Today's Agenda

- IRB instructions
- Prototyping

Announcement: Quiz #3

Quiz # 3

- Tuesday, Sep. 26 in class
- Via Blackboard – Bring your laptop to class!
- Open book and open notes

Announcement

Exam 1 is scheduled on Thursday, **Sep. 28, 1:15pm -2:30 pm** in class through Blackboard

Cover materials until Sep. 26

Most of materials from class lecture notes

Open-book and open-notes

Make-up exams are not allowed except excusable absences (http://bulletin.sc.edu/content.php?catoid=52&navoid=1280#Attendance_Policy) with appropriate documentation and advanced notice.

Exam 1

Questions in Exam 1 including

- True/false
- Single-choice or Multiple-choice
- Short answer
- Case study

Graduate students will have a different exam.

If you prefer a hard copy exam, please let me know by this weekend.

Reminder: First Group Project Deliverable

Each group should submit a written report of “Topic definition and understanding of the problem” including

- An introduction of the topic
- A discussion about the system/interface's purpose and requirements
  - Who are the users
  - What are the system’s major functions
  - What are the environmental conditions and constraints
- A project management plan with a Gantt Chart

Each team only needs to submit a single report

Due in Blackboard 11:59 pm EST, Sunday, Sep. 24

Potential Issues in Topic Definition and Understanding of the Problem

- Project title is missing or not informative
  - Need a specific title related to your project topic
- Missing a discussion of the system's requirements and constraints
  - Who are the users
  - What are the system's major functions
  - What are the environmental conditions and constraints

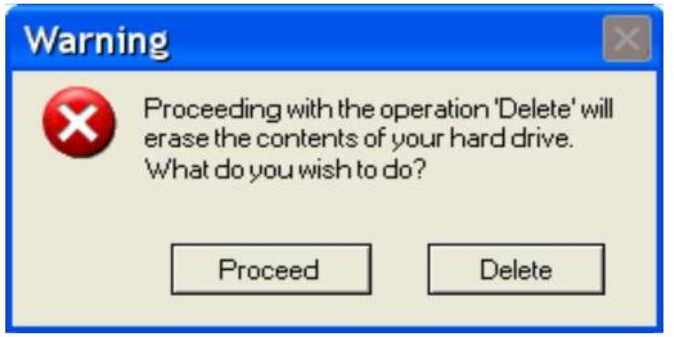
Potential Issues in Topic Definition and Understanding of the Problem

- Project management plan
  - Lack of details in tasks
  - Unclear roles of team members
  - Not cover the whole project period

Tips for Topic Definition and Understanding of the Problem

- Organize your report in sections
  - A title page including the title of the project, the team members, and the date.
  - Introduction of the problem & the project objectives
  - System requirements & constraints
  - Project management plan
  - Reference
- Figures are always helpful to demonstrate the problem

Recall: Decision Making



What is a decision making task?

- A choice between alternatives
  - Example: Course A or Course B?
- Some information available about the choices
  - Example: Course A: MWF, Course B: TTH
- Time frame longer than a second
  - Decision making vs choice-reaction
  - Example: Drop day is in October
- Uncertainty & risks
  - Example: what type of exams are involved in A

Recall: Improving Decision Making

- ***Redesign the task***
  - Provide information – not data
- ***Proceduralization (Training)***
  - Practice normative decision making skills as much as possible
- ***Automation (Decision support system)***
  - Computers can present many sources of data in aggregated format
  - Decision making can be informed by more sources of information
  - Computer aids can offload working memory load by displaying different hypotheses that fit data
  - Computers can also display all recommended actions based on data

Case Study

Imagine UofSC asked you to build a program that helped students decide which courses to enroll

What are some considerations to design this decision aid program?

Questions?

