iPhone User Interface Design

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Goals
Goals

- iPhone UI Design Considerations
Goals

- iPhone UI Design Considerations
- Application Layout
Goals

- iPhone UI Design Considerations
- Application Layout
- iPhone UI Element overview
iPhone User Interface Design Considerations
Get to know your iPhone
iPhone UI Design
iPhone UI Design

- Familiarize yourself with iPhone
iPhone UI Design

- Familiarize yourself with iPhone
- Eat with it, sleep with it, drink with it. Live with it
iPhone UI Design

- Familiarize yourself with iPhone
- Eat with it, sleep with it, drink with it. Live with it
- The iPhone is not a desktop system
iPhone UI Design

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- Eat with it, sleep with it, drink with it. Live with it
- The iPhone is not a desktop system
- It’s not just a phone either
  ➢ Being a phone is just another application that the iPhone runs
iPhone UI Design

- Familiarize yourself with iPhone
- Eat with it, sleep with it, drink with it. Live with it
- The iPhone is not a desktop system
- It’s not just a phone either
  ➢ Being a phone is just another application that the iPhone runs
- UI Design must consider device’s unique characteristics
The iPhone is not a miniature laptop
The iPhone is not a miniature laptop
Fingers, not mice
Fingers, not mice
Hand/Finger Input

- It’s tempting to treat this just like mouse input
- Touch events do resemble mouse events
Hand/Finger Input

- UI Elements must be big enough to hit with a finger
- Minimum size 44x44 pixels
Hand/Finger Input

- Buttons may look smaller, but have 44x44 active area
Hand/Finger Input

- Buttons may look smaller, but have 44x44 active area
Hand/Finger Input

27x24 pixels
Hand/Finger Input
Hand/Finger Input

- Finger tapping means the pointer can just disappear
  ➢ Rollover effects don’t work well
Hand/Finger Input

- Finger tapping means the pointer can just disappear
  - Rollover effects don’t work well
- Multi-touch events
  - Some actions involve two fingers on screen at the same time
  - “pinch” gesture used for zooming in and out
Everyone’s a single-finger typist.
No External Keyboard
No External Keyboard

- No physical keyboard on iPhone either
No External Keyboard

- No physical keyboard on iPhone either
- On-screen keyboard appears when needed
No External Keyboard

- No physical keyboard on iPhone either
- On-screen keyboard appears when needed
- Limit typing
No External Keyboard

- No physical keyboard on iPhone either
- On-screen keyboard appears when needed
- Limit typing
- Use selectable lists of options when possible
No External Keyboard

- No physical keyboard on iPhone either
- On-screen keyboard appears when needed
- Limit typing
- Use selectable lists of options when possible
- Store typed input for later reuse whenever possible
No External Keyboard

- Multiple keyboard types are available
No External Keyboard

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No External Keyboard

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- Multiple keyboard types are available
Limited Screen Size

- Slightly smaller than a business card
- 320x480 pixels at 163 ppi
- ...and that includes the status bar at the top (22 pixels)
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- Slightly smaller than a business card
- 320x480 pixels at 163 ppi
- ...and that includes the status bar at the top (22 pixels)
Limited Screen Size

- ...compared to desktops and laptops, anyway
- Don’t just shrink a desktop app to fit
- Scrolling of content is available but should be minimized
- Make information easy to read on a small screen
Mobile Users
Mobile Users

- iPhone apps get used on the move
Mobile Users

- iPhone apps get used on the move
- Typical usage: Frequent access through day but for very short periods
  - Your app may run for only a few seconds at a time
Mobile Users

- iPhone apps get used on the move
- Typical usage: Frequent access through the day but for very short periods
  - Your app may run for only a few seconds at a time
- “Mobile” isn’t the same as “portable”
Mobile Users

- iPhone apps get used on the move
- Typical usage: Frequent access through day but for very short periods
  ➢ Your app may run for only a few seconds at a time
- “Mobile” isn’t the same as “portable”
- Users are mobile, not just the device
Your users may have other things on their mind.
Mobile Users
Mobile Users

