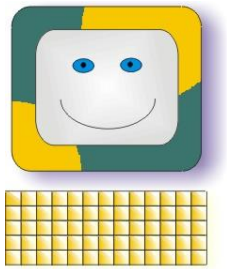
ANTBOX

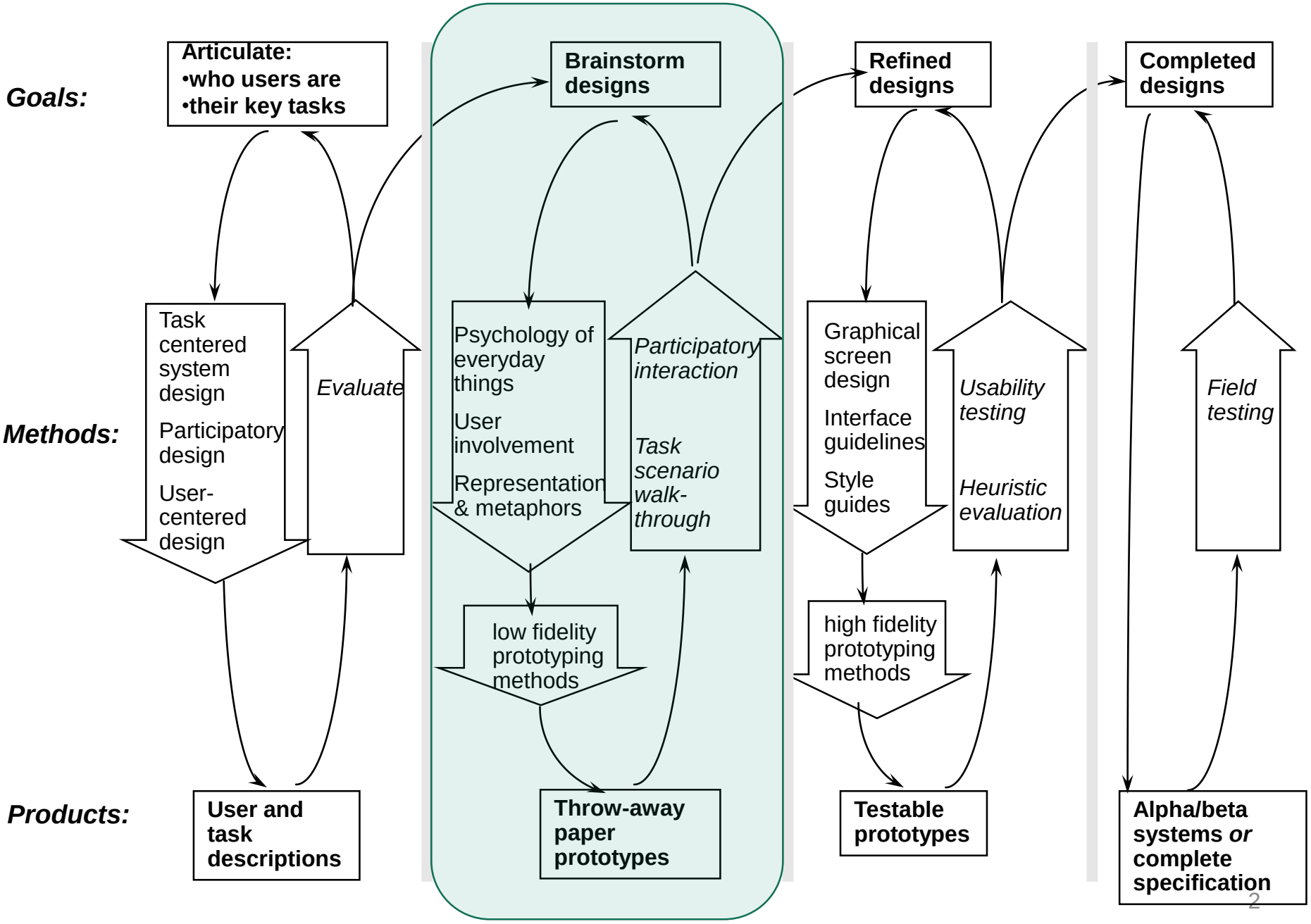
Mockups and prototypes



Dr. Kristina Lapin

Lecture 6

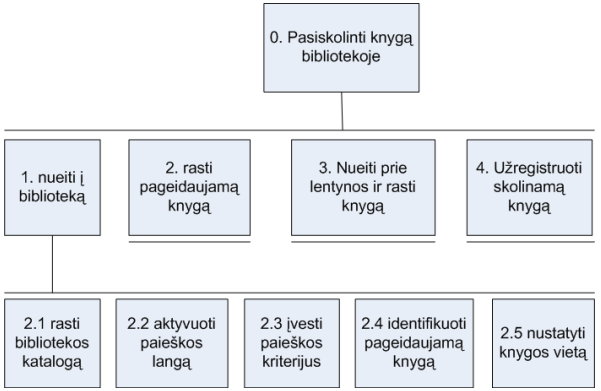
Interfeiso projektavimas ir panaudojamumo inžinerija (Soul Greenberg)

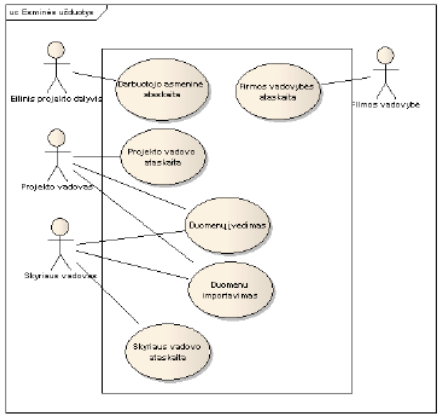


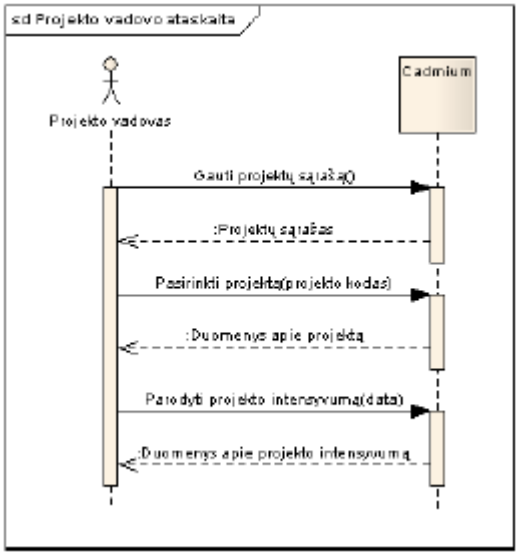
Overview

- Mockups
  - Why?
  - The problem of functional fixation
  - Paper mockup
  - Interactive mockup
  - Mockup tools
- Prototypes
  - Why?
  - Wizard-of-Oz prototyping
  - Tools
- Mood boards

After task analysis







What is a prototype?

In other design fields a prototype is a small-scale model:

- a miniature car
- a miniature building or town

- the example here comes from a 3D printer

What is a prototype?

