ADAPTIVE PROFILE

CHANGING PROFILE ACCORDING TO PLACE

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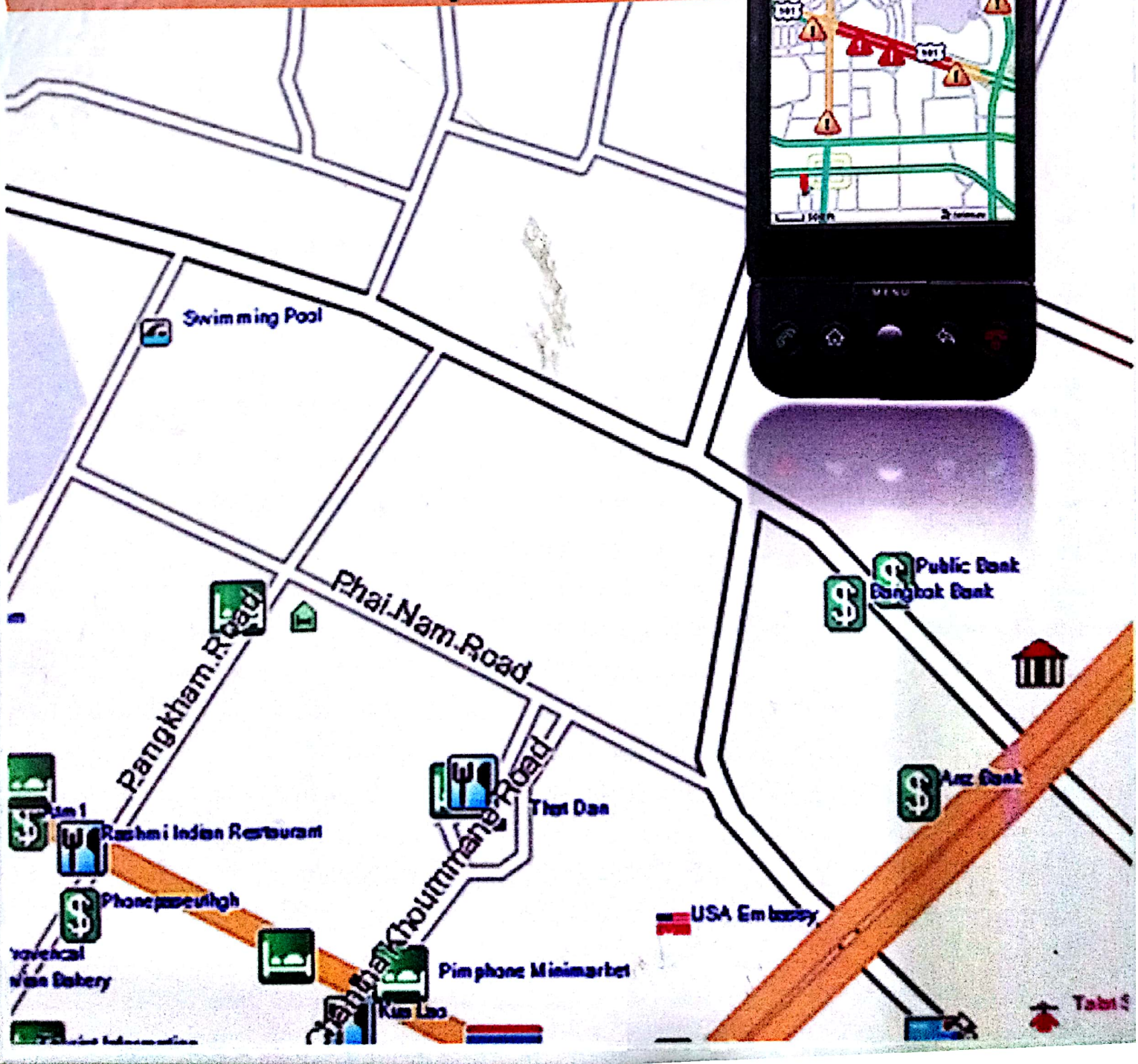

Zagazig University
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"Change profiles according to the place"

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Abstract

Many people who use mobile phones change the profile of use of their phone according to where they are, and often repetitive and habitual.

But sometimes because of haste or distraction,
We forget to change it, and maybe, in a meeting, we are the cell phone rings.
Or at home, while we are adjusting something, we do not notice that someone is calling us.

So why not introduce in this phone the ability to recognize, via a Wi-Fi, or Bluetooth, or GPS,
To identify where we are, enabling them to act accordingly and set a defined profile.
I think many people would find it comfortable and can customize it as they want,
Selecting the network and profile, in a specific caption in the settings.

