

# CPET 581 E-Commerce & Business Technologies

## Design and Build Mobile Sites and Apps

### References:

\*Chapter 4. Building an E-Commerce Presence: Web Sites, Mobile Sites, and Apps, text book: *e-Commerce: Business, Technology, and Society*, 8<sup>th</sup> edition, 2012, by K. C. Laudon and C. G. Traver, publisher Pearson Education Inc.,

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## Topics

- Building an E-Commerce Presence: A Systematic Approach
- Mobile Device Category and Platforms
- Mobile Browsers, Software & Apps
- W3C at Mobile World Congress
- Mobile Device Protocols
- Mobile Device Security Issues
- Android App Demo: "Design and Development of Android Smartphone-Based ECG Application using Bluetooth Protocol," Cesar Ruiz, M.S. Directed Project Progress Report, Advisor Prof. Paul Lin

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## Developing a Mobile Web Presence

- Three types of mobile e-commerce software
  - Mobile Web site
  - Mobile Web app
  - Native app
- Planning and building mobile presence
  - As with regular Web site, use systems analysis/design to identify unique and specific business objectives

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## Planning and Building a Mobile Web Presence

**TABLE 4.13**      **UNIQUE FEATURES THAT MUST BE TAKEN INTO ACCOUNT WHEN DESIGNING A MOBILE WEB PRESENCE**

FEATURE	IMPLICATIONS FOR MOBILE PLATFORM
Hardware	Mobile hardware is smaller, and there are more resource constraints in data storage and processing power.
Connectivity	The mobile platform is constrained by slower connection speeds than desktop Web sites.
Displays	Mobile displays are much smaller and require simplification. Some screens are not good in sunlight.
Interface	Touch-screen technology introduces new interaction routines different from the traditional mouse and keyboard. The mobile platform is not a good data entry tool but can be a good navigational tool.

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## Developing a Mobile Web Presence

- Design considerations
  - Platform constraints: Smartphone/tablet
- Performance and cost
  - Mobile Web site:
    - Least expensive
  - Mobile app:
    - Can utilize browser API
  - Native app:
    - Most expensive; requires more programming

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## Designing for Accessibility in a Web 2.0 and Mobile World

- Why might some merchants be reluctant to make their Web sites accessible to disabled Americans?
- How can Web sites be made more accessible?
- Should all Web sites be required by law to provide “equivalent alternatives” for visual and sound content?
- What additional accessibility problems do mobile devices pose?

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## Mobile Device Category

- Mobile Phones
- Low-end, Mid-end, and High-end Mobile Devices
- Smartphones
  - GPS, Digital compass
  - Video-capable camera
  - TV out
  - Bluetooth
  - Touch support
  - 3D video acceleration
  - Accelerometer

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## Mobile Platforms Knowledge - Hardware

- Display
  - 1.5, 2.3, 3, 4 inch
- Resolution
  - Low-end: 120 x160, 128 x128 pixels
  - Mid-end: 176x220, 176x208, 240x320 pixels
  - Touch-enabled: 240x480, 320x480, 360x480, 480x800, 480x854, 640x960
- Physical Dimension
- Aspect Ratio
- Input Methods: Alphanumeric keypad (ABC or QWERTY), Virtual keypad on screen, Touch screen, handwriting recognition, voice recognition
- Other feature

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## Mobile Platforms – Some Examples

- iPhone 4S, <http://www.apple.com/iphone/features/>
  - iOS (based on Mac OS X), 3.5", WLAN, Safari on iOS browser
  - Native Cocoa Touch framework built-on Objective C
  - Technical spec, <http://www.apple.com/iphone/specs.html>
- iPad,
  - Tech. Specification 9.7", iOS 3.2, 768 x1024 resolution, <http://support.apple.com/kb/SP580>
- HTC smartphones, <http://www.htc.com/www/smartphones/#all>
- Motorola ATRIX 4G, <http://www.motorola.com/Consumers/US-EN/Consumer-Product-and-Services/Mobile-Phones/Motorola-ATRIX-US-EN>
- LG Mobile Phones, <http://www.lg.com/us/cell-phones/all-cell-phones>
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## Mobile Platforms – Some Examples

- Samsung, <http://www.samsung.com/us/mobile/cell-phones>
- Nokia, <http://www.nokia.com/us-en/>
- BlackBerry, <http://us.blackberry.com/>
- Google Mobile, <http://www.google.com/mobile/>
- Sony Ericsson, <http://www.sonymobile.com/us/>

TopTen Reviews, <http://cell-phones.toptenreviews.com/smartphones/>

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## Mobile Platforms – Software and Apps

- Mobile Operating System
  - Android – Google
    - Android Developer, SDK Download, <http://developer.android.com/sdk/index.html>
  - iOS – Apple
    - iOS Developer Program, <https://developer.apple.com/programs/ios/>
    - iOS Dev Center, <https://developer.apple.com/devcenter/ios/index.action>
  - Windows Phone 7, 8 – Microsoft
    - Windows Phone, <http://www.microsoft.com/windowsphone/en-us/default.aspx>
    - Windows 8, Mobile Phones, <http://www.windowsmobile8.com/>
  - Symbian Foundation, Nokia
  - Mobile OS, [http://en.wikipedia.org/wiki/Mobile\\_operating\\_system](http://en.wikipedia.org/wiki/Mobile_operating_system)

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## Mobile Platforms – Software and Apps

- Mobile Browsers
  - Safari on iOS– Apple, <http://www.apple.com/safari/>
  - Android browser, Webkit-based
  - Google Chrome Mobile
  - Opera Mini & Opera Mobile, <http://www.opera.com/mobile/>
  - Mobile Mozilla, <http://www.mozilla.org/en-US/mobile/>
  - Microsoft Internet Explorer 9 Mobile, <http://ie.microsoft.com/testdrive/mobile/>
  - Web OS browser, <https://developer.palm.com/appredirect/?packageid=com.maklesoft.browser>
  - BlackBerry browser, <http://us.blackberry.com/smartphones/features/internet.jsp>
- Mobile browser, [http://en.wikipedia.org/wiki/Mobile\\_browser](http://en.wikipedia.org/wiki/Mobile_browser)

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## Mobile Platforms – Software and Apps

- Browser Modes
  - Focus Navigation
  - Cursor Navigation
  - Touch Navigation
  - Multi-touch navigation
- Zoom Experience
- Multi-windows Support
- Reflow Engines
- Direct vs. Proxied Browsers
- Multi-page Experience
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## Mobile Protocols

- Wireless Application Protocol (WAP 2.0) browsers
  - XHTML MP (Mobile Profile)
  - WAP Push (Short Message Service)
- Mobile Apps

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## W3C Standards

- W3C Mobile Web Initiative, <http://www.w3.org/Mobile/>
- All Standards and Drafts, <http://www.w3.org/TR/>
- Web of Devices, <http://www.w3.org/standards/webofdevices/>
  - Mobile Web
    - Device capability, Location and other Context
  - Voice Browsing
  - Device Independent and Content Adaptation
  - Multimodal Access
    - Keyboard, voice, touch, gestures
  - Web and TV

## Mobile Apps

- Android App Demo: “Design and Development of Android Smartphone-Based ECG Application using Bluetooth Protocol,” Cesar Ruiz, M.S. Directed Project Progress Report, Advisor Prof. Paul Lin



## Mobile Apps

- iPhone Mobile Apps
- Google Mobile Apps,  
<http://www.google.com/mobile/>

## Summary