In interaction design it can be (among other things):

- a series of screen sketches
- a storyboard, i.e. a cartoon-like series of scenes
- a Powerpoint slide show
- a video simulating the use of a system
- a lump of wood (e.g. PalmPilot)
- a cardboard mock-up
- a piece of software with limited functionality written in the target language or in another language

Why?

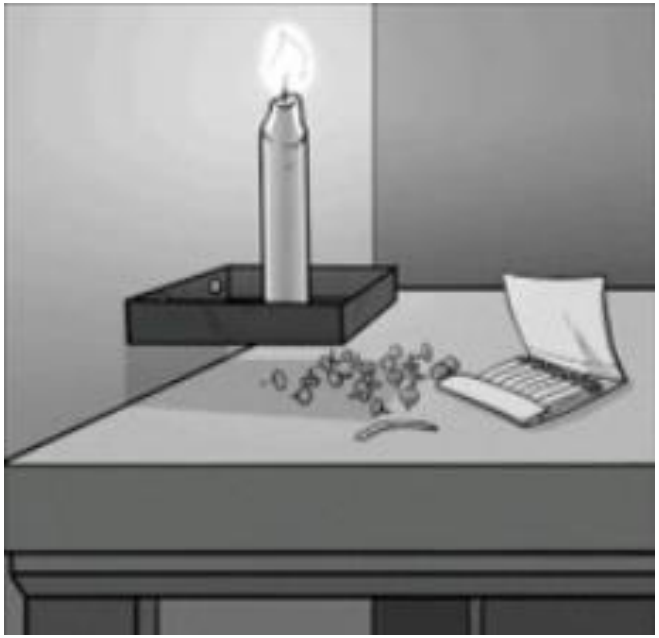
Prototyping is a strategy
for efficiently dealing with things
that are hard to predict

Why prototype?

- To receive user evaluation and feedback
- Stakeholders can see, hold, interact with a prototype more easily than a document or a drawing
- Team members can communicate effectively
- You can test out ideas for yourself
- It encourages reflection
- Prototypes answer questions, and support designers in choosing between alternatives

Prototyping to avoid functional fixedness: Duncker's candle problem

How to fix a lit candle on a wall (a cork board) in a way so the candle wax won't drip onto the table below.



http://purplecowideas.wordpress.com/2013/06/25/functional-fixedness-in-the-workplace/

Duncker, 1945

Low-fidelity Prototyping

- Uses a medium which is unlike the final medium, e.g. paper, cardboard
- Is quick, cheap and easily changed

- Low fidelity prototype - mockup

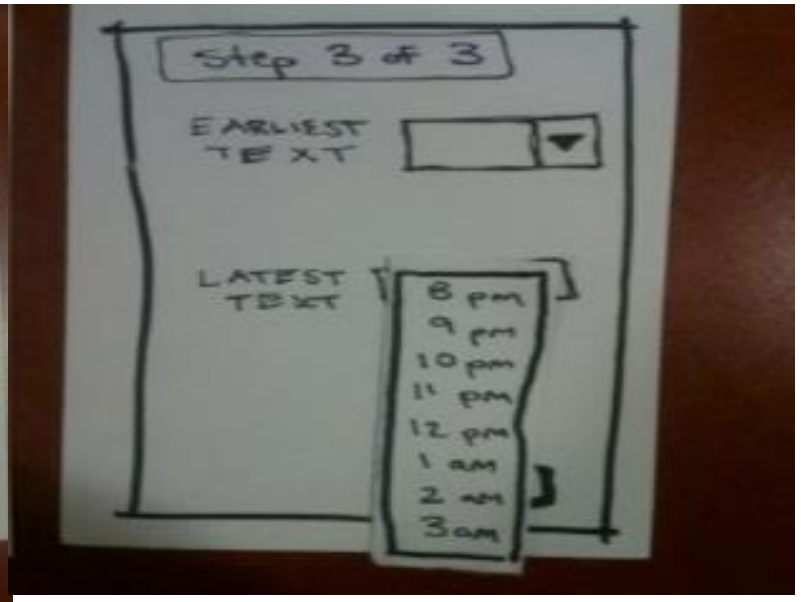
SANTA CLARA, California: People thought Jeff Hawkins was crazy when they saw him taking notes, checking appointments, and synchronizing a small block of wood with his PC, pretending all the while that the block was a handheld computer.

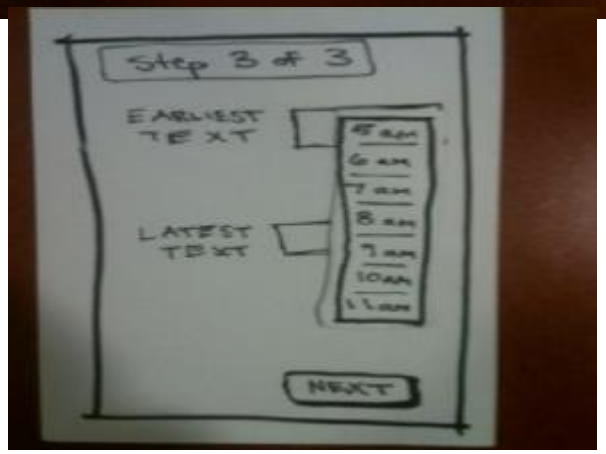
“If I wanted to check the calendar I'd take it out and press the wooden button.”

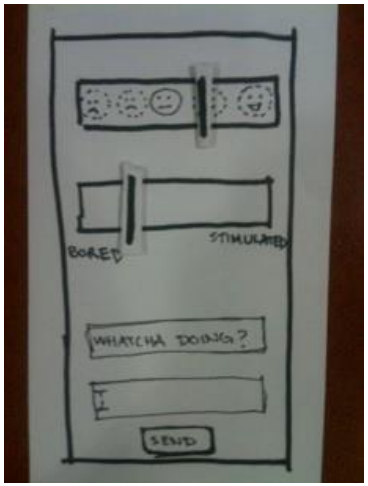
Source: “The Philosophy of the Handheld.” Wired Magazine, October 1999.