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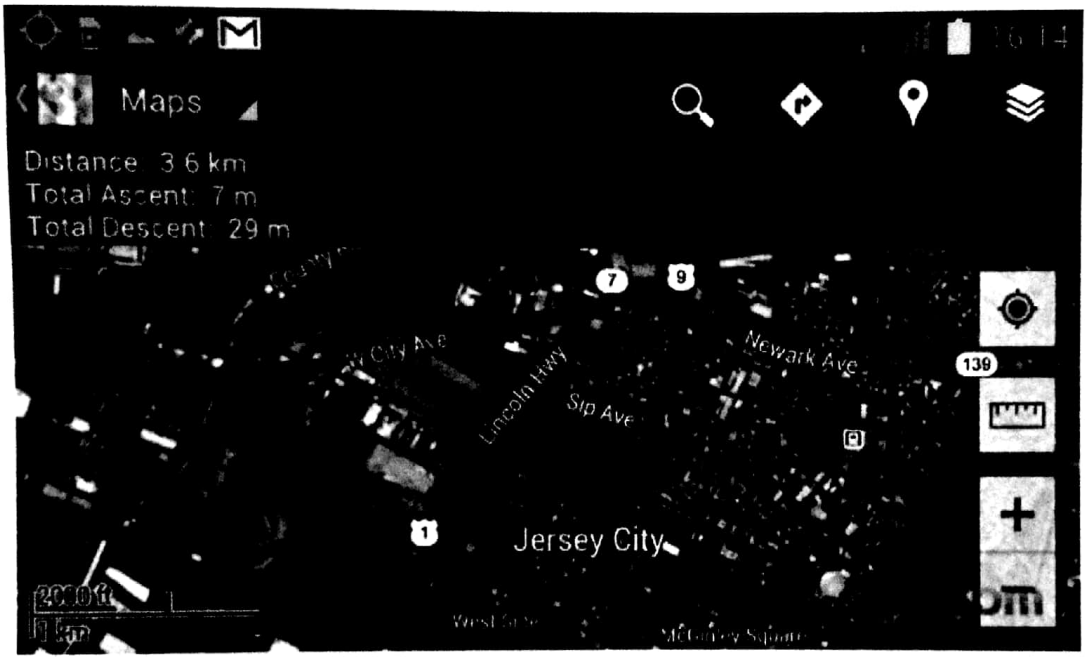


Index Chapter 1

Chapter 1: introduction and **technologies used**

1.1 introduction

in this chapter we will discus project as general and technologies used in it such as (android operating system ,Google map ,GPS tools and sqllite mechanism .

1.2 Android operating system

1.2.1 What is android OS?

Is a Linux-based operating system for mobile devices such as smartphones and tablet computers. It is developed by the Open Handset Alliance, led by Google, and other companies.

Google purchased the initial developer of the software, Android Inc., in 2005. The unveiling of the Android distribution in 2007 was announced with the founding of the Open Handset Alliance, a consortium of 86 hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. Google releases the Android code as open-source, under the Apache License. The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android.

-

Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. Developers write primarily in a customized version of Java. Apps can be downloaded from third-party sites or through online stores such as Google Play (formerly *Android Market*), the app store run by Google. In October 2011, there were more than 500,000 apps available for Android, and the estimated number of applications downloaded from the Android Market as of December 2011 exceeded 10 billion.

1.2.2 Android is a Gphone

The weeks and months before Google released the Android SDK there had been a lot of rumors about a so called GPhone. It was said to be a mobile device manufactured by Google providing free communication by showing context-sensitive advertisements to the user on the device itself.

Render of a potential Gphone

But on November 5th 2007 Andy Rubin2 announced:

"[The] Android [Platform] – is more significant and ambitious than a single phone."

Google within the Open Handset Alliance (OHA) delivers a complete set of software for mobile devices: an operating system, middleware and key mobile applications. What was released a week later was not a final product, but a "*First Look SDK*" what many did not realize. Major news sites grabbed the discomforts of some developers who said that Android is full of bugs and heavily lacks of documentation. But the majority says that Android is not buggier than any other software at this stage.

1.2.3 Why android OS?

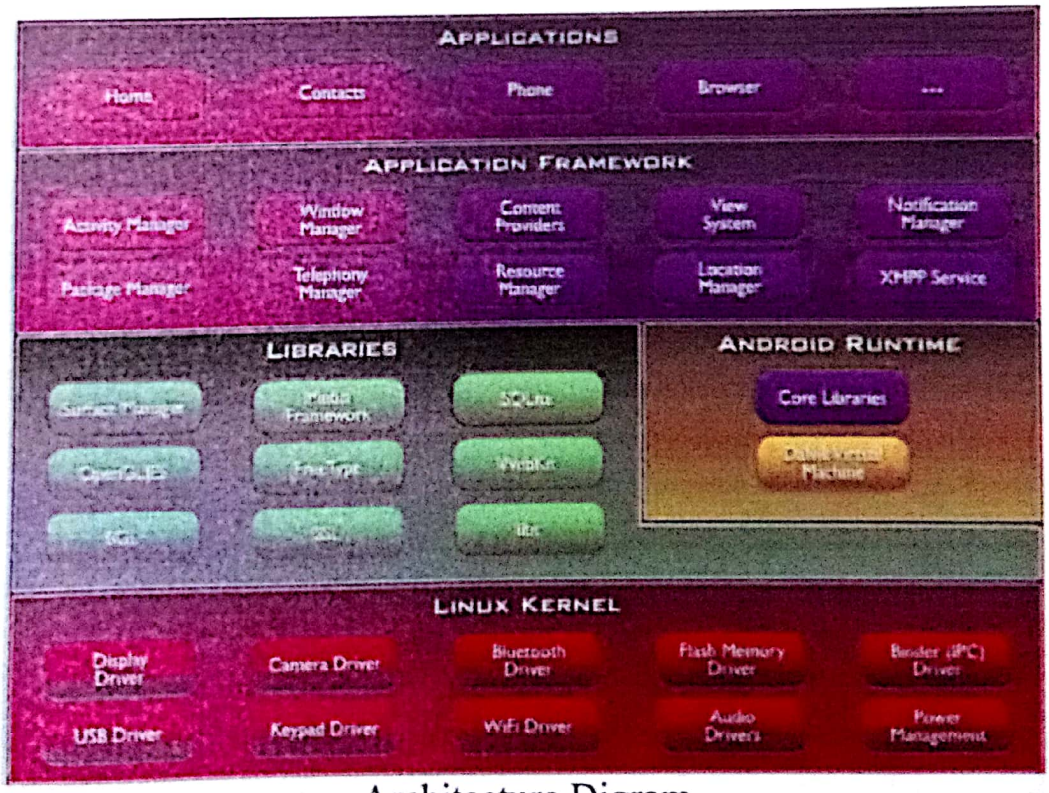
Android has evolved into a technology that is used by a huge number of developers that help them develop many applications that affects our everyday lives, and here some of these uses:

