

Designing Natural Interfaces

Creating Multi-Touch, Multi-User Device Interactions

What's this all about?

- Who the hell am I?
- What I do
- How I do it: Case Study
- What have I learned that can help you?

Who the Hell am I?

- Design Director for Stimulant
- Interaction Designer for 8 years
- Author on imaging, media, and design for 11 years
- In digital media industry for 16 years

What I Do: Overview

- I'm a designer.
 - Transform data into information to facilitate human decisions
 - Facilitate natural, direct interactions with technology
 - Inspire, excite, and inform users
- I'm a facilitator.
 - Guide my team towards context-appropriate design decisions
 - Help clients understand the value of new interaction paradigms
- I'm a mercenary.
 - Help my clients improve their business (make more money)

What I Do: Typical Projects

“We evoke wonder in uncommon contexts.”



multi-touch, multi-user installations | mobile experiences | rich application design | data visualization

What I Do: Typical Projects

Sometimes we're lucky enough to do all these things in a single project.

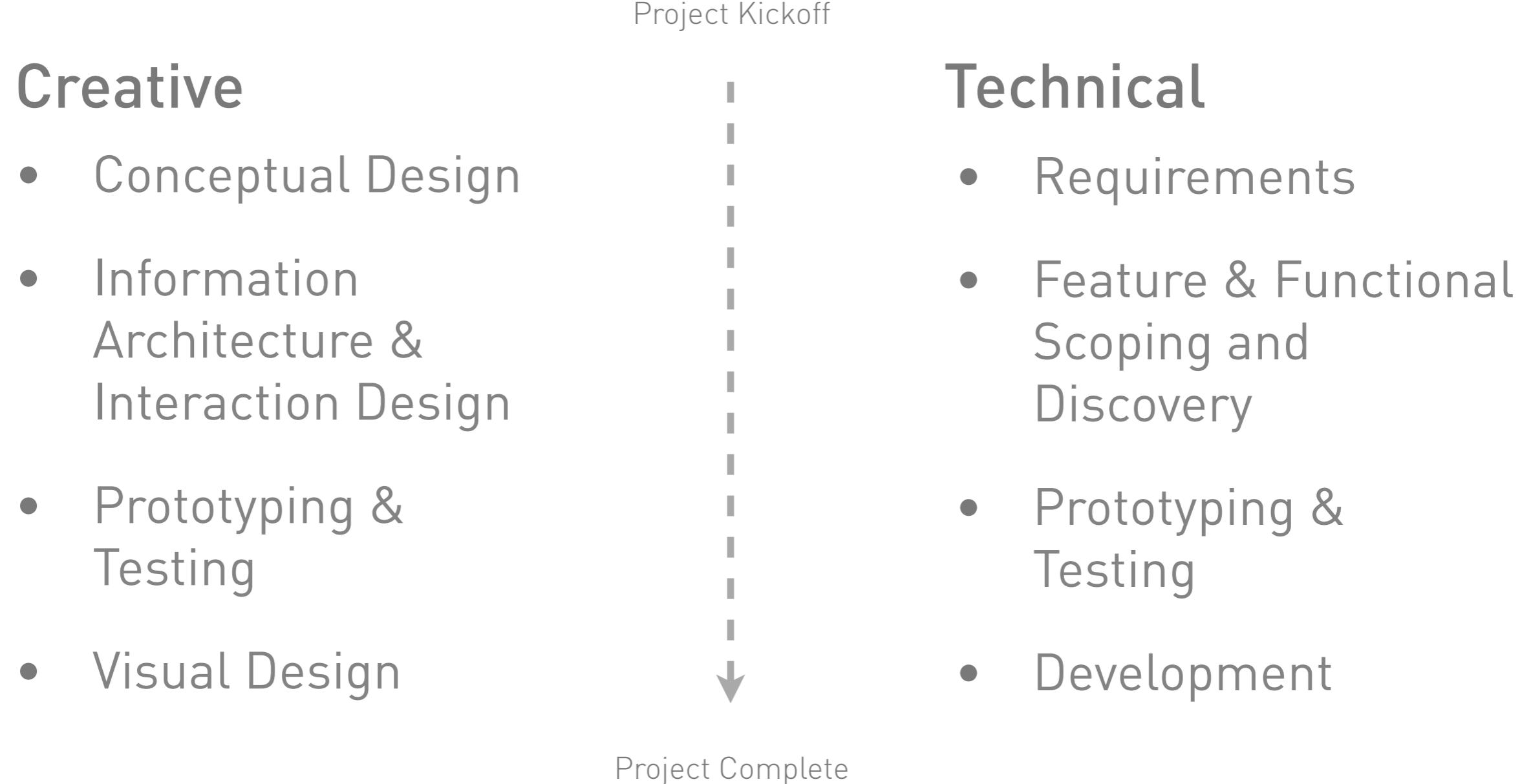


touchscreen social networking mobile experience | Silverlight on Windows Mobile 6 (HTC Touch Dual)

How I Do It: Process

- Process is plastic and impure.
 - Process should always be flexible and malleable
 - Processes work best when hacked to suit your needs
 - Pure methodologies never work in the real world
- Process is critical.
- Process is hard.
- Process is never finished.

