

Zwischenvortrag Diplomarbeit

Mobia Modeler: An Adaptable Mobile Application Modeler for Non-Expert Users

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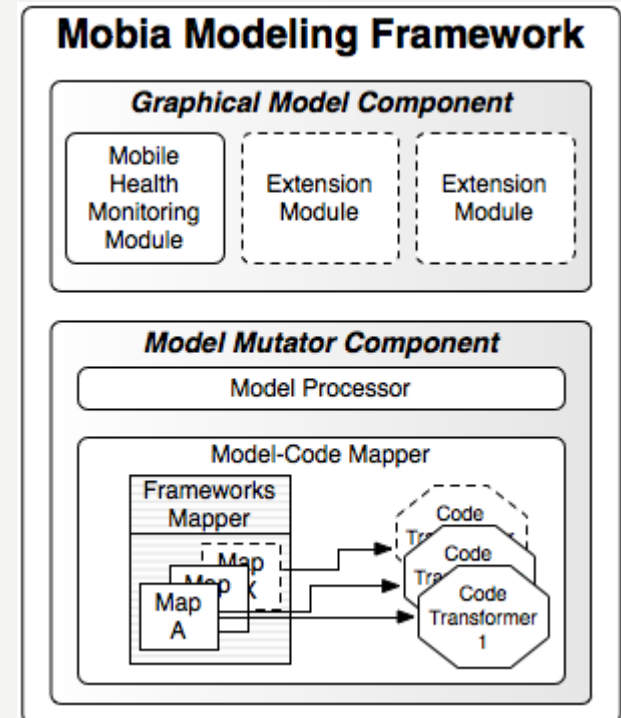
Outline

- Mobia Framework
- Goals and Questions
- Sample Applications
- Concept
- Implementation
- Next Steps



Mobia Framework

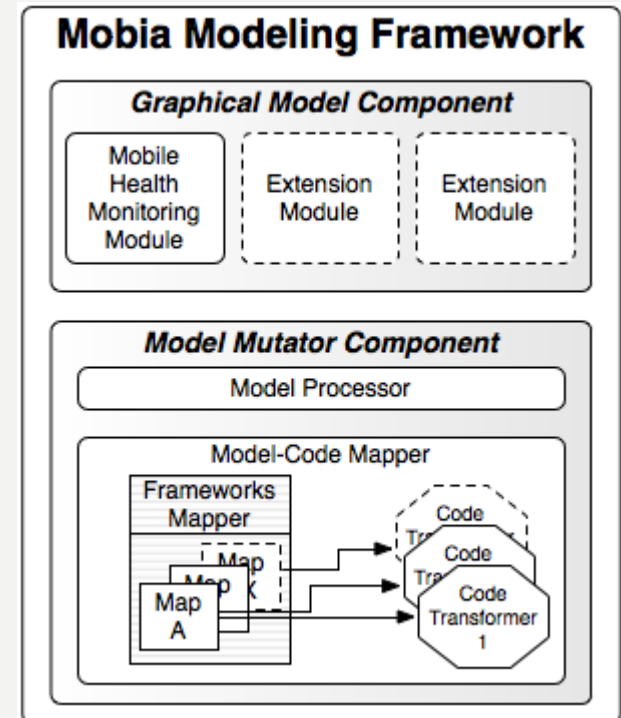
- Mobia = **M**obile applications
- Simplify the development of applications for mobile platforms
 - Small, platform independent, custom, domain specific
- Domain-Specific Modeling (DSM)
 - High-level, graphical
- Non-expert users
- Focus on mobile health monitoring





Mobia Framework

- Graphical Model Component
 - Visualization
 - Modules
 - Export
- Model Mutator Component
 - Processing
 - Code transformation
- Project at LFE Medieninformatik