1. Android the world's most popular mobile platform.
2. Android powers hundreds of millions of mobile devices in more than 190 countries around the world.
3. Is the largest installed base of any mobile platform and growing fast.
4. Every day another 900,000 users power up their Android devices for the first time and start looking for apps, games, and other digital content.
5. Android gives you a world-class platform for creating apps and games for Android users everywhere
6. As well as an open marketplace for distributing to them instantly
7. Global partnerships and large installed base
8. Powerful development framework
9. Open marketplace for distributing your apps

1.2.4 Android Design?

Android consists of a kernel based on the Linux kernel, with middleware, libraries and APIs written in C and application software running on an application framework which includes Java-compatible libraries based on Apache Harmony. Android uses the Dalvik virtual machine with just-in-time compilation to run Dalvik dex-code (Dalvik Executable), which is usually translated from Java bytecode.

The main hardware platform for Android is the ARM architecture. There is support for x86 from the Android x86 project, and Google TV uses a special x86 version of Android.



Architecture Digram

Android's kernel is based on the Linux kernel and has further architecture changes by Google outside the typical Linux kernel development cycle. Android does not have a native X Window System nor does it support the full set of standard GNU libraries, and this makes it difficult to port existing Linux applications or libraries to Android.

Certain features that Google contributed back to the Linux kernel, notably a power management feature called wakelocks, were rejected by mainline kernel developers, partly because kernel maintainers felt that Google did not show any intent to maintain their own code. Even though Google announced in April 2010 that they would hire two employees to work with the Linux kernel community, Greg Kroah-Hartman, the current Linux kernel maintainer for the -stable branch, said in December 2010 that he was concerned that Google was no longer trying to get their code changes included in mainstream Linux. Some Google Android developers hinted that "the Android team was getting fed up with the process", because they were a small team and had more urgent work to do on Android.

However, in September 2010, Linux kernel developer Rafael J. Wysocki added a patch that improved the mainline Linux wakeup events framework. He said that Android device drivers that use wakelocks can now be easily merged into mainline Linux, but that Android's opportunistic suspend features should not be included in the mainline kernel. In August 2011, Linus Torvalds said that "eventually Android and Linux would come back to a common kernel, but it will probably not be for four to five years".

In December 2011, Greg Kroah-Hartman announced the start of the Android Mainlining Project, which aims to put some Android drivers, patches and features back into the Linux kernel, starting in Linux 3.3.further integration being expected for Linux Kernel 3.4

1.2.5 Android types and Versions

The version history of the Android operating system began with the release of the Android beta in November 2007. The first commercial version, Android 1.0, was released in September 2008. Android is a mobile operating system developed by Google and the Open Handset Alliance, and has seen a number of updates to its base operating system since its original release. These updates typically fix bugs and add new features. Since April 2009, each Android version has been developed under a codename based on a dessert or sweet treat. These versions have been released in alphabetical order: **Cupcake**, **Donut**, **Éclair**, **Froyo (frozen yogurt)**, **Gingerbread**, **Honeycomb**, **Ice Cream Sandwich**, and **Jelly Bean**. The pre-release versions of Android were dubbed Astro and Bender, but these names could not ultimately be used for trademark reasons. The most recent update to the Android OS was Jelly Bean v4.1, which was released in June 2012.

Platform	Codename	API Level	Distribution
Android 1.5	Cupcake	3	0.3%
Android 1.6	Donut	4	0.7%
Android 2.1	Eclair	7	6.0%
Android 2.2	Froyo	8	23.1%
Android 2.3 - Android 2.3.2	Gingerbread	9	0.5%
Android 2.3.3 - Android 2.3.7		10	63.2%
Android 3.0	Honeycomb	11	0.1%
Android 3.1		12	1.0%
Android 3.2		13	2.2%
Android 4.0 - Android 4.0.2	Ice Cream Sandwich	14	0.5%
Android 4.0.3		15	2.4%

Android -version breakdown

Android beta

The Android beta was released on November 5, 2007 while the software developer's kit (SDK) was released on November 12, 2007.

Android 1.0

Android 1.0, the first commercial version of the software, was released on September 23, 2008. The first Android device.

Android 1.1

On February 9, 2009, the Android 1.1 update was released, initially for the T-Mobile G1 only. The update resolved bugs.

