

A Review: Development of Android Applications WHATS HERE Places

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Abstract— In this paper different android applications and there framework is reviewed. Target consumer applications of base station and mobile client proposed a new methodology. Whats Here Places is a service that provides combined aspects of different android application. The application is analysing for performance with varying input data type and size. The proposed research finds use in upcoming mobile based consumer applications for achieving less memory, ease of use.

Keywords— android operating system, data types, framework, mobile internet devices (MID).

I. INTRODUCTION

Application framework defines android the common structure of programs. Essentially, a framework is a component that can be reused in android application. The architecture of applications are incorporated as a set of abstract classes and the cooperation of their instances. Android is an open source operating system based on linux kernel and launching by google. Unlike pc operating system, mobile phone operating systems are constrained by their hardware, storage space, power dissipation and mobility conditions. Compared with the development of applications on pc, there are few different features on applications on mobile phone operating systems. This describes new methods of developing applications based on android application framework.

Android is running on the Linux kernel and its applications are written by Java programming language, so Android applications are running on a Java virtual machine named Dalvik virtual machine. Dalvik virtual machine has been redesigned and optimized by Google for the hardware features of mobile devices. In Android system, there is a tool named dx, including in the Android SDK, transforms the Java Class files (which compiled by a regular Java com-

piler) into the .dex format. The .dex format files integrate all Java class files and delete redundant information in every Java class files.

II. APPLICATION OVERVIEW

There has been exponential growth in mobile applications being developed on variety of mobile platforms such as Android. A number of researching issues are involved here in that are related to software engineering approaches. Mobile application development, matter for quality, cost, usability. The advanced mobile applications extend to providing services to the end user through mobile client using network-based web servers as in, and deploying Apps on Mobile Internet Devices (MID) [2].

Implementing location services using Google Map on Android is of research interest. Even though there are many popular mobile Applications. Many consumer mobile applications are emerging in large scale, of which mobile health monitoring and mobile payment are identified to impact a larger market segment. Ample research is involved in implementing these specialized applications on mobile.

Recently the trend in mobile applications is towards providing services over the internet or web server for critical user requirements such as utility, hospital or medical purposes. Different design approaches towards this end, invented by the researchers for developing the advanced applications are presented.

Applications layer is the site of all Android applications including an email client, SMS program, maps, browser, contacts, and others. All applications are written using the Java programming language. Application framework layer defined the Android application framework. The Android application framework is as shown in Fig.1.

A. Application framework

- A rich and extensible set of Views that can be used to build an application with beautiful user interface, including lists, grids, text boxes, buttons, and even an embeddable web browser.
- A set of Content Providers that enable applications to access data from other applications (such as Contacts), or to share their own data.

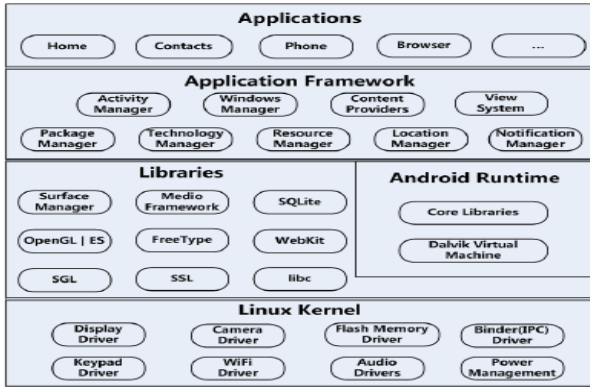


Fig.1. Application framework

- A Resource Manager that provides access to non code resources such as localized strings, graphics, and layout files.
- A Notification Manager that enables all applications to display custom alerts in the status bar.
- An Activity Manager that manages the lifecycle of applications and provides a common navigation back stack.[2]

Libraries layer includes a set of C/C++ libraries used by various components of the Android system and provides support to the application framework.

B. Methods of GPS location tracing systems

GPS is a global positioning system used to trace location of a device. In android application The GPS consists of three major segments like Space segment, control segment, user segment.

i. Space segment

The Space Segment of the system consists of the GPS satellites or the space vehicles (SV). These space vehicles send radio signals from space. The GPS system constellation has 24 satellites revolving the Earth in six orbital planes. From these 24 satellites, 21 are working satellites and the remaining three are reserved in case of the failure of any of the 21 working satellites.

