AN ALLUSIVE ANALYSIS ON PECULIAR PLATFORMS OF SMARTPHONES

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ABSTRACT

In today's comprehensive master plan, Internet has been drenching into every corner of the world and every countenance of our lives with personal communication through smartphones. Smart phones is the trend of affiliated or incorporated communication which amalgamate telecommunication and Internet services onto a single device because it has associated movability of cell-phones with the computing and networking of personal computers. Primarily, a smart phone is dependent on an operating system that allows it to run the applications. This manuscript represents the metaphorical study of assorted majestic and dignified operating systems such as Android, Blackberry, Bada and iPhone. A number of considerations have been embarked to discriminate multifarious operating systems of smart phones. These considerations include the issues like expense, security, sound, applications, battery life, gaming, data networks and business orientation kind of features that makes the particular operating system absurd in the particular field of usage. In other words, the paper represents those endowments that make a smart phone smart.

KEYWORDS: Smartphones, Android, Bada, Blackberry, iphone

1. INTRODUCTION

A smart phone is a mobile phone exhibiting advanced potencies beyond a typical mobile phone often with PC-like functionality.

There is no industry standard clarification of a smart phone. For some, a smart phone is a phone that runs complete operating systems software accommodating an assimilated interface and platform for application developers. For others, a smart phone is simply a phone with elevated features. According to David Wood, EVP at Symbian, "Smart phones differ from ordinary mobile phones in two fundamental ways: how they are built and what they can do".

In terms of features, most smartphones stake full featured email capabilities with the functionality of a complete personal organizer. Other functionality might encompass an appended interface such as a miniature QWERTY keyboard, a touch screen or a D-pad, an implicit camera, contact management, an accelerometer, built-in navigation hardware and software, the ability to read business documents in a variety of formats such as PDF and Microsoft Office, media software for playing music, browsing photos and viewing video clips, Internet browsers or even just secure access to company mail.

World is epitomizing 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 multitudinous 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.

2. SMART PHONE OPERATING SYSTEM

In the contention of for smart phone sovereignty, position is most often tracked in terms of operating system market share. Operating Systems have advanced a lot in last 15 years starting from black and white phones to recent smart phones or mini computers. Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android, especially for smart phones.

An operating system supervises the hardware and the software resources of smartphones. Some operating system staging covers the entire area of the software stack while others may only comprise the lower levels (kernel and middleware layers) and entrust on additional

software platforms to furnish user interface groundwork. The mobile operating system reflects the lifestyle since it determines the choice of applications and phone functionality.

As the acceptance of smart phones increments, these devices become more imploring to attackers who try to infect them with malware (malicious software). Smartphone security literature commends that smartphone malware can be written even by average developers.

3. **ANDROID OPERATING SYSTEM**

Android is a mobile operating system that was formerly developed by Android Inc. in Palo Alto of California, U.S by Andy Rubin, Rich Miner, Nick Sears and Chris White in 2003. It was later purchased by Google in 2005 which unfolded it in its own brand of cell phones. After the original release, there have been a number of updates in the original version of Android.

S.No.	Version	Month of Release
1.	Android 1.1	Feb 2009
2.	Android 1.5 Cupcake	April 2009
3.	Android 1.6 Donut	Sep 2009
4.	Android 2.0/1 Eclair	Oct 2009
5.	Android 2.2 Froyo	May 2010
6.	Android 2.3 Gingerbird	Dec 2010
7.	Android 3.0 Honey Comb	May 2011
8.	Android 4.1 Jelly Bean	June 2012

Android is a Linux-based, **open source** operating system delineated primarily for touch screen mobile devices. By open source, it implies that it is available free of charge to anyone who wants to use it or wants to make some modifications in its Kernel and libraries. The smart phone using Android operating system is simply called Android phone.

All Android phones use the same operating system, middleware and signature applications. However, many companies make Android phones, and a variety of wireless companies sell them. It implies that different Android phones can have very variant features, appearances and specifications.

