

An Overview of Android OS

Tahir Husain^[1], Dr.Devesh Katiyar^[2]

^[1]Students of MCA, ^[2] Asst. Professor

Department of Computer Science and Information Technology

DSMNRU Lucknow, Uttar Pradesh, India

Abstract

Android is a widely used operating system based on Linux kernel which is made by Google. Android is software set which includes not only operating system also middleware and application key. Android O.S. categorized into many layers such as application, application framework, libraries runtime and kernel. Android is mainly designed for 9 touch screen mobile devices such as Smartphone, tablet, the android OS also works in television (android TV) and other android based electronic devices. Android user interface is mainly based on direct manipulation using touch gestures that coincide real world action like flicking (swapping), tapping, expanding or pinching and reverse pinching to frame up on screen object. In this chapter we describe the android operating system. We also show the version of android operating system and the history of the android OS.

Key Word; Versions, OS (operating system), Feature, history, OHA

I. INTRODUCTION

Android has proved to be a boon for making best mobile phone that is open source and freely installed in smart phone . Android can be run on mobile devices from companies that have been together to form OpenHandsetAlliance that is based on large platform for developing the android Linux based kernel operating system. It has become the rapidly growing mobile operating system. Due to open source it is very famous for developer and customer, we can make changes and update very easily and can also add some important feature that satisfy customer requirement and helps in technology based daily task came into presence. There is much other security method available in the market.

II. ANDROID OS HISTORY

The key person who gave the ideas for developing the android operating system which name was Andy Rubin, Rich Miner, Nick Sears, and Chris White developed the company Android

Inc in October 2003. The Android Inc Company at that time aimed to create operating system for digital camera but latter he felt that the camera market is not good. So after five month of starting the company, they changed the planning and decide to make an operating system for mobile. Google buy android Inc in 50 million dollar in July 2005 and Andy Rubin joined the Google .later several company were merged to form an OpenHandsetAlliance in Nov 2007 which include eighty companies today's like Samsung, HTC, Motorola, LG, Intel lead by Google. Open Handset permit the source code of android among all those participant companies that is the part of Open Handset Alliance.. The first android operating system smart phone was released that name was HTC Dream t-mobile G, which was launched in September 23, 2008. 2.5 billion User of android operating system which is three times of Microsoft OS and four times of IOS.

III. FEATURES OF ANDROID OS

Through android software development toolkit, it helps the developer to develop the good software. Due to open source it is very famous for developer and customers, we can make changes and update very easily and can also add some important features. Android has its personal play store. From Google Play Store android user download over 1.5 billion app and games every month.

Some important feature are given bellow

Web browser: Application framework such as-web kit engine based integrated browser. Optimized graphic power by the advance graphic library.

Storage: Storage of structured data for various types of video, audio, and image formats media support is managed by Structured Query language

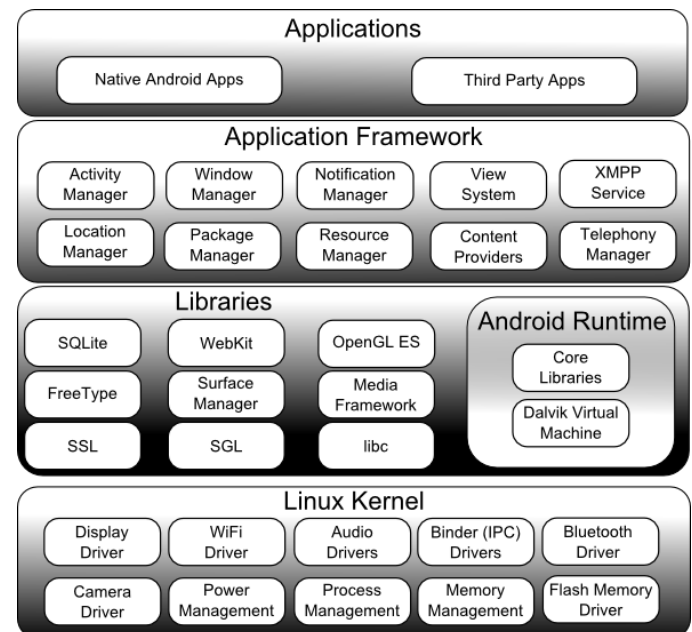
Connectivity: Some of the device dependent feature supported by android include network connection, GSM telephony, Network connection profile such as- Bluetooth, edge, 3G,Wifi.

