PDA

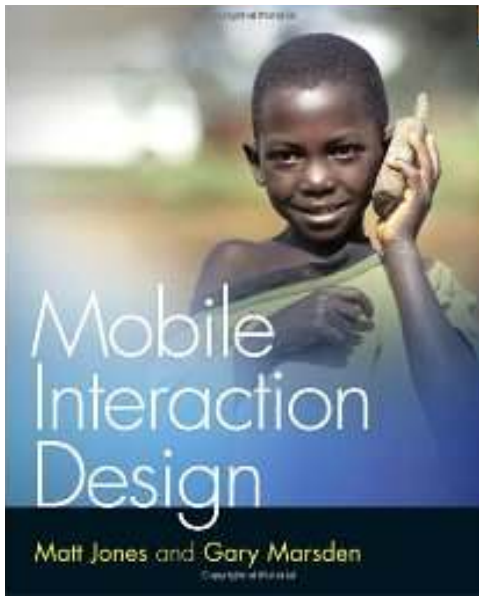
Lecture

Introduction, mobile computing (definitions and limits)

DCGI

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 interaciton 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

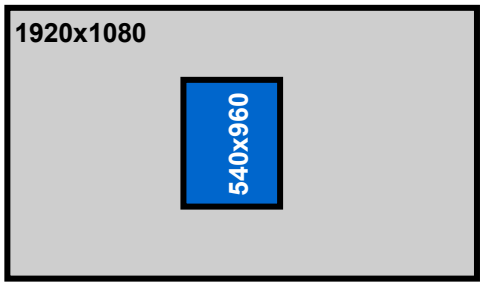
- stationary position
- large display
- variety of input devices
- low noise level
- stable lighting condition
- user with no special needs
- does not change in time

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 screen 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 (NA 38%, Europe 45% *)
  - iOS (NA 52%, Europe 40% *)
  - Windows Phone (NA 1%, Europe 2% *)
  - BlackBerry OS (NA 2%, Europe 4% *)
  - others

** http://gs.statcounter.com*

Wireless communication

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

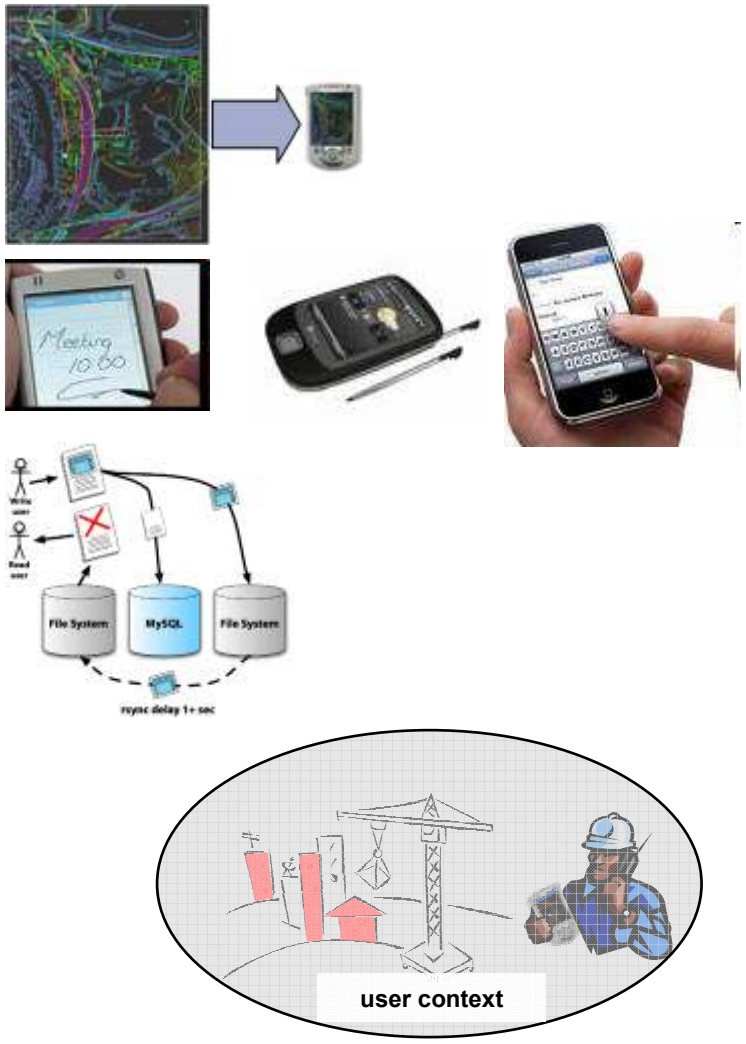
What does it mean mobile for the UI design?