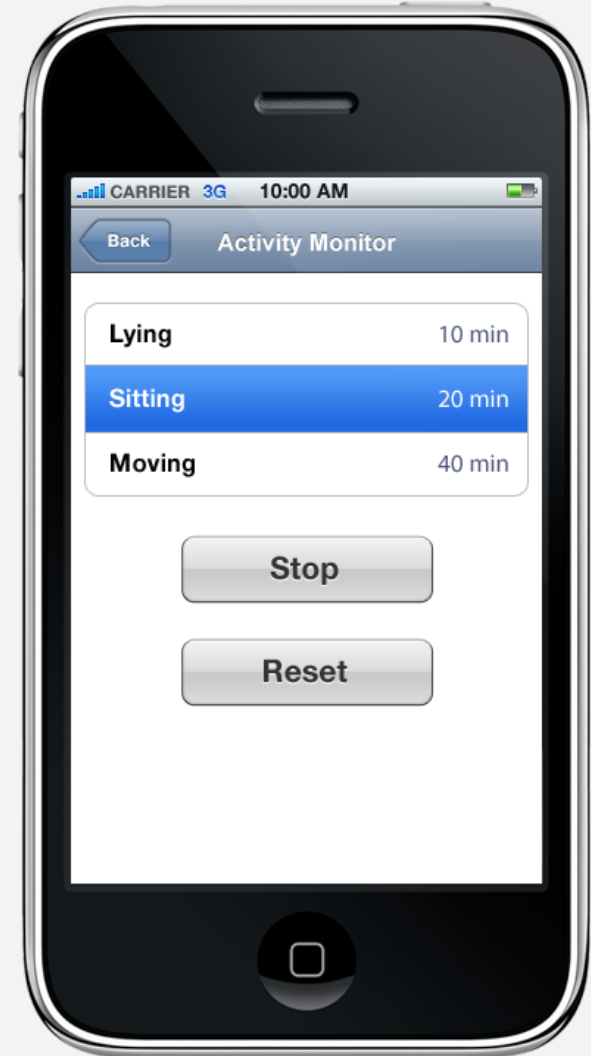
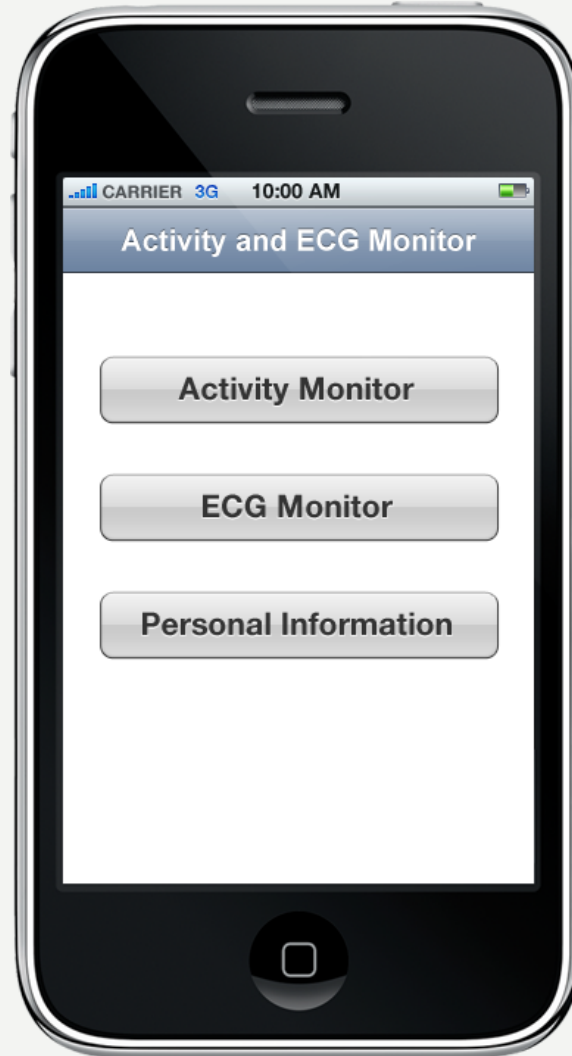
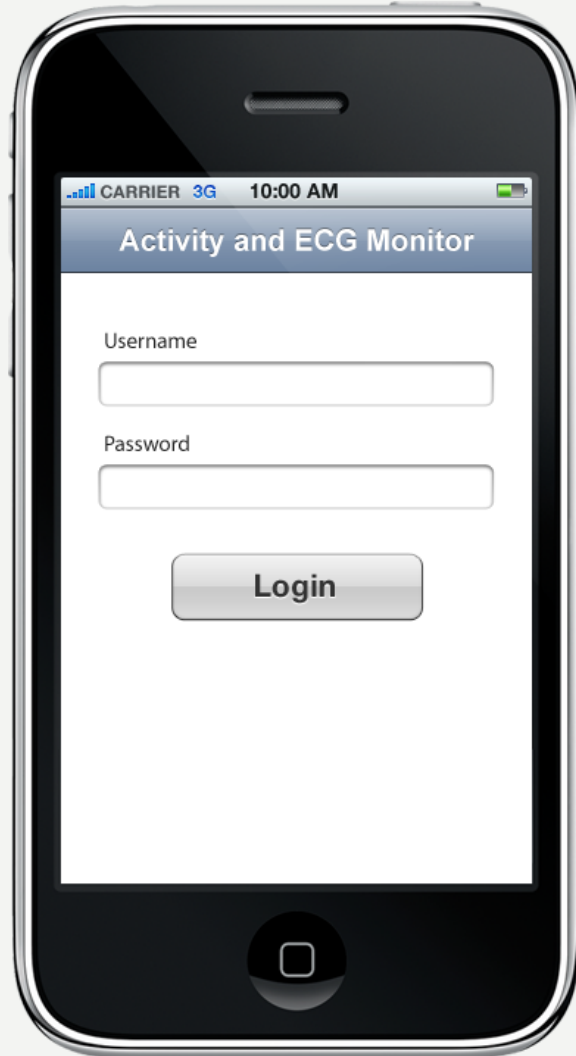
Goals

