



# Prototyping

Lecture 13, Week 8

February 23, 2015

CSC318H1S

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# Announcements

- Assignment 3 is due TODAY at 6 pm
- Phase 3 is due Friday Feb. 27 at 6 pm
- Assignment 4 is due Mar. 6 at 6 pm
- Elevator pitch on Wednesday: SMCB

# Smart Technology



## Wireless Cooking Thermometer

by [Maverick](#)

★★★★☆ ▾ [18 customer reviews](#)

**Note:** This item is only available from third-party sellers ([see all offers](#)).

### Available from these sellers.

- Wireless cooking thermometer great for indoors and outdoors; transmits up to 100 feet
- Voice alerts include "Your food is ready" and "Your food is almost ready"
- Built-in countdown timer
- Nest-style transmitter charges and holds unit
- Each unit is powered by 2 AAA batteries (included)

[2 new](#) from **\$30.00**

### ★★★★☆ **Tragic flaw**

By [Wayne Seltzer](#) on June 6, 2008

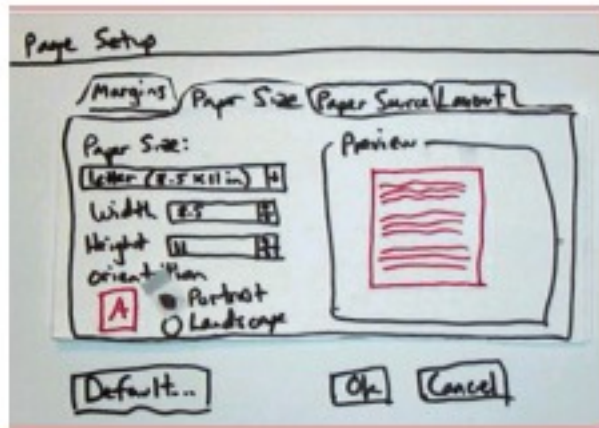
Great idea, but be careful about transmission range.

If the receiver is too far away from the transmitter, or is otherwise unable to get a signal, the display doesn't inform you of this problem. So, if the temperature is 150 degrees, and you walk out of range, the temperature won't update. Meanwhile, your BBQ is burning and you don't know.

# Course Overview / Outline

		Worth	Done?
A1	Introductions	2%	✓
P1	Groups formed	5%	✓
A2	Lit review	10%	✓
P2	Instruments	8%	✓
A3	Research	10%	✓
P3	Design requirements	8%	✓
A4	Low-fidelity prototype	10%	
P4	System prototype	8%	
A5	Reflection	4%	
P5	Final deliverables	20%	

