A SEMINAR REPORT

ON

APPLE iOS 4

In

INSTITUTE OF TECHNOLOGY AND MANAGEMENT
BHILWARA(311001)

Session (2010-11)

SUBMITTED BY:
Jaideep Singh
7th semester
07EIMIT016

SUBMITTED TO:
Mr. Ashish Suryawanshi
(I.T.)
**ABSTRACT**

**iOS** is Apple’s mobile operating system developed originally for the iPhone, and later deployed on the iPod Touch and iPad as well. It is derived from Mac OS X, with which it shares the Darwin foundation, and is therefore a Unix-like operating system, by nature. In iOS, there are four abstraction layers: the Core OS layer, the Core Services layer, the Media layer, and the Cocoa Touch layer. The operating system uses roughly 500 megabytes of the device’s storage.

Version 4, announced in April 2010, introduced multitasking as well as several business-oriented features, including encryption for email and attachments. At the WWDC 2010 keynote on June 7, 2010, Apple announced that iPhone OS had been renamed iOS. Apple licenses the trademark for "iOS" from Cisco Systems (who own IOS), the same company with which Apple had earlier settled a dispute over the "iPhone" trademark.

iOS 4 was released on June 21, 2010, three days before the iPhone 4. Staggering product launches reduces strain on Apple’s servers. iOS 4 is the first version of the OS to be a free upgrade on the iPod touch; Apple had charged $9.99 for earlier upgrades. Apple previously announced that iPad users with 3.x software would receive a free upgrade to the next major (4.x) release.

New features of ios4 are:

- Multitasking
- Face time
- Folders
- Performance and stability
- Reception strength
CONTENTS

1. Abstract 2

1. Chapter 1: 5
   Introduction

2. Chapter 2: 6
   Overview of apple iOS

3. Chapter 3: 7
   Origin of iPhone

4. Chapter 4: 8
   Apple iOS
   Features
   • Homescreen
   • Development

5. Chapter 5: 12
   Apple iOS 4
   Multitasking
   What’s new in iOS 4
   Apple iOS 4’s hidden features
   iOS 4
   iOS 4 for user
   iOS 4 and iPhone 4
   iOS4 and the enterprise
6. Chapter 6:
   Technology behind iOS 4  
   iOS technology layers  
   Writing code for iOS  
   iOS 4 technicality  
   Inherited improvements

7. Chapter 7:
   Apple iOS review  
   Whats new  
   Whats still missing

8. Chapter 8:
   Conclusion

- Future scope
CHAPTER: 1

INTRODUCTION

iOS is Apple’s mobile operating system. Developed originally for the iPhone, it has since been shipped on the iPod Touch and iPad as well. Apple does not permit the OS to run on third-party hardware. As of June 7, 2010, Apple’s App Store contained more than 225,000 iOS applications, which had collectively been downloaded more than five billion times.

The user interface of iOS is based on the concept of direct manipulation, using multi-touch gestures. Interface control elements consist of sliders, switches, and buttons. The response to user input is immediate and provides a fluid interface. Interaction with the OS includes gestures such as swiping, tapping, pinching, and reverse pinching. Internal accelerometers are used by some applications to respond to shaking the device (one common result is that a command) or rotating it in three dimensions (one common result is switching from portrait to landscape mode).

iOS is derived from Mac OS X, with which it shares the Darwin foundation, and is therefore a Unix-like operating system by nature.

In iOS, there are four abstraction layers: the Core OS layer, the Core Services layer, the Media layer, and the Cocoa Touch layer. The operating system uses roughly 500 megabytes of the device’s storage.
CHAPTER: 2
OVERVIEW OF APPLE iOS

iOS comprises the operating system and technologies that you use to run applications natively on devices, such as iPad, iPhone, and iPod touch. Although it shares a common heritage and many underlying technologies with Mac OS X, iOS was designed to meet the needs of a mobile environment, where users’ needs are slightly different. If you have previously developed applications for Mac OS X, you will find many familiar technologies, but you’ll also find technologies that are available only on iOS, such as the Multi-Touch interface and accelerometer support.

The iPhone SDK contains the code, information, and tools you need to develop, test, run, debug, and tune applications for iOS. The Xcode tools provide the basic editing, compilation, and debugging environment for your code. Xcode also provides the launching point for testing your applications on an iOS device, and in iPhone Simulator—a platform that mimics the basic iOS environment but runs on your local Macintosh computer.
CHAPTER: 3
ORIGIN OF iPHONE

Comments made by Jobs in April 2003 at the "D: All Things Digital" executive conference expressed his belief that tablet PCs and traditional PDAs were not good choices as high-demand markets for Apple to enter, despite many requests made to him that Apple create another PDA.

He did believe that cell phones were going to become important devices for portable information access, and that what cell phones needed to have was excellent synchronization software.

At the time, instead of focusing on a follow-up to their Newton PDA, Jobs had Apple put its energies into the iPod, and the iTunes software (which can be used to synchronize content with iPod devices), released January 2001.

On September 7, 2005, Apple and Motorola released the ROKR E1, the first mobile phone to use Apple's iPod software. Jobs had a number of conflicts with Apple and the designers of the phone with Apple and the designers of the phone with the ROKR designer (Motorola) prevented Apple from designing the phone they wanted to make.

In September 2006, Apple discontinued support for the ROKR and released a version of iTunes that included references to an as-yet unknown mobile phone that could display pictures and video.

On January 9, 2007, Jobs announced the iPhone at the MacWorld convention, receiving substantial media attention, and on June 11, 2007 announced at the Apple’s Worldwide Developers Conference that the iPhone would support third-party applications using the Safari engine on the device.

Third-parties would create the Web 2.0 applications and users would access them via the internet.

Such applications appeared even before the release of the iPhone; the first being "OneTrip", a program meant to keep track of the user's shopping list.

