

An Investigation on Authentication System in Android Phones

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Abstract

The dawn of the personal computer era gave birth to a new type of criminal the hacker. Development and awareness of technology has led to rapid increase in number of Smartphone users around the world. Today there is a new even more attractive target for hackers to exploit personal information etc. Therefore security of Smartphone is of utmost importance. Misuse of this information may result in privacy breaches and sensitive data leakage. The hacker then uses these records for committing identity theft. Hence to provide security to Android Smartphone we have developed a screen lock. Screen lock can be set by various methods. One such method is pin pattern.

Keywords: Smart phones, Hacker, Android OS, Pin Pattern, Privacy

I. INTRODUCTION

The Emergence of android operating system in mobile phones has led to a rapid increase in Smartphone users as author found in [1]. An android phone runs on Google's open source android operating system. Currently a new version known as Marshmallow of android operating system has been launched. These versions are developed for increasing security and other features in an android based Smartphone's. Today almost every user has an Android Smartphone because of the features such as multitasking, ease of notifications, app market, diverse phone options and android widgets as we can see in [3,9].

A Smartphone allows you to perform various activities. Therefore smart phones have become an important part of our life. These devices may contain all our personal information such as photos, contacts, messages, bank information etc as in [2]. Therefore if these devices are stolen or left behind and fallen into wrong hands then it may lead to a grave problem. Most of the users keep their smart phones with them at all times, the likelihood of it getting left behind at a restaurant, gym, or other location that they previously visited is probably pretty high [10] and the chances of that left-behind-phone getting stolen and fondled deeply without their approval is probably even higher.

If such condition arises then the first thing comes is a screen lock as found in [2]. Screen lock protects our phones from unauthorized access by outsiders. But the problem still exists as the user needs to set pin or password manually. If the pin or password is seen by prying eyes then they can use smart-phone maliciously unless the user again changes his/her pin or password. The problem with existing lock screen is that the user needs to change the pin or password regularly as author find from [6].

II. RELATED WORK

In this section we will study the existing screen locks. Firstly to access the screen lock, user has to go to setting option and then select Lock screen. Then the user can select from various lock screen options. Or users have to install screen lock.

A. Slide lock:

Slide lock is default lock screen that comes in every smart-phone [11]. This is the simplest lock screen as the user has to either slide horizontally or vertically down the screen. This method is not secure at all because unauthorized user can simply slide to unlock and access the smart-phone without the owner of the phone knowing about it.

B. Face Unlocks:

In Face unlock, the face of the user is used to unlock the phone. In this type of screen lock the phone must have front camera. Initially the user has to save his face as a password to open the screen lock. Once approved, a user will be asked to provide a backup option in case the device cannot recognize his face. The two backup options are PIN or pattern. After this whenever the

user tries to un-lock his phone one has to place his face inside of a face-shaped ring of dots using front facing camera until the device decides that the face is enough to be able to unlock with it.[2,8]

C. Pin Unlock:

This method is secure method in screen lock. In this method the user has to set a numeric pin to unlock the screen. Then to unlock the screen the user must enter the same pin .If the entered pin matches the stored pin then the screen unlocks. If a user forgets the PIN then he is not allowed to access the phone [4,2].

D. Password Unlock:

This method is more secure method than pin in screen lock. In this method the user has to set a alphanumeric numeric password to unlock the screen [17]. Then to unlock the screen the user must enter the same password. If the entered password matches the stored password then the screen unlocks. If a user forgets the password, then he is not allowed to access the phone as in [3, 4].

E. Pattern Lock:

This is well matched with the user interface. There are nine dots on the screen, each of which can be touched and dragged one dot at a time (redundancy input is not available) to make a password. It reduces repetitive touching and provides for easy dragging. However, if users enter an easy pattern for convenience, there is weak security power; if users enter a more complicated pattern, the scheme will not be comfortable to use as study in [15].

F. Biometrics Scanning:

In Biometric scanning the user has to place his any of his finger on the fingerprint scanner and if it matches with al-ready finger print then the phone is unlock. This method can be said as most secure screen lock method but this technology is provided only in high end phones which are costly as in [3, 10, 11].

G. Joy Locker:

Joy Locker is truly for those who want something different. It uses the typical slide-to-unlock but it's hidden inside of little games that you can play in the meantime. There are various little mini games like soccer, shooting a gun, playing with fish, and others [12, 18]. It's great for people who have kids or just someone who wants to mess around for a few seconds while waiting in line. The games aren't great but this is a lock screen and it's also totally free.

H. Alarm Anti-Theft Screen Lock:

Alarm Anti-Theft Screen Lock is a sort of hybrid between a security app and a lock screen app. When enabled, it puts an alarm on your device. Then those who try and fail to get passed the lock screen will be met with a loud, obnoxious alarm letting everyone around them know that the attempt to unlock the device has failed [13, 14]. It's a little old school in terms of design which may clash with today's more modern interfaces but it does help keep nosy people away [16]

I. Circular Screen Lock:

Lock Screen consists of six circles. Each circle changes its color maximum of seven times by retouching the circle. There is no specific order for touching the circles. Once retouching is done a password string is generated. This password string is then confirmed by clicking on ok button. If the string is matched then phone is unlocked as in [1, 5].

III. CONCLUSION AND FUTURE SCOPE

In this survey paper, we have seen various screens lock methods and the problems associated with it. In numeric pin method while entering the pin if somebody sees the pin then he may access the phone provided if get the chance. Our proposed method overcomes this shortcoming by dynamically changing the pin at regular interval. Nowadays Smartphone's plays a vital role in our day to day to life as it contains our personal as well as business information. So they must be protected from unauthorized access by unknown user.

If one talk about the future enhancement of the advance new android technology we can find that this is the time of 4G and 5G network, user want fast accessing and processing mechanism so to complete with numerous peoples system has to be develop new software's that can cooperate to the students for online processing operations here one can say that more advance technology results more advance information , user are growing day to day life , as result data is also getting higher , the management of data, network, and connections as the same need to be manage at the same time all the request and respond need to be manage at run time so that it motivates to the author of this paper that application are very high , now need to develop only the desired one for that everybody need to be specially delicately working on the desired mobile platform, because mobility is increasing that affect the platform demands android is the most powerful operating system at present time who offers the way to develop more advance app to overcome from the drawbacks.

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