3.1 ANDROID FEATURES

Millions of people are using Android phones that are smart enough with the introduction of new features and technologies.

a) Widgets: putting the important stuff within reach and interacting favourite applications from home screens with the help of widgets.

b) Notifications: an easy to read notification tray gives a quick access to the calls, texts and new emails.

c) Multitasking: juggling multiple tasks at once on a mobile device quickly and seamlessly has never been so easier.

d) Voice typing and actions: controlling the Android device with voice by simply touching the microphone on the keyboard and start talking to write e-mails or some other texts. More than 30 languages are supported.

e) Photos and videos: capturing of special moments with photos and videos.

3.2 ANDROID DEVICES AND SPECIFICATIONS

S.No.	Model	RAM	Processor	Display	Camera	Weight
1.	Samsung Galaxy S II	1 GB	1.2GHz Dual Core	4.3-inch super AMOLED plus, super slim	8MP	116g
2.	HTC Sensation	768 MB	1.2 GHz Qualcomm MSM 8260 CPU	4.3-inch SLCD display	8MP	148g
3.	Google Nexus S	512 MB	1.0 GHz ARM Cortex-A8 processor	4-inch SAMOLED display	5MP	129g
4.	Sony Ericsson Xperia Arc	512 MB	1GHz Scorpion processor with Adreno 205 GPU	4.2-inch Reality Display	8MP	117g

5.	Dell streak	512 MB	1 GHz Scorpion CPU & Adreno 200 GPU	5-inch corning gorilla glass display	5MP	220g
6.	LG Optimus 2x	512 MB	1GHz dual-core Nvidia Tegra 2 processor with ULP GPU	4-inch IPS LCD display	8MP	139g
7.	Samsung Galaxy Note 2	2 GB	1.6 GHz Quad core Processor	5.5-inch HD Super AMOLED display	8 MP	112g

3.3 ANDROID APPLICATIONS

FIELD	APPLICATIONS
Automation	Juice defender, Liama-location profiles, Sanity, Tasker
Communication	Skype, Xabber, SMS Popup, eBuddy Messenger
Reading	Kobo, AnyMemo Free, TED Air, Ankidroid flashcards
Home Screen	Beautiful Widgets, WP Clock, WeatherBug, Embiggen
Games	Angry Birds, Flood-It, Chalk Ball Lite, Alchemy, Roll It
Health & Fitness	Endomondo, Gentle Alarm, My Tracks, Runkeeper, JEFIT
Launchers	Apex Launcher, GO Launcher EX, SwipePad, Nova Launcher
Audio	Shazam, Winamp, Slacker Radio, PowerAMP, MX Player
Photography	QuickPic, Retro Camera, FxCamera, Camera360
Productivity	Dropbox, Gtasks, Astrid Task, Call Blocker, Catch Notes
Security	App Protector Pro, Pocket, No Lock, KeePassDroid
Social	WhatsApp Messenger, GetGlue, HootSuite, Twidroyd, TweetDeck
System Utilities	Amazon Appstore, AirDroid, Fancy Widgets, File Expert, Swype
Web & News	Drippler, Pulse News, You Tube Remote, Miren Browser

3.4 WHAT'S NEW IN ANDROID

Android 4.1, Jelly Bean, is the fastest and smoothest version of Android yet. Jelly Bean improves on the simplicity and beauty of Android 4.0, and introduces a new Google search experience on Android.

- With Jelly Bean it's now even easier to personalize the home screen. As soon as the widgets are placed on the screen, everything else automatically moves to make room. When they're too big, widgets resize on their own. Interacting with the favourite apps and customizing the home screen has never been easier.

- Android's dictionaries are now more accurate, more relevant. The language model in Jelly Bean adapts over time, and the keyboard even guesses what the next word will

be before started typing it. With improved text-to-speech capabilities, voice typing on Android is even better; it works even when there is no data connection, so the word can also be typed by the voice anywhere.

- Android 4.0, Ice Cream Sandwich, made snapping photos super-fast; Jelly Bean brings that same speed to the next step: viewing. Just swipe over from camera to filmstrip view to instantly view the photos. Now sharing — and bragging — is a breeze.

- With Jelly Bean, blind users can use 'Gesture Mode' to reliably navigate the UI using touch and swipe gestures in combination with speech output. Jelly Bean also adds support for accessibility plugins to enable external Braille input and output devices via USB and Bluetooth.