On June 29, 2007, Apple released version 7.3 of iTunes to coincide with the release of the iPhone. This release contains support for iPhone service activation and syncing.
CHAPTER: 4
APPLE iOS

ABOUT iOS:

<table>
<thead>
<tr>
<th>Company/developer:</th>
<th>Apple inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmed in:</td>
<td>C, C++, Objective-C</td>
</tr>
<tr>
<td>OS Family:</td>
<td>Mac OS X/UNIX like</td>
</tr>
<tr>
<td>Working state:</td>
<td>Current</td>
</tr>
<tr>
<td>Initial release:</td>
<td>June 29, 2007</td>
</tr>
<tr>
<td>Latest stable release:</td>
<td>4.0.2 for iPhone and iPod touch (August 11, 2010)</td>
</tr>
<tr>
<td>Latest stable release:</td>
<td>4.1 Beta 3 for iPhone, iPod touch (August 3, 2010)</td>
</tr>
<tr>
<td>Available language(s):</td>
<td>Moliingual</td>
</tr>
<tr>
<td>Supported platforms:</td>
<td>ARM (iPhone, iPod Touch and iPad)</td>
</tr>
<tr>
<td>Kernel type:</td>
<td>Hybrid (Darwin)</td>
</tr>
<tr>
<td>Default user interface:</td>
<td>Cocoa Touch (Multi-touch, GUI)</td>
</tr>
<tr>
<td>License:</td>
<td>Proprietary EULA except for open source components</td>
</tr>
<tr>
<td>Official website:</td>
<td>iPhone Developer Program</td>
</tr>
</tbody>
</table>

**TABLE 1:** iOS DETAILS
History Of iOS

The operating system was unveiled with the iPhone at the Macworld Conference & Expo on January 9, 2007, and released in June of that year. At first, Apple marketing literature did not specify its name, stating simply that the "iPhone uses OS X".

Initially, third-party applications were not supported. Steve Jobs argued that developers could build web applications that "would behave like native apps on the iPhone". On October 17, 2007, Apple announced that a native SDK was under development and that they planned to put it "in developers' hands in February". On March 6, 2008, Apple released the first beta, along with a new name for the operating system: iPhone OS.

Brisk sales of Apple mobile devices kindled interest in the SDK. The previous September, Apple had released the iPod Touch, which had most of the non-phone capabilities of the iPhone. Apple also sold more than one million iPhones during the 2007 holiday season. On January 27, 2010, Apple announced the iPad, featuring a larger screen than the iPhone and iPod Touch, and designed for web browsing, media consumption, and reading iBooks.

Features

Home screen:

The home screen (rendered by "SpringBoard") with application icons, and a dock at the bottom of the screen where users can pin their most frequently used apps, is presented whenever the device is turned on or the home button pressed. The screen has a status bar across the top to display data, such as time, battery level, and signal strength. The rest of the screen is devoted to the current application. Double pressing the home button activates the application switcher. A scrollable dock-like interface appears from the bottom, moving the contents of the screen up. Choosing an icon switches to an application. To the far left are icons which function as music controls, and a rotation lock. Holding the icons makes them wiggle (similarly to the homescreen) and allows the user to quit the applications.
**TABLE 2: INCLUDED FEATURES**

<table>
<thead>
<tr>
<th>Name</th>
<th>Usage</th>
<th>Version Included</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Mail</td>
<td>Telephone, FaceTime Video calling</td>
<td>1.0+ (FaceTime Video Calling 4.0+)</td>
</tr>
<tr>
<td></td>
<td>E-mail client</td>
<td>1.0+</td>
</tr>
<tr>
<td>Safari</td>
<td>Web browser</td>
<td>1.0+</td>
</tr>
<tr>
<td>iPod</td>
<td>Portable media player</td>
<td>1.0+</td>
</tr>
<tr>
<td><strong>Secondary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Messages</td>
<td>Text messaging, MMS</td>
<td>1.0+ (MMS 3.0+)</td>
</tr>
<tr>
<td>Calendar</td>
<td>Calendar</td>
<td>1.0+</td>
</tr>
<tr>
<td>Photos</td>
<td>Photo viewer</td>
<td>1.0+ (Video viewer 2.0+)</td>
</tr>
<tr>
<td>Camera</td>
<td>Camera</td>
<td>3.0+ (HD video 4.0+)</td>
</tr>
<tr>
<td>YouTube</td>
<td>YouTube video streamer</td>
<td>1.0+</td>
</tr>
<tr>
<td>Stocks</td>
<td>Yahoo! Finance</td>
<td>1.0+</td>
</tr>
<tr>
<td>Maps</td>
<td>Google Maps</td>
<td>1.0+ (Assisted GPS 2.0+, Compass 3.0+ (iPhone 3GS onwards))</td>
</tr>
<tr>
<td>Weather</td>
<td>Yahoo! Weather</td>
<td>1.0+</td>
</tr>
<tr>
<td>Voice Memos</td>
<td>Voice recorder</td>
<td>3.0+</td>
</tr>
<tr>
<td>Notes</td>
<td>A simple note-taking program</td>
<td>1.0+</td>
</tr>
<tr>
<td>Clock</td>
<td>World clock, stopwatch, alarm clock and timer</td>
<td>1.0+</td>
</tr>
<tr>
<td>Calculator</td>
<td>Calculator (includes scientific version)</td>
<td>1.0+ (Scientific calculator 2.0+)</td>
</tr>
<tr>
<td>Settings</td>
<td>Settings</td>
<td>1.0+</td>
</tr>
<tr>
<td>iTunes</td>
<td>To access the iTunes Music Store and iTunes Podcast Directory</td>
<td>1.1+</td>
</tr>
<tr>
<td>App Store</td>
<td>To buy iOS apps</td>
<td>2.0+</td>
</tr>
<tr>
<td>Compass</td>
<td>Compass</td>
<td>3.0+ (iPhone 3GS onwards).</td>
</tr>
<tr>
<td>Contacts</td>
<td>Address/phone book</td>
<td>1.0+ (Separate application for iPhone 2.0 onwards)</td>
</tr>
<tr>
<td>Nike + iPod</td>
<td>Records the distance and pace of a walk or run, can connect to Nike + iPod sensor.</td>
<td>2.2.1+(iPod Touch, 2nd generation onwards.), 3.0+(iPhone 3GS onwards).</td>
</tr>
</tbody>
</table>
Development:
Mac OS X applications cannot be copied to and run on an iOS device. The applications must be written and compiled specifically for iOS and the ARM architecture. The Safari web browser supports web applications as with other web browsers. Authorized third-party native applications are available for devices running iOS 2.0 and later through Apple's App Store.

SDK:
On October 17, 2007, in an open letter posted to Apple’s "Hot News" weblog, Steve Jobs announced that a software development kit (SDK) would be made available to third-party developers in February 2008. The SDK was released on March 6, 2008, and allows developers to make applications for the iPhone and iPod Touch, as well as test them in an “iPhone simulator”. However, loading an application onto the devices is only possible after paying an iPhone Developer Program fee. Since the release of Xcode 3.1, Xcode is the development environment for the iPhone SDK. iPhone applications, like iOS and Mac OS X, are written in Objective-C. Developers are able to set any price above a set minimum for their applications to be distributed through the App Store, of which they will receive a 70% share. Alternately, they may opt to release the application for free and need not pay any costs to release or distribute the application except for the membership fee.