Ethical Guidelines for HCI Researchers

All researchers must:

1. Obtain informed consent from participants
2. Minimize any discomfort and risk to participant
3. Ensure participants will not suffer any long-term negative consequences
4. Treat any information from participant as confidential
5. Debrief the participant afterward

– The Role of the IRB

IRB

- Institutional review board (IRB) or called Independent ethics committee
- An approved IRB application is commonly required when the study involves human subjects
- Documents are needed
  - Study protocols
  - Human subject protection plan
  - Consent form
- Exempt from IRB, e.g.
  - Conventional educational setting
  - Using public available data
- Decision of exemption is made by IRB representative

Assignment – IRB training

- Every student should pass the IRB training and get a certificate of completion
- Submit the certification to Blackboard
- Due: by 11:59pm EST, Sunday, Oct. 8, 2023

CITI PROGRAM

Completion Date
Expiration Date
Record ID

This is to certify that:

Has completed the following CITI Program course:

Human Research (Curriculum Group)
Social & Behavioral Researchers (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of South Carolina

CITI
Collaborative Institutional Training Initiative

Verify at

An example of Certificate of Completion

Prototyping

Rapid prototyping, sketches, storyboards, mock-ups, etc

(adopted partially from Dr. Bruce Walker)

Six Design Principles

1. Visibility – Can I see it? – visible capabilities
   - Can see states of devices and possible actions
   - Buttons/knobs are organized to be found and used easily
2. Feedback – What is it doing now?
   - Respond to the user's operations
3. Affordance – How do I use it?
   - Properties of an object give clues to its operation
4. Mapping – What is the relationship between things?
   - Relationships between controls and effect/function
5. Constraint – Why can't I do that?
   - Restricting the kind of interactions to reduce errors or focus attention
6. Consistency – I think I have seen this before?
   - Similar operations/elements to achieve similar tasks

Important Resource

Glossary

http://www.usabilityfirst.com/glossary/

NN/g Nielsen Norman Group

- https://www.nngroup.com/

Getting Started

- How do we express early design ideas?
  - No software coding at this stage
- Key notions
  - Make it fast!!!
  - Allow lots of flexibility for radically different designs
  - Make it cheap
  - Promote valuable feedback

***** Facilitate iterative design and evaluation *****

The Dilemma

- You can't evaluate design until it's built
  - But…
- After building, changes to the design are difficult

and expensive!

- Simulate the design, in low-cost manner

Prototyping Dimensions

- Representation
- Scope
- Executability
- Maturation

Prototyping Dimensions

- 1. Representation
  - How is the design depicted or represented?
  - Can be just textual description or can be visuals and diagrams
- 2. Scope
  - Is it just the interface (mock-up) or does it include some computational component?

Prototyping Dimensions (con't)

- 3. Executability
  - Can the prototype be "run"?
  - If coding, there will be periods when it can't
- 4. Maturation
  - What are the stages of the product as it comes along?

Revolutionary - Throw out old one
Evolutionary - Keep changing previous design

More terminology

- Early prototyping
  - Used to evaluate function and interface
- Late prototyping
  - Used to evaluate performance

More terminology

- Low-fidelity prototype

- High-fidelity prototype

How is the prototype close to the final product in terms of

- Interactivity
- Visuals
- Content and commands

by Kara Pernice

More terminology

- Low-fidelity prototype
  - Paper-based sketches without user interactions
    - Focus on functionality
    - Less focus on aesthetics
  - Early visualization of design alternatives
  - Quick to create and easy to change
- High-fidelity prototype
  - Computer-based with user interactions
  - Close to true representation
  - More effective to collect performance data

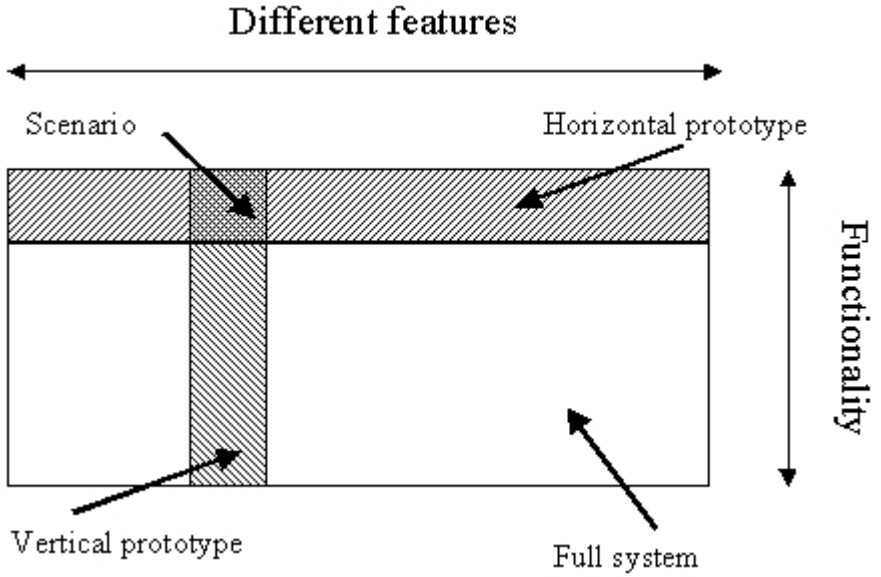
More terminology

- Horizontal prototype

  Very broad, does or shows much of the interface, but does this in a shallow manner

- Vertical prototype

  Fewer features or aspects of the interface simulated but done in great detail



http://grouplab.cpsc.ucalgary.ca/saul/681/1998/prototyping/survey.html

PROTOTYPE EXAMPLES/TYPES

I am about to show you many examples….

