

# **ANDROID IS THE MOST POPULAR MOBILE OPERATING SYSTEM**

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## **Анотація**

*Розглянуто переваги та недоліки Android, наведено його основні функції та їх важливість у житті людини.*

**Ключові слова:** Android, операційна система, додатки.

## **Abstract:**

*The advantages and disadvantages of Android are considered. The main functions and their importance in human life are given.*

**Key words:** Android, operating system, applications.

## **Introduction**

World is contracting with the growth of mobile phone technology. As the number of users is increasing day by day, facilities are also increasing. Starting with simple regular handsets which were used just for making phone calls, mobiles have changed our lives and have become part of it. Now they are not used just for making calls but they have innumerable uses and can be used as a Camera , Music player, Tablet PC, T.V. , Web browser etc . And with the new technologies, new software and operating systems are required.

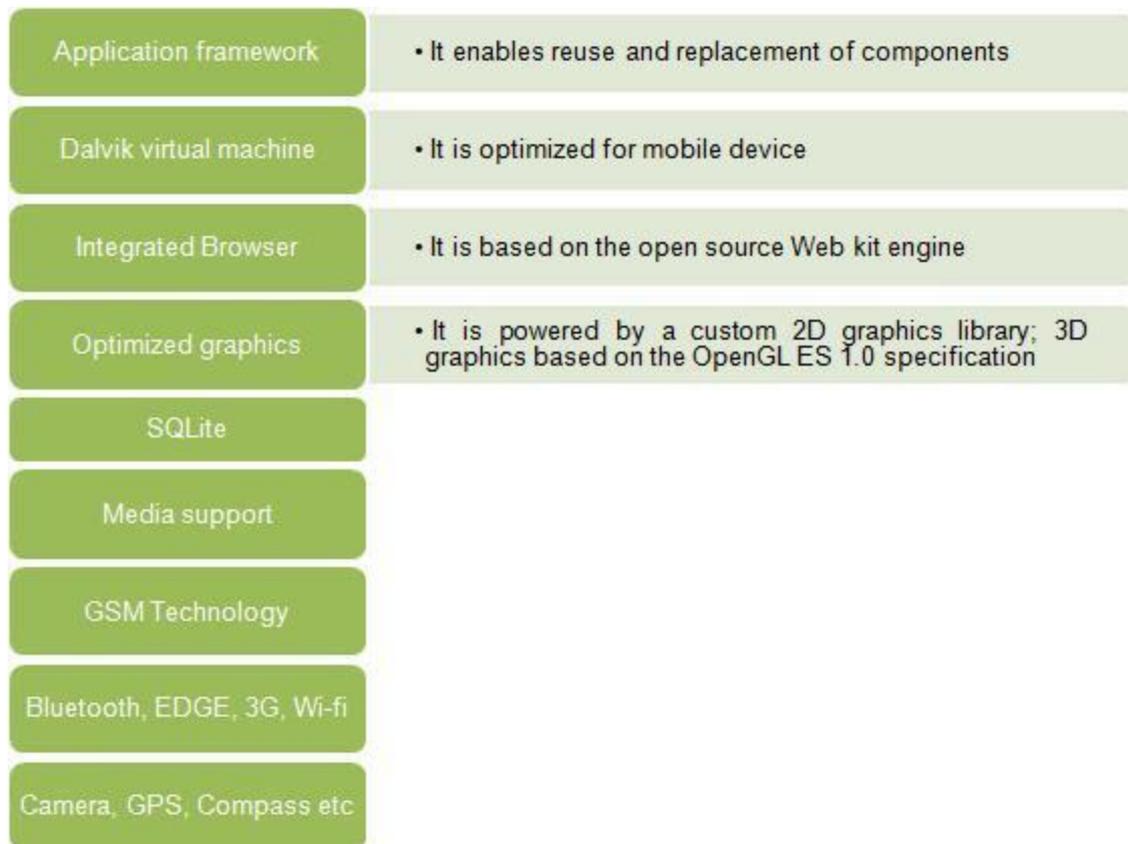
Operating Systems have developed a lot in last 15 years. Starting from black and white phones to recent smart phones or mini computers, mobile OS has come far away. Especially for smart phones, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android.

The most widely used mobile OS in these days is Android. Android is a software bunch that includes not only the operating system but also middleware and key applications. Android Inc was founded in Palo Alto of California, U.S. by Andy Rubin, Rich Miner, Nick sears and Chris White in 2003. Later on Android Inc. was acquired by Google in 2005. After the original release, there have been a number of updates in the original version of Android [1].

## **Main part**

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics [2].

