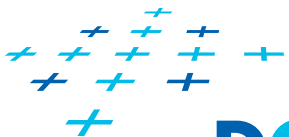

PDA

Lecture

Introduction, mobile computing (definitions and limits)



Lecture topics

■ Design principles

- Usage of the screen space
- User interaction
- Design generally
- Exploiting context

■ Development

- MS Windows Phone 7, Windows 8
- Google Android
- Apple iOS

■ Mobile technologies

- wireless communication (WiFi, Bluetooth, GPS, GSM)
- special interaction methods (accelerometers, vibrations, compass, flashing parts of mobile, touch gestures)

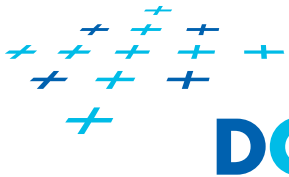


M. Jones, G. Marsden: Mobile Interaction Design



Mobile computing

- Aspects of mobility
 - user mobility
 - device portability



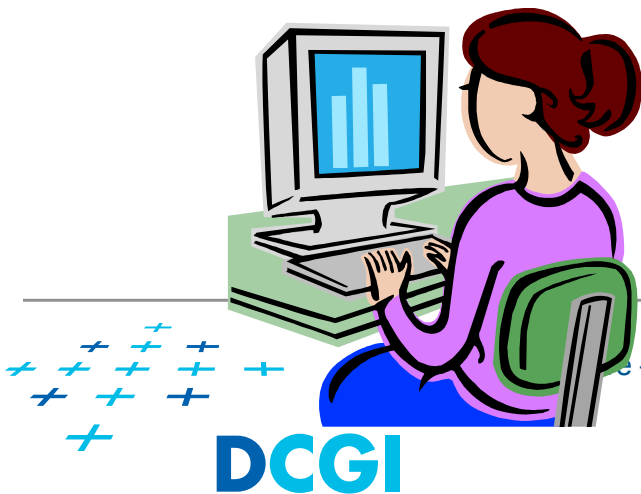
Mobile environment

Typical environment

- stationary position
- large display
- variety of input devices
- low noise level
- stable lighting condition
- user with no special needs
- does not change in time

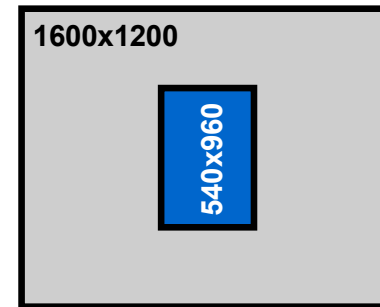
Mobile environment

- changing position
- small display
- limited input devices
- higher noise level
- unstable lighting condition
- user with special needs
- changes very dynamically



Inherent characteristics of UI on mobile devices

- Small screen
 - the biggest smartphones have 8x smaller resolution than typical desktop monitors
- Limited interaction mechanisms
 - small/limited/missing keyboard
 - no mouse cursor
 - limited/missing direct pointing
- Unreliable and slower network connection
 - frequent interruption
 - big latency
 - low bitrate



Huge variety on the mobile market

- Type of devices
 - sub-notebooks
 - TabletPC
 - PDA
 - smart phone
 - mobile phone
 - pager
 - sensors

- Platforms
 - Android
 - iOS
 - Windows Phone 7 / 8
 - Symbian OS
 - RIM BlackBerry OS
 - others



Wireless communication

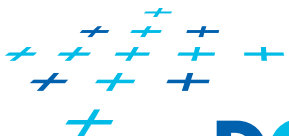
- Higher loose rate (interference)
- Unreliable
- Varying and higher delay
- Lower transmission rate
- Lower security



What does it mean mobile for the UI design?

DYNAMIC VIEW

- User must handle frequent and unexpected interruption
- User focuses outside the device
 - car navigation
 - construction site management
- Switching between online/offline mode
- Input capabilities varies during work on the task
 - user (noise, gloves, etc.)
 - device (changing/configurable devices)



Main design problems of mobile UI

1. Usage of the screen space

- 1a. Small screen space
- 1b. Flexible user interfaces

2. User interaction

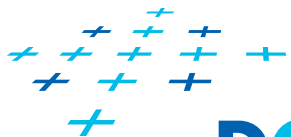
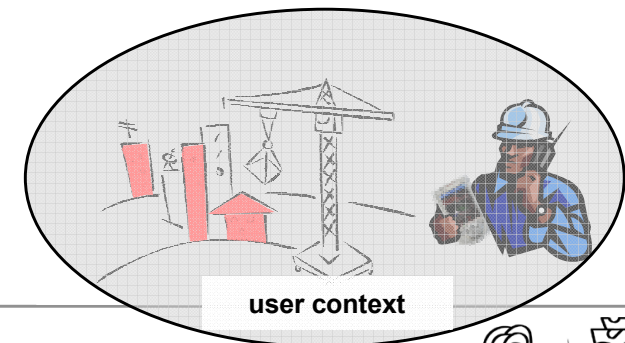
- 2a. Handling the user input
- 2b. Direct pointing (stylus/hand)