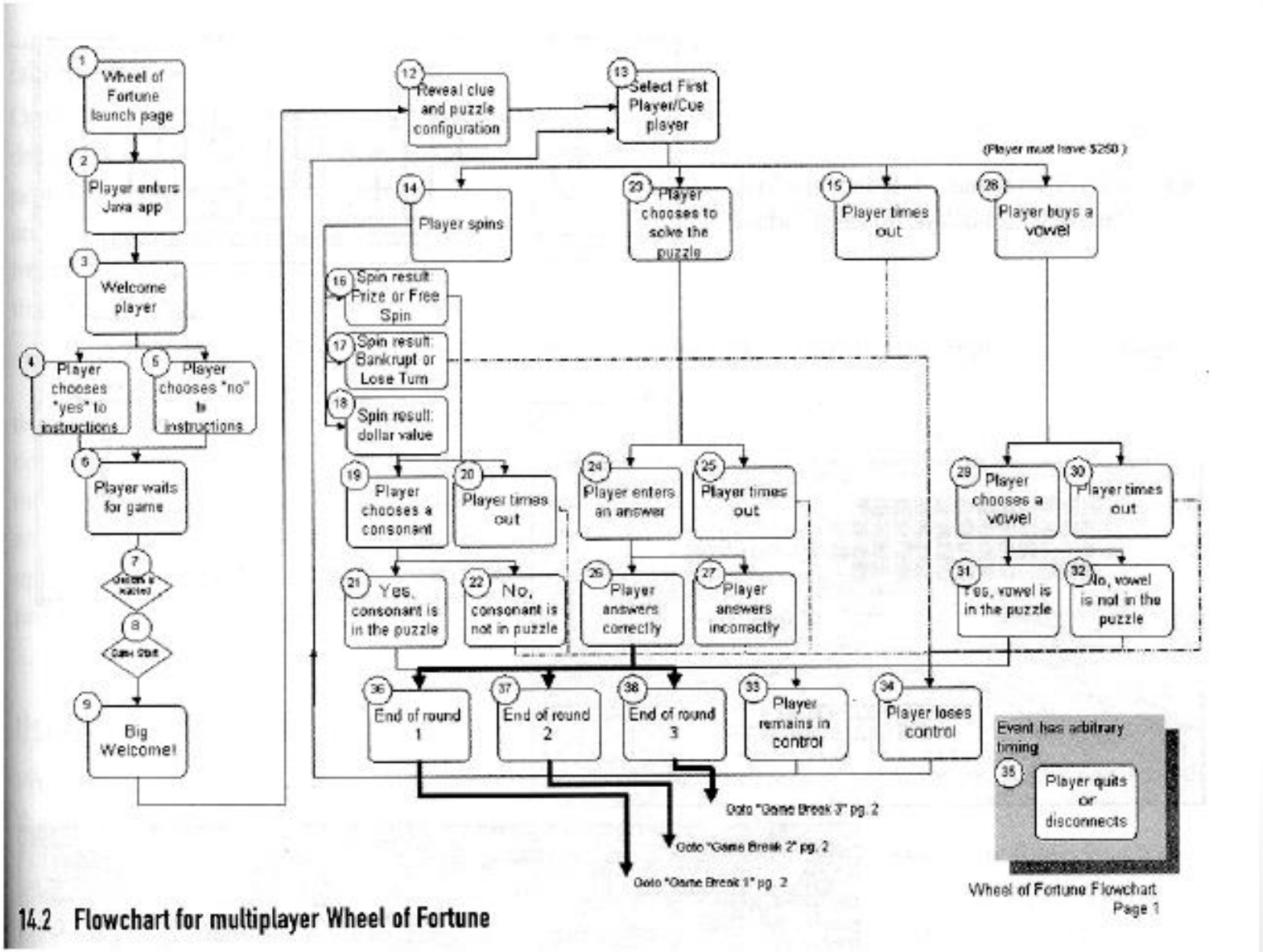
I expect your group to go through multiple rounds of prototype development