# Design



Early design

Late design

Development

Low Fidelity

High Fidelity

1\$

10\$

100\$

1000\$

10000\$

# Wireframes

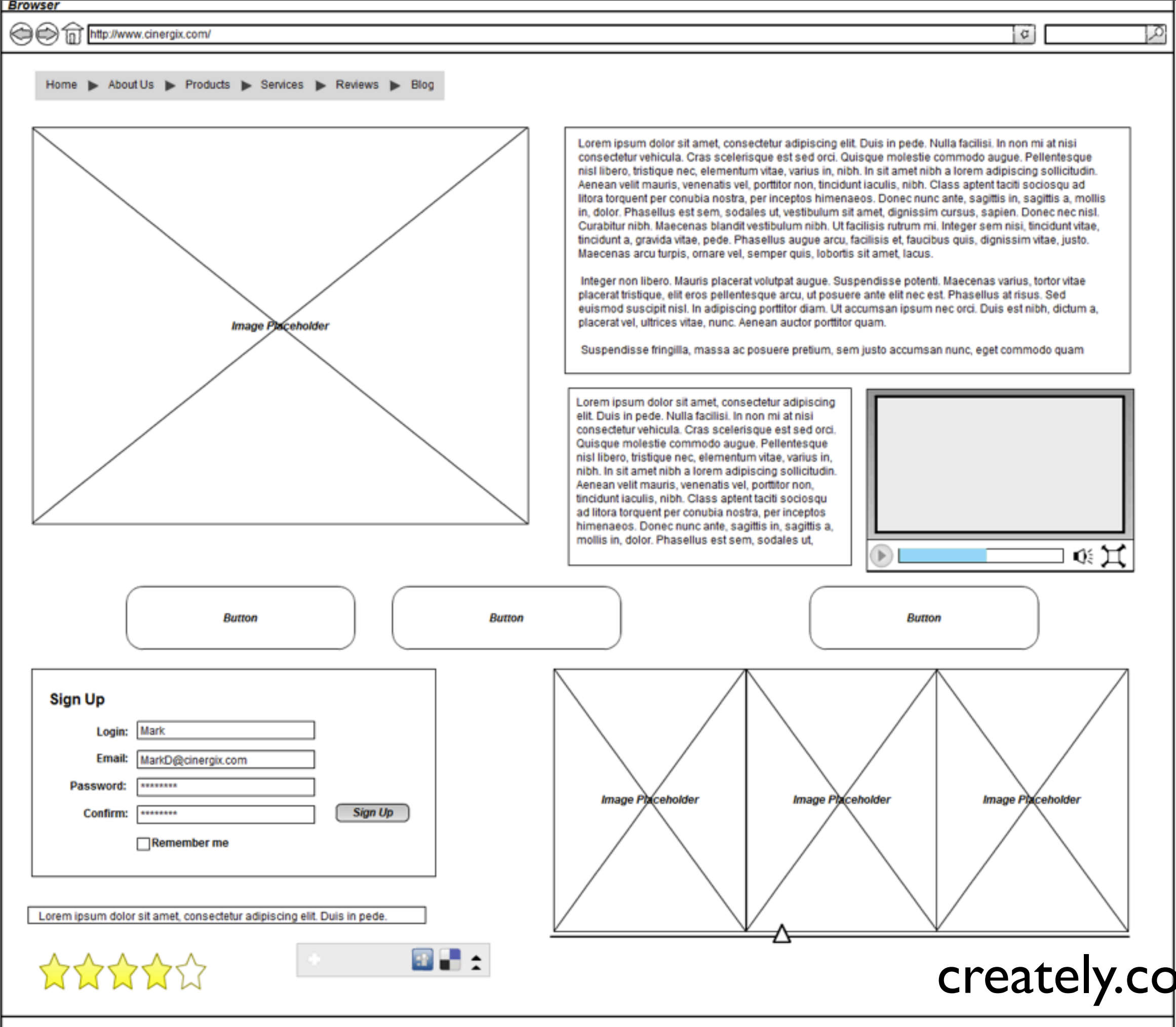
A **wireframe** is a low-fidelity visual schematic that represents the skeletal framework of a webpage or digital interface.

Wireframes are unconcerned with visual qualities, only with conveying relative placement, functionality and role of components.

They are used within a design team, by programmers and implementers of the system as **blueprints** for the layout of an interface.

Wireframes are generally **static** and non-interactive.





creately.com

# Mockups

A **mockup** is a high-fidelity rendering of the visual elements of a system: colours, typefaces, etc.

Mockups are relatively expensive and invite discussions of the visual and aesthetic qualities of the design.

They solicit fine-grained, detail-oriented feedback and should be used to fine-tune a design in the latter stages once more significant design and interaction issues have been resolved.

Like wireframes, mockups are **static** and **non-interactive**.





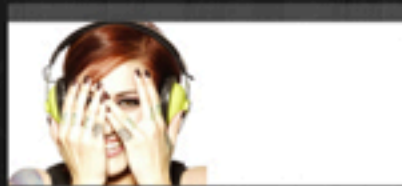
Simply sampling sluggish slogans.  
Chit chat, because we need to. Hop along!

### Section 1



Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into

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# Prototypes

A **prototype** is "a sample of a part or product fabricated in advance of production to allow demonstration, evaluation, or testing of the product."

[www.csa.com/hottopics/rapidman/gloss.php](http://www.csa.com/hottopics/rapidman/gloss.php)

*proto* (first, initial) + *typos* (image, impression)

We use prototypes to illustrate and evaluate our products and systems with end users, usability experts and team members.

Prototypes of digital systems are **interactive**, i.e., they demonstrate how the system would react to user actions.



# Prototype, Wireframe, Mockup?



# Prototype Fidelity

Fidelity: how faithful is the prototype to the final system's look and feel?