Android 1.5 Cupcake

On April 30, 2009, the Android 1.5 update, dubbed Cupcake, was released, based on Linux kernel 2.6.27.

Android 1.6 Donut

On September 15, 2009, the Android 1.6 SDK – dubbed Donut - was released, based on Linux kernel 2.6.29

Android 2.0/2.1 Éclair

On October 26, 2009, the Android 2.0 SDK – codenamed Éclair was released, based on Linux kernel 2.6.29.

Android 2.2.x Froyo

On May 20, 2010, the Android 2.2 (Froyo) SDK was released, based on Linux kernel 2.6.32.

Android 2.3.x Gingerbread

On December 6, 2010, the Android 2.3 (Gingerbread) SDK was released, based on Linux kernel 2.6.35.

Android 3.x Honeycomb

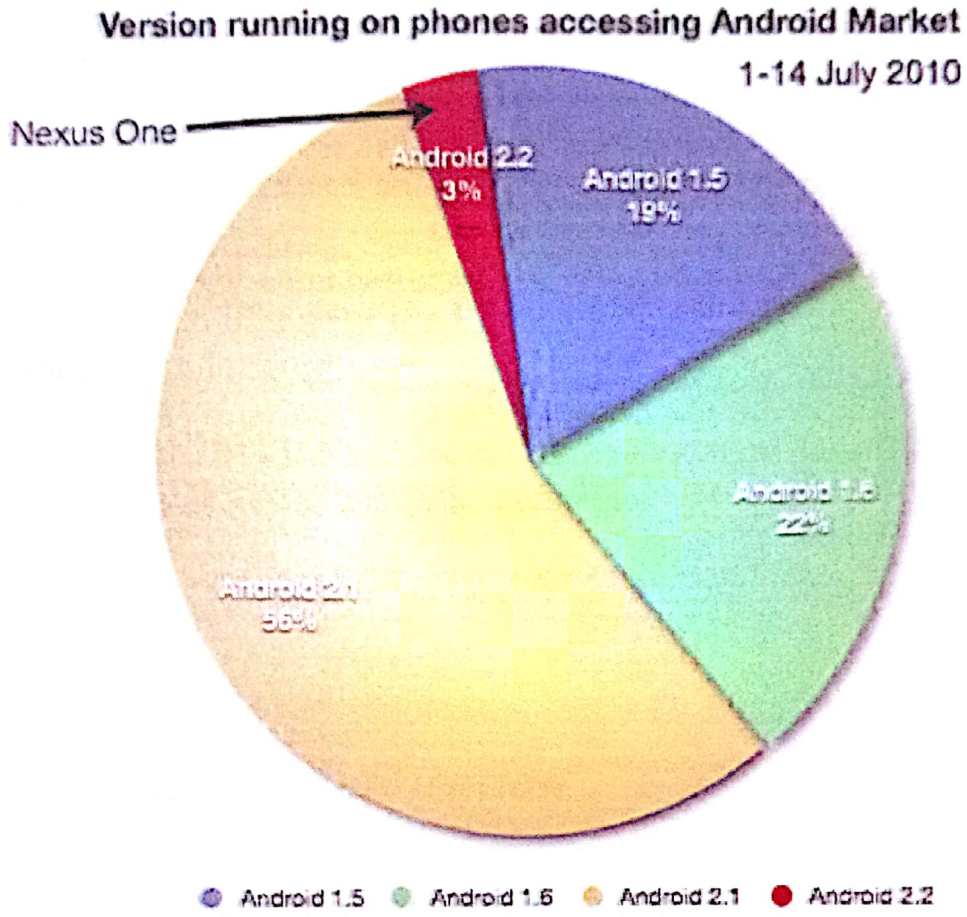
On February 22, 2011, the Android 3.0 (Honeycomb) SDK – the first tablet-only Android update – was released, based on Linux kernel 2.6.36.The first device featuring this version, the Motorola Xoom tablet, was released on February 24, 2011.

Android 4.0.x Ice Cream Sandwich

The SDK for Android 4.0.1 (Ice Cream Sandwich), based on Linux kernel 3.0.1, was publicly released on October 19, 2011. Google's Gabe Cohen stated that Android 4.0 was "theoretically compatible" with any Android 2.3.x device in production at that time. The source code for Android 4.0 became available on November 14, 2011.

Android 4.1 Jelly Bean

On 27 June 2012 at Google I/O, Google announced the next Android version, 4.1 Jelly Bean. It is an incremental update with the main focus of improving the user interface, both in terms of functionality and performance, the latter involving "Project Butter" which uses touch anticipation, triple buffering, extended vsync timing and a fixed frame rate of 60fps to create a fluid and "buttery" smooth UI



1.2.6 Android Uses

While Android is designed primarily for smartphones and tablets, the open and customizable nature of the operating system allows it to be used on other electronics, including laptops and netbooks, smartbooks, eBook readers, and smart TVs (Google TV). Further, the OS has seen niche applications on wristwatches, headphones, car CD and DVD players, smart glasses (Project Glass), refrigerators, vehicle satnav systems, home automation systems, games consoles, mirrors, cameras, portable media players landlines, and treadmills.