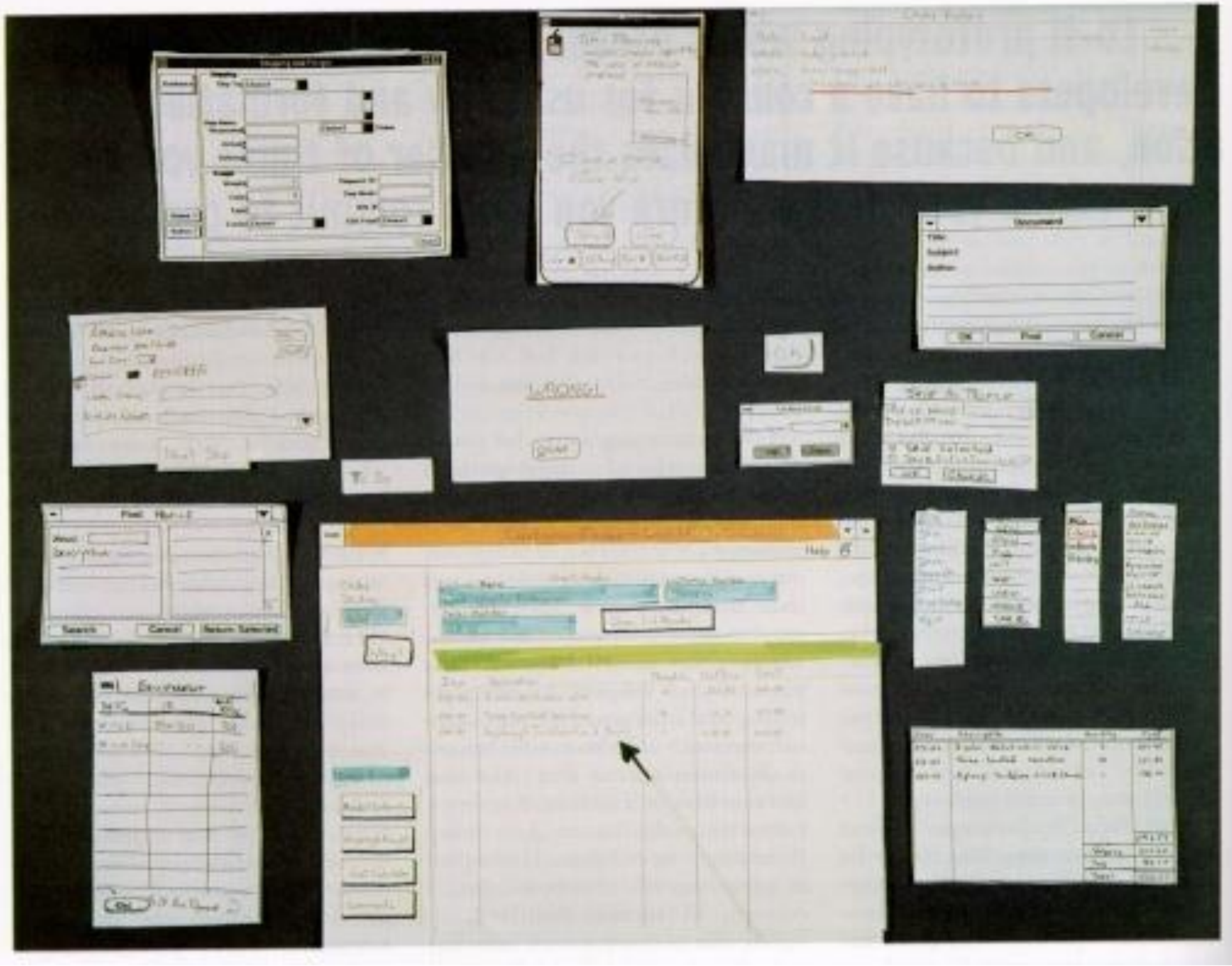
Jeff Hawkins, Donna Dubinsky, and Ed Colligan (Palm Computing)
http://en.wikipedia.org/wiki/Palm_(PDA)

