Interaction Design

Chapter 6 (June 15, 2011, 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?
Why Prototype?
Validate Concepts

What we know → What it means → So what? → How does it work?

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    High Fidelity

Open Discussion    Sharp Opinions
Prompting    Self Explanatory
Required    Deliberate and Refined
Quick and Dirty    Concrete Ideas
Early Validation
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
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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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Video-prototyping

Image Source: CIID
The Smoke & Mirror Approach
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Sketching with Hardware
basic stamp  bx 24  basic atom  pic

higher level  lower level

MAXMSP  ActionScript  Java  C++  Assembly

photo credits © wikimedia
Atmel AT Mega 328  

photo credits © arduino.cc
Thermistor

Bend Sensor

PIR Sensor

photo credits © wikimedia
Force Sensor  Potentiometer  Magnet Switch
Distance IR Sensor  
Touch QT Sensor  
Ultrasound Sensor
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- Different Prototypes in the Design Process
Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
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2 Weeks

Desk Research  Field Research

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 got visits from her grandchildren. Apparently they look at old photos, but the album looks a bit strange.

One day he asks Helga what kind of photos are in it, and why the book is so interesting to them.

"Do you have personal photos in it? Did we didn’t we see a photo from Ragnar in here?" He said.

"Yes, that is so surprising to you, actually it’s a family photo taken from the past."

The photo is showing Helga’s husband on a vacation in Norway in 1968. 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):