The first commercially available phone to run Android was the HTC Dream, released on October 22, 2008. In early 2010 Google collaborated with HTC to launch its flagship Android device, the Nexus One. This was followed later in 2010 with the Samsung-made Nexus S and in 2011 with the Galaxy Nexus.

iOS and Android 2.3.3 'Gingerbread' may be set up to dual boot on a jailbroken iPhone or iPod Touch with the help of OpeniBoot and iDroid.

In December 2011 it was announced the Pentagon has officially approved Android for use by its personne.

1.2.7 Android Application

Applications are usually developed in the Java language using the Android Software Development Kit, but other development tools are available, including a Native Development Kit for applications or extensions in C or C++, Google App Inventor, a visual environment for novice programmers and various cross platform mobile web applications frameworks.

Applications can be acquired by end-users either through a store such as Google Play or the Amazon Appstore, or by downloading and installing the application's APK file from a third-party site.

1.2.8 Android Features

- Handset layouts
- Storage
- Connectivity
- Messaging
- Multiple language support
- Web browser
- Java support
- Media support
- Streaming media support
- Additional hardware support
- Multi-touch
- Bluetooth
- Video calling
- Multitasking
- Voice based features
- Tethering
- Screen capture

1.2.9 Android Application

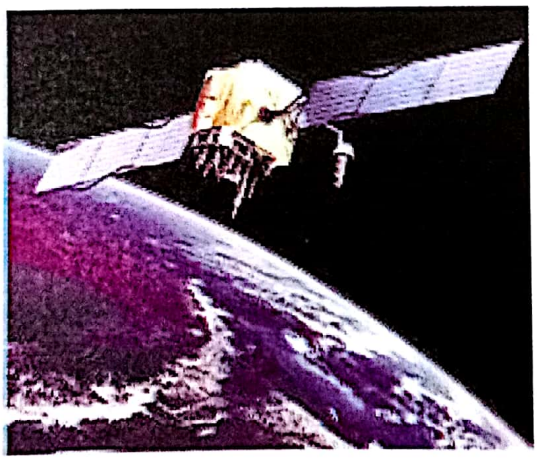
The Android logotype was designed along with the Droid font family by Ascender Corporation, the robot icon was designed by Irina Blok.

Android Green is the color of the Android Robot that represents the Android operating system. The print color is PMS 376C and the RGB color value in hexadecimal is #A4C639, as specified by the Android Brand Guidelines. The custom typeface of Android is called Norad (cf. NORAD). It is only used in the text logo

1.3 GPS mechanism

1.3.1 What is GPS?

The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilian use. GPS works in any weather conditions, anywhere in the world, 24 hours a day. There are no subscription fees or setup charges to use GPS.



Gps satellite

1.3.2 How it works?

GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user's exact location. Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver how far away the satellite is. Now, with distance measurements from a few more satellites, the receiver can determine the user's position and display it on the unit's electronic map.

A GPS receiver must be locked on to the signal of at least three satellites to calculate a 2D position (latitude and longitude) and track movement. With four or more satellites in view, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the user's position has been determined, the GPS unit can calculate other information, such as speed, bearing, track, trip distance, distance to destination, sunrise and sunset time and more.

1.3.3 How accurate is GPS?

Today's GPS receivers are extremely accurate, thanks to their parallel multi-channel design. Garmin's 12 parallel channel receivers are quick to lock onto satellites when first turned on and they maintain strong locks, even in dense foliage or urban settings with tall buildings. Certain atmospheric factors and other sources of error can affect the accuracy of GPS receivers. Garmin® GPS receivers are accurate to within 15 meters on average

Newer Garmin GPS receivers with WAAS (Wide Area Augmentation System) capability can improve accuracy to less than three meters on average. No additional equipment or fees are required to take advantage of WAAS. Users can also get better accuracy with Differential GPS (DGPS), which corrects GPS signals to within an average of three to five meters. The U.S. Coast Guard operates the most common DGPS correction service. This system consists of a network of towers that receive GPS signals and transmit a corrected signal by beacon transmitters. In order to get the corrected signal, users must have a differential beacon receiver and beacon antenna in addition to their GPS.

1.3.4 The GPS satellite system

The 24 satellites that make up the GPS space segment are orbiting the earth about 12,000 miles above us. They are constantly moving, making two complete orbits in less than 24 hours. These satellites are travelling at speeds of roughly 7,000 miles an hour.

GPS satellites are powered by solar energy. They have backup batteries onboard to keep them running in the event of a solar eclipse, when there's no solar power. Small rocket boosters on each satellite keep them flying in the correct path.

Here are some other interesting facts about the GPS satellites (also called NAVSTAR, the official U.S. Department of Defense name for GPS):

1. The first GPS satellite was launched in 1978.
2. A full constellation of 24 satellites was achieved in 1994.
3. Each satellite is built to last about 10 years. Replacements are constantly being built and launched into orbit.
4. A GPS satellite weighs approximately 2,000 pounds and is about 17 feet across with the solar panels extended. Transmitter power is only 50 watts or less.

1.3.5 Applications

GPS has a variety of applications on land, at sea and in the air. Basically, GPS is usable everywhere except where it's impossible to receive the signal such as inside most buildings, in caves and other subterranean locations, and underwater. The most common airborne applications are for navigation by general aviation and commercial aircraft. At sea, GPS is also typically used for navigation by recreational boaters, commercial fishermen, and professional mariners. Land-based applications are more diverse. The scientific community uses GPS for its precision timing capability and position information.