- Enable non-expert users to easily develop applications in the domain mobile health monitoring
⇒ Modeler
- Create a modeling tool for mobile applications that can adapt the user interface to the needs of non-expert users
⇒ Adaptability



Questions

- Modeler
 - Level of abstraction?
 - Program logic?
 - Visualization?
 - Modeling?
 - User interface?
 - Usability?
- Adaptability
 - Questions?
 - User interface?
 - Layout?
 - Elements?



Epilepsy Safety System

- Input from sensors
- Output
 - Device
 - SMS
- Focus on logic
- Real application





Concept: Adaptability

- Wizard with questions
 - Basic Information
 - Target device?
 - Domain?
 - Type of user?
 - User interface (Modeler)
 - Font size?
 - Handedness?
 - Sidebar left or right?
 - Features
 - Health problems?
 - Inputs available?
 - Outputs required?
 - Simple or advanced options?

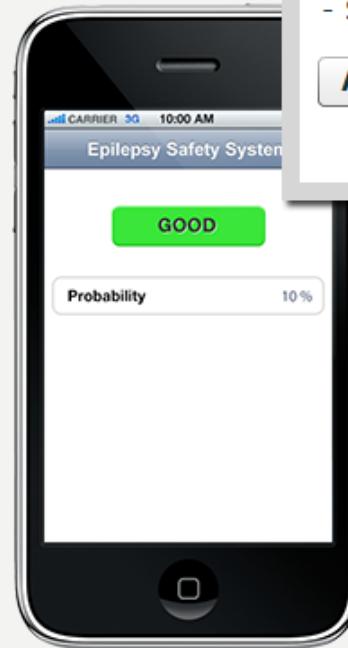


Concept: Tool

- Problems
 - Modeling of logic
 - Layout errors
 - Input and output
 - Complex use cases
 - Target platforms
- ⇒ Configurable components

Configurable Components

- High-level
- Complex
- Context
- Configuration
- Layout
- Help
- Validation
- Security
- Transformation



Epilepsy Component

Description

The Epilepsy Component monitors the user and checks for the occurrence of a seizure.

