

Android: The Most Unique Operating System for Mobile Devices

Roopesh Kumar¹, Prabhat Kumar Singh²
^{1,2} Mandsaur Institute of Technology, Mandsaur

Abstract- We all know the importance of mobile phone in daily life of human being. Different operating system used for mobile phones. The most popular OS ios and Android. Now days most of the smart phones work on android environment. Different companies have launched their mobile phones with latest applications but Android based application provided phenomenal performance for different user. Application development is maximizing the usability of smart phones. Smart phones contain various information of user and an application also shares information's hence information security is also a big challenge in android system. In presented paper we are giving brief introduction of Android Operating System and different issues of that with the help of previous work done.

Keywords- Android, Smartphone, ios

I. INTRODUCTION

Today in present era, the usage of cell phones which also called as mobile phones is increasing day by day throughout the world. The same thing is also happening in India. There are various technologies are introduced in cell phones day by day. The main popular OS used in India are Android, Symbian, and Apple OS etc. [1]. Now the Android system in the electronics market is becoming more and more popular, especially in the Smartphone market. Because of the open source, some of the development tools are free, so there are plenty of applications generated. This greatly inspired the people to use the Android system. In addition, it provides a very convenient hardware platform for developers so that they can spend less effort to realize their ideas. This makes Android can get further development [2].

II. ANDROID'S ARCHITECTURE

The architecture basically consists of four sections: the Linux kernel (system) as underlying operating system interface, the libraries (e.g. libc) as important part of the operating system; the Android framework providing all necessary classes and methods in order to write Android-compatible applications; and, as top section, the actual Android applications.[3]

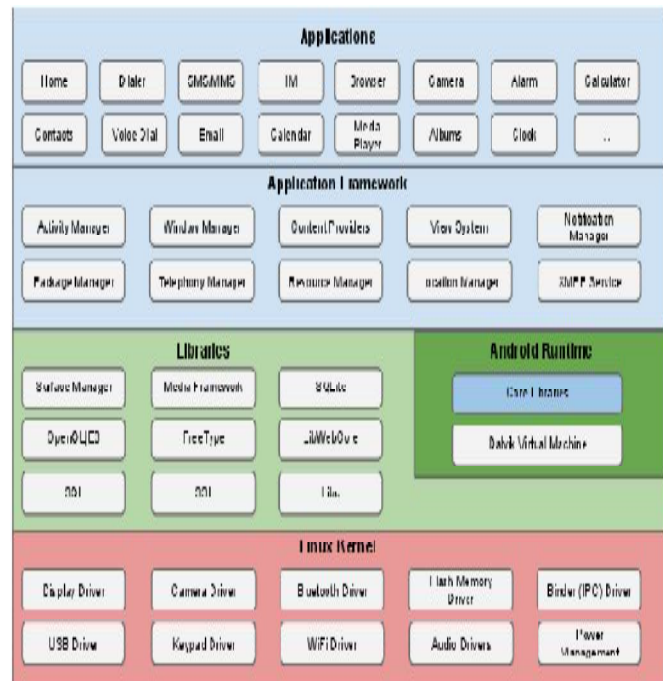


Figure-1: Android Architecture [4]

III. ANDROID Version and Their Features

Since April 2009, Android versions have been developed under a confectionery-themed code name with significant feature improvement over time to time is listed below

Cupcake (1.5)

Bluetooth A2DP, AVRCPP support
 Soft-keyboard with text-prediction
 Record/watch videos

Donut (1.6)

Gesture framework
 Turn-by-turn navigation

Éclair (2.0–2.1)

HTML
 Digital zoom
 Microsoft Exchange support
 Bluetooth 2.1
 Live Wallpapers
 Updated UI

Froyo (2.2–2.2.3)

Speed improvements
 JIT implementation
 USB Tethering
 Applications installation to the expandable memory
 Upload file support in the browser
 Animated GIF

Gingerbread (2.3–2.3.7)

Updated UI
 Improved keyboard ease of use
 Improved copy/paste
 Improved power management
 Social networking features
 Near Field Communication support
 Native VoIP/SIP support
 Video call support

Honeycomb (3.0–3.2.6)

Multi core support
 Better tablet support
 Updated 3D UI
 Customizable home screens
 recent applications viewing
 redone keyboard layout
 Media/Picture transport protocol
 Google Talk video chat
 Google eBooks
 "Private browsing"
 System-wide Clipboard
 HTTP Live streaming

Ice Cream Sandwich (4.0–4.0.4)