Paper prototyping



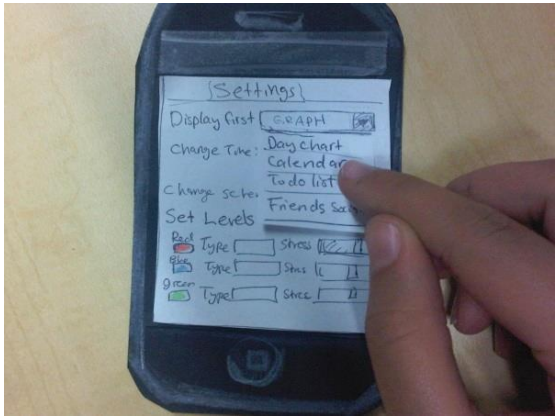


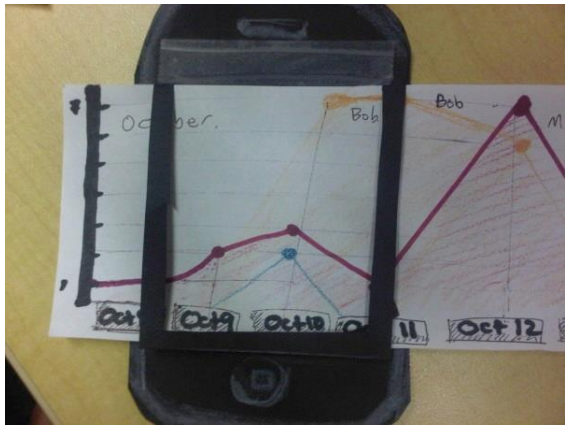




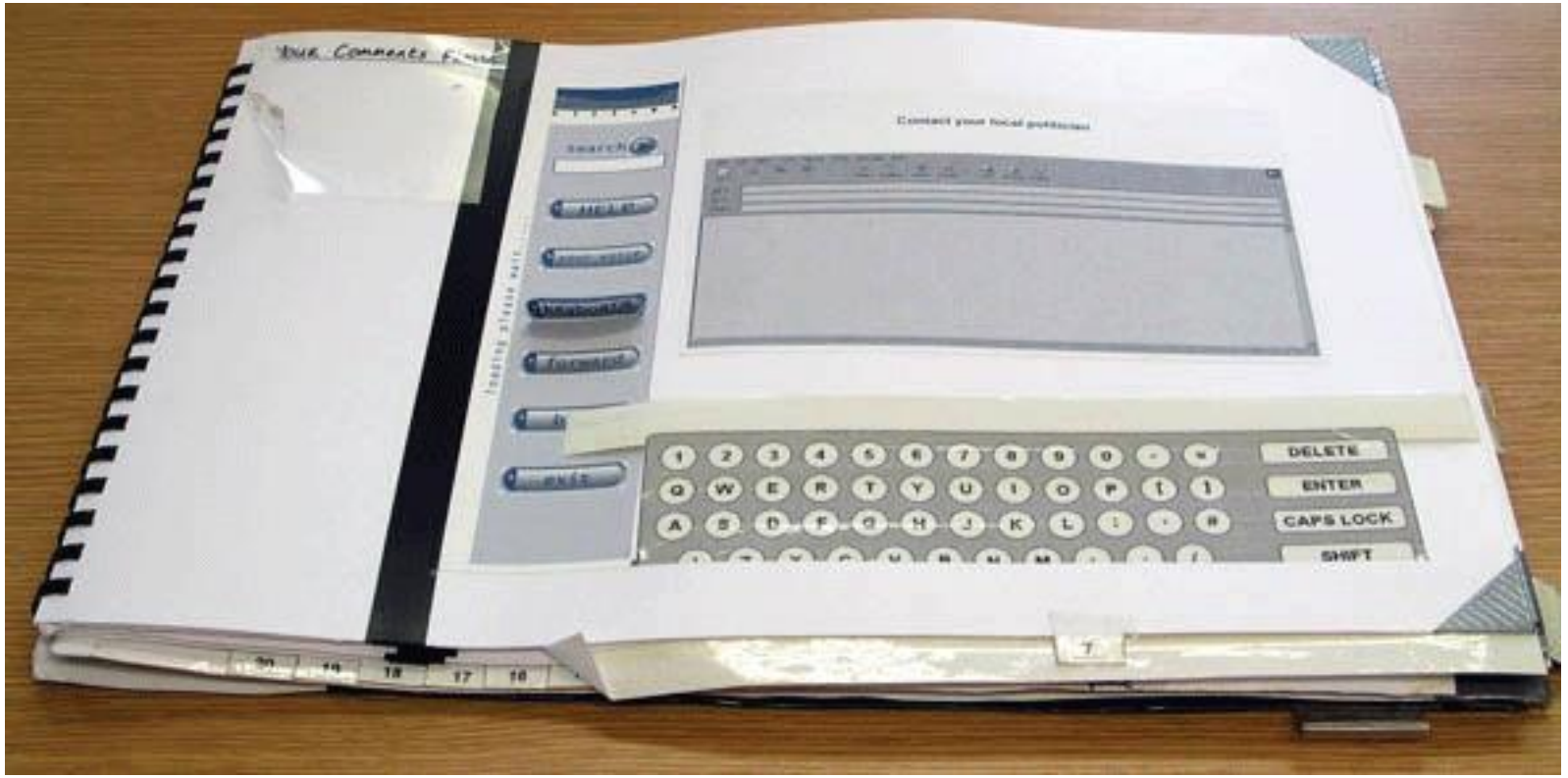
Paper prototyping tips

- Keep all your materials in one place!
  - Small interface widgets tend to get lost or damaged easily
- Work quickly and make reusable components (buttons, etc)
- If something is difficult to simulate (progress indicators, right mouse menus, hyperlinks), have the user ask if it is available and then verbally describe the interaction



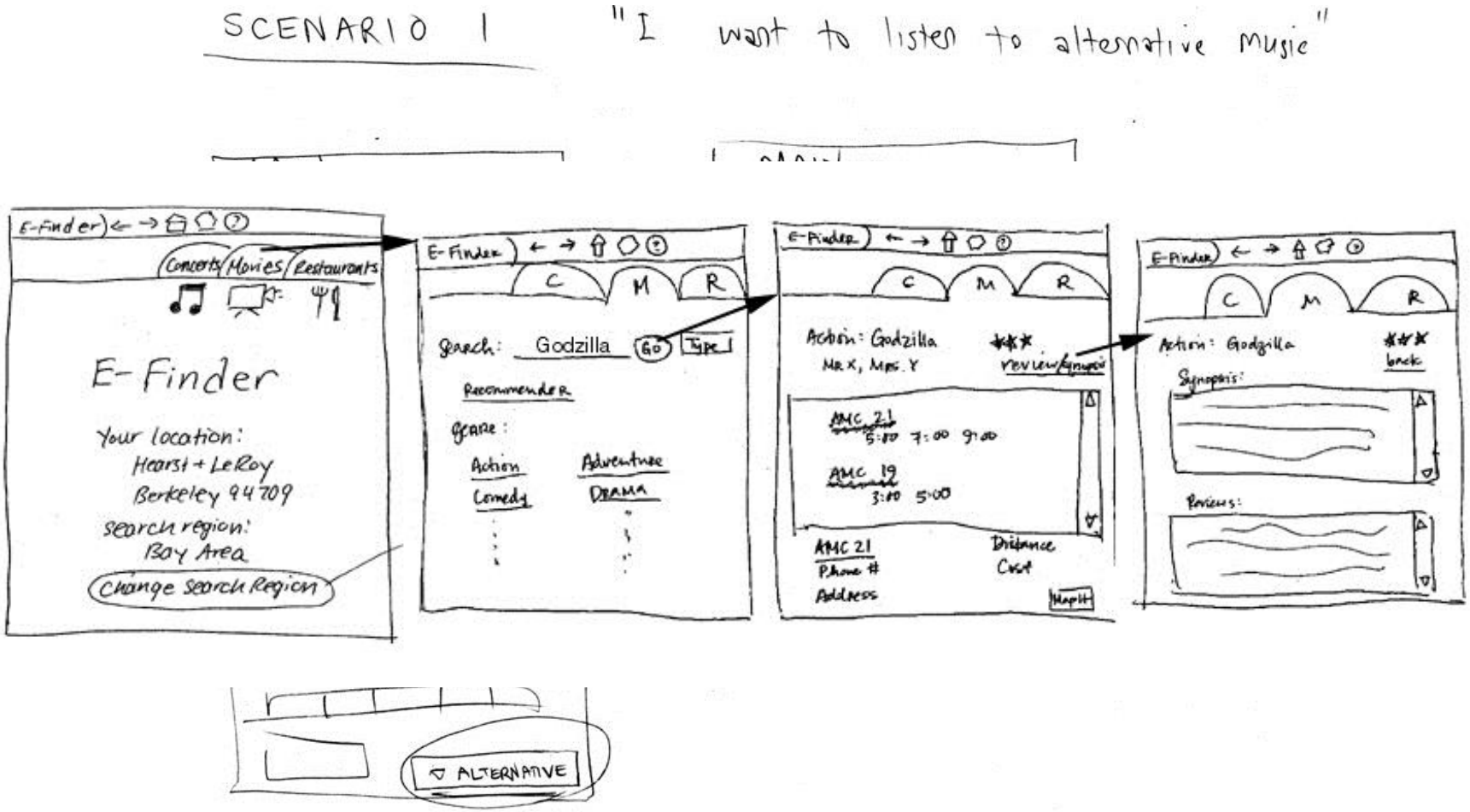


Paper mock-up for home communication systems



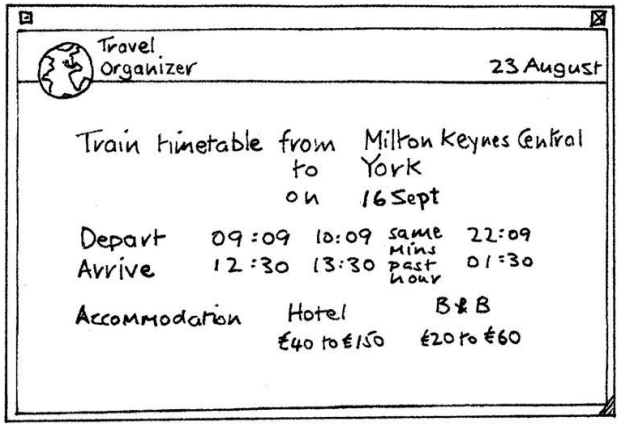
Benyon, Designing Interactive systems, Pearson Education Limited, 2014

