Interaction Design

Chapter 7 (May 30, 2012, 9am-12pm):
Prototypes
Prototypes

• Benefits of Prototypes

• Low vs. High Fidelity / Resolution

• Interacting with Paper

• Video Envisionment and the Wonderful Wizard of Oz

• Sketching in Hardware

• Different Prototypes in the Design Process
interaction design

know?

feel?

...do?
Mental model (tutorial, signs)

Transducers
(output: hi/lo resolution)

Transducers
(input: analog/digital)

Computer Microcontroller

KNOW?

FEEL?

...DO?
Why Prototype?
Prototyping as a proof of concept
Prototyping as a design process
Prototyping as a communication tool
| For the Designer:               | Exploration |
|                               | Visualization |
|                               | Feasibly     |
|                               | Inspiration  |
|                               | Collaboration |

| For the End User:         | Usefulness |
|                          | A change of viewpoint |
|                           | Usability   |
|                           | Desirability |

| For the Producer:        | Conviction |
|                         | Specification |
|                         | Benchmarking |
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Fidelity v. Resolution

low resolution
low fidelity

low resolution
high fidelity

high resolution
high fidelity
Low Fidelity

Open Discussion
Prompting
Quick and Dirty
Early Validation

High Fidelity

Sharp Opinions
Self Explanatory
Deliberate and Refined
Concrete Ideas
Low Resolution

- Less Details
- Focus on core interactions
- Quick and Dirty
- Early Validation

High Resolution

- More Details
- Focus on the whole
- Deliberate and Refined
- Concrete Ideas
looking back......

User test of a low-fidelity paper prototype of a website vs. User test of a high-fidelity paper prototype of a homepage.
3 Main Prototyping Pillars and Directions

Paper Prototyping  Video Prototyping  Hardware Prototyping
Prototypes

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Paper-prototyping
What is it?

-widely used **method** in the user-centered design process
-helps developers to create **screen based** applications that meets the user's expectations and needs.

-**throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.
History of Paper Prototyping

-started in the mid 1980s
-became popular in the mid 1990s when companies such as IBM, Honeywell, Microsoft, and others started using the technique in developing their products.
Typical form-filling screen

Tabs-based design

User test of a paper prototype

Typical set-up of a usability test

photo credits © NN Group
Device-based interaction

High-fidelity prototype of a homepage.

Mockup of a kiosk.
You can mockup real size products and environments which capture a degree of realism and while keeping it open for interpretation or further development.
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<th>Description</th>
<th>Duration</th>
<th>Notes</th>
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Notes:
- [Note 1]
- [Note 2]
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Video-prototyping

Image Source: CIID
EXAMPLE: Video Prototypes
low resolution
low fidelity
(a whole new world)
A whole new world
high resolution
low fidelity
(rotterdam hospital)
low resolution
high fidelity
(crossing on demand)
Zebra Zone
The Smoke & Mirror Approach
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Sketching with Hardware
Thermistor  
Bend Sensor  
PIR Sensor
Force Sensor     Potentiometer     Magnet Switch
Distance IR Sensor

Touch QT Sensor

Ultrasound Sensor
Quick video overview
Prototypes

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• Different Prototypes in the Design Process
Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
2 Weeks

Desk Research

Field Research

2 Weeks

Concepts

Prototyping

LO Fidelity

HI Fidelity

Final Prototype
KEY VALUE

- Make old people reconnect with their past and their family.
He noticed that his neighbor Helga often get visits from her grandchildren. Apparently they look at old photos, but the album looks a bit strange.

One day he asks Helga were kind of photos among it is, and why the books are so connected to it.

So you have personal photos in it? Did much didn't I also see a photo from Helga - him? And said:

The photo is showing Helga's husband on a vacation in Norway '64. The photo covers the whole screen, so no other buttons can be pressed. She touches the photo again, and it shrinks to its original size.
On the right side of the screen is something that looks like a big wheel. Helga puts her hand on the screen, where the wheel is, and moves it up. The wheel starts rolling and numbers representing years start moving. When the year 1964 is centered, she removes her hand.
Viseaften
Journalistforeningen
1968, Music
References (Books):

Breakoutsession No. 5

Paper Prototyping
Paper Prototyping

• definition:

– fast, easy and cheap way to build prototypes for usability testings

– mostly low fidelity

– particularly qualified for GUls

– first step of Rapid Prototyping

http://commons.wikimedia.org/wiki/File:ELiving_Campus_Paper_Prototype_2.jpg
Paper Prototyping

• requirements:
  – material:
    » paper
    » scissors
    » pencils
    » glue stick
  – skills:
    » almost none!
Paper Prototyping

• various possibilities:
Paper Prototyping

• various possibilities:
Paper Prototyping

- various possibilities:
Paper Prototyping

• Task:
  – build a paper prototype of your concept
  – your concept’s core features should be included