- Applications should focus tightly on a solution
Mobile Users

- Applications should focus tightly on a solution
- Trade off extra features for speed and ease of navigation
Mobile Users

- Applications should focus tightly on a solution
- Trade off extra features for speed and ease of navigation
- UI design must present relevant information quickly
Mobile Users

- Applications should focus tightly on a solution
- Trade off extra features for speed and ease of navigation
- UI design must present relevant information quickly
- Most-frequently used features should be no more than 1 tap away
One App at a Time
One App at a Time

- Switching to a different app implies quitting the current one first
One App at a Time

- Switching to a different app implies quitting the current one first
- Application quit may happen without warning, e.g. when phone rings
One App at a Time

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- Be sure to save state when quitting
One App at a Time

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- Be sure to save state when quitting
- Quitting should appear to users more like suspending the application
One App at a Time

- Switching to a different app implies quitting the current one first
- Application quit may happen without warning, e.g. when phone rings
- Be sure to save state when quitting
- Quitting should appear to users more like suspending the application
- No background processes either
Single-Window Design

- One window, which fills the screen
- Can’t have secondary windows
Device Orientation
Device Orientation

- iPhone’s accelerometer means it knows which way is up
Device Orientation

- iPhone’s accelerometer means it knows which way is up
- Applications are notified when device rotates portrait to landscape and back
Device Orientation

- iPhone’s accelerometer means it knows which way is up
- Applications are notified when device rotates portrait to landscape and back
- Can also find absolute orientation
Device Orientation

- iPhone’s accelerometer means it knows which way is up
- Applications are notified when device rotates portrait to landscape and back
- Can also find absolute orientation
- Apps may choose to alter their UI to fit the new orientation
Device Orientation

Colorado Software Summit 2008
October 19 – 24, 2008

The seventeenth annual occurrence of this highly regarded programming conference will be held at Keystone Resort in Colorado this fall. Block out the time on your calendar now; it may be the most important week of your year.

Register Early and Save!
Register by August 31, and take advantage of our Early Registration Discount. Don’t miss out on this great discount! The early registration price is $1975, a $200 savings from the standard registration price.

Agenda for Colorado Software Summit 2008
We have posted the agenda for Colorado Software Summit 2008, in two formats:
1. Agenda sorted by speaker name
2. Agenda sorted by topic title

The most recent speakers we have added are:
- Tom Harrington, AtomLabs, whose topics are “Getting Started with Phone Development” and “iPhone User Interface Design”
- Jai Lan, LinkedIn, whose topics are “Your Language Doesn’t Scale: A Discussion of the Nature of Scaling” and “From 0 to 1,000,000 in 40 Days: Building a Facebook Application in Italy”

Presentations from Earlier Conferences
Device Orientation

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Device Orientation
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![Calculator Image]
Performance and Capacity

- CPU runs at 412MHz
- 128MB RAM
- 8GB or 16GB storage for apps and data
- Raw hardware performance compares to laptops from 2000

First-hand research, official numbers are not published.
Application Layout
Tab Bar Control

Tabbed views fill screen

Tab control always visible
Tab Bar Control

Tabbed views fill screen

Tab control always visible
Tab Bar Control

- Functionally similar to tab views on other platforms
- Tab views fill the whole screen
- Tab bars are (usually) always on-screen
Tab Bar Control

- Use in
  - Applications with different modes
  - Applications with different perspectives on the same data
  - Applications with different subtasks related to the overall app function
Tab Bar Control

Many standard icons are provided
Navigation Bars

Artists

- Kyau & Albert
- Kylie Minogue
- Ladytron
- Layo & Bushwacka!
- LCD Soundsystem
- Lee Cabrera
- Lee Presson And The Nails
- Lemon Jelly