There are six orbital planes with four satellites in each plane. The planes are equally spaced (60 degrees apart) and inclined at about 55 degrees with respect to the equatorial plane. The orbit period of each satellite is approximately 12 hours at an altitude of 20,183 km. The average elevation of the satellites is approximately 20,000 km above the Earth. The satellite broadcast signal contains data which identifies the satellite and provides the positioning, timing, ranging data, satellite status and corrected orbit parameters of the satellites.

ii. Control Segment

The control segment of the Global Positioning System consists of:

- One Master Control Station (MCS) located at Falcon Air Force Base in Colorado Springs, Colorado.
- Five unmanned monitor stations located strategically around the world.
- Three primary ground antennas maintained by the Air Force and located more or less equidistant around the equator.
- Two back up master control stations, in the event of some catastrophic failure, one located in Sunnyvale, California, and the other in Rockville, Maryland.
- The monitor stations passively track all GPS satellites visible to them at any given moment, collecting signal data from each. This information is then passed on to the master control station where the satellite position (“ephemeris”) and clock timing data are estimated and predicted.

The master control station then periodically sends the corrected position and clock timing data to the appropriate ground antennas which then uploads those data to each of the Satellites. Finally, the satellites use the corrected information in their data transmissions down to the end users. This sequence of events occurs every few hours for each of the satellites in order to ensure that any possibility of error creeping into the satellite position of their clocks is minimized.

iii. User Segment

The GPS user segment consists of GPS receiver. The receiver then collects and processes signals from the GPS satellites that are in view and then Use that information to determine and display the location, speed, time and so on. The GPS receiver does not transmit any information back to the satellites. However, the accuracy and reliability is enhanced as the number of visible satellites increases.

iv. Method of Triangulation

Suppose that the distance of the receivers from the satellite is measured and it is around 11,000 miles. Thus, knowing that the receivers is 11,000 miles from a particular satellite, narrows down all the possible locations where the receivers could be in the whole universe to the surface of the sphere that is centered on this satellite and has a radius of 11,000 miles.

Next the distance of the receivers from a second satellite is measured and it is around 10,000 miles away. Thus, now the receivers is not only on the first sphere, but also on the sphere that is 10,000 miles from the second satellite.

If then make a measurement from a third satellite and find that the receivers is 8,000 miles from that satellite, it narrows the position of the receivers even further to the two points where the 8,000 mile sphere cuts through the circle that is the intersection of the first two spheres. Can be narrow the position of the receiver to just two points in space. From these two points, one is always out somewhere where it makes no sense, like thousands of kilometers out in space. The receivers are smart enough to sense that one of the two points is wrong and rejects that point.

C. Application sources to development in eclipse software

Android is running on the Linux kernel and its applications are written by Java programming language. So, An-

droid applications are running on a Java virtual machine named Dalvik virtual machine. Dalvik virtual machine has been redesigned and optimized by Google for the hardware features of mobile devices. In Android system, there is a tool named dx, included in the Android SDK, transforms the Java Class files (which compiled by a regular Java compiler) into the .dex format.

The .dex format files integrate all Java class files and delete redundant information in every Java class files. There are several features of Dalvik virtual machine:

- Dalvik virtual machine could have multiple instances on one device and every instance runs in a separate Linux process, an Android application runs in an instance of a Dalvik virtual machine.
- Dalvik virtual machine relies on the underlying operating system (Linux kernel) for process
- Isolation, memory management and threading support.
- Dalvik virtual is register-based[2].

III. RELATED WORK

A. PROPOSED BLOCK DIAGRAM

Architecture incorporates component blocks for services extended to the clients provided by the server that interacts with database storage unit as shown in Fig 2

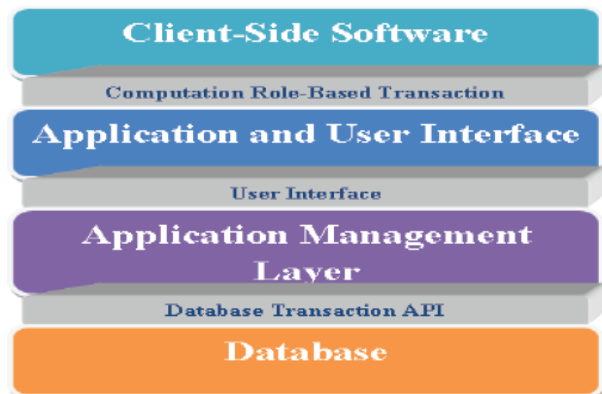


Fig. 2 Architecture of android application

The top (first) layer includes Client-Side Software that is developed using Android (SDK/OS) which is specific to certain roles, for instance and field operators in GPS Searching Application. The roles/actors in mobile near places application include Searching operators and consumers/users. In the second layer Android application makes its interaction through XML (Extensible Mark-Up Application, where in Operators can view the patient details which also includes diagnostic images by just entering place or Capturing Data from their Android Mobile device.