- With Android Beam on Jelly Bean, sharing of photos and videos can be done with just a simple tap, in addition to sharing contacts, web pages, YouTube videos, directions, and apps. Just touch two NFC-enabled Android devices back-to-back, and then tap to beam whatever's on the screen to your friend. Instantly pair your Android phone or tablet to Bluetooth® devices like headsets or speakers that support the Simple Secure Pairing standard by just tapping them together – no more syncing or searching required.

4. BLACKBERRY

Blackberry is a wireless handheld device having a reparation operating system introduced by Research in Motion (RIM) for its line of smartphones in 1999. The Blackberry operating system accommodates multitasking and holds pursued input devices for its handheld devices like track wheel, trackball, track pad and touchscreens. It is a kind of a PDA phone that is primarily used by businessmen and executives as it permits them to send/ receive emails in a beneficial and secure way. System navigation is fundamentally consummated by a scroll ball in the middle of the device. After the original release, there have been a number of updates in the original version of Blackberry.

S.No.	Version	Month of Release

1.	1.0 for Pager Blackberry 580	Jan, 1999
2.	3.6 for Blackberry 5810	March, 2002
3.	Blackberry OS 5.0	4 Aug, 2008
4.	Blackberry OS 6.0	April, 2010
5.	Blackberry OS 6.1	Aug, 2011
6.	Blackberry OS 7.1	Aug, 2012
7.	Blackberry OS 10.1	Upcoming version

4.1 BLACKBERRY DEVICES AND SPECIFICATIONS

S.No.	Model	RAM	Processor	Display	Camera	Weight
1.	Porsche 9981	768 MB	1.2 GHz	640x480 LCD display	5 MP	155g
2.	Bold 9790	768 MB	1 GHz	480x360 vivid touch display	5 MP	107g
3.	Bold 9900	768 MB	1.2 GHz	640x 480 brilliant touch display	5 MP	130g
4.	Torch 9810	768 MB	1.2 GHz	640x480 VGA color display	5 MP	161g
5.	Torch 9800	512 MB	1 GHz	480x360 HVGA color display	5 MP	161g
6.	Torch 9860	768 MB	1.2 GHz	800x480 WVGA pixel color display	5 MP	135g
7.	Curve 9360	512 MB	800 MHz	480x360 HVGA plus color display	5 MP	99g
8.	Curve 9350	512 MB	800 MHz	480x360 HVGA plus color display	5 MP	99g

4.2 BLACKBERRY APPLICATIONS

Blackberry operating system offers thousands of applications for business, social, entertainment, security, health & fitness, gaming etc. Top ten majestic and momentous applications of the Blackberry operating system are as follows:

- **Pandora Mobile:** Pandora, has a great free Blackberry application which allows to do almost everything one can do on the desktop version except right on the phone. New stations can be created, already created ones can be listened and rated.

- **Neosistec CarFinder:** CarFinder is a great Blackberry Maps application which allows one to mark the location of the car in a large parking lot. To use the application, just open the CarFinder's simple menu and mark the location through Blackberry's GPS while leaving the car for parking. To find the car again, pull up CarFinder and it will guide accordingly.

- **Qik Mobile:** Qik, which allows to stream live video from the phone to the internet for free, has a great mobile application for Blackberry. With it, one can stream video online from the device for anyone to see, or limit access with a password. But as the service implies, Blackberry must be a model with a camera for Qik to work.

- **Google maps:** Just like the popular online maps site, Google Maps offers a great Blackberry application which allows for most of the same features on their site, except again, its running on the phone. One can get directions, get maps in satellite view and watch traffic and see the location (which can work even if your Blackberry *doesn't* have GPS, but works better if it does).

- **Palringo:** For instant messaging lovers, Palringo is the coolest application. It is a mobile instant messaging client which supports AIM, ICQ, MSN, Yahoo, Google Talk and more, all in one piece of software. One can also chat with other users of Palringo (on a desktop, Android, iPhone/iPod Touch, Windows Mobile or Symbian phone) via text chat, voice or pictures. Palringo's voice capabilities make it a great almost push-to-talk (PTT) software and a great piece of software to talk to friends online or on their mobile phones due to its wide compatibility.

- **Boopsie:** Through way of different "channels", Boopsie allows one intelligently search for content or articles on sites like IMDB, Wikipedia, Amazon and more. With the help of this application, one can pull up the favourite channel and then search for content on it and live results will appear on the screen for the selected content.

