiuser System

Basically the multiuser system means to have more than one users on single system. The need for multiuser system arises in order to provide security to the personal data of admin. In computer this facility is already available. In multiuser system there is one admin who is generally the owner of the mobile. Who whenever required creates users and specify access of mobile to him. Then that user can only access the specified apps by the admin. The main reason behind creating this system is to provide security to admin data. Admin creates the user for the temporary work of that user.

3.1 Admin

Admin is generally the owner of the mobile. He can create the users and specify them the access. Specifying access means allowing that user to use particular apps of mobile only not all the applications. Admin can also make the user as admin means then he can use all the apps. If required an admin can delete the user account.

3.2 User

User is the one who is created by Admin and uses the facility which is provided by the admin. User is generally the temporary user to the mobile system. Who may be the friend, brother etc.

4. Run Time Multiuser System

On a running device, only one user can be logged in at any one time. However when the lock screen is unlocked it asked to login. If the unauthorized user comes and tries to login and enters wrong password more than 4 times then lbs will be latched and photos will be captured. For login successfully admin can login by putting his username and password and similarly user can also login. If it is a user account then the inaccessible app for the user needs the admin permission for login.

5. LBS System

Location Based Services(LBS) system which provides services offered through a mobile phone and take into account the device’s geographical area. The primary objective of this system is to find out where the user is. To specify the mobile user’s location it involves use of mobile phone network. For example, the current cell id can be used for identifying the base transceiver station that the phone is communicating with. Once that is determined, only thing left is to pinpoint the location of the BTS.

6. Experimental Result

This application successfully implements the required models. An admin can successfully create the multiple users and for unauthorized user it takes the photo and send the location via message.
7. Future Scope

1. We can add the feature of sending photos and location to the mail id.
2. Speed of photo capture can be improved more.

8. Conclusions

We have described the basics of multi-user support in Android and outlined a systematic approach to studying whether Android’s security model is properly adapted to this new environment. Also we described that how it is need to have many users on single phone for security reasons. Here we gave the idea of how we can access the phone by having guest login. We can manage more than one users in one phone. Also using this application we can provide more security to android devices by having a multi-user framework. This technology will enable android users to have more than one accounts on their smart phone and by which the phone will be more secure from external attacks. Since we believe it to be inevitable that Android will continue its expansion into environments where user trustworthiness cannot be relied upon, we see a clear need to continue the systematic investigations we describe.

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References