3. Design generally

- 3a. Guidelines
- 3b. Strange behavior

4. Exploiting context

- 4a. frequent changes
- 4b. variety of parameters
- 4c. context driven UI



Main design problems of mobile UI

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- 1b. Flexible user interfaces

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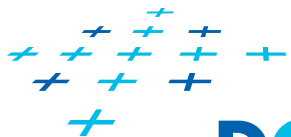
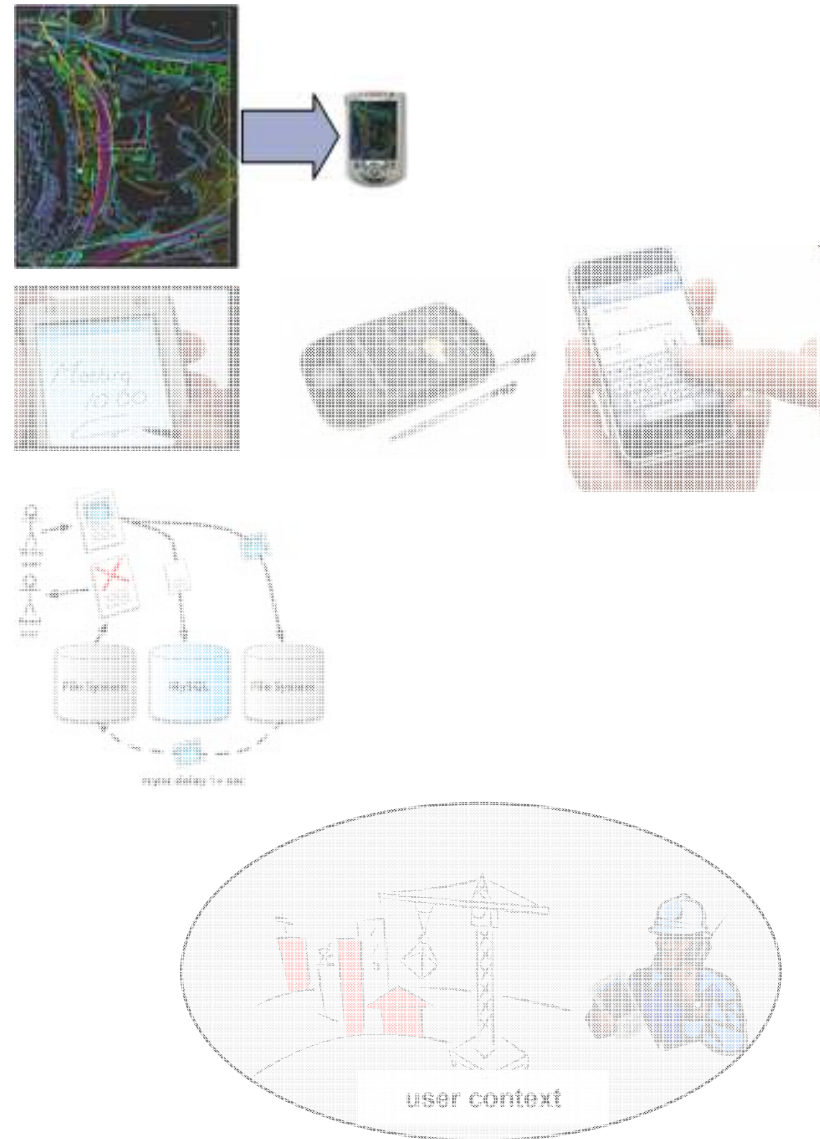
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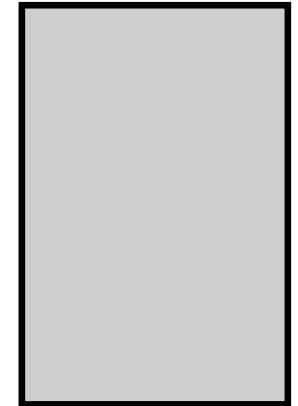
- 4a. frequent changes
- 4b. variety of parameters
- 4c. context driven UI



1a. Usage of the screen space – small screens

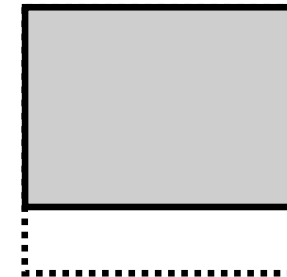
■ What is better orientation of the screen?

- portrait vs. landscape
- human way of remembering things
 - short-term memory



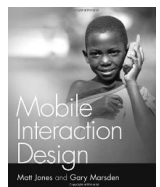
■ Why is bigger screen better than smaller?

- 320x320 (Palm) than 240x320 (Compaq)?
- user efficiency vs. user satisfaction



■ What about the complex content (News portal)?

- browsing vs. direct answer



Ch 9.2



Thank you for attention