1. Start with drawings / sketches
2. Revise, revise, revise
3. Work up to functional website/app prototypes
4. Test
5. Revise
6. etc

1. Flow Chart Prototype

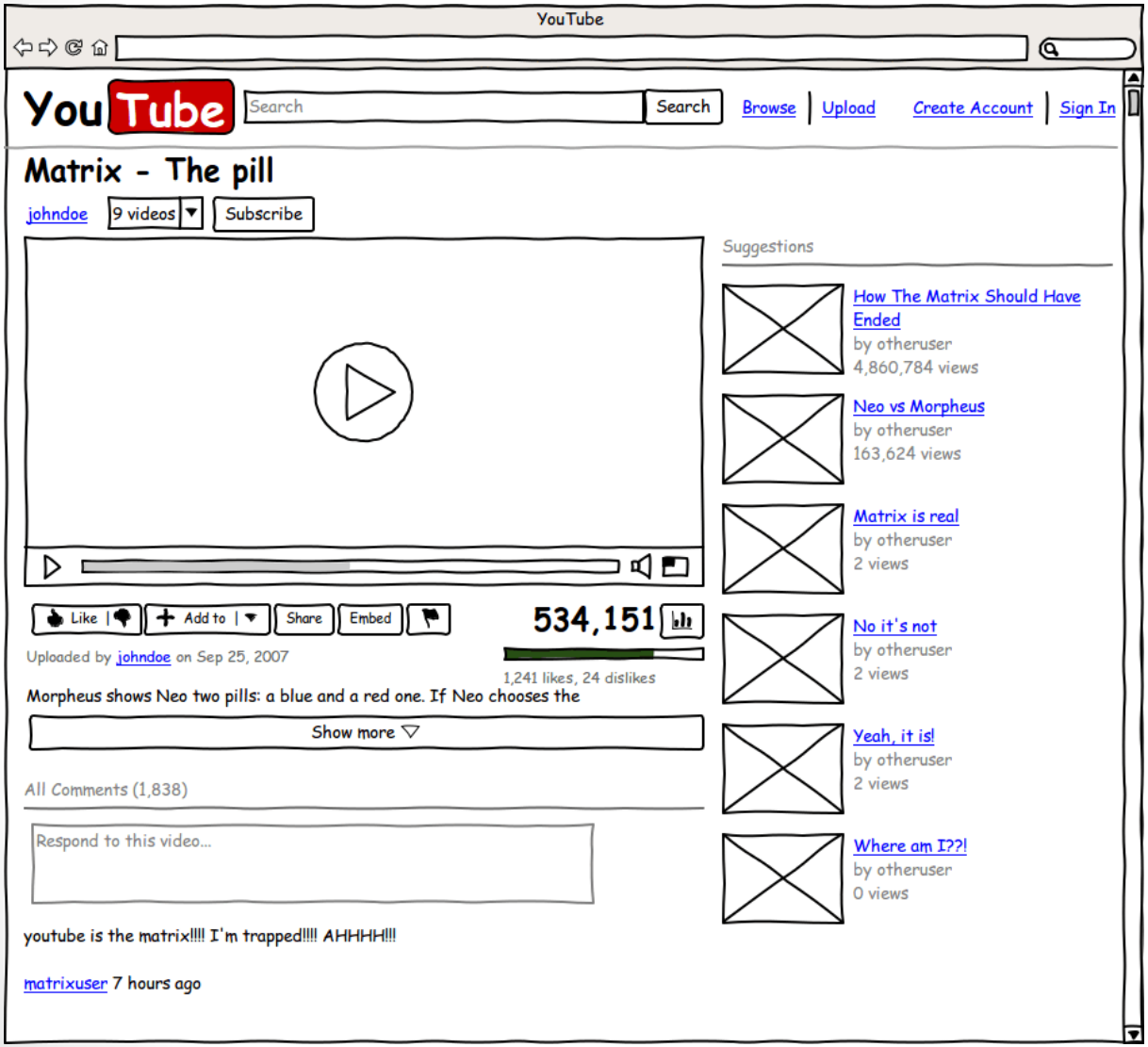
- Functional specification of how the system operates, in a step-by-step flow
- IF-THENs, branches, loops
- No visual layout/interface specified
- More detailed, useful for quick evaluation, but requires more commitment of resources to produce
- Also more advanced (sometimes means more rigid) than simpler mockups