- **Viigo:** Viigo is a feature-rich application which allows viewing news & RSS feeds, audio clips & podcasts, stocks & money data, weather and more. From this application, one can do a lot of things and browse many blog RSS feeds, see sports scores, view local weather, and even read books.

- **Blackberry Appworld:** Made directly by Blackberry, Appworld allows browsing through a wide variety of many other Blackberry apps and downloading and installing them on the spot from the application. Many different developers contribute their applications to the library that's available for download.

- **Facebook for Blackberry:** Since it is well known that Facebook is- the online utility which allows sharing of pictures, messages and online applications with friends. Well, now they have a handy Blackberry application which permits to do almost anything one can do on their desktop site, on your Blackberry. A really neat feature of this app is their recent update which allows you to automatically link Facebook profile pictures of your friends with their contact entry in your Blackberry's address book.

- **Twitterberry:** Twitterberry is the summation of Twitter and Blackberry. With it, one can send out Twitter updates quickly and easily as well as see the friend's timeline, view replies to the Tweets and direct messaging to friends. Almost all of these applications require an unlimited data plan from the Blackberry data/phone provider due to the amount of bandwidth they consume while in use.

5. IPHONE OPERATING SYSTEM (iOS)

iPhone operating system evolved and distributed by Apple Inc, was originally released in June 2007. Operating system is same for almost all the iPhones and it provides the largest application store.

S.No.	Version	Release Date
1.	iOS 1.1.5	29 June 2007
2.	iOS 2.0 upgraded through 2.2.1	11 July 2008
3.	iOS 3.0	17 June 2009
4.	iOS 3.1.3	2 Feb 2010
5.	iOS 4.0	21 June 2010
6.	iOS 4.2.1	22 Nov 2010
7.	iOS 5	6 June 2011
8.	iOS 5.1.1	7 May 2012
9.	iOS 5.1	24 Sept 2012
10.	iOS 6.0	19 Sept 2012

10.1 IPHONE DEVICES AND SPECIFICATIONS

S.No.	Model	RAM	Processor	Display	Camera	Weight

1.	iPhone	4, 8, 16 GB	620 MHz ARM 1176JZ(F)-S	480x320 HVGA at 163 ppi	2 MP	135g
2.	iPhone 3G	8, 16 GB	620 MHz ARM 1176JZ(F)-S	480x320 HVGA at 163 ppi	3 MP	133g
3.	iPhone 3GS	8, 16, 32 GB	833 MHz ARM Cortex-A8	480x320 HVGA at 163 ppi	5 MP	135g
4.	iPhone 4	8, 16, 32 GB	1 GHz Apple A4	960x640 at 326 ppi	5 MP	137g
5.	iPhone 4S	16, 32, 64 GB	1 GHz Dual Core Apple A5	960x640 at 326 ppi	8 MP	140g
6.	iPhone 5	16, 32, 64 GB	Apple A6	1136x640 at 326 ppi	8MP	112g

10.2 IPHONE FEATURES

- **Phone:** The phone's features are solid enough like visual voicemail, text messaging and voice dialling.

- **Voice mail:** It allows users to look at a list of their voice mails, decides which messages to listen to, and then go directly to those messages without listening to the prior messages.

- **SMS:** iPhone includes an SMS application with a full QWERTY soft keyboard to send and receive SMS messages in multiple sessions. iPhone also includes a calendar application that allows calendars to be automatically synced with your PC or Mac.

- **Siri:** Ability to answer a number of questions, and perform new tasks:

  o Search for restaurants

  o Movie ratings and reviews

  o Sport scores for past and current games

  o Stock and third party applications

- o Do not disturb option

- o Native government alerts

- o Restricting access to customizable aspects

- **App Store:** provides the largest application store.