Facial recognition (Face Unlock)
 UI use Hardware acceleration
 Better voice recognition (dictating/Voice typing)
 Web browser, allows up to 16 tabs
 Updated launcher (customizable)
 Android Beam app to exchange data through NFC

Jelly Bean (4.1–4.3)

Google Now
 Voice Search
 Speed enhancements
 Media Action Sound class to make sounds like when a camera takes a photo
 NFC supports large payloads over Bluetooth
 WIFI/WIFI-Direct service discovery
 Large, detailed, multi-action notifications
 Input manager allows you to query input devices

The latest KitKat (4.4)

Screen recording
 New Translucent system UI
 Enhanced notification access [5]

IV. ANDROID AND LINUX

1. Android is an open source operating system developed by Android, Inc. which is now owned by Google, Inc. whereas Linux is developed as an open source operating system under the GNU project by Linus Torvalds and many others.
2. Android is developed for Mobile Internet Devices and mobile phones whereas Linux is developed for desktops/laptops/servers.
3. The Android operating system has its own C library called Bionic whereas Linux systems use GNU C library.
4. The Android systems use flash memory instead of hard drives while the standard Linux systems use magnetic drives.
5. The Android systems have their own power manager whereas the Linux systems use APM and ACPI to manage the power.[6]

V. SECURITY ISSUES

Android is not secure as it appear, even when such robust security measures. There are several security problems faced by the android, some of them are mentioned below. i. Android has no security scan over the apps being uploaded on its market. ii. There are some apps which can exploit the services of another app without permission request. iii. Android's permission security model provides power to user to make a decision whether an app should be trusted or not. This human power introduces a lot of risk in Android system. iv. The Open Source is available to legitimate developers as well as hackers too. Thus the Android framework cannot be trusted when it comes to develop critical systems. v. The Android operating system developers clearly state that they are not responsible for the security of external storage. vi. Any app on the android platform will access device data just like the GSM and SIM marketer Ids while not the permission of the user.[4]

This is being done to ensure that the mobile OS's security measures are implemented and the device does not become a harm to the cellular network. Rooting involves a modification to the system partition. Modifications to the system partition require root permissions, which are not available by default. There are two ways of obtaining root permissions: Either the customer boots a custom system that gives him a root shell, or he exploits a vulnerability to obtain root permissions at runtime.[8]

VI. CONCLUSION

Now day's mobile phones have become essential part of everyone lives. Earlier devices based on without touch environment. But as the technology has improved touch devices comes in scene. In this paper we have gone through the new os of mobile device known as Android and also give dedifferentiation with Linux.

REFERENCES

- [1] Ashish A Kulkarni, Pooja A Kulkarni, "A Study of Android operating system with respect with user satisfaction", International Journal of Advanced Technology in Engineering and Science Volume No.03, Issue No. 01, January 2015 ISSN (online): 2348 – 7550
- [2] Li Ma , Lei Gu1 and Jin Wang , "Research and Development of Mobile Application for Android Platform" International Journal of Multimedia and Ubiquitous Engineering Vol.9, No.4 (2014), pp.187-198
- [3] Roopesh Kumar, Akhilesh Dubey, "Android Environment and Information Security", IJSRD - International Journal for Scientific Research & Development| Vol. 3, Issue 03, 2015 | ISSN (online): 2321-0613
- [4] Tiwari Mohini, Srivastava Ashish Kumar and Gupta Nitesh, "Review on Android and Smartphone Security", Research Journal of Computer and Information Technology Sciences ,ISSN 2320 – 6527 Vol. 1(6), 12-19, November (2013)
- [5] Mr. Sumedh P. Ingale¹, Prof. Sunil R. Gupta², "Security in Android Based Smartphones", International Journal of Application or Innovation in Engineering & Management (IJAIEM) Volume 3, Issue 3, March 2014 ISSN 2319 – 4847
- [6] Hadeel Tariq Al-Rayes, "Studying Main Differences between Android & Linux Operating Systems" International Journal of Electrical & Computer Sciences IJECS-IJENS Vol:12 No:05
- [7] Cláudio Maia, Luís Nogueira, Luís Miguel Pinho, "Evaluating Android OS for Embedded Real-Time Systems"
- [8] Mis.Prajakta S. Deshbhratar, Prof. Mayur S. Burange, "Android Security –Big Challenge" International Journal of Emerging Research in Management & Technology ISSN: 2278-9359 (Volume-3, Issue-3)