

Designing Mobile Experiences: General Principles, Tips, Code Samples, & Downloads

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Mobile App Templates

Take them, break them, and learn...

Demos:

Terra - lifeonterra.com

Terra mobile - lifeonterra.com/m/

Mobile template 1 - www.lib.montana.edu/~jason/files/m/

Mobile template 2 (jQuery) - www.lib.montana.edu/~jason/files/touch/

Mobile template 3 (jQuery) - www.lib.montana.edu/~jason/files/touch-jquery/

Explanation & blog post - <http://wp.me/p8yR-1J>

Downloads:

<http://www.lib.montana.edu/~jason/files.php>

Mobile Design Thinking

"Create a product, don't re-imagine one for small screens. Great mobile products are created, never ported."

- Brian Fling, author of *Mobile Design and Development* (O'Reilly Publishers)

"In iPhone apps, the main function should be immediately apparent. Minimize the number of controls from which users have to choose."

- iPhone Interface Guidelines

Mobile Development Thinking - The new platform includes:

- Multiple screen sizes & densities
- A Need for Performance optimization
- Touch targets, gestures, and actions
- Access Location systems
- Varying Device capabilities

Mobile Development Tips

Tip #1: Narrow your Focus

- Do a few things really well
- What are the core actions?

Tip #2: Know your Audience

- Run the Analytics
- Research for Mobile Browser Types

Tip #3: Learn from the Masters

- "View Source" of m.flickr.com
- Be Mobile with User Agent Switcher (Firefox add-on)
 - <https://addons.mozilla.org/en-US/firefox/addon/59/>

Tip #4: Mobile User Interface = targets, gestures, actions

- New forms of interaction
- Tactile Navigation
- Touch, pinch, spread, flick, spin (gyrometer)
- Apple recommends a minimum target size: 29px wide by 44px tall

Tip #5: Speed FTW, Performance First

- Limit Images and Markup
 - Limit HTML pages to 25KB to allow for caching
 - Limit images to under 1KB when possible
- "Minify" your scripts and CSS
 - JSLint - <http://www.jslint.com/>
 - CleanCSS - <http://www.cleancss.com/>
- Take Advantage of HTML5, CSS3
 - <!DOCTYPE html>

Tip #6: Respect the URL

- Follow the "m" convention
- m.delicious.com OR lifeonterra.com/m/
- Keep categories (directories) short
"It's a touch environment, not a typing environment."

Tip #7: Take Advantage of Mobile Browsers' Capabilities

- Mobile Browsers = Cutting Edge
- WebKit Browser Engine runs Mobile Safari and Android
- Supports many HTML5 and CSS3 features
- Native app functionality
 - geolocation
 - offline storage
 - web workers

Tip #8: Allow for User Choice

- Link to Full Site
- Consider “sniffing” for User Agent - Detection (Javascript sample below...)

```
<script type="text/javascript">
if((navigator.userAgent.match(/iPhone/i)) ||
(navigator.userAgent.match(/iPod/i))) {
    if (document.cookie.indexOf("iphone_redirect=false") == -1)
        //redirect to iPhone,iPod site
        window.location = "http://YOUR-MOBILE-SITE;
}

var ua = navigator.userAgent.toLowerCase();
var isAndroid = ua.indexOf("android");// > -1 && ua.indexOf("mobile");
if(isAndroid) {
    //redirect to Android site
    window.location = 'http://YOUR-MOBILE-SITE;
}
</script>
```

Tip #9: Use Mobile Templates, Libraries, and Software Development Kits (SDK)

- Vetted and tested across platforms
- Common user interaction tasks are built-in
- Javascript Libraries
 - jQtouch - <http://jqtouch.com/>
 - JQuery Mobile - <http://jquerymobile.com/>
- Native/Mobile Web App Packages
 - Sencha Touch - <http://www.sencha.com/products/>
 - PhoneGap
- Apple iOS SDK - <http://developer.apple.com/devcenter/ios/index.action>
- Android App inventor - <http://appinventor.googlelabs.com/about/>

Tip #10: Know Mobile Design Conventions

- One Column Layout
- Whitespace is Your Friend
- Embrace an Economy of Language
- "Quick Visit" Architecture

Tip #11: Study the Interface & Device

- Use a scalable design
 - iPhone screen dimensions: 320px AND 480px
- Think in percentages

Mobile User Interface Design Patterns

User interface (UI) design patterns document good solutions to common interface questions or problems. At times, the design patterns become expectations and breaking from these common understandings about how an interface should work can lead to poor experiences in using an application. We are in the native stages of mobile design and development, but even in this beginning stage, it is clear that we are seeing some patterns emerge for design in mobile environments.