Android is a powerful Operating System supporting a large number of applications in Smart Phones. These applications make life more comfortable and advanced for the users. Hardwares that support Android are mainly based on ARM architecture platform. Some of the current features and specifications (draw. 1) of android are [3]:



Drawing 1 - Features and specifications

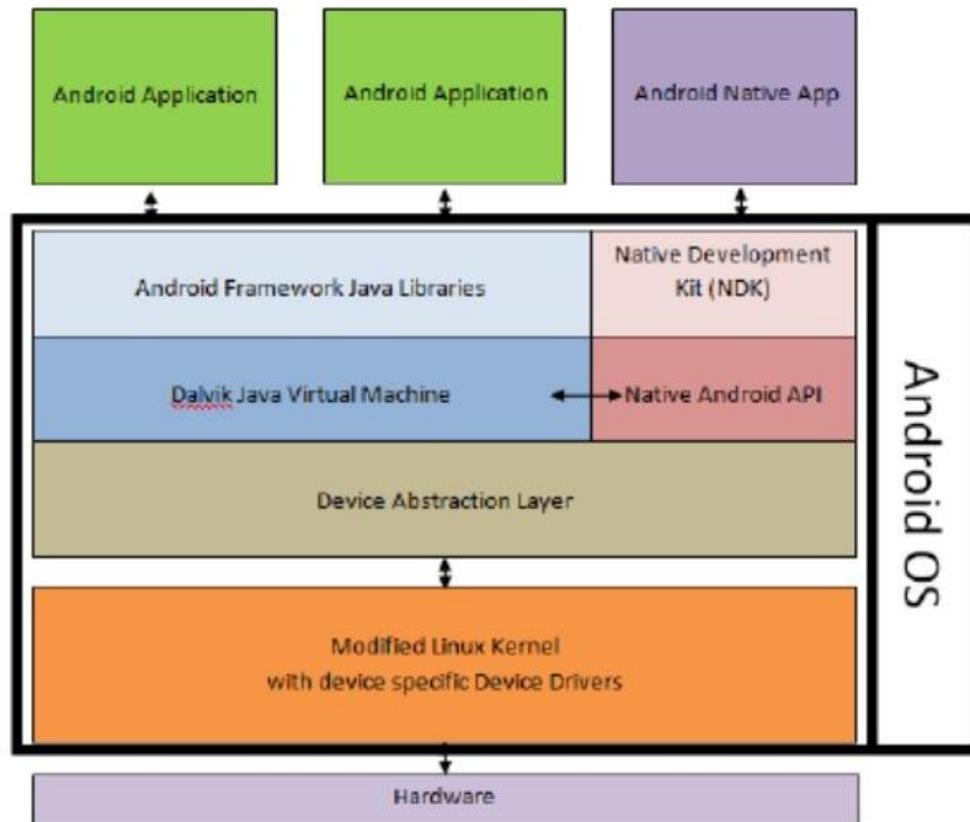
Android's default user interface is mainly based on direct manipulation, using touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, along with a virtual keyboard. Game controllers and full-size physical keyboards are supported via Bluetooth or USB. The response to user input is designed to be immediate and provides a fluid touch interface, often using the vibration capabilities of the device to provide haptic feedback to the user. Internal hardware, such as accelerometers, gyroscopes and proximity sensors are used by some applications to respond to additional user actions, for example adjusting the screen from portrait to landscape depending on how the device is oriented, or allowing the user to steer a vehicle in a racing game by rotating the device, simulating control of a steering wheel.

Android devices boot to the homescreen, the primary navigation and information "hub" on Android devices, analogous to the desktop found on personal computers. Android homescreens are typically made up of app icons and widgets; app icons launch the associated app, whereas widgets display live, auto-updating content, such as a weather forecast, the user's email inbox, or a news ticker directly on the homescreen. A homescreen may be made up of several pages, between which the user can swipe back and forth. Third-party apps available on Google Play and other app stores can extensively re-theme the homescreen, and even mimic the look of other operating systems, such as Windows Phone. Most manufacturers customize the look and features of their Android devices to differentiate themselves from their competitors.

Along the top of the screen is a status bar, showing information about the device and its connectivity. This status bar can be "pulled" down to reveal a notification screen where apps display important information or updates. Notifications are "short, timely, and relevant information about your app when it's not in use", and when tapped, users are directed to a screen inside the app relating to the notification. Beginning with Android 4.1 "Jelly Bean", "expandable notifications" allow the user to tap an icon on the notification in order for it to expand and display more information and possible app actions right from the notification.

An All Apps screen lists all installed applications, with the ability for users to drag an app from the list onto the home screen. A Recents screen lets users switch between recently used apps [4].