Example of Flow Chart Prototype



14.2 Flowchart for multiplayer Wheel of Fortune

2. Wireframes: Screen

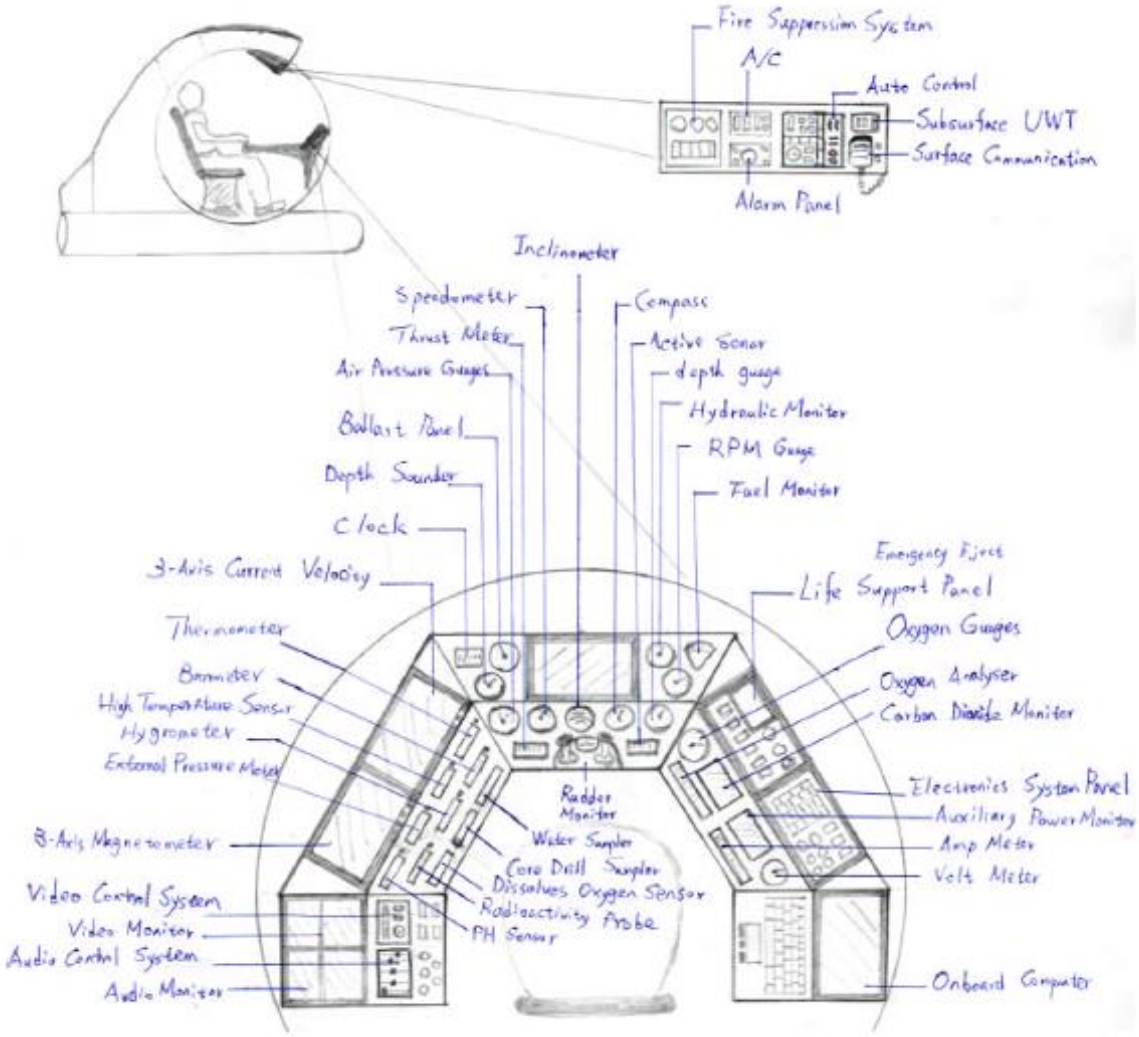


"a wireframe is a visual illustration of a web page… to show you where each item should be placed on a page." Usability.gov