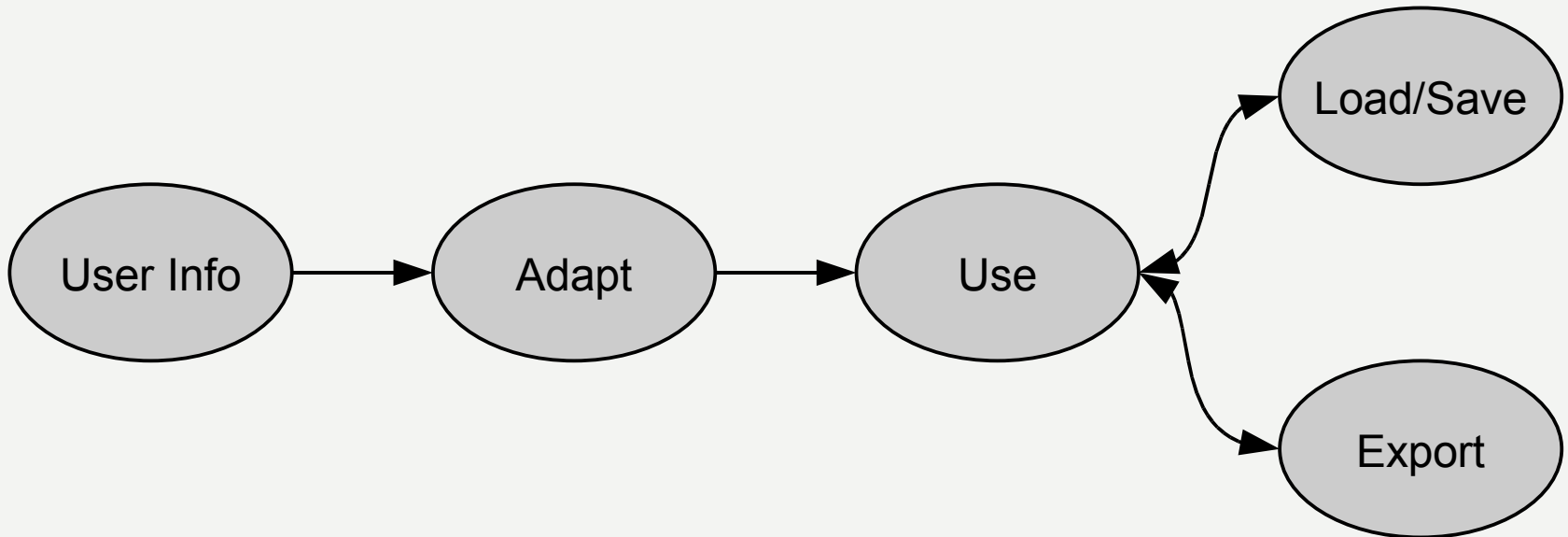
Notifications

- Probability > 60: vibrate, sound, screen
- Seizure: send SMS to 0177 112 233 44

[Add Notification](#)



Workflow





XML Model

```
<?xml version="1.0" encoding="utf-8" ?>
<application>
  <properties>
    <property type="name">Activity and ECG Monitor</property>
  </properties>
  <screens>
    <screen id="1">
    </screen>
    ...
  </screens>
  <components>
    <component id="1" type="login" screenRef="1">
      <users>
        <user>
          <username>test</username>
          <password>test</password>
        </user>
      </users>
    </component>
    <component id="2" type="navigation" screenRef="2">
      <items>
        <item targetScreen="3">Activity Monitor</item>
        <item targetScreen="4">ECG Monitor</item>
        <item targetScreen="5">Personal Information</item>
      </items>
    </component>
    ...
  </components>
</application>
```



Implementation

- Adobe Flex 3.3
- Adobe Flash CS3
- MXML
- ActionScript 3.0
- Mate Flex framework
 - Tag-based
 - Event-driven
 - Dependency injection



Next Steps

- Implementation
- User study
- Thesis paper



Questions and Discussion