Some have criticized the mandatory Developer Agreement's refund policy, which says that if someone purchases an app from the App Store, 30% of the price goes to Apple, and 70% to the developer. If the customer requests a refund, Apple keeps the 30% from the customer, and 70% from the developer; however, Apple can then take another 30% of the cost from the developer to make up for Apple's loss.
CHAPTER : 5
APPLE iOS 4:

Version 4, announced in April 2010, introduced multitasking and several business-oriented features, including email encryption and attachments. At the WWDC 2010 keynote on June 7, 2010, Apple announced that iPhone OS had been renamed iOS. Apple licenses the trademark for "iOS" from Cisco Systems (which owns IOS), the same company with which Apple had earlier settled a dispute over the "iPhone" trademark.

iOS 4 was released on June 21, 2010, three days before the iPhone 4, in an effort to reduce the strain on Apple’s servers. iOS 4 is the first version of the OS to be a free upgrade on the iPod touch; Apple had charged $9.99 for all earlier upgrades except from 2.x to 3.1, which charged $4.99. Apple previously announced that iPad users with 3.x software would receive a free upgrade to the next major (4.x) release.

iOS 4.0.1 includes a fix to the reception signal strength indicator. It was released on July 15, 2010, the day before Apple hosted a press conference to discuss its response to the widely publicized iPhone 4 antenna issues. Apple also released iOS 3.2.1 for the iPad which tweaks the tablet’s WiFi connectivity, video playback, and copy-and-paste for PDF attachments, among other updates.

iOS 4.0.2 for iPhone and iPod touch and iOS 3.2.2 for the iPad were released on August 11, 2010, to fix a pair of security vulnerabilities.

iOS 4, previously known as iPhone OS 4, is a major update to Apple’s mobile OS which brings a number of important new features and improvements, including a new home-screen layout, the opening up of thousands of APIs to third-party developers—while the rest of the improvements are basically tweaks to existing functionality.

We'll say up front that we like the update. For iPhone 4, iPhone 3GS, and iPhone 3G users (as well as second- and third-generation iPod touch users), iOS 4 will add useful functionality that will make your device more useable than ever.

Because iOS 4 is launching ahead of the new iPhone 4 (and it runs on more devices than just the new iPhone), we’re reviewing it separately from the phone itself. There is some functionality that is specific to the iPhone 4, which we’ll address in that review when it comes out. For the purposes of this review, though, we used iOS 4 on an iPhone 3GS—the most current iPhone available ahead of the iPhone 4 launch.
FIGURE 1: A VIEW OF iOS

Multitasking:

The biggest and most obvious update to iOS 4 is the ability for third-party applications to "multitask"—that is, you don’t have to terminate them in order to do something else in another app. This is functionality that has been requested of Apple since the launch of the original iPhone in 2007, and it has been a long time coming. (Only the iPhone 4, iPhone 3GS, and third-gen iPod touch get multitasking.)

Apple’s own apps have always been able to truly multitask (you can get iCal alerts while playing a game, for example, or listen to music from the iPod app while reading a webpage), but third parties can now take advantage of a limited set of multitasking capabilities in order to make things easier on the user.

Why “limited”? Because iOS multitasking isn’t really multitasking in the traditional sense—it’s certainly not what you get on a desktop computer, or even what you get from Apple’s own iPhone apps. Apple claims that it only allows for certain functionality so that the OS can
continue to preserve battery life and performance in a sane manner. So, what exactly can you do with this new feature? Really, the answer isn’t so much that apps will be “multitasking,” but rather that they’ll be “doing a few things in the background”:

- **Audio**: you can now listen to streaming music from apps, like Pandora or newscasts through the NPR app, while doing other activities on your phone. Previously, you would have to quit out of the app (and therefore stop your music stream) if you wanted to respond to an SMS or read your e-mail, and now that’s no longer the case. Hallelujah.

- **VoIP**: similarly, you can carry on Voice Over IP calls on services like Skype without having to quit the app if you need to perform other tasks.

- **Location**: apps that need to poll your location, such as GPS and direction apps, will be able to do so in the background. No longer will you need to keep the app in the foreground just so it can keep track of where you are.

- **Local notifications**: third-party apps no longer have to rely solely on push notifications if they want to alert you of something on your phone. If you have an alert set in, say, one of Omni’s applications, it can ping you when the time comes instead of having to go through a convoluted series of Internet tubes to get to you. This, of course, reduces your reliance on an Internet connection to get certain types of alerts and helps cut down on overall wireless bandwidth.

- **Complete tasks**: if you start a task in an application and then switch to another one (such as downloading a new map in your favorite game), it can now complete the task in the background instead of forcing you to sit there and wait on it.

- **Fast app switching**: this is basically “pausing” an app where it is, which allows you to quickly switch away from it and then switch back, picking up where you left off.

- **Grab new updates**: those of you who were hoping that your Twitter, IM, or IRC client would pull down updates while hanging out in the background will be disappointed. Unless those apps make use of push notifications to alert you of new messages (as the AIM app does), apps won’t be able to check for updates on their own unless they’re in the foreground.

- **Work across the entire OS**: users have long hoped that some of their favorite apps (such as TextExpander) would be able to work in all parts of the OS, such as Mail and Messages, but that won’t be the case. This isn’t Mac OS X here—Apple still wants to keep each app to itself for the most part.

Now that we’ve told you what the new feature can and can’t do, we’ll tell you how to use it. Anytime you launch an app and then switch to another app, the first app is automatically “backgrounded” and added to your app drawer. You can access this drawer from anywhere by hitting the Home button twice, which will slide your screen up and show you a row of icons that you can swipe through.

If you swipe right immediately after hitting the Home button twice, you’ll always get the orientation lock (more on this later) as well as your audio controls for the app that’s currently playing audio. If you swipe right, you’ll just keep getting apps that you recently used—tap any of the app icons to switch back to that app, and it will pick up exactly where you were before you switched away. Although the multitasking feature is limited overall, the ability for the OS to keep your spot in whatever you were doing is certainly welcome. (It’s worth noting that many developers have put in good effort to save your state within their apps in order to replicate this on their own.)
**FIGURE 2: MULTITASKING IN iOS**

One odd thing we noticed about the app drawer is that it seems to stay in portrait mode when

**FIGURE 3: MULTITASKING**

The drawer itself coming up on the side (instead of the bottom) isn’t so much the problem, but
the app icons are still rotated as if the phone were in portrait. Someone couldn’t at least rotate
the icons so they’re facing the right way when viewing it in landscape? This seems like an
oversight that is atypical of Apple’s usual attention to detail.
And, although Steve Jobs trashed the idea that users should be managing apps on their own (he said something along the lines of "If you have a task manager, you have failed!") at a media event in April, you can quit the currently running apps if you want to. You shouldn’t have to—Apple basically freezes all their processes in the background unless they’re performing one of the aforementioned kosher functions, so they shouldn’t be sucking up any of your performance—but it makes those of us with neatness neuroses happy.