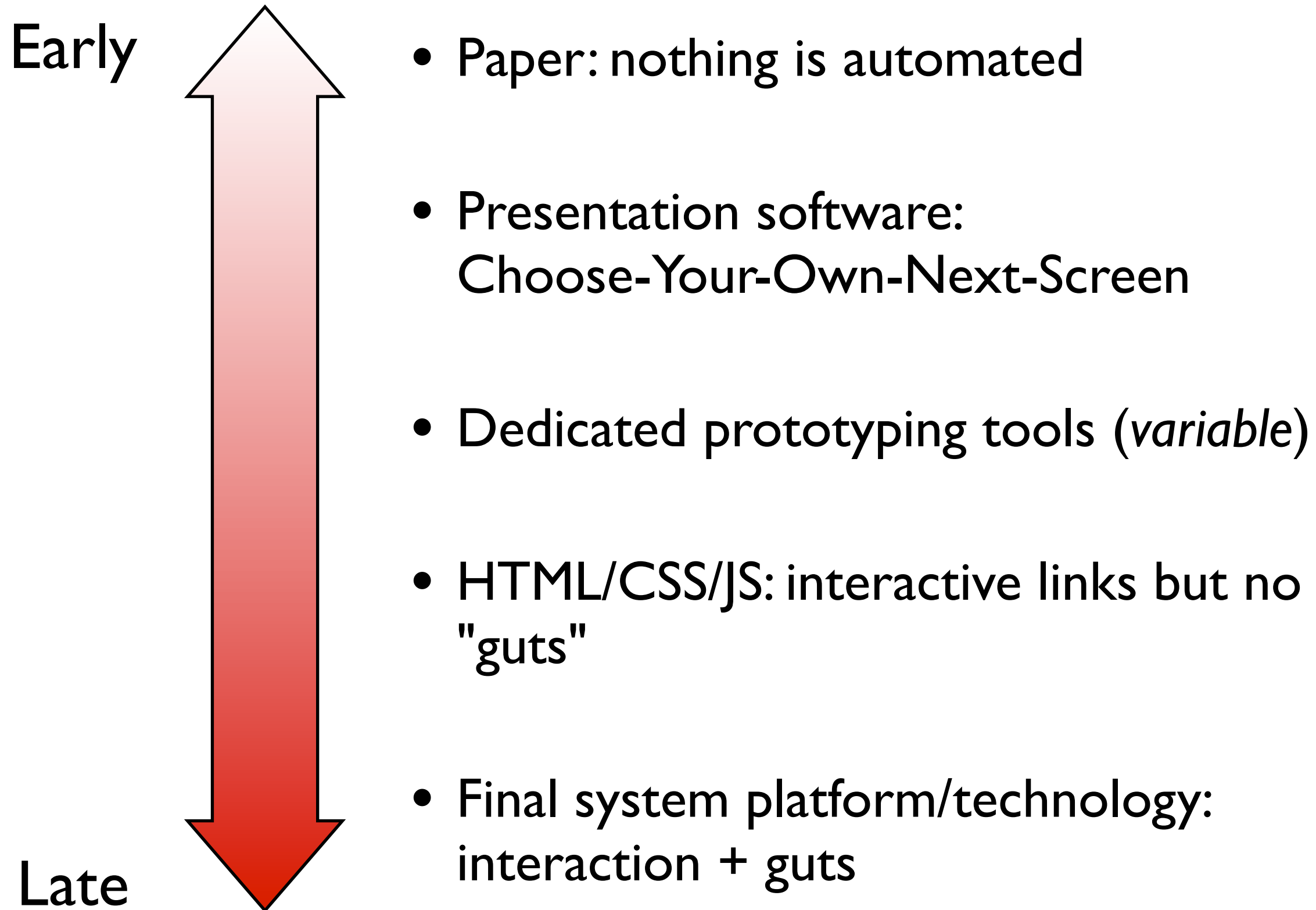
## **Low fidelity:**

- does not resemble final product, operation slower
- faster to create and iterate
- obviously low-investment, encourages experimentation

## **High fidelity:**

- looks and operates like real product
- more accurate: comments related to final design
- false sense of completeness and focus on details