Typical Structure of the Android OS (draw. 2):



Drawing 2 - Typical Structure

### Applications

Android comes with an Android market which is an online software store. It was developed by Google. It allows Android users to select, and download applications developed by third party developers and use them. There are around 2.0 lack+ games, application and widgets available on the market for users.

Android has a growing selection of third-party applications, which can be acquired by users by downloading and installing the application's APK (Android application package) file, or by downloading them using an application store program that allows users to install, update, and remove applications from their devices. Google Play Store is the primary application store installed on Android devices that comply with Google's compatibility requirements and license the Google Mobile Services software. Google Play Store allows users to browse, download and update applications published by Google and third-party developers; as of July 2013, there are more than one million applications available for Android in Play Store. As of July 2013, 50 billion applications have been installed. Some carriers offer direct carrier billing for Google Play application purchases, where the cost of the application is added to the user's monthly bill. As of May 2017, there are over one billion active users a month for Gmail, Android, Chrome, Google Play and Maps.

Due to the open nature of Android, a number of third-party application marketplaces also exist for Android, either to provide a substitute for devices that are not allowed to ship with Google Play Store, provide applications that cannot be offered on Google Play Store due to policy violations, or for other reasons. Examples of these third-party stores have included the Amazon Appstore, GetJar, and SlideMe. F-Droid, another alternative marketplace, seeks to only provide applications that are distributed under free and open source licenses.

Android applications are written in java programming language. Android is available as open source for developers to develop applications which can be further used for selling in android market. There are around 200000 applications developed for android with over 3 billion+ downloads. Android relies on Linux

version 2.6 for core system services such as security, memory management, process management, network stack, and driver model. For software development, Android provides Android SDK (Software development kit) [2].

These are the basics of Android applications:

- Android applications are composed of one or more application components (activities, services, content providers, and broadcast receivers)
- Each component performs a different role in the overall application behavior, and each one can be activated individually (even by other applications)
- The manifest file must declare all components in the application and should also declare all application requirements, such as the minimum version of Android required and any hardware configurations required
- Non-code application resources (images, strings, layout files, etc.) should include alternatives for different device configurations (such as different strings for different languages) [5]

### **Interesting facts**

1. The Android operating system was developed by Android Inc., in 2004 backed by Google. Later Google bought it in 2005 at a price of \$50 million.
2. Android operating system, was developed as a platform for digital cameras. But the makers later changed their focus to smart phones as they saw its potential.
3. Google launched Android operating system in November 5, 2007, which is a Linux based software system.
4. HTC Dream or T-Mobile G1 is the first ever smartphone to run on the Android operating system, this mobile phone was released in the year 2008.
5. Google's Android operating system, has attained over a billion activations on devices like smartphones and tablets.
6. Except Android 1.0 and 1.1, all the other Android versions are named after sweet treats like Jelly Bean, Ice Cream Sandwich, Honeycomb to name a few.
7. Android operating system has been released in a lot of versions, where every release has been following an alphabetical order in naming. The names are Android Astro (1.0), Bender (1.1), Cupcake (1.5), Donut (1.6), Eclair (2.0), Froyo (2.2.x), Gingerbread (2.3.x), Honeycomb (3.0), Ice Cream Sandwich (4.0.x), Jelly Bean (4.x) and KitKat (4.4). Google considering Lollipop as the next version's name.  
Also read: Evolution of Android Operating System, Less known android features in latest versions, Android apps for remote computer access.
8. Do you know that Android is open source? Since Google is a member of Open Handset Alliance (OHA), it has given users or interested people the option to modify source code of the OS. This has allowed manufacturers to add features to the OS.
9. Human with a robot appearance is the meaning of the word Android. It refers to a male robot. Gynoid is the female looking robot.
10. Android is Andy Rubin who is the co-creator of Android, it was the name given to him at Apple before joining Google, for his obsession and love for robots.
11. There is a Android running device in space!! NASA equipped Floating space robots with Nexus S handsets. These devices run on Android Gingerbread.
12. Most of the people think that the name of Android's logo character is also Android, but its not true. The actual name of Android Mascot is Bugdroid, though this is not official, Google team call it by this name.
13. One of the best parts of being an Android owner is its apps, its app store "Google play" has more than 48 billion app installs, of which most of them are free.
14. Now Android is used to power devices like Google Glass, Watches and so on.
15. For the launch of its latest version, it took a proper brand name [6].

### **Conclusion**

So, more than 80 percent market share, Android is the dominant mobile operating system today. It's running on countless models of smartphones and tablets, as well as many other devices. Judging by this, one would think that programming for Android is simple and easy. Speaking from a scientific point of view, operating system Android this is a big step, that useful in everyday life.

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