Design Intelligence Workshop + +
Design to Expose Value in Technology
October 22, 2004, 11:00 AM to 7:30 PM Bartos Auditorium

- 11:00-11:25  
  Introduction to Design Intelligence,
  Ted Selker
- 11:25-12:00  
  Current Counter Intelligence Projects,
  Leonardo Bonanni, Jackie Lee
- 12:00-1:00  
  The Product is More Than the Product,
  Don Norman
- 1:00-2:00  
  Lunch in atrium
- 2:00-3:30  
  5 Media design approaches:
  Hiroshi Ishii, William Mitchell, John Maeda, Nicholas Negroponte, Ted Selker
- 3:30-4:00  
  Break
- 4:00-5:30  
  Commercial design approaches:
  Kazuhiko Yamazaki, Harry West, Marco Susani, Franco Lodato
- 5:30-6:00  
  Drinks
- 6:00-7:30  
  Dinner and "The Thing I Brought" charette
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Bartos Auditorium, The MIT Media Laboratory, 20 Ames Street, Cambridge MA

Agenda
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Industrial Design Intelligence is...

an afternoon of conversation concerning the movement of product design from a style-based discipline to a cognitive science and engineering-supported, aesthetics-based discipline. We strive to expose technology gracefully in products. A course in mechatronics is a small beginning for a product designer to understand the vast array of materials, how to design new materials, and how to understand the psychological and behavioral realities of humans. Multidisciplinary teams can help, but it is difficult for people to continually argue from different perspectives. We must educate ourselves to span evaluation engineering and aesthetics to move product design into a future where things look and act in a natural way.
Designing for human intention
What does a designer do?

Necessity: mother of invention?

- Plan to create something?
- Limits to planning
  - Practice helps (chess)
- Empathy does it exist?
  - I know what the designer will do
  - I know what the engineer will need
  - I know how this will be used
- Assign a designer?
  - Domain and technology matter
    - Grocery shopping aint rocket science
I will write down what does this machine say about itself?
No wasting time watching each other’s transcription
Perception & Motor Problems in 2000 Elections

- **Distinguish ability**
  - Ambiguity: mislabel, association
  - Alignment
  - Viewable height/position in list
  - Poor audio: 1...to select gore 2...to select Bush

- **Feedback and Side effects**
  - Action
  - Undo ... action symmetry?
  - Visual
  - Completion

- **Validation**
  - Counted

- **Mechanical**
  - Difficult to pull, push, turn grab or reach
  - Dexterity, accuracy,
  - Button pressure

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Democrats under “Republican” NY
Wrong odometer Boston
Everywhere
Accessibility?
Several levers below referendum
Punch cards, marked ballots...
Optical Scan
All but lever

Ballots, Registration - In trunks
Philadelphia …
Punch cards!
DRE
Counter Intelligence: Domestic Technology & Food

- Coming Home to Dinner
- Marketplace and commensality
- Thought For Food
- Finding Food
- Oasis

June 16, 17 2003

Counter Intelligence Workshop

MIT Media Lab

Clean-up

participants:
Ted Seller
Hiroshige
Barbara Wexler
Comma Clark
Winston Bullington
Leonardo Goddington
Ken Gillespie
James Grimm

Smart Tools

Could a kitchen produce clean water as you cook them.
New ways of saving recycling and food.

Integrated Design

Future of Storage 
Preserving

Oasis

Can alternative materials make cooking safer, more quiet, and more aesthetic?
Infinite Aisle/Café, kid Café
Viewable from outside store
Smart Aisles teach and engage kids/shoppers
A design for a keyboard prototype. (Image by Prof. Ted Selker.)

**Highlights of this Course**

This class on intelligent industrial design has a complete slide show highlighting the
Vacuum Form Container
Make a container using the vacuum former and evaluate it.