# Prototyping Technologies





# Prototyping Functionality

**Question:** How do you prototype a system that has not actually been implemented yet?

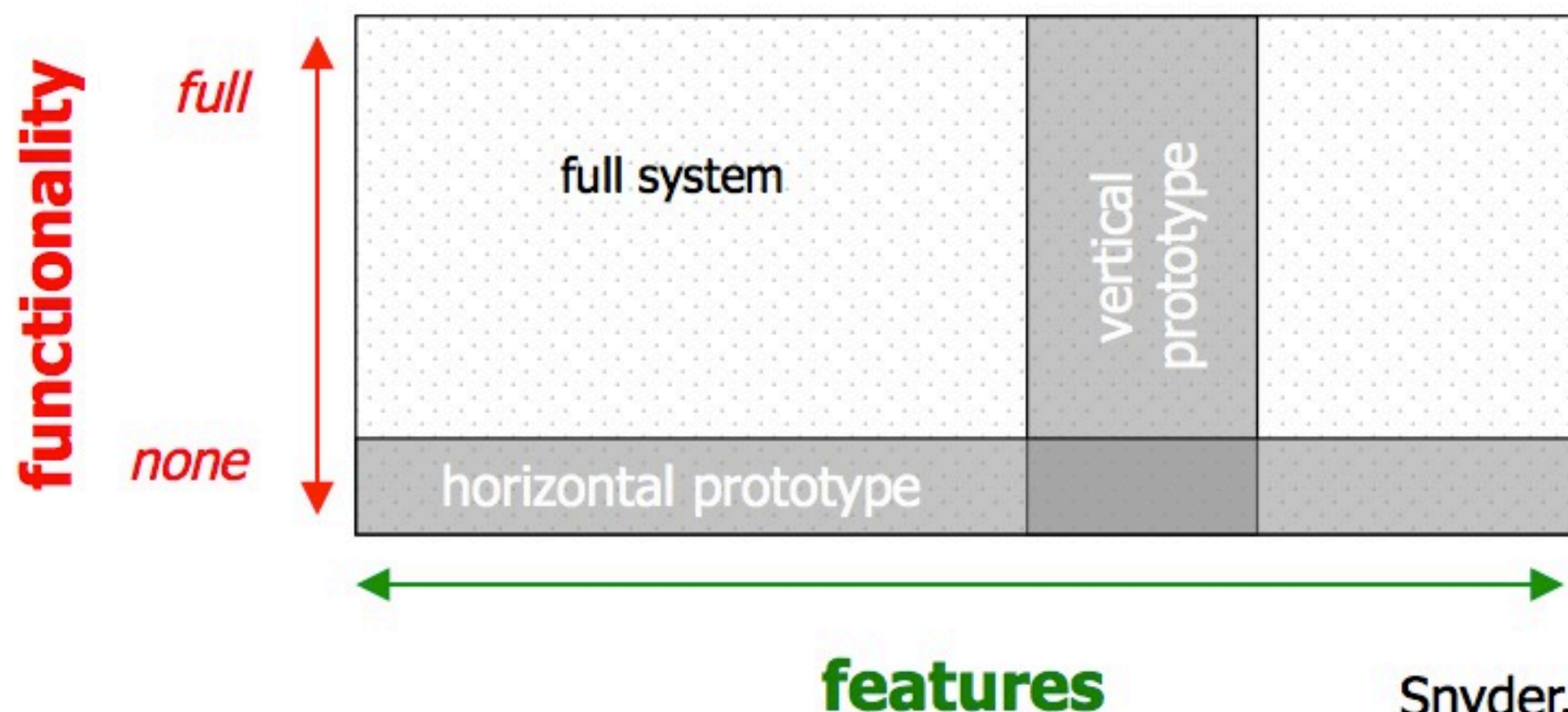
**Answer:** *The Wizard of Oz*





# Prototyping: Breadth vs Depth

- **Breadth:** demonstrates the amount of features, options and commands. Each feature is rendered, but cannot be followed very far.
- **Depth:** shows interactivity and functionality. All but a few critical features are inactive "dead ends".



Snyder, 2003, pg 260

# Prototyping Scenarios

It is expected that not every interaction or path will be explored in every prototype.