Playlists  Artists  Songs  Videos  More
Navigation Bars

Tap here

- Kyau Va Albert
- Kylie Minogue
- Ladytron
- Layo & Bushwacka!
- LCD Soundsystem
- Lee Cabrera
- Lee Presson And The Nails
- Lemon Jelly

Playlists  Artists  Songs  Videos  More
Navigation Bars

Tap here

Detail view loads

Artists

Kylie Minogue
Layo & Bushwacka!
LCD Soundsystem
Lee Cabrera
Lee Presson And The Nails
Lemon Jelly

All Songs
Commodore Rock - EP
Light & Magic
Softcore Jukebox
Witching Hour

Playlists Artists Songs Videos More

Playlists Artists Songs Videos More
Navigation Bars

- Like navigating a web site
- Useful for drill-down situations
- Start with high-level general view
- Move to progressively more specific views
- “Back” buttons automatic
- Changes are animated
  - New views “slide” in from the right
Table Views

Automotive Industries

Photo Albums
Scooter Pics (21)

WWDC 2006 (70)

untitled album (125)

Vancouver (306)

Temporary (27)

WWDC 2007 (271)

Test (2)

Pink Martini May 2008 (9)

Settings

Sounds

Silent

Vibrate

ON

Ring

Vibrate

ON

Ringtones

New Text Message

New Voicemail

New Mail
Table Views

- Single column only
- But custom cells can offer more flexibility
- Can use multiple custom cell types in the same table
Table Views: Custom Cells
Table Views: Plain Table

- Basic table is just a vertical list of table cells
Table Views: Indexed Plain Table

- Scrolling can be minimized using a vertical index strip
- Tapping a letter in the index jumps to that part of the table
Table Views: Grouped Table

- Tables cells can be grouped by function
- Each group can have header and footer text
Table Views for Selection

- Table views are one way to have users select from a list instead of entering text.

Users tap a category to select it.
Toolbars
Toolbars

![Image of an iPhone with a Google search bar]

- **Web**
- **Images**
- **Local**
- **News**

**Google Search**

**Settings**

View Google in: **Mobile** | **Classic**

©2008 Google
Toolbars

- Functionally similar to toolbars on other platforms
- Provide quick access to common actions
- Usually at the bottom in iPhone apps
Toolbars

- In Safari, common web browser actions are on the toolbar

Back/Forward, Bookmarks, Tabs
Toolbars

- Many standard toolbar icons are provided

- Can use your own, or create text toolbar buttons
iPhone UI Element

Overview
Switch Control

- iPhone version of a checkbox control
- Changes state on tap or drag
Segmented Control

- iPhone version of radio buttons
- Can be “momentary”, which makes them act more like grouped buttons
Pickers

- Another way to have users select from a list of values
- Can have multiple columns
- Each column operates independently

“slot machine” interface
Activity Indicators

- Animated “spinners”
- Indicate that something is in progress
- If you need to show one for very long, your app is probably not responsive
Activity Indicators

- The system provides a standard network activity indicator in the status bar
- Best to use it when appropriate
Action Sheets
Action Sheets

![Image of a totem pole]

Tom Harrington — iPhone User Interface Design
Action Sheets

Background grayed out

Buttons slide in from bottom
Action Sheets

- Modal view that slides in from the bottom of the window
- Has a message and one or more buttons

Use

➤ When user has more than one option for an action
➤ When you need to confirm an action ("are you sure?")
Alert Views

Background grayed out

Button space is limited. Keep labels short and don’t use more than two
Alert Views

- Modal view which appears above other UI elements
- Has a message and one or more buttons
- Generally used for warnings or other advisory messages
- Buttons are commonly OK/cancel or yes/no
Get to know your iPhone
Resources

- Apple Developer Web Site
  - Extensive documentation
  - Sample code
  - Developer tools
  - Apple Human Interface Guidelines (HIG)

http://developer.apple.com/
Resources
Resources

- **Cocoa Programming for Mac OS X**, 3rd ed., Aaron Hillegass
- Save 35% at informit.com with code SWSUMMIT08
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