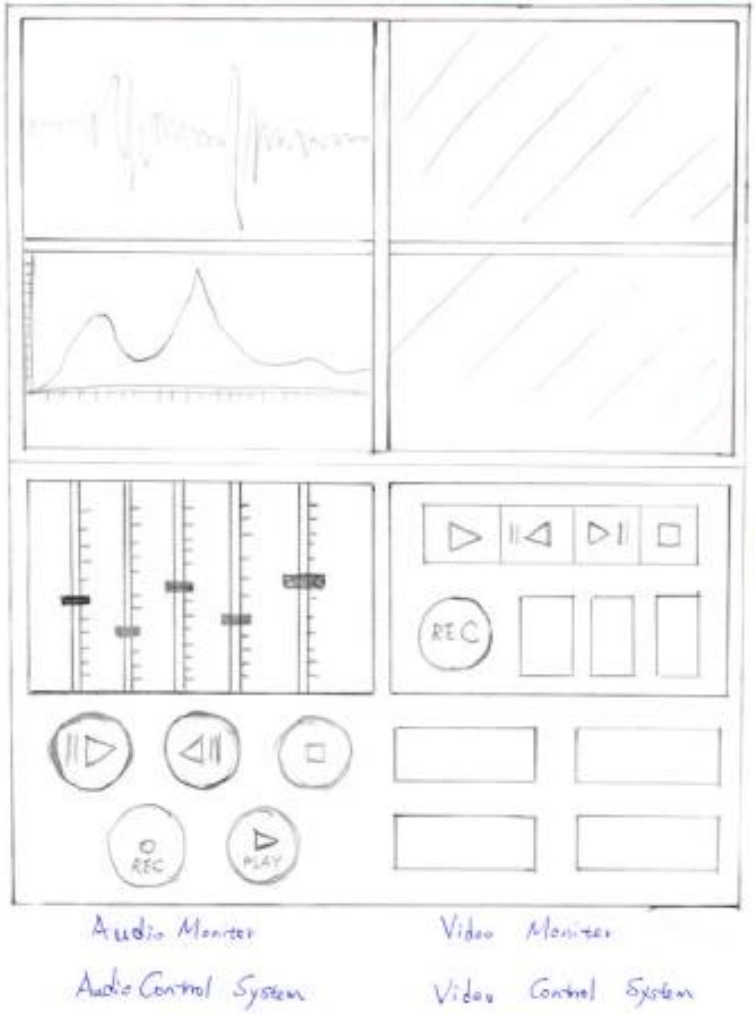
3. Sketches and Mock-Ups

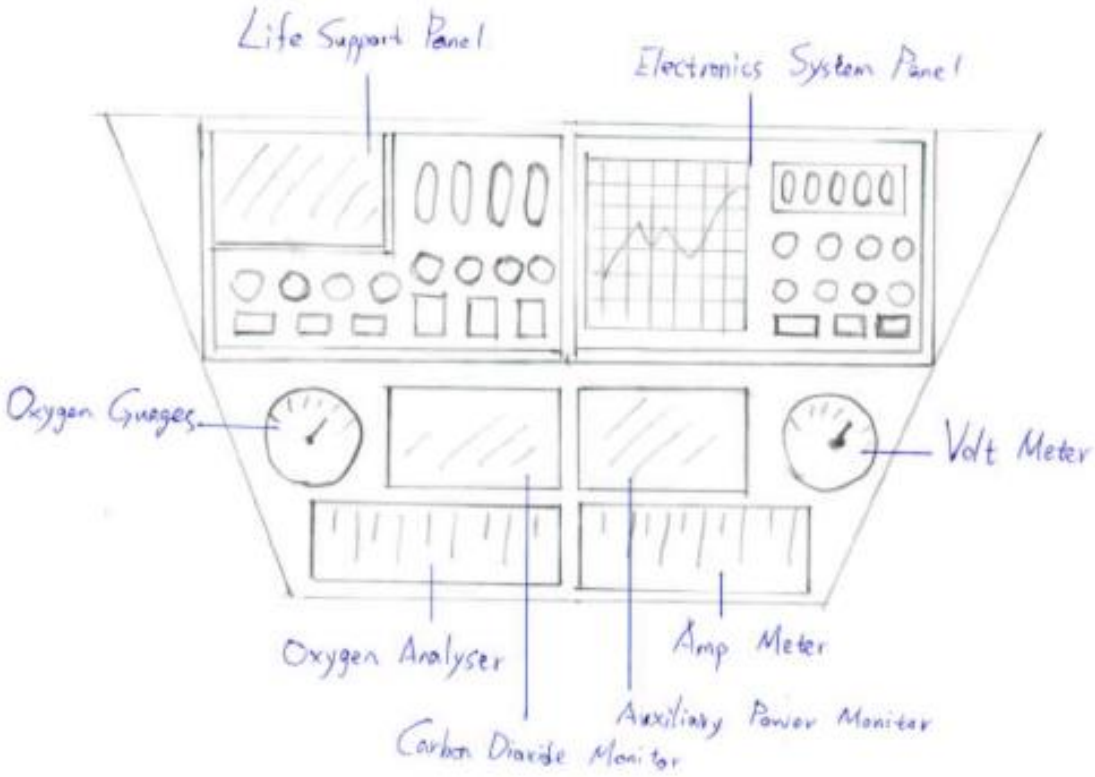
- Paper-based “drawings” of interfaces
- Good for brainstorming
- Focuses people on high-level design notions
- Not so good for illustrating flow and the details
- Quick and cheap -> helpful feedback

