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EMERGING TRENDS IN ANDROID TECHNOLOGY

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ABSTRACT

This paper presents new emerging trends in android technology. Android is a mobile operating system developed by Google, based on the Linux kernel and design primarily for touch-screen mobile devices such as mobile phones and tablets. Android's user interface is mainly based on direct manipulation, using touch gesture such as swiping, Tapping and pinching to manipulate on-screen objects, along with virtual keyboard for text input. There are almost 6 billion users around the globe the mobile phones around us are the combination of hardware and software. Hardware is the hard part of device and the software are the governor of the hardware. There are different OS for mobile among them I'm going to pick up three of them. They are android OS, IOS and windows phone OS. The purpose behind picking up of these three OS is to find out the popularity of these three terms of inflexibility.

Keywords: Android technology, Linux kernel, SDK, Android architecture.

I. INTRODUCTION

Android is a Linux based operating system. It is primarily designed for design touch-screen technology mobile devices such as smart phones and tablet computers. The operating system have developed a lot in last 15 years starting from black and white phones to recent smart phones or mini computers. One of the most widely used mobile OS these days is android. The android is software that was founded in Palo Alto of California in 2003.

Android provides a rich applications framework that allows you to build innovative apps and games for mobile devices in a Java language environment. The document listed in the left navigation provide details about how to build apps using Android's various APIs. The android is powerful operating system and it supports large number of application in smart phones. This applications are more comfortable and advance for the users. The hardware that support android is an open source operating system means that it is free and any one can use it. Android release on Linux version 2.6 for core system services such as security, memory management, network stack and driver model for software development, android provides android SDK(Software Development Kit). Android development to be brought up to speed and developing apps with minimal fuss. Everything from an introduction to the android ecosystem and setting up a development environment to creating and publishing android applications is covered in depth and with technical expertise.

Android is a mobile operating system which is becoming a major competitor to iPhones OS in terms of openness. I am beginning the android series which will be helpful for developers who wish to develop android apps. Today many network based or network capable of appliances run

a flavour of the Linux kernel. It's a solid platform: cost effective to deploy and support and readily accepted as good design approach for development. The UI for such devices is often HTML based and viewable with PC or MAC browser.



Fig:1 Android Logo

The popular Android wordmark was created along with the Droid font family by Chicago-based type foundry Ascender Corporation, while the robot icon is a creation of a California-based graphic designer named Irina Blok. The android robot is a prime example of a playful logo, yet made of fairly simple shapes. "Android Green" is the color of the Android Robot that depicts the Android Operating System. The green color stands for growth, freshness and prosperity. The Android logo features the custom typeface called Norad. Irina Blok may have drawn one of the most recognised logos in the world, but her association with the green Android has not made her famous. Blok can think of only one incident when she garnered the public's attention for designing it. The Android logo was born three years earlier, when Blok worked as a designer at Google. As Google prepared to endorse the Android Software Platform for mobile devices, Blok and her design team colleagues were told to create a look for the software – something that consumers could easily identify. The logo, she was told, should involve a robot, and so studied sci-fi

toys and space movies. In the end, she took inspiration from a distinctly human resource: the pictograms of the universal man and woman that often appear on restroom doors. She drew a stripped-down robot with a tin-can-shaped torso and antennas on his head. While Blok worked on her design, she and her colleagues agreed that the logo, like the software, should be open-sourced. “We decided it would be a collaborative logo that everybody in the world could customize,” she says. “That was pretty daring.” Most of the companies, of course, defend their trademark from copycats, and million-dollar lawsuits have been filed over the rights to corporate insignia. In the years since, the Android logo has been dressed up as a ninja, given skis and skateboards and even transformed into a limited edition Kit-Kat bar. Blok (who is now creative director at Edmodo, a social network for students and teachers) says that creating the logo was like raising a child: “You give a life to this individual, and then they have a life of their own.”

Literature Survey

The Android platform is the product of the Open Handset Alliance, a group of organizations collaborating to build a better mobile phone. The group, led by Google, includes mobile operators, device handset manufacturer, software solution and platform providers, and marketing companies. From a software development standpoint, Android sits smack in the middle of the open source world.

The first Android-capable handset on the market was the G1 device manufactured by HTC and provisioned on T-mobile. The device became available after almost a year of speculation, where they only software development tools available were some incrementally improving SDK releases. As the G1 release date neared, the Android team released SDK V1.0 and application began surfacing for the new platform. To spur innovations, Google sponsored two rounds of “Android Developer Challenges” where millions of dollars were given to top contest submissions. Over about 18 months, a new mobile platform entered area.

Android architecture

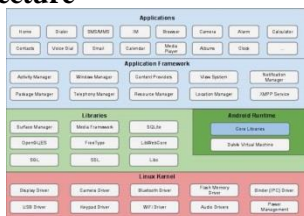


Fig.2 Android architecture

Android Versions

1. Android 1.1 :

Android 1.1 versions was released on 9 Feb, 2009

2. Android 1.5 Cupcake

Android 1.5 Cupcake was released on 30 April, 2009 which was totally based on Linux kernel Android 1.5 was the first release officially use a codename.

- Features: 1) Animated screen transitions.
- 2) Auto-rotation option.
- 3) New stock boot animation.



Fig.3 Android cupcake

4. Android 1.6 SDK-Donut:

Android 1.6 was released on sep15, 2009 which was based on Linux kernel 2.6.29

- Features : 1) Ability for users to select multiple photos for deletion.
- 2) Updated technology support for CDMA/EVDO, 802.1x , VPNs and a text-to-speech engine.
- 3) Gallery, camera and camcorder more fully integrated, with faster camera access.