Scenarios in paper mockups



Card-based prototypes

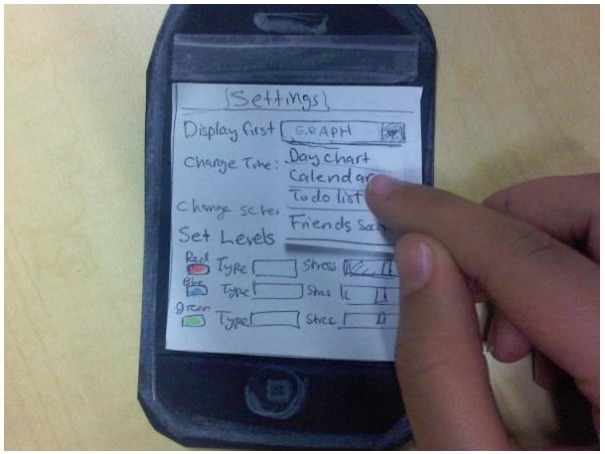
- Index cards (3 X 5 inches)
- Each card represents one screen or part of screen
- Often used in website development

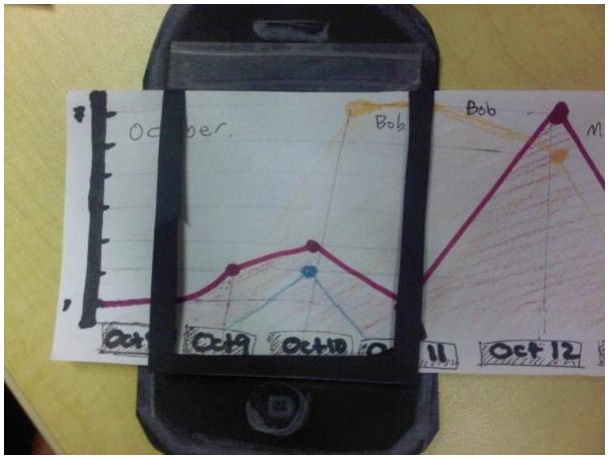


Try Prototypes with People

- Need a picture
- Test multiple
- Emphasis on conversation

Test multiple prototypes simultaneously to get most value



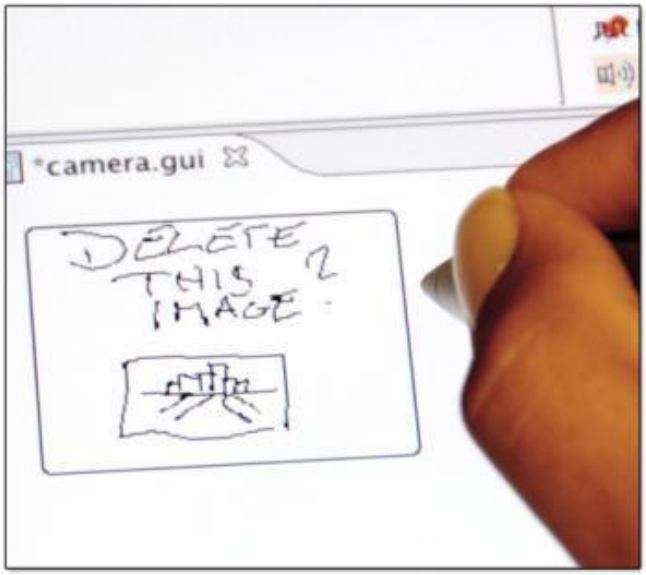


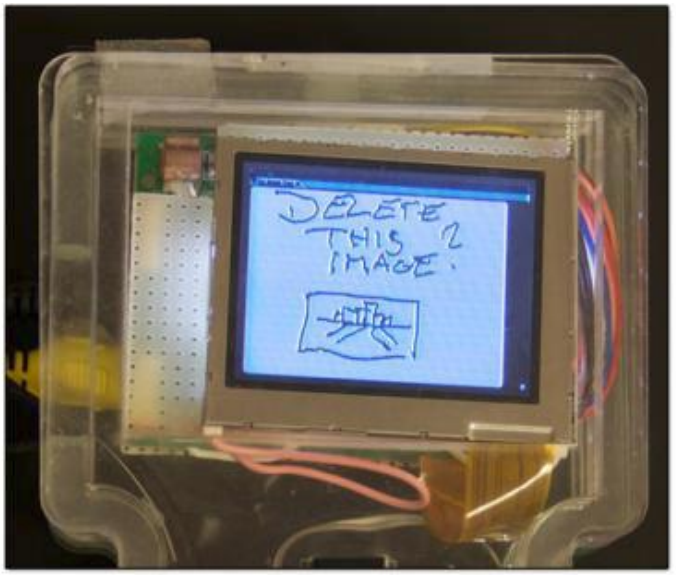
Mock-ups

IDEO: kairėje - pirmojo skaitmeninio aparato maketas, valdomas kompiuterio; dešinėje – galutinis produktas, Kodak DC-210 skaitmeninė kamera (Buchenau, Suri, 2000)

Mockup is a question

to stakeholders, users, designers

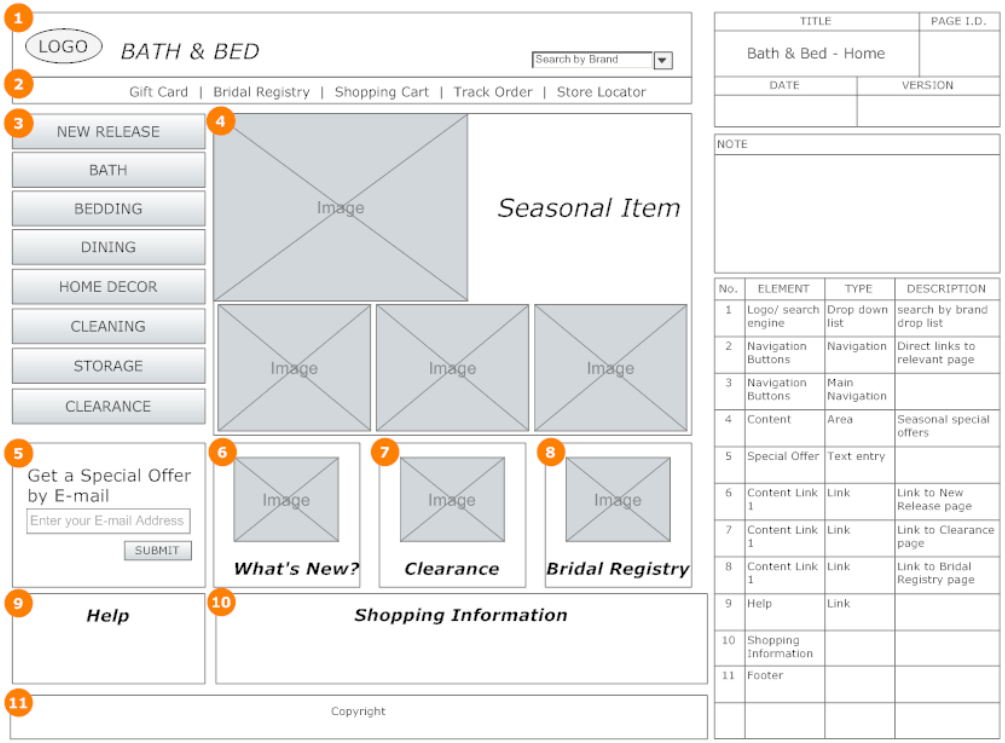




Goal: to get informal opinion

- Showing mockup for the users
  - http://www.youtube.com/watch?v=_5FGeSQ7DBU
- Observe the interaction
- Make conclusions: what to redesign