Sketches and Mock-Ups



Sketches and Mock-Ups: Displays





Physical Mock-Up

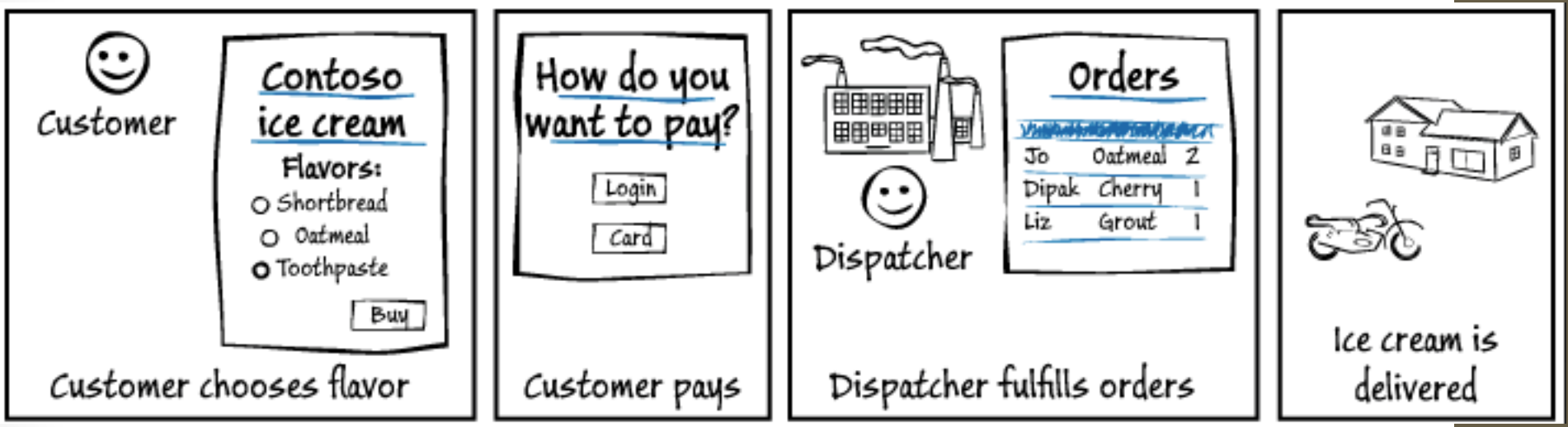
Showing users sketches & mock-ups…

- What is benefit of using a not-so-pretty sketch with users?
- Danger in using professional art or design tools?
  - Users may over focus on aesthetics, which you don’t care about just yet
  - If it is obvious it is a prototype, then user will focus on functionality or “imagine” what final product will do