Constrain user interaction and the prototype implementation to yield the type of feedback that would be most useful.

Why/what are you prototyping?

- Proof of concept
- Visual design, screen layout, information display
- Form & physical attributes
- Interaction, workflow, tasks
- Functional model
- Difficult, controversial, critical areas

# Paper Prototyping

“Usability testing where representative users perform realistic tasks by interacting with a paper version of the interface that is manipulated by a person “**playing computer**”, who doesn’t explain how the interface is intended to work” [Snyder, 2003, p. 4]

- Paper is cheap, easy and universally understood
- Paper is instantly customizable, malleable, and unconstraining
- Encourages creativity (Wizard of Oz is your friend)

# Assignment 4

In A4, you will design a solution to an aspect of the problem identified in Phase 3 and produce low-fidelity prototypes for your solution.

- **Divide** the solution space among members of your group (with some overlap)
- **Isolate** yourself and get creative
- **Create** interactive prototypes that demonstrate crucial tasks and high-level visual appearance
- **Describe** how these prototypes support users' goals, how they might be tested, and what their limitations are.

A4 is due Friday March 6 at 6 PM.



# Conceptual Models



# What is a conceptual model?

A **conceptual model** is “a high-level description of how a system is organized and operates”

*[Johnson and Henderson, 2002, p 26]*

Designers have a conceptual model for their system, what it's supposed to do, how it works, etc.

It enables “designers to straighten out their thinking before they start laying out their widgets” *[p 28]*

Forming a conceptual model for your system is an essential step in designing for it.

# Conceptual models

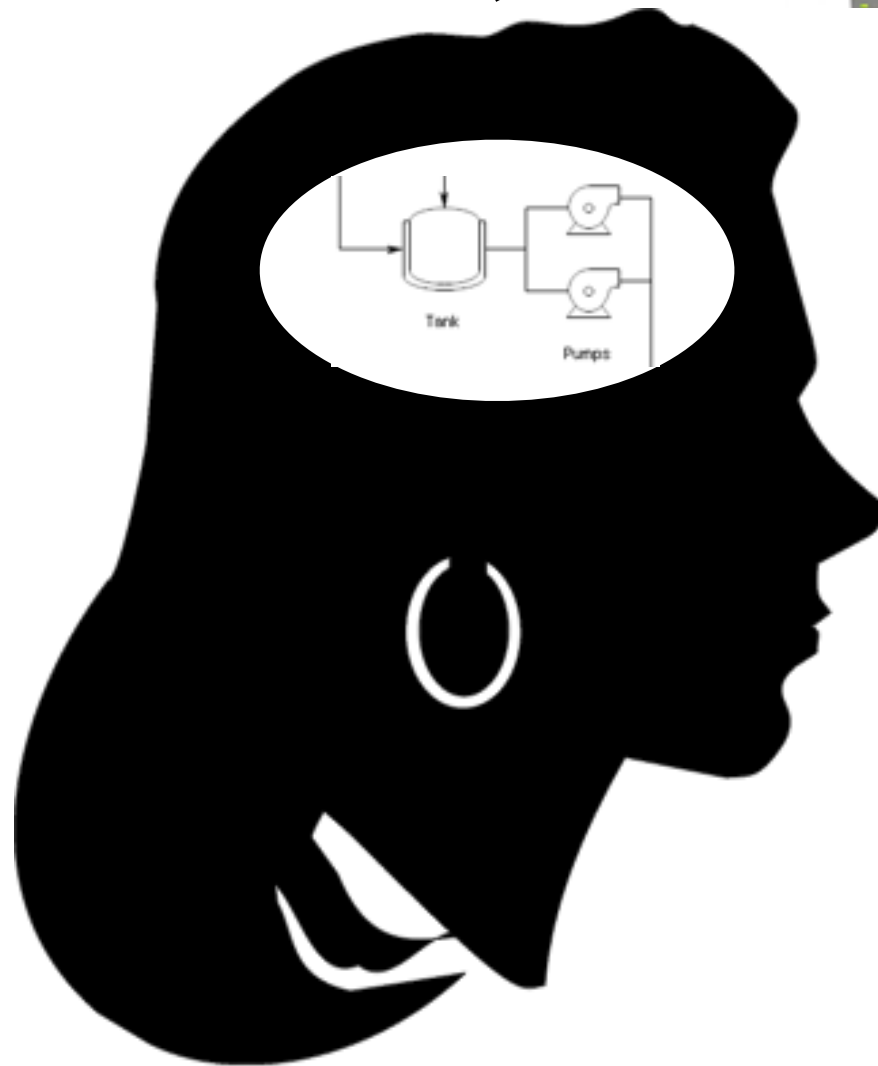
A designer's conceptual model is structured, logical and consistent. They know everything about their system and how it is supposed to work.