Wireframes

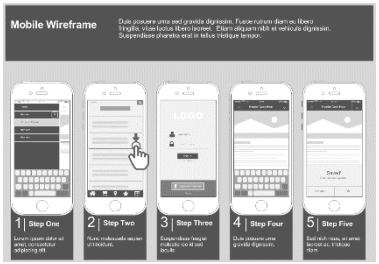


TITLE	PAGE I.D.
Bath & Bed - Home	
DATE	VERSION

NOTE

No.	ELEMENT	TYPE	DESCRIPTION
1	Logo/ search engine	Drop down list	search by brand drop list
2	Navigation Buttons	Navigation	Direct links to relevant page
3	Navigation Buttons	Main Navigation	
4	Content	Area	Seasonal special offers
5	Special Offer	Text entry	
6	Content Link 1	Link	Link to New Release page
7	Content Link 1	Link	Link to Clearance page
8	Content Link 1	Link	Link to Bridal Registry page
9	Help	Link	
10	Shopping Information		
11	Footer		

- Outline of the structure of the software system
- focus on the general elements of a design without worrying about the final detail



http://www.smartdraw.com/software/wireframe-software.htm

Low-fidelity prototiping

Advantages

- Lower development cost
- Evaluate multiple-design concepts
- Useful-communication device
- Address screen layout issues
- Proof-of-concept

Disadvantages

- Limited error checking
- Poor detailed specification to code to
- Facilitator driven

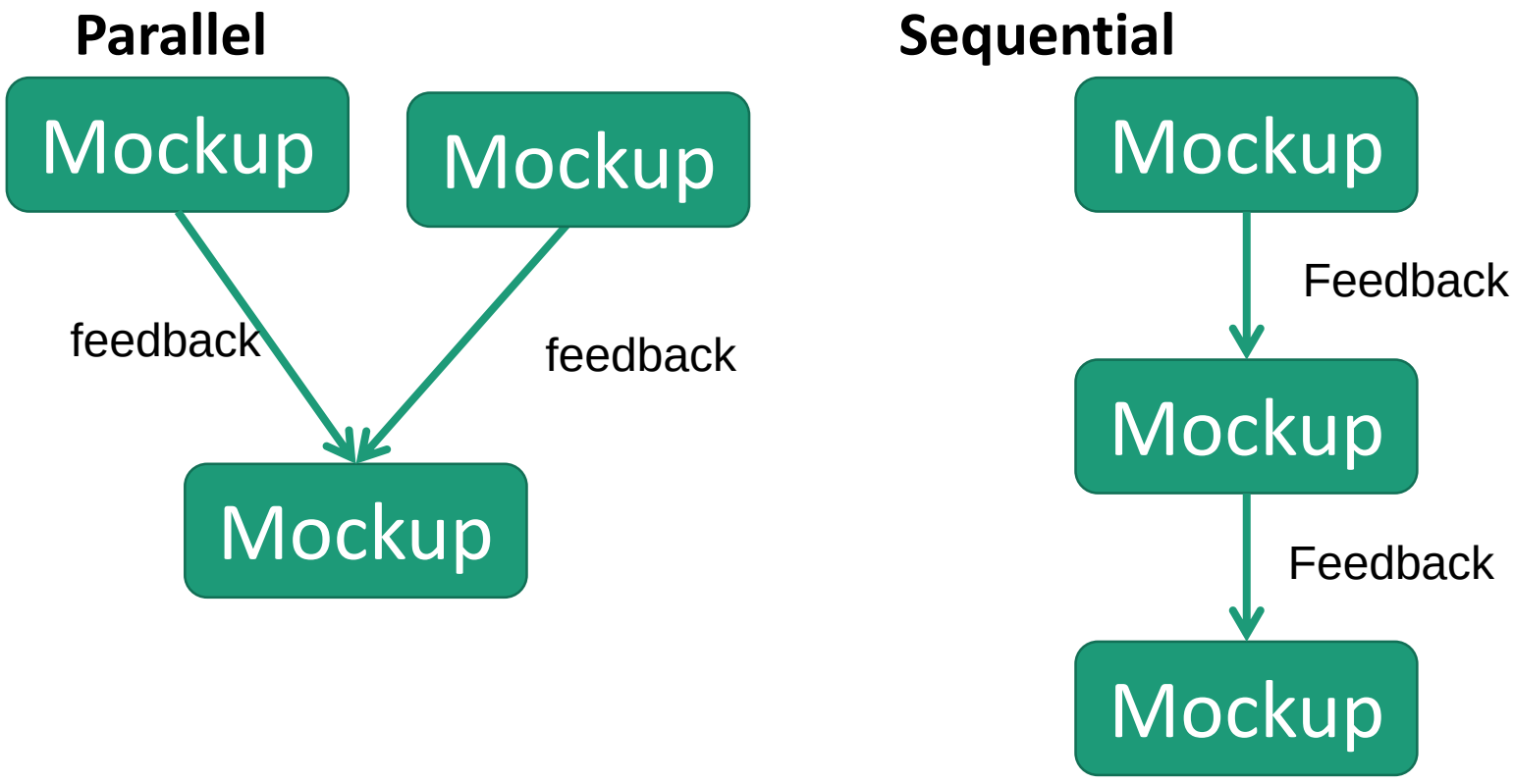
Interactive mockups

- Active buttons
- Essential use cases

Mockups: quantity or quality?

www.hci-class.org , Bayles and Orland, 2001

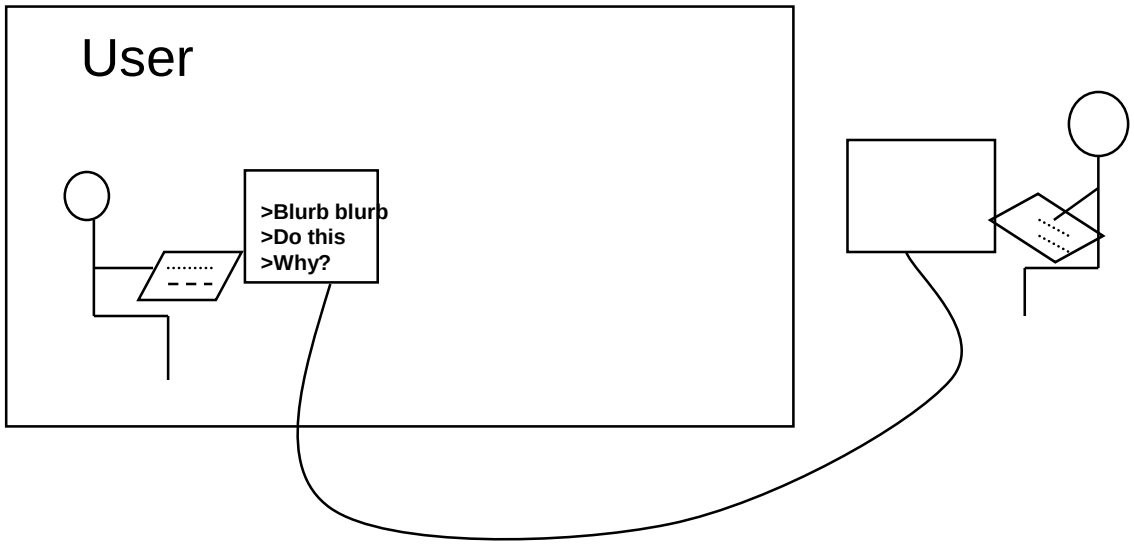
Quality or quantity: what is better?



