

Providing Security Features to Android OS 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. Android device's however, don't all come from one place, the open nature of the platform allows for proprietary extensions and changes.

Our operational semantics provide some necessary foundations to help both users and developers of Android applications deal with their security concerns. One way to provide security in android OS is that we can have the multiuser security system. As android is open source operating system we can download the source and modify accordingly. To add this feature in android we can develop an application of multiuser and the security can be implemented on android operating system.

To implement this facility we are going to make an android application which supports multiple users. After developing this application we can put it in android OS externally or inbuilt as per user requirements. After putting this application in smart phone we can make more than one users. And this will provide more security to your smart phone.

Also provide more security to smart phone we can have location tracking system called as LBS i.e. Location Based Technology. This technology will enable to track the location of unauthorized users. If any unauthorized user enters wrong password more than five times then his photo will be captured (if front camera available) and location will be tracked also location information will be sent on registered admin's email-id.

Keywords: Access Control, Android framework, Android SDK, Multiuser security, Restricted Profiles, Location based service (LBS).

1. Introduction

Like many desktop operating systems in the 1990s,

Android is now in the process of including support for multiuser scenarios. Because these scenarios introduce new threats to the system, we should have an understanding of how well the system design addresses them. Since the security implications of multi-user support are truly pervasive, we developed a systematic approach to studying the system and

identifying problems.

Unlike other approaches that focus on specific attacks or threat models, ours systematically identifies critical places where access controls are not present or do not properly identify the subject and object of a decision. Finding these places gives us insight into hypothetical attacks that could result, and allows us to design specific experiments to test our hypothesis. Multiple Users (MU) designates the main account as Owner. Through the device settings, the owner account may create additional MU accounts. These secondary accounts are essentially the same as the owner, except for the fact that they cannot manage (i.e., create, modify, delete) other users. MU accounts enjoy most of the other privileges and functionality of the owner, including managing the device's wireless network settings, pairing Bluetooth devices, customizing sound and display settings, installing/removing their own apps, adjusting privacy settings (e.g., location access), and configuring security features (e.g., screen lock, credentials). Each account also has a separate virtual SD card storage area within the physical SD card.

2. Multiuser System

Basically the multiuser system facility means to have more than one users on single system. The need for multi user system arises in order to provide security to the personal data of admin. In multiuser system there in one admin who is generally the owner of mobile. If the need is arises that the owner of mobile has to give his mobile to someone else, there is possibility to have unauthorized access to private data of owner. The basic solution for this problem is that to have password to the application. But this is not so feasible solution because every time the owners need to enter the password. In multi user system this problem can be solved very easily. In this system we can create one separate account for guest user and we can provide access according to his need. In this way the admin's data will be remain protected from unauthorized access.

Multiuser system is a new technology in android OS, which we can provide android Smartphone facility of multiple users. This technology enables the user to have multiple

accounts on his Smartphone. By this the admin of the mobile have security from the external attacks to the system. In this technology the admin will create the user for the temporary work of that particular user.

Admin will assign an accessibility to that user and the particular user can access only that data which is assign to him, also the guest user will have access to only to the application which are authenticated by admin. This technology is very much useful as it implements multiple users and the admin can have his data safe from the guest users.

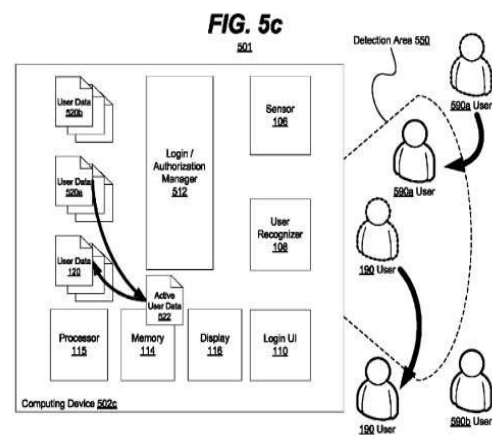


Figure 1: Basic Idea Of Multi-User System

3. Runtime Multiuser System

On a running device, only one user can be “logged in” at any one time. However, through the switch users function, multiple users introduced the concept of the current user, which refers to the user interacting with the device. We refer to other users who may have been using the device before it was switched to the current user as “inactive users.” although the users cannot interact with the device, many of the underlying processes associated with their active session, are left running. Their apps are paused and their background services may be left to run. On builds we have used, there is a limit of 3 to the number of users that can be inactive before their processes are completely removed.

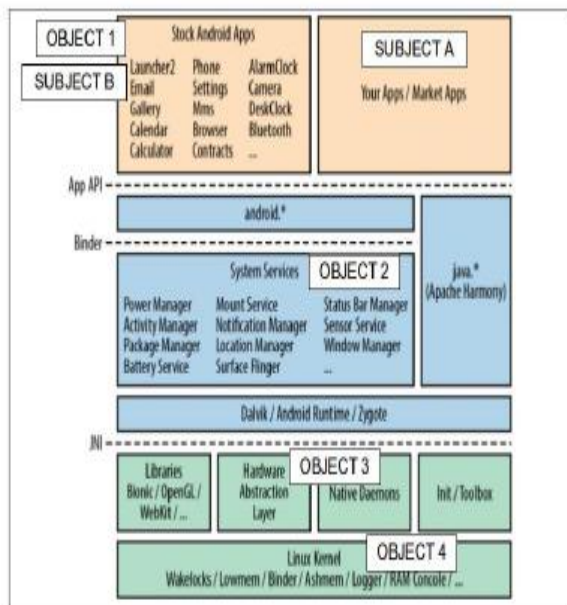


Figure 2: Android Framework

4. Location Based Service

The Location Based Service is location tracking system which uses location data and control features. The location based service gives spatial location which can be represented in the used latitude-longitude-altitude coordinate system.

4.1 LBS methodology in Multiuser android

This technology will enables to track the location of unauthorized users. If any unauthorized user enters wrong password more than five times then his photo will be captures(if front camera available) and location will be tracked also location information will be send on registered admin's email-id.

5. PROPOSED SYSTEM

The following image shows our proposed system for implementing multiuser facility in android os. it can be very well observed that multiuser system is like any benediction to android os. Firstly admin creates the multiple users then assigns access to them and through that access guest user can access the applications as well as data available on smartphone.

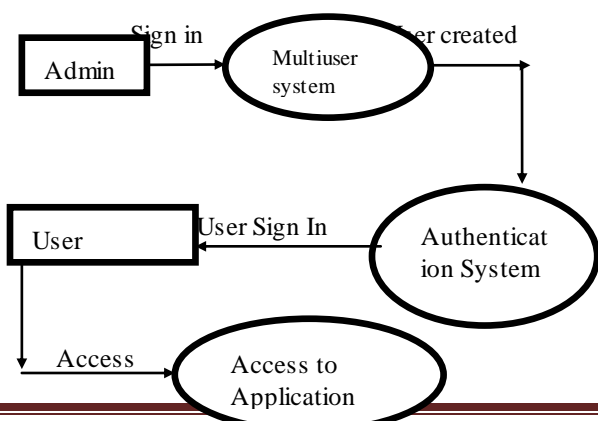


Figure 3: Data Flow diagram Of Multiuser System

6. Future scope

1. Multiuser technology can be implemented in android devices and can be made more secure.
2. Real time providing security to smartphones from external attacks.

7. 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 smartphone 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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