Beautiful UI: It gives us a basic screen that provide a user interface

Multitasking: Multitasking features are very important because we can proceed various applications simultaneously in same time.

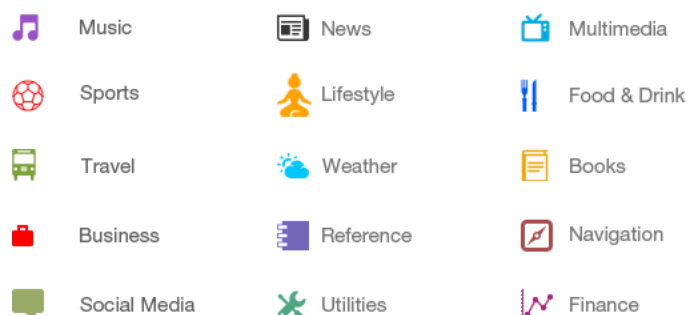
Multilanguage: It is support Multilanguage

runtime, Application framework and Application.The following diagram is given below of Android OS components-



IV. ANDROID APPLICATION

Android application mainly developed in java language by using the android software development toolkit. We can easily rolled android application and easily sell out through a store such as Slide Me, Google Play Store, Opera Mobile Store, Mobango, Amazon app store ,and MI store. Every day more than one million new android devices are active worldwide. Android powers millions of mobile devices in more than 190 countries worldwide. The following android application in the market the top categories are –



V. ANDROID ARCHITECTURE

Android is a Linux kernel based system that uses the software set architecture design pattern . android consist of mainly four layer architecture such as Linux kernel, Libraries, Android

(A)Linux Kernel

Linux based on 2.6. The device driver came in this layer is binder (IPC), Flash Memory Driver, Bluetooth Driver, Wi-Fi, audio. Power management work on battery related information that battery is low and when screen shutdown

(B)Libraries

Libraries written in C and C++ language which comes on the just top of the Linux kernel in which surface manager, media framework, SQ Lite, OpenGL ES, Web kit, SGL,SSL, and Libc are comes.

(C) Application framework

Application framework component are written in java language. in which the software developer use the software framework for creating application software.

(D) Application

The top layer of the android architecture is the application layer. Dialer, web browser, and contact manager, SMS, calendar, roadmap, application are pre installed with every devices. we can replace application by own writing application.

VI. VERSION HISTORY

Android Version (1.0)-the first version of the android was launched in September 2008. In which many feature are presents such as android market application, Web Browser, and plan full HTML XHTML web pages. It was also camera supporting, folders created for grouping of application into single icon folder on home screen and many types of Google related application were present as Google Map, Google Calendar Google Sync.

Android Version (1.1)-It is launched in February 9 in 2009. In 1.1 longer in call screen timeout facility presented and message attachment facility also provided.

Android Version (1.5)-The 1.5 version launched in April 30, 2009. known as Cupcake that is first android version which name was put on the name of dessert. In this video recording, virtual keyboard, and uploading the video in YouTube and photo in Picasa and other facility such as-checking history, auto rotation, screen transition.

Android Version (1.6)- A version released in September 15, 2009 whose name was Donut and it was based on the 2.6.29 Linux kernel. The feature of this version was –we select the multiple photos for deleting, easier searching, gallery and camera supported.