Fig.4: Android Donut

Android 2.0 SDK- codenamed Eclair :

Android 2.0 codenamed Eclair was released on Oct 26,2009 which was based on Linux kernel 2.6.29

- Features : 1) Improved Google Maps 3.1.2
- 2) Motion Even class enhanced to track multi-touch events
- 3) Addition of live wallpapers, allowing the animation of home-screen background images.



Fig. 5: Android Eclair

Android 2.2 Froyo :

On May 20, 2010 the SDK for Android 2.2 (Froyo, short for frozen yogurt) was released, based on Linux Kernel 2.6.32

- Features : 1) Integration of Chrome’s V8 JavaScript engine into the browser application.
- 2) USB tethering and Wi-Fi hotspot functionality
- 3) Support for numeric and alphanumeric passwords.

**Fig. 6 Froyo****Android 2.3 Ginger Bread**

This is the popular version in android smart phones. WEB M video playback is a major update in this version. On December 6, 2010, the Android 2.3 (Gingerbread) SDK was released, based on Linux kernel 2.6.35

Features: 1) Support for Near Field Communication(NFC), allowing the user to read an NFC tag Embedded in a poster, sticker, or advertisement.A

2) Native support for SIP VoIP internet telephony.

3) Support for multiple cameras on the device, including a front-facing camera.

**Fig. 7 Gingerbread****Android 3.0 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 Feb.

Features: 1)Hardware acceleration

2) Support for multi-core processors

3) Ability to encrypt all user data

4) HTTPS stack improve with server name indication.

**Fig. 8 Honeycomb****Android 4.0 Ice cream Sandwich**

Android 4.0 Ice Cream Sandwich was released on October 19,2011 which was base on Linux kernel. It was publically released on October 19, 2011. Google's Gab Cohen stated that Android 4.0 was "theoretically compatible" with any Android 2.3x device in production at that time. Ice cream Sandwich was the last version to officially support Adobe Systems' Flash Player.

Features: 1) Face Unlock, a feature that allows users to unlock handsets using facial Recognition software.

2) Ability to shut down applications from the recent apps list with a swipe.

3) Improved camera application with zero shutter lag, time lapse settings, Panorama mode, and the ability to zoom while recording.

**Fig. 9 Ice cream Sandwich****Android 4.1 Jelly Bean**

Android 4.1 Jelly Bean was announced on June 27, 2012 at the Google Conference based on Linux kernel. Jelly Bean was an incremental update with the primary aim of improving the functionality and performance of the user interface. The performance improvement involve "Project Buffer", which uses touch anticipation, triple buffering extended vsync timing and a fixed frame rate of 60fps to create a fluid and "buttery-smooth".

Features: 1) Smoother user interfece

2) Triple buffering in the graphics pipeline

3) CPU input boost

**Fig. 10 jelly Bean****5. Android 4.4 Kitkat**

Google announce Android 4.4 KitKat on September 3, 2013. Although initially under the "Key Lime Pie"(KLP) codename. The name was changed because "very few people actually know the taste of Key Lime Pie".

Features: 1) Wireless printing capability

2) Sensor batching, step detector and counter APIs

**Fig. 11 KitKat****Android 5.0/5.1 Lollipop**

Android 5.0 "Lollipop" was unveiled under the codename "Android L" on June 25, 2014 during Google I/O. Lollipop features a redesign user interface built around a responsive design language refer to as "material design".

Features: 1) Android runtime (ART) with a head-of time (AOT) compilation and Improved garbage collection.

2) Support for 64 bit CPUs.



Fig. 12 Lollipop

Android 6.0 Marshmallow

Android 6.0 Marshmallow was released on May 28, 2015 during Google I/O for the Nexus 5 and Nexus 6 phones, Nexus 9 tablet, and Nexus Player set-top box.

- Features: 1) Native fingerprint reader support
2) Post-install/ runtime permission request.
3) USB type C support



Fig. 13 Marshmallow

6. Android 7.0 Nougat

Android 7.0 Nougat is the latest version of Android which will be released in the month of March on 9, 2016 with factory images for current Nexus devices.

- Features: 1) New data saver mode, which can force apps to reduce bandwidth usage.
2) Ability to switch apps by double tapping in overview button.



Fig. 14 Nougat

Android 8.0 Oreo

On 21 August 2017, Google released the name of android 8.0 is Oreo with factory images for recent Nexus and pixel devices.

- Features: 1) App specific unknown sources
2) Multi display support
3) 2 times faster boot time



Fig. 15 Oreo

Proposed Implementation

The proposed system is an android based application that will provide a location based service of location tracking. Location tracking refers to attaining of the current position of a object stationary or moving. These applications will allow employees working on field to locate and track the other employee located near by so that they can take help of each other when in problem. The location of the employee will also be known to the administrator. The employee be able to find location of near by employee.

The employee will also be allowed to do a video chat with the other employee or with the administrator directly.

The video chat is fantastic tool under the right circumstances. Communication through a visual medium is often clearer than communication only through text or audio. The server will maintain relevant data of employee and video chat will happen using the internet.

The proposed system is implemented using eclipse IDE. This is a client server system where the server is implemented in Net Beans. The data from the client mobile to the server goes in JSON format. The video conferencing is based on web RTC.

Best Game : Transformers: Forged to fight

Best Accessibility Experiences: IFTTT

Best Social Impact: Share the meal

CONCLUSION

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. A detailed introduction of android application framework and the working principle 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 device approach for implementing two of the popular consumer applications on android system. One of them is utility search places applications for client and it's implemented for large collection data from Google.

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