• Make test and write up an innovation
• Water jet something that works
• ThreeD print a model to mold
• Mold something with sensors in it
• Electronics Assignment
• Vacuum Form Container
• Read Chapter 3 from “An Introduction to Human Factors Engineering"
• Unusual Hinges
• Estimation
• Favorite Design Object
• Toothbrush Brainstorm
• Soda Bottle Project.

http://cac.media.mit.edu/weblogs/idi04/assignments/
Industrial Design intelligence;

- **Schedule:**
  - 1:05 1:10 Welcome & Introduction
  - 1:10 1:20 Design artifacts
  - 1:20 2:20 Lunch: participants introduce their work
  - 2:20 2:35 Break
  - 2:35 3:20 Gianfranco Zaccai; Design Continuum
  - 3:20 4:05 Don Norman; UNext
  - 4:10 4:35 Break
  - 4:35 5:20 Alex Slocum; MIT Mechanical Engineering
  - 5:20 6:05 Ted Selker; MIT Media Laboratory
  - 6:05 6:20 Break
  - 6:20 7:20 Dinner
Engineering and evaluation: a perspective

- Sept 12: TrackPoint; the makings of an ergonomic product and article
- Sept 14: Famous Industrial Design examples; Design of the 20th Century
- Sept 19: Discussion of product design projects
- Sept 21: Thinkpad stories of design challenges and solutions
- Sept 26: Prototyping stories, deconstruct product
- Sept 28: Invention and evaluation of graphical interfaces
- Oct 3: Physical model making
- Oct 5: Discuss project description proposals and paper
- Oct 10: Columbus day
- Oct 12: Discuss project description proposals, discuss
- Oct 17: The Idea of Design: perspectives from the design
- Oct 19: Project mock-ups presented, and discuss Charles Eames
- Oct 24: Discuss Design for the real world, and Raymond Loewy
- Oct 26: Discuss project evaluation and Richard Sapper
- Nov 7: Sensation and Perception and deconstruct product
- Nov 9: Memory and Learning
- Nov 14: Writing a paper
- Nov 16: Motor control
- Nov 21: Project evaluation discussion
- Nov 23: Thanksgiving
- Nov 28: Discuss drafts of papers
- Nov 30: Product lifecycle
- Dec 5: Psychology of everyday things
- Dec 7: Presenting projects
- Dec 12: Project reviews
Wave is the result of feedback from our

The Micra® from LEATHERMAN® is unlike any

This is the original LEATHERMAN® that started
Artifcats and Evaluation

Hildegard Schmaltz <schhi@leatherman.com>

08/13/2001 06:38 PM

To: "Ted Selker (E-mail)" <selker@media.mit.edu>

cc:

Subject: WAVE IS DANGEROUS

Dear Mr. Selker,

We are very sorry to hear of your accident with the Wave. Your email was the first time that we have heard of this type of accident with this tool. In consulting with our engineering department, they wonder if the tool may have a damaged component. We would like to get the tool back to the factory for inspection and repair or replacement as soon as possible.

For your convenience, we can have your tool picked up by UPS Call Tag
Product Design?

- **Art:** creating ideas to create an emotional reaction
- **Science:** creating ideas that other people cite (cause other people to create ideas)
- **Design:** is creating things of value
Specialness

• Materials
• Processes
• Form
• Function
• Requires extra training/knowledge
Physical, Graphical, & Cognitive Human Computer Interface
Mind full of intentions
Learning by watching

- I look around
  - Interest Tracker, Invision
- Eye aRe Personal gaze
  - Looking for a sign?

- Robot seeks work as fuel tank inspector
Creating …
Integrated
Towards a Behavioral Motor Match

- Placement
- Eye Tracking
- Wiggly Fingers
- Going Fast
- Movement Feedback
- Gripiness
- Mouse Lockout

Select and Type

Sensors: 2d 3d, linear, eye motion…
Special ness

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Select and Type

Sensors: 2d 3d, linear, eye motion…
Context Aware Computing

- We say many things ... It's what we do that counts
- Memory and sensing not keyboards and voice
  - Transcription is overhead
- Dynamic models of
  - Task
  - System
  - User

