Towards a Development Methodology for Augmented Reality User Interfaces

MIXER 2004

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Summary

• ARCHIE (Augmented Reality Collaborative Home Improvement Environment) project

• Traditional tools and processes ill suited for Augmented Reality development

• We propose a new development methodology based on
  – New process
  – New tools
Overview

• Participating groups
• The problem
• Research challenges
• Our approach
• Future work
Participating groups

3D Designer
Screen Designer
Interaction Designer
Programmer
Usability Engineer

Change User Interface Design
Change UI Implementation
Solve tasks using UI
Evaluate User Performance
User
The problem

• Process issues: Waterfall [1]
• Missing tools
  – Authoring Tools
  – Frameworks
  – Automatic Evaluation
• Bad integration of tools
• Unclear design space
• Unclear non-functional requirements

Research Challenges

• Tool Challenges:
  – Which tools?
  – Tool integration?
  – Tool mapping?
  – Tool automation?

• Process Challenges:
  – Limit to parallelism?
  – Formal process (XP[2], Design Patterns [3])?
  – Persistence of UI experiments?

• Methodology
  – Limits?
  – Validation?

## Tool combination design space

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Our approach

• Parallel development process
  – Jam sessions [5]
  – *Crowded group* working

• New tools
  – Interaction graph
  – Monitoring tool


Usability evaluation setup
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Performance visualization

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Future Work

• Implement missing tools
• Better tool integration
  – Wizard of Oz / Interaction graph
  – Monitoring / Performance visualizations
  – Authoring tool for Interaction designer (vision: bootstrapping)
• Proactive UIs
• Process refinement
Any Questions?

Thank You