(Dow, Fortuna, Schwartz, Altringer, Schwartz, Klemmer, 2011)

‘Wizard-of-Oz’ prototyping

- The user thinks they are interacting with a computer, but a developer is responding to output rather than the system.
- Usually done early in design to understand users’ expectations
- What is ‘wrong’ with this approach?
- Kramer movie application http://www.youtube.com/watch?v=uAb3TcSWu7Q



High-fidelity prototyping

- Uses materials that you would expect to be in the final product.
- Prototype looks more like the final system than a low-fidelity version.
- For a high-fidelity software prototype common environments include Macromedia Director, Visual Basic, and Smalltalk.
- Danger that users think they have a full system…….see compromises

High-fidelity prototyping

Advantages

- Complex functionality.
- Fully interactive.
- User-driven.
- Clearly defines navigational scheme
- Use for exploration and test
- Look and fell of final product
- Serves as living specification
- Marrketing and sales tool

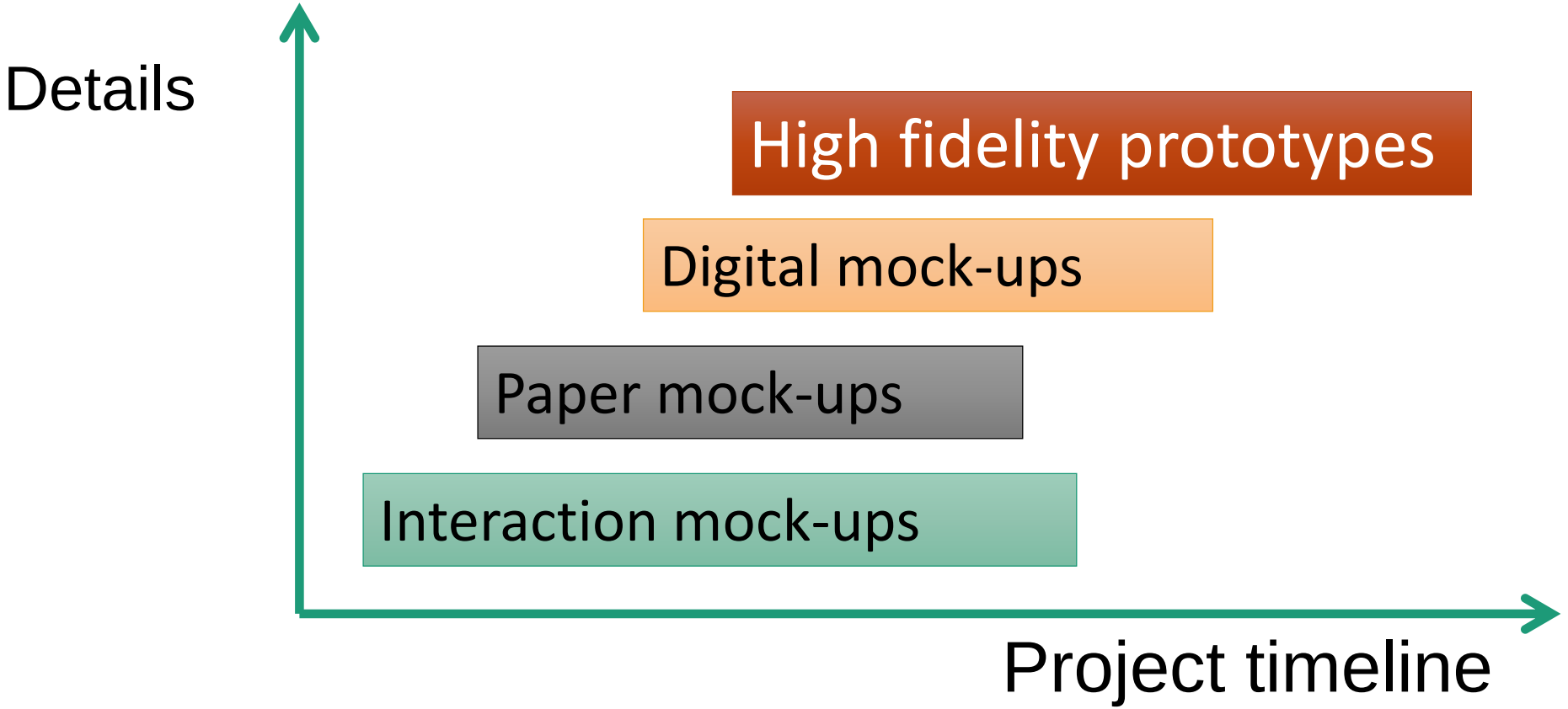
Disadvantages

- More expensive to develop
- Time-consuming to create
- Inefficient for proof-of-concept designs
- Not effective for requirements gathering

High fidelity prototypes

- Look and feel of final product
- Effective for testing with users
- Variety of tools, for example:
  - Axure:
    - installed in MIF computer classes, for Vu students academic license for the semester is available.
  - Proto.io:
    - **highly intuitive prototype building tool** but short trial (11 days)
    - Prototype should be developed within 11 days, then project can be exported to html.
    - Html version will be used for usability testing
  - Justinmind Prototyper, Flinto, UXPin: 30 days
  - Invision, Weebly – free limited versions

Mock-ups and prototypes in project life cycle



Scot Klemmer, www.hci-class.org

Example: Samsung VI660 prototipes

The paper prototyping setup and its use situation.