- Things become what they should be
Office: select one with cursor or with touch

Candidate

Candidate

Candidate

Candidate

Perspective:
Orient and focus

- Token
- Pointers
- Slider
- Check Lever
- Ecology

Ted Selker © 2002, MIT
President
ONE vote left in this race

George W. BUSH & Dick CHENEY
REPUBLICAN

AI GORE & Joe LIEBERMAN
DEMOCRATIC

Harry BROWNE & Art OLIVER
LIBERTARIAN

John HAGELIN & Nat GOLDHABER
NATURAL LAW

Howard PHILLIPS & J. Curtis FRAZIER
U.S. TAXPAYERS

Ralph NADER & Winona LADUKE
GREEN

UNITED STATES SENATOR - NO VOTE

REPRESENTATIVE IN CONGRESS - NO VOTE

GOVERNOR - NO VOTE

MEMBER OF BOARD OF EDUCATION - NO VOTE

PROPOSITION 1 - NO VOTE

BALLOT REVIEW & SUMMARY

PREVIOUS RACE

NEXT RACE
United States Senator
ONE vote left in this race

President - Ralph NADER & Winona LAUKE

United States Senator - No Vote

Representative in Congress - No Vote

Governor - No Vote

Member of Board of Education - No Vote

Proposition 1 - No Vote

Ballot Review & Summary

Spence ABRAHAM
REPUBLICAN

Debbie STABENOW
DEMOCRATIC

Mark A. FORTON
REFORM

Michael R. CORLISS
LIBERTARIAN

William QUARTON
NATURAL LAW

John MANGOPoulos
U.S. TAXPAYERS

Matthew R. ABEL
GREEN

AI WATERS
BULL-MOOSE

Previous Race

Next Race
Proposition 1
You have voted on this proposition

PROPOSED AMENDMENTS TO ARTICLES II, IV, AND XI

First--That Section 8 of Article II is amended by adding subdivisions (e) and (f), to read:

(e) An initiative measure may not include or exclude any political subdivision of the State from the application or effect of its provisions based upon approval or disapproval of the initiative measure, or based upon the casting of a specified percentage of votes in favor of the measure, by the electors of that political subdivision.

(f) An initiative measure may not contain alternative or cumulative provisions wherein one or more of those provisions would become law depending upon the casting of a specified percentage of votes for or against the measure.

Second--That Section 11 of Article II is amended to read:

SEC. 11. (a) Initiative and referendum powers may be exercised by the electors of each city or county under procedures that the Legislature shall provide.

Ballot Review & Summary

YES on Proposition 1

NO on Proposition 1

Previous Race

Next Race
LEVI VS Standard DRE
9/16/2004

• Less Error Prone: 1 vs 2.6% error
• Prefed in studies: 15 of 22 & 9 of 12
Audio Ballots

• Reducing 50 minutes to 5
Yours Only Underwritten Redundant Voting system

No single anything voting

UI, registration, witness and aggregator layers…

Voter can authenticate datum while voting.

Votes live on multiple viewable databases

Votes live on a viewable databases
Virtual Recipe
the recipe for your meal is projected onto the hood and the counter. users navigate through recipe by waving their hand in front of 'virtual buttons' recognized by a webcam on the cabinet door.

HeatSink
LEDs in the faucet head represent the temperature of the water by fading from blue (cold) to red (hot). users no longer have to touch the stream of water to know whether they have the right temperature.

Augmented Cabinetry
RFID tag readers and capacitive sensors determine the location and quantity of utensils. the virtual recipe prompts LEDs in the drawer handles to show users where needed tools are located, avoiding the time wasted in a serial search of the cabinets.

4D FridgeCam
the contents of the refrigerator are projected on to the door in four dimensions. two view are captured each time the fridge is opened, and newer views are superimposed in transparency over old views. by seeing what’s inside the fridge and where it is, users will spend less time with the door open.

RangeFinder
a remote infrared thermometer measures the surface temperature of pans on the range to make certain that food does not burn and to inform the user when attention is needed. the virtual recipe projects directly onto the range and countertop with information about the state of food, including the time elapsed, task-based instruction and images of the food as it should appear when ready.
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Design Intelligence

Special thanks to Cleanup

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