**WHAT’S NEW IN iOS 4:**

iOS 4 is the next generation of the world’s most innovative mobile operating system. Its unique capabilities and new technologies will change what’s possible on a mobile platform.

**Multitasking:**

iOS 4 delivers seven new multitasking services that allow your apps to perform tasks in the background while preserving battery life and performance. These multitasking services include:

- **Background audio** - Allows your app to play audio continuously. So customers can listen to your app while they surf the web, play games, and more.
- **Voice over IP** - Your VoIP apps can now be even better. Users can now receive VoIP calls and have conversations while using another app. Your users can even receive calls when their phones are locked in their pocket.
- **Background location** - Navigation apps can now continue to guide users who are listening to their iPods, or using other apps. iOS 4 also provides a new and battery efficient way to monitor location when users move between cell towers. This is a great way for your social networking apps to keep track of users and their friends’ locations.
- **Push notifications** - Receive alerts from your remote servers even when your app isn’t running.
- **Local notifications** - Your app can now alert users of scheduled events and alarms in the background, no servers required.
- **Task finishing** - If your app is in mid-task when your customer leaves it, the app can now keep running to finish the task.
- **Fast application switching** - All developers should take advantage of this. This will allow users to leave your app and come right back to where they were when they left - no more having to reload the app.
**iAd:**
Apple's new mobile advertising platform, combines the emotion of TV ads with the interactivity of web ads. When users click on mobile ads they are almost always taken out of their app to a web browser, which loads the advertiser's webpage. Users must then navigate back to their app, and it is often difficult or impossible to return to exactly where they left. iAd solves this problem by displaying full-screen video and interactive ad content without ever leaving the app, and letting users return to their app anytime they choose. iOS SDK 4 lets developers easily embed iAd opportunities within their apps, and the ads are dynamically and wirelessly delivered to the device. Apple will sell and serve the ads, and developers will receive 60 percent of iAd revenue.

**Game Center:**
The iOS 4 GM seed software and SDK includes a developer preview of the GameKit APIs that will allow developers to create their own online multiplayer games. Your users can invite friends to play a game, start a multiplayer game through matchmaking, track their achievements, and compare their high scores on a leader board. The APIs are available to you now and Game Center will be available to iPhone and iPod touch users later this year.

**New APIs:**
iOS SDK 4 contains over 1500 new APIs to incorporate into your iPhone and iPod touch apps, including:

**Calendar Access**
Applications can now create and edit events directly in the Calendar application with Event Kit. Create recurring events, set up start and end times and assign them to any calendar on the device.

**In-App SMS**
Compose SMS messages from within apps, similar to the Mail compose sheet added in iOS SDK 3.0.
Photo Library Access

Applications now have direct access to user photos and videos with the Media Library APIs.

Video playback & Capture

You now have full programmatic control over video playback and capture, using new APIs in the AV Foundation framework.

Map Kit Improvements

Mapping applications can now include overlays that can identify regions on a map. Draw routes with annotations for customized directions and other functionalities.

Quick Look

Applications can now present previews of documents, like attachments in Mail, using the new Quick Look APIs.

Accelerate

Accelerate provides hundreds of mathematical functions optimized for iPhone and iPod touch, including signal-processing routines, fast Fourier transforms, basic vector and matrix operations, and industry-standard functions for factoring matrices and solving systems of linear equations.

New in Tools:

With a wealth of new tools and refinements throughout the suite of current tools, you’ll find that developing amazing iPhone and iPod touch apps is easier than ever before.

Automated testing

Automate the testing of your application by scripting touch events using the new UIAutomation Instrument.

Performance and power analysis

Collect finely-grained performance data and track the power usage of your application using the new Time Profiler and Energy Diagnostics Instruments for iOS.
Apple iOS 4's Hidden Features:

Home Screen:
As usual, Apple snuck a number of new features into almost every facet of iOS, so let's start with the first thing that most people see when they use an iPhone: the Home screen. Now, you probably already know about the major new features like folders for organizing apps and support for wallpaper backgrounds (just like the iPad feature), but we've found a couple more perks as well. First, the Spotlight screen now offers "Wikipedia" and "Web" options at the bottom of your search results. If you don't find what you're looking for locally, these are two easy launchpads for taking your query out to the Web.

The second Home screen bonus is that if you use one of the readily available apps to enable emoji icons on your device, you can use them to name your Home screen folders. In fact, you don't need a text label at all—iOS will let you use even just a single emoji icon to label a folder.

Multitasking:
You can indeed remove an app from the multitasking bar at the bottom of the display. To do so, tap and hold on an icon, just as if you wanted to move icons around on the Home screen. The icons will start jiggling, and a red minus sign will appear at the top left of the icon. Tapping the minus will completely remove the app from the device. If you don't want to remove the app, tap any other choice, so be sure that the app either automatically saves your work or that you were truly done using it.

Phone:
Moving along the key apps and features of iOS, the Phone app got a little attention in this update. On iPhone 4, the Facetime button appears to have knocked off the Hold button on the in-call screen (our guess is that hold seemed a little redundant in light of Mute and the ability to move the phone away from your face). Thanks to Nik Fletcher's observations, the "End Call" button has been re-labeled to simply "End," and the in-call background image now stretches all the way to the bottom of the screen (previously, it stopped just above the End Call button).

Mail:
Mail is at the head of the pack when it comes to major changes in iOS 4, and we covered them in our main review and our hands-on Mail piece. The app also got quite a bit of spit and polish that warrants a mention.

If a message is from a contact in your device's Address Book and a picture is assigned, that picture will appear to the right of the subject when viewing that message. If you start drafting a message in Mail or any other app and then hit Cancel, the menu that appears now features a loud, red "Delete Draft" button to help make sure that you know what you're doing.

