Design and Evaluation of User-Interfaces for Mobile Applications Development

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Structure of the Presentation

• Introduction
  – Mobile Applications Development
  – Related Work and Literature
  – Thesis Problem Statement
  – Goals

• Realization
  – Preparation
  – Planned Implementation
  – Design Ideas
Introduction

Mobile Application Development:

- Definition: Development of software for mobile devices
- Motivation
  - Opened Application Development Interfaces (API) of mobile devices
  - Creation of own, novel software for mobile devices
  - Discovery of new ideas generated by end-users
- Problems
  - Only little support for non-programmers
  - Little experience in mobile applications development
  - Specific constraints of mobile devices (screen size, CPU power, connectivity etc.)
Related Work and Literature

- Integrated Development Environments (IDE) Supporting Mobile Application Development
  - EclipseME
  - NetBeans → Mobility Pack
  - XCode → GUI-Framework Cocoa
  - Android → DroidDraw

- Modeling Tools
  - MetaEdit+
  - SMS
  - IdealXML
  - Mobile application modeler from SAP

- Guidelines for Designing User Interfaces
Netbeans Mobility Pack 5.5

http://www.netbeans.org/kb/55/quickstart-mobility.html
Introduction

XCode - InterfaceBuilder with GUI-Framework Cocoa


http://www.jroller.com/mert/entry/iphone_dev_binding_methods_to
Android with DroidDraw Beta

http://droiddraw.org
MetaEdit+ and IdealXML (UsiXML)

MetaEdit+ Symbian series60

http://www.metacase.com/cases/phone_example.html

IdealXML

SAP Mobile Application Modeler

Guidelines for Designing User Interfaces

- Consistency
- Redundancy
- Structure / Grouping
- Feedback
- Simplicity / Clarity
- Understandable Widgets
- Tolerance

⇒ Usability
Problem Statement

• Design and evaluation of high-fidelity user interfaces for the Mobile Applications Modeler (Mobia)
  – Acting as prototypes of Mobia
• Mobia: Model Driven Development of mobile software
  – Project at LFE Medieninformatik
  – Focuses on mobile health
  – Platform independent
• Generation of domain specific mobile applications
• Results should be applicable to other modeling tools in order to support non-expert users
• Evaluation through user studies and observation
Goals

- Open the domain of mobile software development for novices
- Creation of user interfaces which support this kind of users
  - Simple usage / good usability
  - Modeling of software by visual means
  - Without needing to code
  - Delivering good support by hints
  - Directing users towards right actions and preventing erroneous ones
- Evaluation
  - Conducting on-site and off-site user studies with an additional survey
  - Results and the observations will deliver facts to improve and modify GUIs for better support of novices
Preparation

- Research on current and former related works
- Research on design guidelines
- Sketching first ideas for the GUI for Mobia
  - Eventually creation of paper mockups
- UML like modeling the prototypes
Planned Implementation

- Flash CS3 with ActionScript 3.0
- Object-Oriented programming language
- Each interaction element as an object
- Different classes for Model, View, Controller
- View will mainly be included in the Flash environment
- Model will mainly be implemented in the objects, making use of inheritance
- Some further classes for drawing and support of other functions
Design Ideas

- Usage of familiar widgets (buttons, text fields, dropdown lists etc.)
- Usage of familiar symbols for the provided domain
- Interaction and modeling by drag and drop
- Combination of UI design and UML like modeling
  - Arrows indicating transitions
  - Hierarchical view of screens and menus
- Visual and textual cues directing users to accomplish their ideas
First Sketches
Thank you for your attention

Questions are welcome…