Our Process at Stimulant...sorta...



How I Do It: Deliverables

- GOOD DELIVERABLES ARE LIKE PLANE LANDINGS.
- I create:
 - Conceptual Design Sketches
 - Flowcharts
 - Wireframes
 - Storyboards
 - Hybrids of all the above

GM NAIAS Interactive Display Project

“Create an informative, innovative experience
for the world’s biggest auto show.”



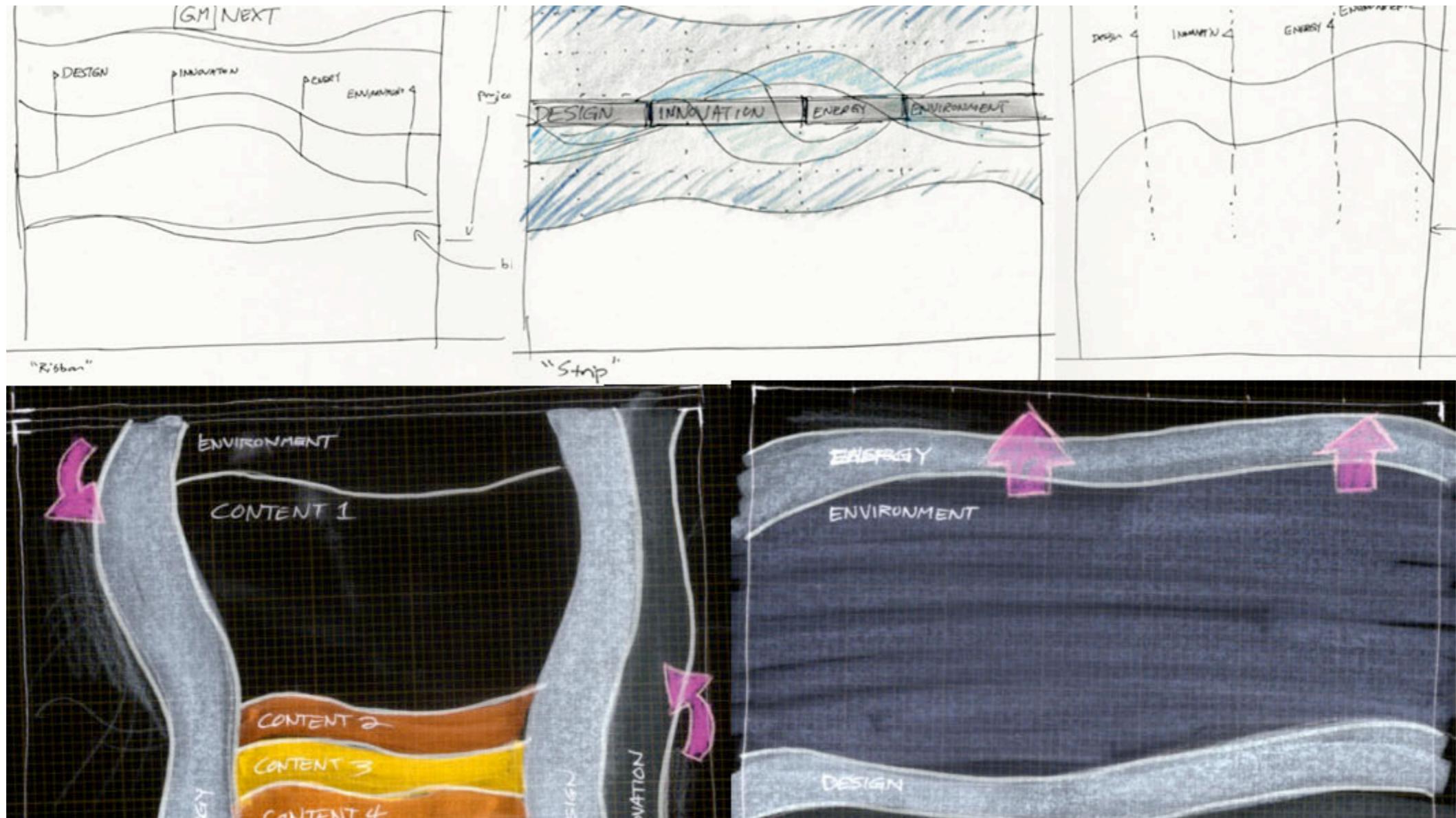
The Brief

“Make it like Minority Report.”