Mail also gains some custom e-mail service features: it now supports MobileMe aliases and archiving in Gmail—both unique features to their respective services.
Mail also gained some new preferences in the Settings app. Under the Mail, Contacts, and Calendars pane, you can pick a default account with which to sync new notes from Apple’s built-in Notes app, and you can disable the new threaded conversation view.

**Safari:**

In addition to gaining Bing as a search option and other perks we’ve already mentioned, Apple endowed its mobile browser with search suggestions that appear as you type, just like in a desktop browser. (This works with all three search engine options and is, of course, dependent on having a stable Internet connection.) When typing in the address field, URL suggestions from your bookmarks and history now include both the URL and page title. Apple also tightened up the interface when you tap on either Safari’s search or location fields—the Cancel button is now next to the field, instead of above it, cutting down on the amount of space that it occupies.

**iPod:**

The iPod app may take the cake when it comes to the sheer number of nips and tucks that Apple made to its iOS 4 apps, which is why we spent an entire article on it. The album view got a serious face lift, as it now displays album art in a larger area at the top, along with metadata like release date, total playing time, individual track length, and more. In addition to now being able to edit playlists (including the ones you sync from iTunes), a “Clear” button makes it easy to start fresh. The iPod app also respects iOS 4’s new system-wide orientation lock; when it’s enabled, Cover Flow will not appear when rotating your device.

When viewing a TV show’s list of episodes, there is a new “Get More Episodes...” button at the bottom (note that it does not appear in playlists). Lastly, a new option in Settings -> iPod lets you toggle the display of TV show and podcast info in each episode card (previously, if you opted out of that, it always showed up in conjunction with the playback scrubber).

Finally, with a hat tip to Iljitsch van Beijnum, links embedded in enhanced podcasts can now be opened in Mobile Safari.

**iTunes Store:**

There is no more iTunes Plus designation on music tracks—the higher 256Kbps quality, DRM-less format has been the norm for some time, so Apple has apparently seen fit to do away with pointing it out.

**YouTube:**

Videos will rotate to portrait mode, but only after they start playing in landscape. Then you can turn the phone upright and the video will follow (iPod videos gained portrait rotation sometime in iOS 3.x). If you turn the phone to portrait before the video starts playing, it will remain in landscape orientation—we’re not sure if this is a feature or a bug, but it seems like a bug.

**Notes:**

Since Notes can now sync with multiple sources (iTunes, MobileMe, and so on), a new button in the top left lets you view all the accounts that support notes. This also means you get a choice when creating notes—you can keep them “On My iPhone” or sync them with MobileMe or any other supported e-mail account. There is also a new option under Settings -> Mail, Contacts, Calendars to pick a default account with which to sync notes.
**Calculator:**
For the third time in the iOS's history, Calculator has gained a new icon.

**Settings:**
What's a major iOS update without a healthy dose of new preferences and rejiggering? Under the General pane, Accessibility has gained a "Large Text" option to increase text size in Mail, Contacts, Messages, and Notes. Spotlight Search (which lets you toggle and reorder search results) was moved and renamed from General -> Home -> Search Results, and it now includes an entry for Messages.

The General -> Home option, meanwhile, has been removed altogether. In previous iOS versions, the Home pane let you assign different actions for double-pressing the Home button (such as opening Camera, iPod controls, Search, and so forth). But on devices that support multitasking, double-pressing the Home button is now hardwired to opening the app switcher. (If there was ever a strong argument for the iPhone gaining a dedicated camera button, the loss of these options may be it.)

Under General -> International, a new Calendar option lets you pick between using Gregorian, Japanese, Buddhist, and Republic of China calendars. The International Assist option under General -> Phone has also been moved from the top of the pane to below the "Calls" option.

Safari gained a couple new options, too. Under Search Engine, you now have the choice of Bing in addition to Google (the default) and Yahoo. (The Search panel to the left of the Home Screen respects this search engine choice if you opt to take your query to the Web.) Interestingly, the Plug-ins slider has been removed entirely.

Messages also has a couple of new preferences: the Group Messaging option (enabled by default) lets replies come back to the original, single thread you created when sending the first message, instead of to the individual SMS entries for each contact in a group. A Character Count option can now display--you guessed it--a character count when composing SMS. The iPhone will display SMS of any length as one coherent message, but the carriers and most other phones still break them up into 160-character messages. Some SMS-enabled services, like Twitter, also enforce a low character count. Interestingly, the character count only appears above the Send button if your message stretches to a second line.
iOS 4:

The hardware features of the iPhone 4 and the iPad are optimized to take full advantage of what iOS 4 has to offer. Apple has forged important partnerships among enterprise solution providers to facilitate rapid integration, and has paid fastidious attention to data, device, and network security. These factors make the i-device/iOS 4 combination attractive to enterprise IT managers. However, enterprises with specific requirements will need developers to create appropriate solutions for them.

Earlier this month, Consumer Reports published a blog entry confirming a design defect in Apple’s iPhone 4 that can lead to signal-strength degradation and dropped calls for some users. Apple responded a few days later by announcing they will give current iPhone 4 customers a “bumper” case that alleviates the problem. Even with this dust-up, Apple sold some three million of these devices in a scant few weeks after its release.

This feat followed the no-less notable launch of Apple’s iPad. While the technorati rushed to issue their lukewarm reviews, consumers told a different story. Even the market tizzy generated by Apple’s decision to take a “No Flash Spoken Here” approach to its content gateway couldn’t keep customers away; sales of iPads hit the three million mark in the first 80 days following the product’s launch.

What unites these devices is both the sleek design of the hardware and (soon) the operating system that runs them. Previously called iPhone OS, Apple’s newly-branded iOS 4 provides a number of features that make the devices running it far more suitable to a work environment. New capabilities include support for 1024x768 pixels, MIL-STD 810G military standards, and enhanced compatibility with iPhone 3G and iPhone 3G S raises considerably the number of iOS 4 devices in use today (note: the iPad version of iOS 4 will be released this Fall).

Apple has always struggled to penetrate the world of enterprise computing; their refusal to license the Mac OS to third-party developers and manufacturers has kept their price points beyond the reach of most enterprise budgets. But the advances and upgrades in iOS 4, especially in light of the rapidly growing installed base, make this an interesting option for those considering an enterprise-wide mobile learning and support solution. Indeed, companies like Unisys and Novartis have already made i-devices and the iOS a central part of their mobile strategy. Because it is an operating system, of course, there are no features in iOS 4 that carry a “designed specially to support learning” label. At the same time, there are many features in iOS 4, and in the devices that use it, that developers can exploit to create applications that will facilitate a wide variety of learning strategies, from traditional classroom instructor-led settings, to collaborative designs, to mobile learning-on-the-go and performance support.
**iOS 4 for the user**

While iOS has its roots in telephony, iOS 4 is packed with new features ("hundreds," by Apple’s count), the majority of which have nothing to do with how the actual phone works. To be sure, Apple has made some improvement in the quality of the phone experience; noise cancelling has been introduced to reduce interference from ambient noise. Even with this, the upgrades in iOS 4 make it clear that Apple intends for its i-devices to be robust media consumption and production tools for the masses rather than just fancy phones or media readers.

