

CS-477

Reinventing Interactive Systems

Instrumental Interaction and Co-Adaptive Systems

Course 8: Ubiquitous Computing

Wendy E. Mackay

Michel Beaudouin-Lafon

in|situ| lab, INRIA & U. Paris-Sud

Stanford University

Course Outline		
	Topic	Exercises
1 April	Instrumental interaction and co-adaptive systems	Deconstructing interaction
8 April	Designing instruments	Idea generation
15 April	Learning	Design ideas & scenarios
22 April	User innovation	Design scenarios
29 April	Collaborative interaction	Video prototypes
6 May	Design exploration	Generative walkthroughs
13 May	Instrument architectures	Function-interaction tables
20 May	Ubiquitous computing	Alternative video prototypes
27 May	Tangible interaction	Final video prototypes
3 June	Final presentations	

For today

Readings:

Weiser

Computer for the 21st Century

Klokmoose & Beaudouin-Lafon

Vigo: Instrumental Interaction in Multi-Surface Environments

Activities:

Instrument design

Video prototyping

What we'll do today	
30 min	Ubiquitous Computing discussion
30 min	Distributed Instrument design (course projects)
45 min	Video prototype
5 min	Conclusion and homework for next week

Ubiquitous Computing: Key ideas

Weiser: The Computer for the 21st Century

Vision of the future:

Hardware: one person : multiple computers
"antidote to windows"

Infrastructure: emphasis on sharing data
one room with 100s of computers

Interaction disappearing computer
scenario: magical interaction
what should it really look like?

Ubiquitous Computing: Key ideas

Klokmose & Beaudouin-Lafon: VIGO: Instrumental Interaction in Multi-Surface Environments

Distributed instruments: pick-and-drop
Othello game
color picker

Architectural pattern: replaces MVC
View
Instrument
Object - Governor

What we'll do today

30 min Ubiquitous Computing discussion

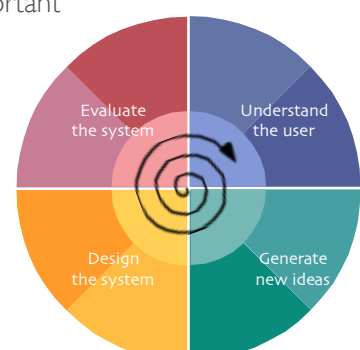
30 min Instrument design: course projects

45 min Video prototype

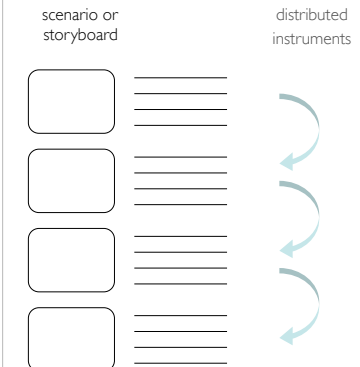
5 min Conclusion and homework for next week

User's Goal	Action / Feedback	Instrument	Command/Response	Object

Distributed instruments	
1. TimeLine / Checklist	2. Decision aid
User's goal:	_____
Instrument:	_____
	User action: _____
	User feedback: _____
Object of Interest:	_____
	System command _____
	System response _____

Iterative design means redesign
Within an iterative design process <i>redesign</i> is more important than initial design do not just "do it again!" reflect on your designs in context 

Regular storyboard																																					
Identify key interaction points in the scenario Examine the key ideas from the design space (brainstormed ideas) Illustrate the interaction between user and novel system Describe key issues on the right	<table border="1"> <tr> <td></td> <td>_____</td> <td>Title</td> </tr> <tr> <td></td> <td>_____</td> <td>User(s)</td> </tr> <tr> <td></td> <td>_____</td> <td>Situation</td> </tr> <tr> <td></td> <td>_____</td> <td>Establishing shot</td> </tr> <tr> <td></td> <td>_____</td> <td>First interaction</td> </tr> <tr> <td></td> <td>_____</td> <td>Closeup shot</td> </tr> <tr> <td></td> <td>_____</td> <td>Second interaction</td> </tr> <tr> <td></td> <td>_____</td> <td>Mid-range shot</td> </tr> <tr> <td></td> <td>_____</td> <td>Third interaction</td> </tr> <tr> <td></td> <td>_____</td> <td>Wide shot</td> </tr> <tr> <td></td> <td>_____</td> <td>Fourth interaction</td> </tr> <tr> <td></td> <td>_____</td> <td>Final credits</td> </tr> </table>		_____	Title		_____	User(s)		_____	Situation		_____	Establishing shot		_____	First interaction		_____	Closeup shot		_____	Second interaction		_____	Mid-range shot		_____	Third interaction		_____	Wide shot		_____	Fourth interaction		_____	Final credits
	_____	Title																																			
	_____	User(s)																																			
	_____	Situation																																			
	_____	Establishing shot																																			
	_____	First interaction																																			
	_____	Closeup shot																																			
	_____	Second interaction																																			
	_____	Mid-range shot																																			
	_____	Third interaction																																			
	_____	Wide shot																																			
	_____	Fourth interaction																																			
	_____	Final credits																																			

Storyboards
scenario or storyboard distributed instruments 

What we'll do today

- 30 min Ubiquitous Computing discussion
- 30 min Instrument design: course projects
- 45 min Video prototype
- 5 min Conclusion and homework for next week

Next week: Tangible Interaction

Homework:
- Alternative storyboards

Papers to present:

Jacob et al.:

Reality-based Interaction:

Framework for post-WIMP interfaces

Mackay & Fayard:

Designing Interactive Paper:

Lessons from three augmented reality projects