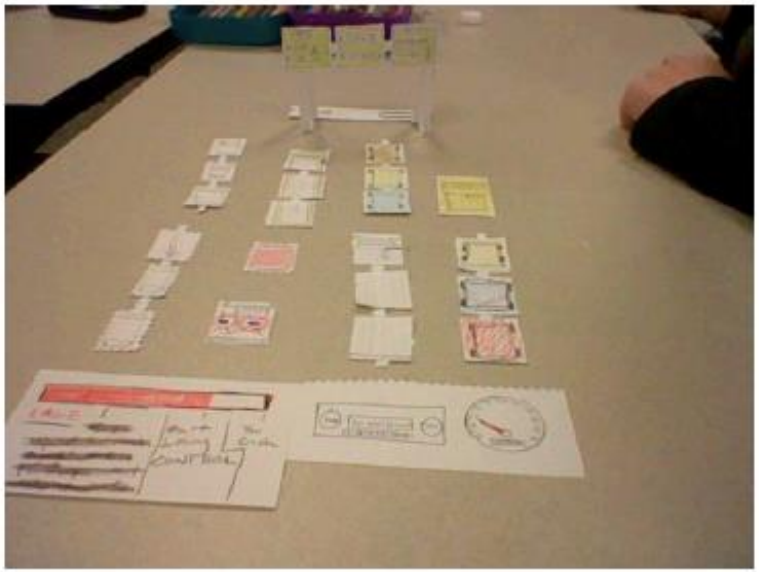
4. Storyboarding

- Pencil and paper simulation or walkthrough of system look and functionality
  - Use sequence of diagrams/drawings
  - Show key snap shots
  - Quick & easy

Storyboard

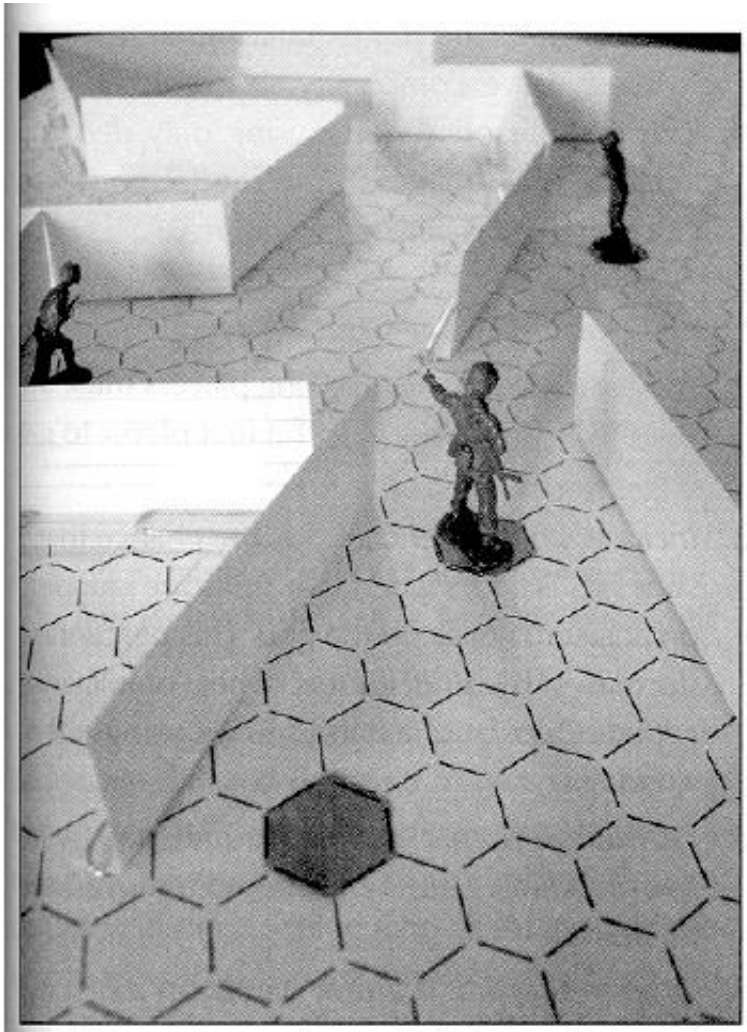

Customer
Contoso ice cream
Flavors:
Shortbread
Oatmeal
Toothpaste
Buy
Customer chooses flavor
How do you want to pay?
Login
Card
Customer pays
Dispatcher
Orders
Jo Oatmeal 2
Dipak Cherry 1
Liz Grout 1
Dispatcher fulfills orders
Ice cream is delivered

Paper Prototypes



Paper Prototypes (game design)

Paper Prototypes (game design)



7.5 FPS Prototype example

Time to work in your groups!

So far, you have defined your topic for the project

It is time to work on designs

Before you start…

Figure out who is taking notes.

1. Discuss on design options
2. Take notes during discussion