One of the most oft-heard complaints about the iPhone has been its inability to handle multiple tasks at one time. iOS 4 answers that complaint by enabling users to look up a phone number while talking on the phone, for example, or to listen to music while doing e-mail. Multi-tasking, as Apple calls it, also applies to third-party apps, making it possible to check a movie time online while conducting a Skype call or read e-mail while uploading pictures to Facebook.

Other forms of communication have been upgraded as well. Mail in iOS 4 has a unified inbox, enabling users to view e-mail from multiple accounts within a single inbox. Text messaging now easily incorporates pictures or video in the message stream, and a single message can be sent to multiple recipients at once.

Personal organization features have been expanded in iOS 4. Users can bundle apps into folders, with support for pinch-to-zoom to view folder contents. Alternatively, users can create their own naming scheme. With the addition of this feature, users can load up to 2,160 apps organized into 180 unique folders. The challenge of finding what you’re seeking is mitigated by the search feature.

In fact, the search experience within the device (i.e., not Internet search) has been vastly improved with the introduction of Voice Command. Using Voice Command, not only can users easily find the app or data they seek, but they can also launch a task at the same time. Speaking the command “Call Liz” will locate Liz’s contact information from Contacts and immediately initiate a call to her; “Play Brent Schlenker” will search the audio library, create a playlist of all tracks – music or Podcasts – by Brent Schlenker, and launch the iPod player to begin playback.
**iOS 4 and the iPhone 4**

The real advances to the operating system are best reviewed in the context of the devices that run it; Apple designed iOS 4 to fit like a hand in a glove with the iPhone 4. From the user’s perspective, the emphasis is on photo and video production, editing, sharing, and viewing – with a special twist.

The iPhone 4 has two cameras, one on each side of the device. The camera on the back has been upgraded to 5 megapixels, and is capable of shooting HD video. There is also a video camera on the front facing the user. FaceTime, the video calling feature of iOS 4, enables two iPhone 4 users to see each other during a call. It also enables a user to “share what she sees” by transmitting the video or still images from the camera on the back of the phone to the user on the other end. If a field technician comes across a part that she can’t identify, she can call her support desk and use real-time video to show her colleague the part and its location.

**iOS 4 and the enterprise:**

Each of the features mentioned above plays an important role in enterprise adoption, and Apple has further extended these capabilities to ensure enterprise compatibility.

Most significant to users is integration with Microsoft Exchange and other standards-based enterprise email servers. Exchange ActiveSync in MobileMe provides mobile secure VPN connections to maintain data security during transmission; hardware-based encryption keeps data on the device secure; data backups to a user’s iTunes account can be further encrypted by the user or IT manager.

While not part of iOS 4, iTunes plays at least a minimal role in any enterprise deployment. Each device must be activated via iTunes, and all software updates and backups are done in iTunes. Administrators can tailor their corporate deployment so that it adheres to corporate policies and procedures, including turning off the iTunes store, the App Store, and the iBook store.

This iTunes requirement does not preclude the enterprise from using its own or third-party servers for configuration, wireless updates, and ongoing management of all i-devices. Referred to collectively as Mobile Device Management, iOS 4 continues to incorporate existing technologies (e.g., Configuration Profiles, Over-the-Air Enrollment, and the Apple Push Notification service) and these are compatible with in-house or third-party server solutions. Once an i-device is activated, IT managers can securely enroll it in the enterprise environment, wirelessly configure and update settings, monitor compliance with corporate policies, and remotely wipe or lock it should it be lost or stolen.

In an enterprise deployment, accessibility is an important concern, and the customizable interface enabled by iOS 4 addresses this issue in many ways. Some of the more impressive advancements include:

- **Voice Control** – enables user to control the device via audio commands
- **VoiceOver** – provides an audio description of what’s on the screen. Blind or visually impaired users can touch an area of the display to hear the text read or to hear an image described. In dragging her figure around the display, the user can hear and understand the spatial and contextual relationships between different screen elements.

- **Visual Voicemail** – displays a log of each individual voicemail received, allowing the user to select which messages to play and in what order. During playback, each message can be controlled with a scrubber bar so that only a portion of a message can be repeated.

- **Multi-language support** – immediately upon activation, iOS 4 supports 24 languages in Voice Control, has 40 international keyboard layouts, and speaks 21 languages in VoiceOver.

**CHAPTER: 6**

25
TECHNOLOGY BEHIND iOS 4

iOS 4 TECHNOLOGY LAYERS

The kernel in iOS is based on a variant of the same basic Mach kernel that is found in Mac OS X. On top of this kernel are the layers of services that are used to implement applications on the platform. Figure 1-1 shows a high-level overview of these layers.

This layering gives you choices when it comes to implementing your code. For example, the Core OS and Core Services layers contain the fundamental interfaces for iOS, including those used for accessing files, low-level data types, Bonjour services, network sockets, and so on. These interfaces are mostly C-based and include technologies such as Core Foundation, CFNetwork, SQLite, and access to POSIX threads and UNIX sockets among others.

As you move into the upper layers, you find more advanced technologies that use interfaces based on a mixture of C and Objective-C. For example, the Media layer contains the fundamental technologies used to support 2D and 3D drawing, audio, and video. This layer includes the C-based technologies OpenGL ES, Quartz, and Core Audio. It also contains Core Animation, which is an advanced Objective-C based animation engine.

In the Cocoa Touch layer, most of the technologies use Objective-C. The frameworks at these layers provide the fundamental infrastructure used by your application. For example, the Foundation framework provides object-oriented support for collections, file management, network operations, and more. The UIKit framework provides the visual infrastructure for your application, including classes for windows, views, controls, and the controllers that manage those objects. Other frameworks at this level give you access to the user’s contact and photo information and to the accelerometers and other hardware features of the device.

The starting point for any new project is the Cocoa Touch layer, and the UIKit framework in particular. When deciding what additional technologies to use, you should start with frameworks in the higher-level layers. The higher-level frameworks make it easy to support standard system...
behaviors with the least amount of effort on your part. You should fall back to the lower-level frameworks only if you want to implement custom behavior that is not provided at a higher level.