Surveyors use GPS for an increasing portion of their work. GPS offers cost savings by drastically reducing setup time at the survey site and providing incredible accuracy. Basic survey units, costing thousands of dollars, can offer accuracies down to one meter. More expensive systems are available that can provide accuracies to within a centimeter.

Recreational uses of GPS are almost as varied as the number of recreational sports available.

GPS is popular among hikers, hunters, snowmobilers, mountain bikers, and cross-country skiers, just to name a few. Anyone who needs to keep track of where he or she is, to find his or her way to a specified location, or know what direction and how fast he or she is going can utilize the benefits of the global positioning system.

GPS is now commonplace in automobiles as well. Some basic systems are in place and provide emergency roadside assistance at the push of a button (by transmitting your current position to a dispatch center). More sophisticated systems that show your position on a street map are also available. Currently these systems allow a driver to keep track of where he or she is and suggest the best route to follow to reach a designated location.

1.3.6 What's the signal?

GPS satellites transmit two low power radio signals, designated L1 and L2. Civilian GPS uses the L1 frequency of 1575.42 MHz in the UHF band.

The signals travel by line of sight, meaning they will pass through clouds, glass and plastic but will not go through most solid objects such as buildings and mountains.

A GPS signal contains three different bits of information - a pseudorandom code, ephemeris data and almanac data. The pseudorandom code is simply an I.D. code that identifies which satellite is transmitting information. You can view this number on your Garmin GPS unit's satellite page, as it identifies which satellites it's receiving.

Ephemeris data, which is constantly transmitted by each satellite, contains important information about the status of the satellite (healthy or unhealthy), current date and time. This part of the signal is essential for determining a position.

The almanac data tells the GPS receiver where each GPS satellite should be at any time throughout the day. Each satellite transmits almanac data showing the orbital information for that satellite and for every other satellite in the system.

1.3.7 Sources of GPS signal errors

Factors that can degrade the GPS signal and thus affect accuracy include the following:

1. Ionosphere and troposphere delays – The satellite signal slows as it passes through the atmosphere. The GPS system uses a built-in model that calculates an average amount of delay to partially correct for this type of error.
2. Signal multipath – This occurs when the GPS signal is reflected off objects such as tall buildings or large rock surfaces before it reaches the receiver. This increases the travel time of the signal, thereby causing errors.
3. Receiver clock errors – A receiver's built-in clock is not as accurate as the atomic clocks onboard the GPS satellites. Therefore, it may have very slight timing errors.
4. Orbital errors – Also known as ephemeris errors, these are inaccuracies of the satellite's reported location.

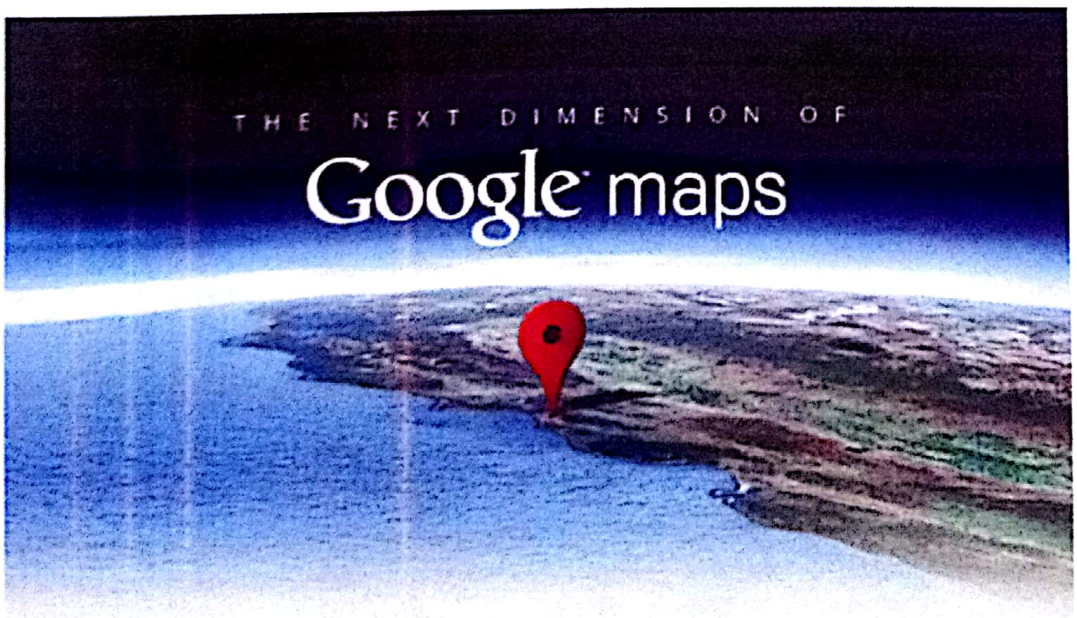
5. Number of satellites visible - The more satellites a GPS receiver can "see," the better the accuracy. Buildings, terrain, electronic interference, or sometimes even dense foliage can block signal reception, causing position errors or possibly no position reading at all. GPS units typically will not work indoors, underwater or underground.
6. Satellite geometry/shading - This refers to the relative position of the satellites at any given time. Ideal satellite geometry exists when the satellites are located at wide angles relative to each other. Poor geometry results when the satellites are located in a line or in a tight grouping.
7. Intentional degradation of the satellite signal - Selective Availability (SA) is an intentional degradation of the signal once imposed by the U.S. Department of Defense. SA was intended to prevent military adversaries from using the highly accurate GPS signals. The government turned off SA in May 2000, which significantly improved the accuracy of civilian GPS receivers.