- **Safari:** Couple of nice enhancements:

  - o iCloud tabs

  - o Offline reading list

  - o Media uploads

  - o Full-screen

  - o Smart banners

- **Maps:** A handful of new features are introduced:

  - o 3D flyover view

  - o Turn-by-turn

  - o Traffic

- **Clock:** A fresh coat of paints for Apple's tablet:

  - o Mp3 Alarm Tones

  - o New iPad app

10.3 IPHONE APPLICATIONS

FIELD	APPLICATIONS
Books	Tips & tricks-iphone secrets, iBooks, Goodreads, DC Comics
Business	Resume Maker, Square Card Reader, Adobe Reader, Job search
Education	Quizlet, Edmodo, iTunes U, Lumosity Brain Trainer
Entertainment	Podcasts, Toca Hair Salon, Netflix, Ticketmaster
Finance	PayPal, Chase Mobile, American Express, Wells Fargo Mobile

Games	Fix-it Felix Jr., MARVEL War of Heroes, Flow Free, Bubble Mania
Health & Fitness	Lose It, WebMD, Calorie counter & diet Tracker, Runkeeper
Lifestyle	Target, Groupon, Shopkick, Apple store
Medical	Medscape, epocrates, legal maps, inspiring quotes 5000
Music	Spotify, SoundHound, Shazam, Magic piano
Navigation	Beat the traffic, MapQuest, maps+, speedometer
News	NY Times, NPR News, Yahoo!, CNN App
Photography	Snapchat, Vintique, Instagram, Youtube
Social networking	Pinterest, Skype, Kik Messenger, Twitter
Utilities	Find my iphone, Chrome, Scan, My Verizon Mobile

11. COMPARATIVE ANALYSIS

S.No.	PARAMETER	ANDROID	BLACKBERRY	IPHONE
1.	E-mail	• Automatically integrates all e-mail contacts and email addresses from Microsoft exchange into the device.	• Best for business due to its security and support for Microsoft Exchange Server.	• Multiple email addresses from multiple types of accounts like Gmail, Microsoft exchange.
2.	Browsing	• Most websites load easily. • Flash compatible.	• Ability of browsing varies from device to device.	• Fast and efficient browsing. • Flash application is not supported.
3.	Display	• Variety of screen sizes and resolutions. • Retina display is absent.	• Type and quality of screen display can vary a great deal. • Smaller screens.	• Best looking screen. • Retina display is present. • Lags behind the screen sizes.
4.	Photo & video	• Varies from device to device.	• Decent picture quality.	• Best point-and-shoot camera. • 8 MP camera

				along with HD video recording capabilities. • Addition of face detection and image stabilization.
5.	Video Conferencing	• Google talk is its native video conferencing and chat application.	• Mobile conferencing App • No front facing camera	• FaceTime app connecting through wifi with Apple devices having FaceTime
6.	Keyboard	• On-screen keyboards. • Typing is even easier by installing swipe functionality that allows to literally swipe from letter to letter to form a word, instead of having tap on each key.	• Physical or on-screen keyboards. • Provides more keyboard options.	• Physical keyboard. • Among on-screen keyboards, it is accurate. • Very good touch response.
7.	Productivity	• Google's productivity applications are compatible. • Native Android calendar will sync with the Google calendar.	• Blackberry Bridge to view the calendar. • Number of applications to keep business affairs organized.	• No shortage of applications. • Addition of the Reminders application in iOS5 which will pull in all the tasks from Outlook.
8.	Voice	• Integrated	• Easily allows	• Siri on board will

	Recognition	through Android devices. • Integrated voice recognition for search, text, messaging, email and many more.	to dial numbers by voice from the contact list. • Downloading of voice recognition applications is required.	give directions, text and email. • Google searches can be made.

12. CONCLUSION

Smart phones and their increased usage are divulging not only the manufacturers or operating system developers but also the phone lovers. Each of the smart phone operating system- Android, Blackberry and iPhone- assists a categorical purpose for an explicit necessity that suits an individual. The choice is driven by personal perception, and personal preferences and it is a hard decision. Each of the three platforms dispenses some elevated attributes that makes each of them best in some way or the other. Blackberry is the best economical choice for business executives and professionals due to the security reasons best battery life among the three. iPhone is the first smart phone that was actually smart and is a best choice for the game lovers. iOS administers the largest application store. Androids are a coolest choice for the social networking and it assists the second largest application store with Google as its native. The phone provides a wide variety of screen sizes and resolutions that makes it a nice choice for the video conferencing. Thus, we desist that each of the platforms offers many majestic qualities that make each one of them really smart.

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