**WRITING CODE FOR iOS 4**

The iPhone SDK supports the creation of graphically-oriented applications that run natively in iOS. The applications you create reside on the user’s Home screen, along with the other system applications, such as Photos, Weather, and Clock. While running, your application occupies the entire screen and is the focus of the user’s attention. There is no concept of separate document windows for displaying content. Instead, all of the application’s data is displayed in a single window.

The event-handling model in iOS represents a significant departure from traditional desktop applications. Instead of relying on the traditional mouse and keyboard events, iOS introduces the idea of touch events. A touch event can occur at any time and in combination with one or more additional touch events. Touches can be used to detect simple interactions with content, such as selecting and dragging items, or they can be used to create new interactions, such as swipes or the pinch-open and pinch-close gestures (used, for example, to zoom in and out in the Photos application).

Beyond considering the basic structure of your application, you need to think about how users will actually use it. iOS applications should be clean, and focused on what the user needs in the moment. Remember that users who are on-the-go want to get at information quickly and not spend a lot of time looking through several layers of screens. Providing a simple layout that highlights the key information the user needs is important. For games and other fun applications, you should also consider how the users might want to interact with your application and take advantage of technologies such as the accelerometers and camera where appropriate.

As you start development, the frameworks you want to use initially are the Foundation and UIKit frameworks. These frameworks provide the key services used by all iOS applications. As you refine your application, you should investigate the other frameworks in the system to see what services they offer. The documentation for each framework includes links to relevant conceptual materials to help you learn more about how to use that framework.

**iOS 4 TECHNICALITY**
iPhone SDK 4 provides support for developing iPhone applications and includes the complete set of Xcode tools, compilers, and frameworks for creating applications for iOS and Mac OS X. These tools include the Xcode IDE and the Instruments analysis tool among many others.

With this software you can develop applications that run on iPhone or iPod touch using the included iPhone Simulator, which runs iOS 4. Installing iPhone SDK 4 requires a Macintosh computer running Mac OS X 10.6.2 (Snow Leopard) or later.

**AV Foundation:**

- In this release, the AVAssetReader and AVAssetWriter classes have been removed from the AV Foundation framework.

**Xcode:**

- LLVM GCC and LLVM compiler are now included as optional compilers for iPhone development.

- When selecting a target and then choosing "Update Current Target for iPad," new nib files are created but not converted to iPad. To fix this problem:
  - Either select each nib file that was copied, open it in Interface Builder, select File -> Create iPad Version menu option, then select "Save As..." for the document, and save over the nib file.
  - Or invoke this command in the terminal from the project's folder:

    ```bash
    find Resources-iPad -type f -name "*.xib" -exec ibtool --sdk "" --change-target-runtime IBiPadFramework {} --write {} ";
    ```

**Debugger:**

- When debugging your multitasking enabled app, avoid manually pausing and continuing from the debugger when the application is suspended in the background. Pausing an application that is suspended in the background disrupts proper multitasking behavior until the application is relaunched.

- Using a datatip on a uninitialized object, or turning it open in the variables view, will sometimes make it look like the program has crashed. The status bar at the bottom of Xcode's windows will show Program received signal: "EXC_BAD_ACCESS" and the toolbar buttons for stepping through the code will be disabled. To recover, choose "Sync with Debugger" from the Run menu and continue debugging.

**Interface Builder:**
iOS 4 includes a new UNib class to support rapidly unarchiving nib files. While this class is new to iPhone SDK 4, it was present but private, in previous releases. Special care needs to be taken when deploying code that uses the UNib class and also runs on iOS releases prior to version 4. Specifically, you cannot determine the availability of the class solely using the NSClassFromString function, because that check returns a private class on iOS 3.x and earlier. Instead, after getting the UNib class using NSClassFromString, you must also use the respondsToSelector: method of the returned class to see if it responds to the nibWithNibName:bundle: method. If it responds to that method, you can use the class.

**Core Graphics:**

- CGFontCreateWithName can hang in some circumstances when using the UIAppFonts key in the Info.plist.

**GameKit:**

- The desiredPlayers property has been removed from the GKMatchRequest class
- GameKitBeta.h has been renamed to GameKitPreview.h. This will break existing projects that link against GameKitBeta.h. Please recompile as needed.

**Mail:**

- COMPRESS (4978)
- ESEARCH (4731)
- CHUNKING (3030)
- 8BITMIME (1652)
- ENHANCEDSTATUSCODES (3463)
- BINARYMIME (3030)
- CONDSTORE (4551)

**MediaPlayer:**

The MPMoviePlayerController class changed behavior in iOS 3.2. The behavior of this class is as follows:

- In iPhone SDK 3.1.x and earlier, the movie player always plays full screen.
- In iPhone SDK 3.2 and later, you must embed the movie player’s view into your application’s interface. (This behavior applies to iPhone, iPad, and Universal applications.)
If you link a Universal application against iPhone SDK 3.2, you must be prepared to embed the movie player view in your interface when running on iOS 4 and later. In this specific case, the value of the userInterfaceIdiom property is not a reliable way to determine the behavior of the media player controller. Instead, you should test for the existence of the view property of the MPMoviePlayerController class to determine if you need to insert the view into your view hierarchy. For more information on how to perform these checks, see SDK Compatibility Guide.

- In iOS 3.2 and later, the MPMoviePlayerController class now defaults to share the application’s audio session for audio playback and related audio behaviors. This allows the movie player’s audio to mix with the rest of the application’s audio, as well as to conform to the behaviors of the application audio session’s audio category (such as mixing with other applications’ audio and/or obeying the Silent Switch). In iOS 3.1.3 and earlier, this class always uses a system-supplied audio session. To obtain that same behavior in iOS 3.2 and later, you must set the useApplicationAudioSession property of the movie player controller object to NO. Please refer to the Audio Session Programming Guide, including the “Working with Movies and iPod Music” section, and the MPMoviePlayerController Class Reference for more about audio sessions and their behaviors with MPMoviePlayerController.

**Multitasking:**

In this and future releases, there are changes to networking behavior for suspended apps:

- Cancel any Bonjour-related services before being suspended.] When your app suspends, close any Bonjour services you are using, unregister from Bonjour and close listening sockets associated with any network services. A suspended application cannot respond to incoming service requests anyway. Closing out those services prevents them from appearing to be available when they actually are not. If you do not close out Bonjour services yourself, the system closes out those services automatically when your application is suspended.