1.4 Google Map

1.4.1 What is Google map?

Google Maps (formerly Google Local) is a web mapping service application and technology provided by Google, Maps website, Google Ride Finder, Google Transit, and maps embedded on third-party websites via the Google Maps API. It offers street maps, a route planner for traveling by foot, car, bike (beta), or public transport and an urban business locator for numerous countries around the world. Google Maps satellite images are not updated in real time; they are several months or years old.

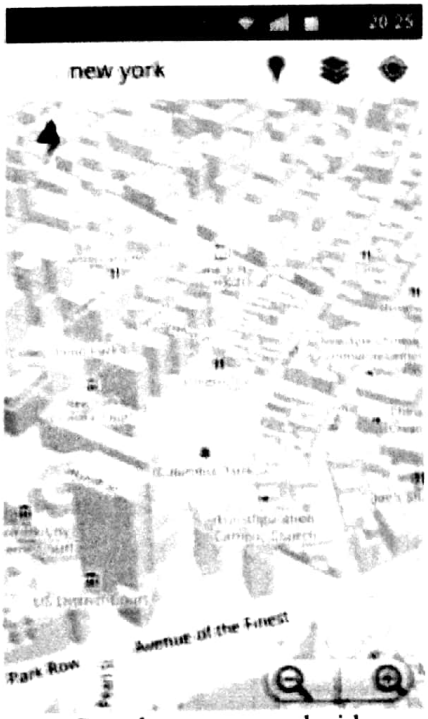
Google Maps uses a close variant of the Mercator projection, so it cannot show areas around the poles. A related product is Google Earth, a stand-alone program which offers more globe-viewing features, including showing polar areas.



1.4.2 Google map for mobile?

In 2006, Google introduced a Java application called Google Maps for Mobile, intended to run on any Java-based phone or mobile device. Many of the web-based site's features are provided in the application.

On November 28, 2007, Google Maps for Mobile 2.0 was released. It introduced a GPS-like location service that does not require a GPS receiver. The "my location" feature works by utilizing the GPS location of the mobile device, if it is available. This information is supplemented by the software determining the nearest wireless networks and cell sites. The software then looks up the location of the cell site using a database of known wireless networks and cell sites. The Cell-site location method is used by triangulating the different signal strengths from different cell transmitters and then using their location property (retrieved from the online cell site database) to aid My Location in determining the user's current location.



Google map on android

1.4.3 Google map API?

After the success of reverse-engineered mashups such as chicagocrime.org and housingmaps.com, Google launched the Google Maps API in June 2005 to allow developers to integrate Google Maps into their websites. It is a free service, and currently does not contain ads, but Google states in their terms of use that they reserve the right to display ads in the future.

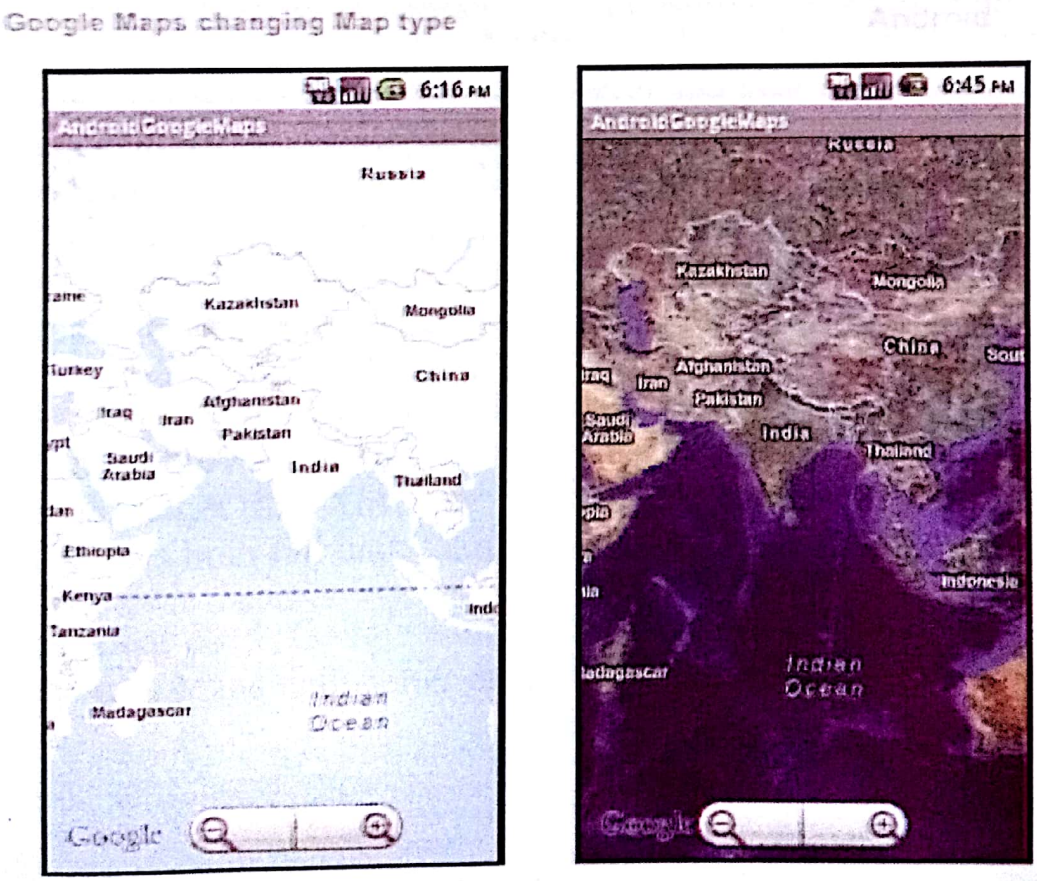
By using the Google Maps API, it is possible to embed Google Maps site into an external website, on to which site specific data can be overlaid. Although initially only a JavaScript API, the Maps API has since expanded to include an API for Adobe Flash applications, a service for retrieving static map images, and web services for performing geocoding, generating driving directions, and obtaining elevation profiles. Over 350,000 web sites use the Google Maps API, making it the most heavily used web application development API.