B. FUNCTIONAL OVERVIEW

A core feature of Android is that one application could use component element that belong to another application (if the component is permitted using). In order to achieve such functions, Android system must launch the application

while any part of the application is asked and instantiate Java objects that being asked. Unlike most operating system, there is no single point that the system can enter in an Android application (for example, there no main () function in an Android application). Instead, each component is a different point through which the system can enter an application and instantiate component object independently.

There are four different types of application components. Each type serves a distinct purpose and has a distinct lifecycle that defines how the component is created and destroyed. Activity An activity represents a single screen with a user interface. The activities in an application work together to form a cohesive user experience, but each one is independent of the others. As such, a different application can start any one of these activities. An activity is implemented as a subclass of Activity. The particular form that an activity show users and the amount of activities in an application depend on how the developer design the application.

In a multiple activities application, typically, one activity is specified as the "main" activity, which is presented to the user when launching the application for the first time. Each activity can then start another activity in order to perform different actions. Each time a new activity starts, the previous activity is stopped, but the system preserves the activity in a stack (the "back stack"). The figures (3) shows how the lifecycle of an activity Services.

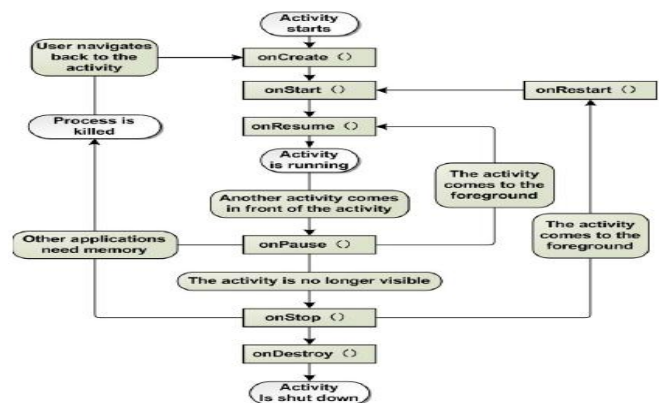


Fig. 3 Android application components

A service is an Android component that runs in the background to perform long-running operations or to perform work for remote processes and does not provide a user interface. An activity can connect or bind a service that is running. (if the service is not running, launch it). When connected to a service, the activity can communicate with the service through the interface that the service exposed. Like other application components, service components always running in the main thread of an application by default. So for the intensive or blocking operating a service performs (may slow down activity performance), it is usually start a new thread inside the service [3].

Content providers provide data share mechanism among applications. The data that be shared could in the file system, a SQLite database, or any other persistent storage location an Application can access. A content provider is implemented as a subclass of Content provider, it defines

the data format it supported and provides a set of method to enable other applications to query or modify the data. But an application does not call these methods immediately, instead, it call these methods by an object named Content Resolver. Content Resolver can communicate with every Content Provider. Content Resolver cooperated with Content Provider to manger IPC (inter process communication) while sharing data [4].

Broadcast Receivers is in charge of the reception of system wide broadcast and take response aiming at the information that a broadcast transmitted. Many broadcasts originate from the system—for example, a broadcast announcing that the screen has turned off, the battery is low. Applications can also initiate broadcasts. There could be any number of Broadcast Receivers in an application and each Broadcast Receiver implemented as a sub class of Broadcast Receiver. Although broadcast receivers don't display a user interface, they may create a status bar notification to alert the user when a broadcast event occurs. More commonly, though, a broadcast receiver is just a "gateway" to other components and is intended to do a very minimal amount of work [6].

Three of the four component types—activities, services, and broadcast receivers—are activated by an asynchronous message named intent. Intents bind individual components to each other at runtime no matter the component belongs to the same application. Intent can create with an Intent object, which defines the messages by which can activate either a specific component or a specific type of component. For activities and services, intent defines the action to perform and may specify the URI of the data to action. For broadcast receivers, the intent simply defines the announcement being broadcast. The other component type, content provider, is not activated by intents. Rather, it is activated when targeted by a request from a Content Resolver [1].

IV Conclusions

The proposed Android as a full, open and free mobile device platform, with its powerful function and good user experience, rapidly developed into the most popular mobile operating system. Detailed introduction of Android application framework and the working principal of Android applications finally, a Near place on the android platform was put forward to illustrate this mechanism. The research work presented in this involves new service based design approach for implementing two of the popular consumer applications on Android system. One of them is utility search places application for client and it is implemented for large collection data form Google.

ACKNOWLEDGMENT

We would like to thank Mr. Pawan Jadhav for his encouragement and support. I gratefully acknowledge him for imparting me valuable basic knowledge Android application. We are also thankful to the Vijay web solution, Nashik for giving us moral support and infrastructure facilities.

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