- Be prepared to handle connection failures in your network-based sockets.] The system may tear down socket connections while your application is suspended for any number of reasons. As long as your socket-based code is prepared for other types of network failures, such as a lost signal or network transition, this should not lead to any unusual problems. When your application resumes, if it encounters a failure upon using a socket, simply reestablish the connection.

- The time limit for task completion changed from 5 minutes to 10 minutes.

- In order to preserve the user’s context when switching between apps, applications linked on or after iOS 4 will no longer automatically cancel alerts and action sheets when the application is sent to the background.
**Simulator:**

- iPhone Simulator can now simulate multiple iOS versions from a single build. Currently the simulator supports iOS 3.2 and iOS 4.0, allowing simulation of a single Universal binary on both iPad and iPhone Simulators.

- With the base SDK set to 3.2 but running in the 4.0 simulator, an application calling `stat` writes beyond the end of `stat buffer[4]` and can cause unexpected behavior or a crash.

- The Camera application shows up on the iOS 4 simulator (but not on the normal simulator). This causes the `UIImagePickerController` object to hang an application when launched in the iOS 4 simulator. The cancel button is disabled and the only way out of an application once the image picker is shown (with the camera for the source type) is to kill the application manually.

**UIKit:**

- `UIInvalidBackgroundTask` has been renamed to `UIBackgroundTaskInvalid`

- On iOS 4.0, applications that add a text field to a `UIAlertView` will need to stop moving the `UIAlertView` by hand to avoid layout issues.

- Setting animatable properties inside transition animation block may not work.

  Tile backgrounds created with the `colorWithPatternImage:` method of `UIColor` appear with spaces now match.

- The default behavior for the new `UIView` block-based animation API in 4.0 is to disable user interactions across the whole interface while the animation is playing. Developers should not rely on this behavior remaining the default as it may be reversed in future releases, thereby allowing user interactions to occur by default while the animation is playing. Programs compiled against iPhone SDK 4 will continue to work as-is but code compiled under future versions of the SDK may require setting a different option flag to enable the original behavior.

- The default behavior for the new `UIView` block-based animation API in 4.0 is to inherit the animation duration from an enclosing animation block (when present). Developers should not rely on this behavior remaining the default, as it may be reversed in future releases, thereby preventing animations from automatically inheriting the duration of their enclosing animation. Programs compiled against iPhone SDK 4 will continue to work as-is but code compiled under future versions of the SDK may require setting a different option flag to enable the original behavior.

- iPhone 4 uses a different system font than earlier devices. References to the Helvetica font in nib files will be decoded as the system font on these newer devices.

- The UIKit Text Input System never calls the methods found in the documentation under the “Determining Layout and Writing Direction” category.
INHERITED IMPROVEMENTS:

Although iOS 3.2 does not run on iPhone and iPod touch devices, many of the features introduced in that version of the operating system are also supported in iOS 4.0. Specifically, iOS 4.0 supports:

- Custom input views
- Connecting external displays
- File-sharing support
- Gesture recognizers
- Core Text for text layout and rendering
- Text input through integration with the keyboard
- Custom fonts
- ICU Regular Expressions
- PDF generation
- Xcode Tools changes
- UIKit framework changes
- Media Player framework changes
- Core Animation changes
- Foundation framework changes
CHAPTER: 7

APPLE iOS 4 REVIEW:

What's new:

- Homescreen wallpapers
- Folder organization of the homescreen icons
- Multitasking and fast app switching
- Google/Wikipedia search in Spotlight
- Bluetooth keyboard pairing support
- SMS character counter
- SMS search
- Email threading
- Unified Email inbox
- Email archiving is now available when you setup Gmail
- Spell checker
- iPod music player can now create, edit and delete playlists
- 5x digital zoom in still camera
- Touch-focus in video capture (for video enabled iPhones)
- No Korean/Chinese/Japanese support
- Minor icon design facelifts
- Video call support (only in iPhone 4 and only over Wi-Fi)
- iBooks e-book and PDF reader

What's still missing:

- No Flash support in the web browser
- No true multitasking for all applications
- iOS4 for iPhone 3G has limited new feature set
- Poor performance on iPhone 3G
- No quick toggles for Wi-Fi, Bluetooth or 3G
- No social networking integration
- No info widgets on lockscreen or homescreen
- SMS tones are still not customizable
- No mass mark emails as read
- No proper file browser or access to the file system
- No USB mass storage mode
- No vibration feedback when touching the screen
- No Bluetooth file transfers to other mobile phones
- Contacts lack a swipe-to-delete or mass delete feature
- No SMS/MMS delivery notifications
- No smart dialing (but Spotlight is a somewhat of a substitute)
CHAPTER: 8

CONCLUSION

The objective of the seminar report was to study and enhance our knowledge about APPLE iOS 4, mobile operating system. We have learnt about the new features of the iOS 4 operating system, what’s new in it, how is it different from previous versions of iOS, what the technicality behind the iOS 4 is and some more information about it.

So we have learnt about the layers of iOS 4 technology viz. core os, core services, media and cocoa touch. We have studied about some aspects of the iOS 4 that will help us in developing the applications for iPhone, via this report. Hence we are now acquainted with iOS operating system for iPhone. We now know its features and technicality.

Despite the fact that all the information regarding iOS 4 cannot be bound in this report, I have tried to cover almost all points that made our study of iOS 4 worthy.

We have learnt many things about the iOS 4, which we can implement on our own with just a little effort. Hence our objective has been achieved through this report.
FUTURE SCOPE

1. Semi-thread message

In Gmail, all the similar topics are arranged together and show through the session way. iOS tried to do that, but the actual result is not satisfactory.

2. There is no real features upgrade for iPod

Frankly speaking, the new operating system's home page has much improvement to the older. But the iPod itself does not get the nature improvement. It is lack of adjustable graphic equalizer, and better support to create playlists.

3. Be lack of new ideas ringtone

4. Unlock way is complicated

Apple doesn’t modify the operation of lock screen to iPhone, perhaps in order to maintain the consistency of user habits. However, you may miss the next important voice mail, phone, short message.

5. Mail does not support the attachment directly

Although I think that Google mail had made lots of improvements, it still lacks some familiar commonly used functions. After all, now in smart phone OS, there are still Android, BlackBerry and other strong rivals. iOS needs to innovate continually then it will gain market recognition.

Removal of all these disadvantages would be the future of the ios or we can say this would

Probably led us to a new version iOS 5.