1.4.4 Satellite view

Google Maps provides high-resolution aerial or satellite images for most urban areas all over the world. Various governments have complained about the potential for terrorists to use the satellite images in planning attacks. Google has blurred some areas for security (mostly in the United States), including the U.S. Naval Observatory area (where the official residence of the Vice President is located), and previously the United States Capitol and the White House. Other well-known government installations, including Area 51 in the Nevada desert, are visible. Not all areas on satellite images are covered in the same resolution;

less populated areas usually get less detail. Some areas may be obscured by patches of clouds.

With the introduction of an easily pannable and searchable mapping and satellite imagery tool, Google's mapping engine prompted a surge of interest in satellite imagery. Sites were established which feature satellite images of interesting natural and man-made landmarks, including such novelties as "large type" writing visible in the imagery, as well as famous stadia and unique geological formations. Although Google uses the word *satellite*, most of the high-resolution imagery of cities is aerial photography taken from aircraft flying at 800–1500 feet rather than from satellites; while most of the rest of the imagery is in fact from satellites.



Different between street view and satellite view

1.4.5 Directions

Google Maps provides a route planner under "Get Directions". Up to four modes of transportation are available depending on the area: driving, public transit (see the Google Transit section below), walking, and bicycling. In some areas, cross-border routes are available, whereas others are limited to routes within a given country or region.

1.4.6 Implementation

Like many other Google web applications, Google Maps uses JavaScript extensively. As the user drags the map, the grid squares are downloaded from the server and inserted into the page. When a user searches for a business, the results are downloaded in the background for insertion into the side panel and map; the page is not reloaded. Locations are drawn dynamically by positioning a red pin (composed of several partially transparent PNGs) on top of the map images.

A hidden IFrame with form submission is used because it preserves browser history. The site also uses JSON for data transfer rather than XML, for performance reasons. These techniques both fall under the broad Ajax umbrella.

In October 2011, Google announced MapsGL, a WebGL version of Maps with better renderings and smoother transitions.

1.4.7 Google map parameters

In Google Maps, URL parameters are sometimes data-driven in their limits and the user interface presented by the web may or may not reflect those limits. In particular, the zoom level (denoted by the *z* parameter) supported varies. In less populated regions, the supported zoom levels might stop at around 18. In earlier versions of the API, specifying these higher values might result in no image being displayed. In Western cities, the supported zoom level generally stops at about 20. In some isolated cases, the data supports up to 23 or greater, as in these elephants or this view of people at a well in Chad, Africa. Different versions of the API and web interfaces may or may not fully support these higher levels.

As of October 2010, the Google map viewer updates its zoom bar to allow the user to zoom all the way when centered over areas that support higher zoom levels.

1.5 Sqllite Database

1.5.1 What is sqllite?

SQLite is an Open Source Database which is embedded into Android. SQLite supports standard relational database features like SQL syntax, transactions and prepared statements.

In addition it requires only little memory at runtime (approx. 250 KByte).

SQLite supports the data types TEXT (similar to String in Java), INTEGER (similar to long in Java) and REAL (similar to double in Java). All other types must be converted into one of these fields before saving them in the database. SQLite itself does not validate if the types written to the columns are actually of the defined type, e.g. you can write an integer into a string column and vice versa.

More information about SQLite can be found on the SQLite website: **http://www.sqlite.org**.

1.5.2 Sqllite in android?

SQLite is available on every Android device. Using an SQLite database in Android does not require any database setup or administration.

You only have to define the SQL statements for creating and updating the database. Afterwards the database is automatically managed for you by the Android platform.

Access to an SQLite database involves accessing the filesystem. This can be slow. Therefore it is recommended to perform database operations asynchronously, for example via the AsyncTask class.

If your application creates a database, this database is saved in the directory DATA/data/APP_NAME/databases/FILENAME.

The parts of the above directory are constructed based on the following rules. DATA is the path which the Environment.getDataDirectory() method returns. APP_NAME is your application name. FILENAME is the name you specify in your application code for the database.

Summery Chapter 1

This chapter talks about technology that used in our project (Android operating system, Gps tools, Google map mechanism and Sqllite Database) and use some definition to it and how work.