Users form their own models which are based solely on interacting with the system.

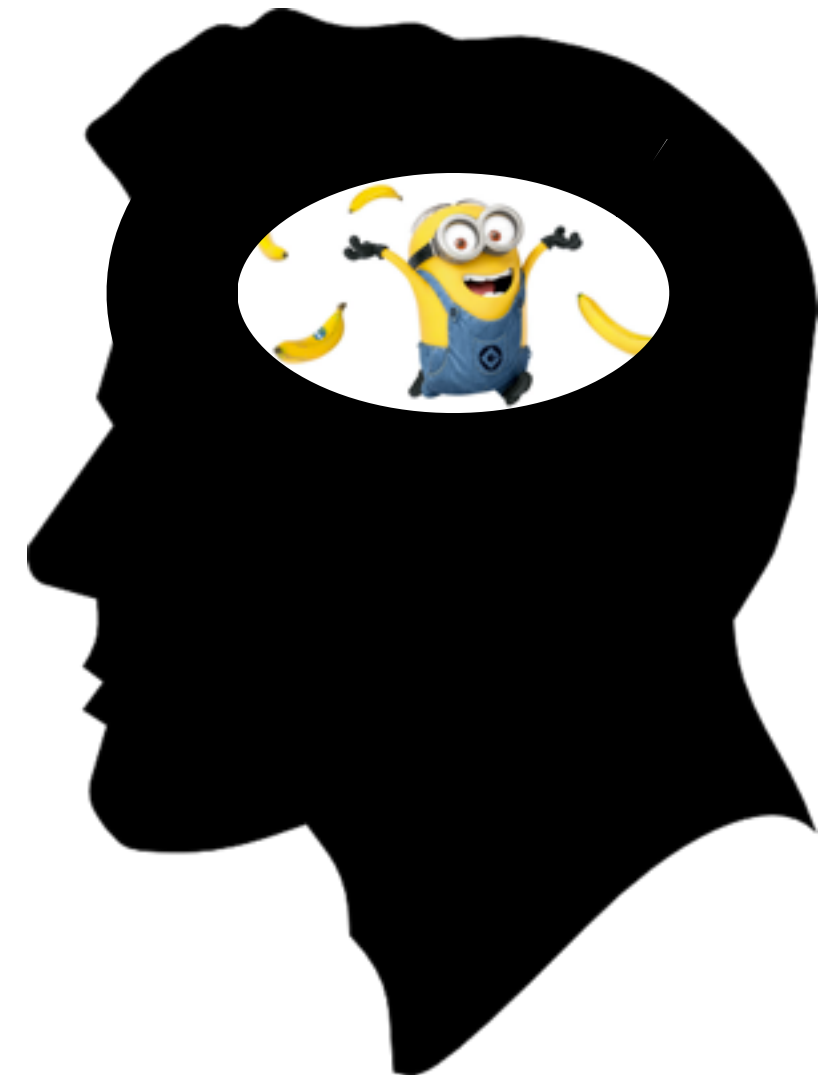
Users' models are ad hoc, informal and incomplete.

Sometimes they're incoherent, illogical, emotional, even superstitious (fear of upgrades, anyone?).

# System



## Designer



## User

# Questions?

This lecture is based on slides and content by:  
ILONA POSNER

Materials from:

*Interaction Design: Beyond Human-Computer Interaction.* Rogers, Sharp and Preece. 2011

## **References:**

creately.com

blackbookoperations.com

*Paper prototyping.* Snyder, 2003.

*The psychology of everyday things.* Don Norman.

*The theory of affordances.* Gibson, 1977.

*Catalog of unfindable objects.* Jacques Carelman.