Simple Navigation with the Primary Functions/Tasks

Keep the main navigation to three or four links related to the essential actions for your app. Look at it this way: A mobile app is a series of layers. The main navigation for your app should be basic and let the user choose to move down (or up) into your app hierarchy, views, and actions.

A Single Frame or Single Window Design

Users experience your application as a collection of screens. Layered and modal applications that allow users to choose what views they need to see are a useful design pattern. Design for linear or horizontal scrolling as these methods extend the device real estate. Remember: At any given time, an app works in a single frame or window.

Popovers and Alerts to Communicate Status of Actions

Because an app can only occupy a single window, mobile developers rely on popovers or alerts to tell users what is happening in the application. When designing, look to create transparent message windows that display over the top of your main application window.

Visual Consistency with your Desktop Website or App

Your branding matters. Look at ways to bring your color scheme and logo from your organization into your mobile presence. Maintaining visual cues shows a relationship with your larger web platform. Mobile is a unique extension of your other applications, but not a completely distinct entity.

Design to Use Full-Device Widths

Widths vary across mobile devices. Good mobile design adapts to device by using all of the screen available. Avoid columns and padding that reduce the amount of usable pixels on the (limited) mobile screen. Use all the available width for links, list elements, text inputs, and all possible focusable elements.

Native Device Controls are the Default Controls

Use native menus, settings and toolbars when possible. There is no need to reinvent the wheel. User expectations for mobile devices weigh heavily here. If you are going to break from the convention of a top status bar and a bottom settings bar, you must have a compelling reason to do so.

Actions and Views Exist Within a Hierarchy of Priority

Not all layers of an app are created equal. Mobile design requires smart choices about when to display data and which information is essential to a task. Prioritize the views in your app and use lists to group categories and actions. Make sure to provide the most-used features at the top.

Build your App Views with Lists or Tables

Small screens need to scroll. They also need to be organized in small grids for more complex information. Mobile designers are applying scrolling lists and simple table formats to allow for reading and browsing in the mobile environment.

Mobile Validators

- W3C Mobile Site Validator
 - <http://validator.w3.org/mobile>
- Mobile App Validator from mobiforge
 - http://mobiready.com/launch.jsp?locale=en_EN#fragment-1

Mobile Screen Resolutions

- Android (Motorola Droid) 480x854
 - Android (MyTouch) 320x480
 - Android (Nexus One) 480x800
 - Apple iPhone 320x480
 - Apple iPad 1024x768
 - Android Tablets: Motorola Xoom, Samsung Galaxy Tab 1280x800
 - Blackberry Devices: Torch, Storm, Bold 480x360
 - Palm Pre 320x480
- Source: <http://insideria.com/2010/05/building-web-sites-optimized-f.html>

List of Common Mobile Interactions - An Evolving User Interface (UX)

- Tap
- Double Tap
- Drag
- Flick
- Pinch
- Spread
- Press
- Press & Tap
- Press & Drag
- Rotate

Mobile Development in Libraries

- Chad Haefele, Mobile Site Generator
 - <http://www.hiddenpeanuts.com/msg/>
- Jason Casden, WolfWalk at NCSU
 - <http://www.lib.ncsu.edu/dli/projects/wolfwalk/>
- Laurie Bridges and Kim Griggs
 - <http://ir.library.oregonstate.edu/jspui/handle/1957/16437>
- Mobile Development - Library Success Wiki
 - http://www.libsuccess.org/index.php?title=M-Libraries#Mobile_applications

Getting Started, Resources to Learn More about Mobile Design

- Check out mobify.me for free site conversion
 - <http://mobify.me/features/>
- *Mobile Design and Development* (O'Reilly) by Brian Fling
 - ISBN: 9780596155445
 - <http://www.worldcat.org/oclc/318413920>