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



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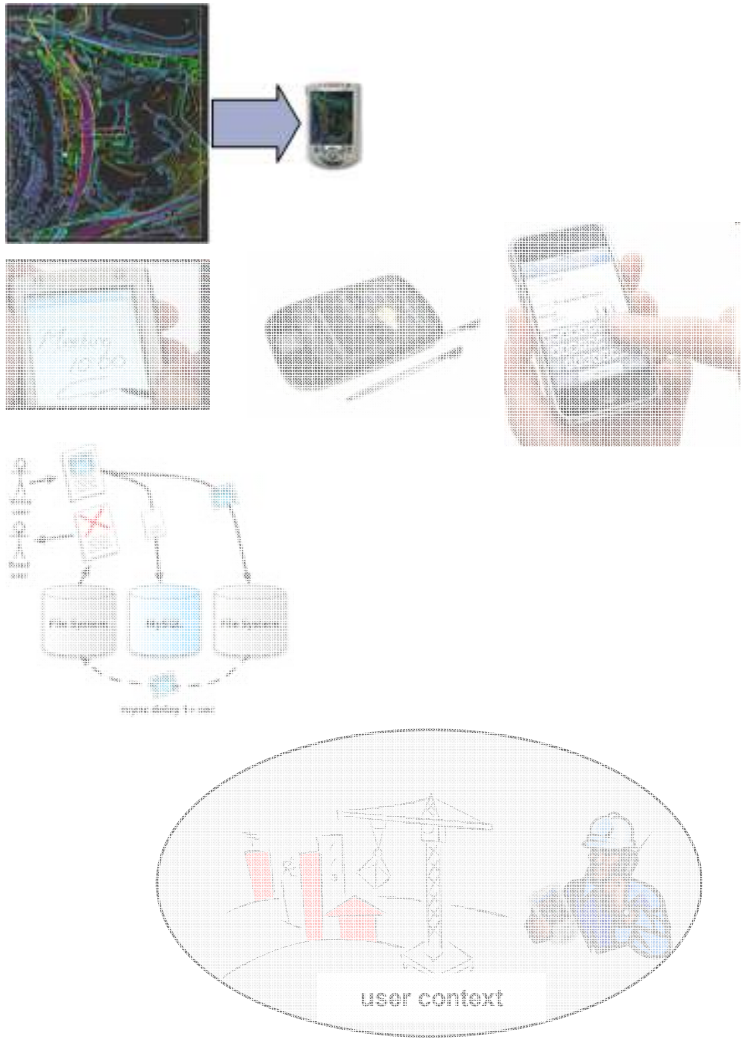
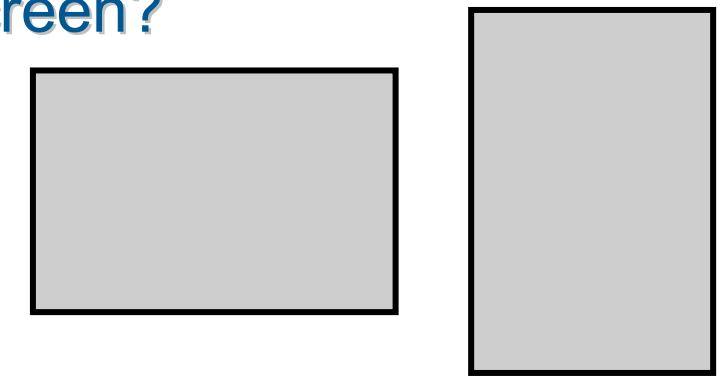


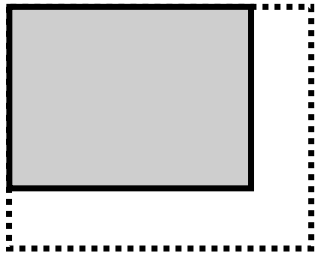
1a. Usage of the screen space – small screens

- What is better orientation of the screen?
  - portrait vs. landscape
  - human way of remembering thinks
    - short-term memory

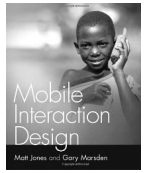


- Why is bigger screen better than smaller?
  - 320x480 (World 20%, Europe 31% *)
  - 480x800 (World 5%, Europe 8% *)

    * *http://gs.statcounter.com*
  - user efficiency vs. user satisfaction



- What about the complex content (News portal)?
  - browsing vs. direct answer



Ch 9.2

Thank you for attention