Android Version (2.0/2.1)-It was known as Éclair that was released in October 26, 2009. In this version expanded account sync, Exchange, email supported, Bluetooth 2.1 facility was present. We tap contact photo and can do the call, SMS and email, MSS facilities are present in this feature.

Android Version (2.2.x)-It was known as Froyo and released in 20 May 2010 that is based on 2.6.32 Linux kernel. Wifi, hotspot, quick switching between multiple keyboards are the main feature of this version.

Android Version (2.3.X)- It was liberated in 6 December 2010 its name was Ginger bread. The feature of this version was-faster text input, extra large screen size, new download manager, enhanced copy paste functionality present. It was support multiple cameras.

Android Version (3.x) - In this version new virtual and holographic user interface was present. The launching of this

version in 2011, it was support multiple Browser tabs, provide quick access to the camera support video for chat using Google.

Android Version (4.0.x) - Ice cream Sand witch was the name of Android 4.0.x publically released in October 19, 2011. From this version we can easily made folder, screenshot capture and voice integration facility were present, improved copy paste functionality was also present.

Android Version (4.1) - This version was launched in June 27, 2012 based on the Linux kernel 3.0.31. the aim of this version mainly increase the performance of user interface . Many features are present in this such as-bidirectional text, offline voice detection, Google wallet, multichannel audio, and USB audio and audio chining were present.

Android Version (4.4) - Google released the android Kitkat 4.4 version with Nexus5 Smartphone in October 2013.

Android Version (5.0 L)-When android L was about to be released, there was a decision occur among the people about its name, someone was giving it Licorice some Lemonhead and some was giving it the now Lollipop. And when it was released on October 15, 2014. It was renamed android Lollipop. In this all notification can view and also cancel it simultaneously on home screen.

Android Version (6.0)- This Marshmallow version was released in 5 October 2015. This was the same as the lollipop version but some feature is different as –improvement in cut and paste, better security, voice search directly for lock screen. Minimization facility of app was available in this feature, changing in app permission, smart lock password, and better power saving option.

Android Version (7.0) - It released with Google Pixel phone in October 4, 2016 the feature of this version was –Night light from which we can easily read in night, finger print.

Android Version (8.0) - It was known by the name of OREO and released in August 18, 2017 the feature of this version was –enhanced battery life, picture in picture, smart text selection, notification dots that is show on app. better Google assistance, more safe and secure.

Android Version (9.0, 10)-Its name is Pie which is released in August 6, 2018 features are-adaptive battery, adaptive brightness, Android dashboard app timer, window down mode. Android 10 is the latest mobile OS there is no name of this version.

VII. CONCLUSION

The android OS mostly used operating system in Smartphone in today's. It has a huge number of the user. Due to its open source it is very easy for user. The OHA is a very crucial in developing of android Operating system which is lead by Google. First time it is used in digital cameras but now it is used in million of mobile devices. In movable condition its help in our daily routine life such as listening news, education related information. In transportation it plays very important role. The next coming version of android is more featureful than previous release.

VIII. REFERENCES

- [1] [https://en.wikipedia.org/wiki/Android_\(operating_system\)](https://en.wikipedia.org/wiki/Android_(operating_system))
- [2] [https://en.wikipedia.org/wiki/Android_\(operating_system\)#History](https://en.wikipedia.org/wiki/Android_(operating_system)#History)
- [3] <https://www.javatpoint.com/android-what-where-and-why>
- [4] https://www.tutorialspoint.com/android/android_architecture.htm
- [5] K.Chinetha, J.Daphney Joann, A.Shalini "An Evolution of Android Operating Systems," IJEAS, volume-2, February 2015.
- [6] Palak Khanna & Amandeep Singh, "Google Android Operating System: A Review," IJOCA, volume 147-No.4, August 2016
- [7] Przemyslaw Gilski & Jacek Stefanski, "Android OS: A Review," TEM, volume -4/Number/1/2015
- [8] Monika Sharma & Ankit thakur, "Review Paper on Android Operating System,"