Lim et al. 2008

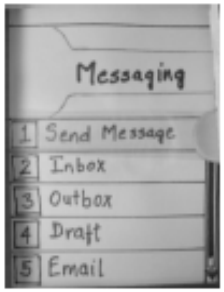
Example: telefono Samsung VI660 prototypes

The computer-based prototype and its test setup

Lim et al. 2008

The fully functional prototype (Samsung VI660)

Lim et al. 2008

Dimensions	Paper Prototype	Computer Screen-Based Prototype	Final Product
Manifestation dimensions	*Materials*—paper; foam core board; knife; pen; wooden sticks; glue; yellow cellophane paper; two-dimensional phone appearance color-printout *Resolution*—rough and simplified sketches of screens;  (picture from [Lim et al. 2006]) large time lags by human's simulating the product behaviors; buttons on the keypad are not push-enabled *Scope*— Limited to the text-messaging feature and making other parts as "not available" screens	*Materials*—mobile phone simulation toolkit; laptop computer; mouse *Resolution*— simplified screens using given interface formats from the simulation toolkit;  (picture from [Lim et al. 2006]) partially working in a simulated way; keying with a mouse (not a touch screen) *Scope*— Limited to the text-messaging feature and making other parts as "not available" screens	*Materials*—same as the final product *Resolution*—the same as the final product  (picture from [Lim et al. 2006]) *Scope*—exactly same as the final product

Lim et al. 2008

Developing interactive prototypes

- Paper is a great prototyping tool, superior to most digital tools in terms of flexibility, speed and ease of use. After working on paper, the next step is to move to something more interactive and higher in fidelity.
- Hybrid paper/digital tools allow you take a picture of a paper sketch and animate it:
  - Pop - https://popapp.in/
  - Flinto - https://www.flinto.com/
  - Apple Keynote or MS PowerPoint orGoogle presentation - http://keynotopia.com/guides/
  - Balsamiq -http://balsamiq.com/
- If you do not know how to code, here are some tools that generate HTML5 prototypes:
  - Tumult Hype -http://tumult.com/hype/
    Adobe Edge Animate - http://html.adobe.com/edge/animate/
    Google's Web Designer - https://www.google.com/webdesigner

Mood boards

- Visual stimuli are gathered that capture of how you feel about the design
  - photographs, images
  - textures
  - shapes
  - colors
  - headline styles
  - quotation styles
- Attached to the pinboard

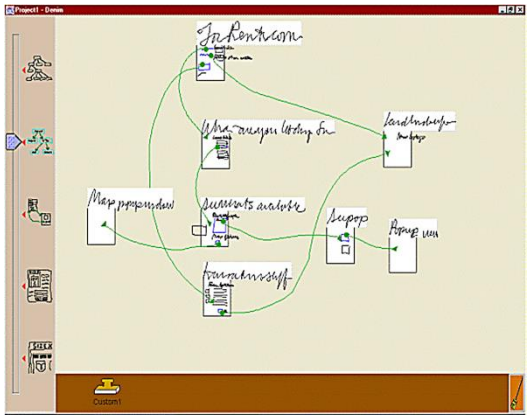
http://viget.com/inspire/perspectives-on-mood-boards

Developing the aesthetics in design

- Mood boards
  - a collage of the ideas and inspiration

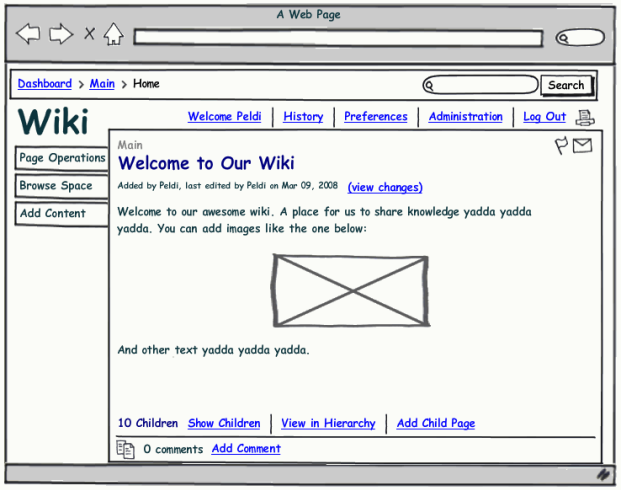
Support for design

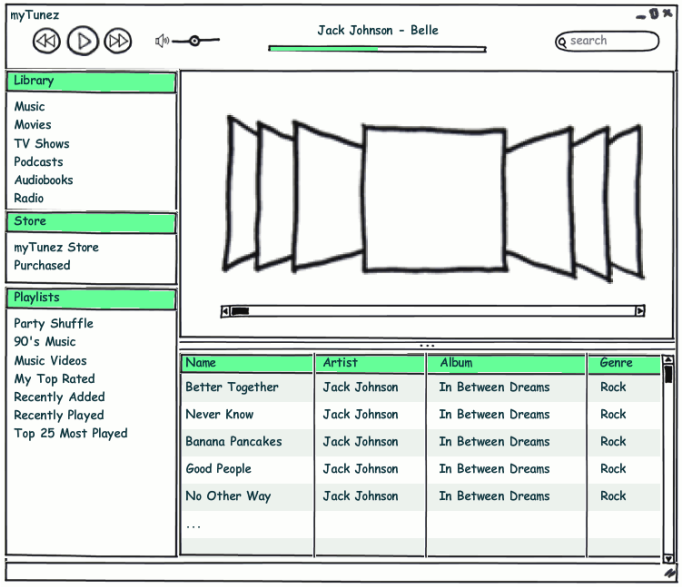
- Patterns for interaction design
  - individual patterns
  - pattern languages
  - pattern libraries
- Open source systems and components
- Tools and environments



Rapid prototyping tools

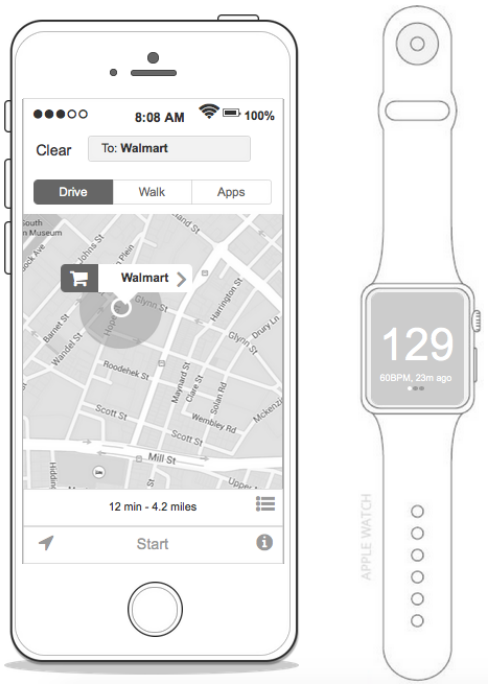
- Balsamiq Mockups
  - 1 month





http://www.balsamiq.com/products/mockups

Axure



- Powerful prototyping tool
- High-fidelity prototyping without coding
- Available in MIF computer classes
- Free widget libraries on
  - axemplate.com
  - humbleux.com
  - Material design widget library

Tools for interactive prototypes

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  - Balsamiq -http://balsamiq.com/
- If you do not know how to code, here are some tools that generate HTML5 prototypes:
  - Tumult Hype -http://tumult.com/hype/
    Adobe Edge Animate - http://html.adobe.com/edge/animate/
    Google's Web Designer - https://www.google.com/webdesigner

Summary

- Different kinds of prototyping are used for different purposes and at different stages
- Prototypes answer questions, so prototype appropriately
- Construction: the final product must be engineered appropriately
- Conceptual design (the first step of design)
- Consider interaction types and interface types to prompt creativity
- Storyboards can be generated from scenarios
- Card-based prototypes can be generated from use cases

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