We'll pretend only one client has ever asked for that.

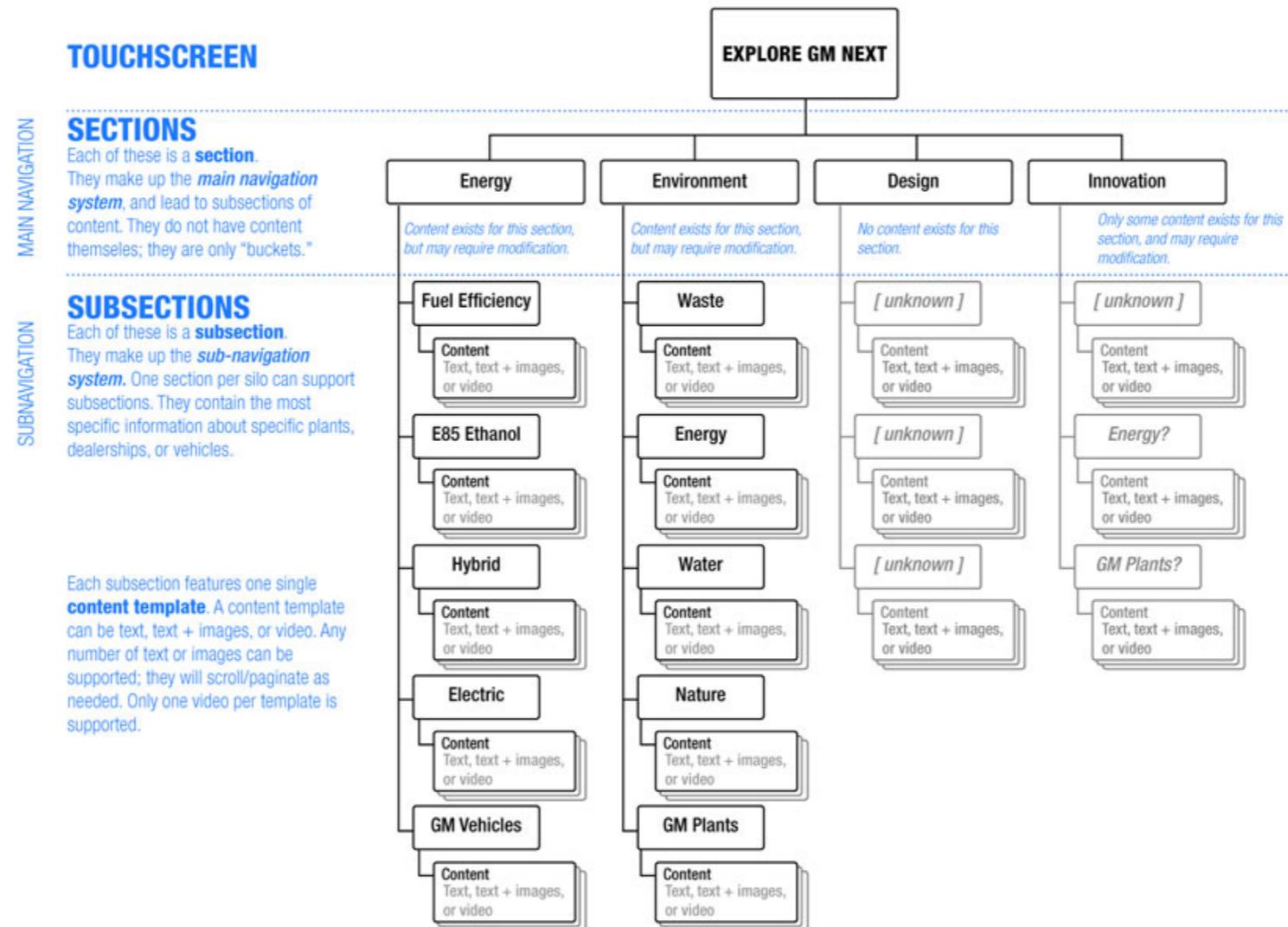
Deliverables: Conceptual Sketches



Analog is your friend for rapid iterations on raw concepts. Some clients love sketches!

Deliverables: Information Design

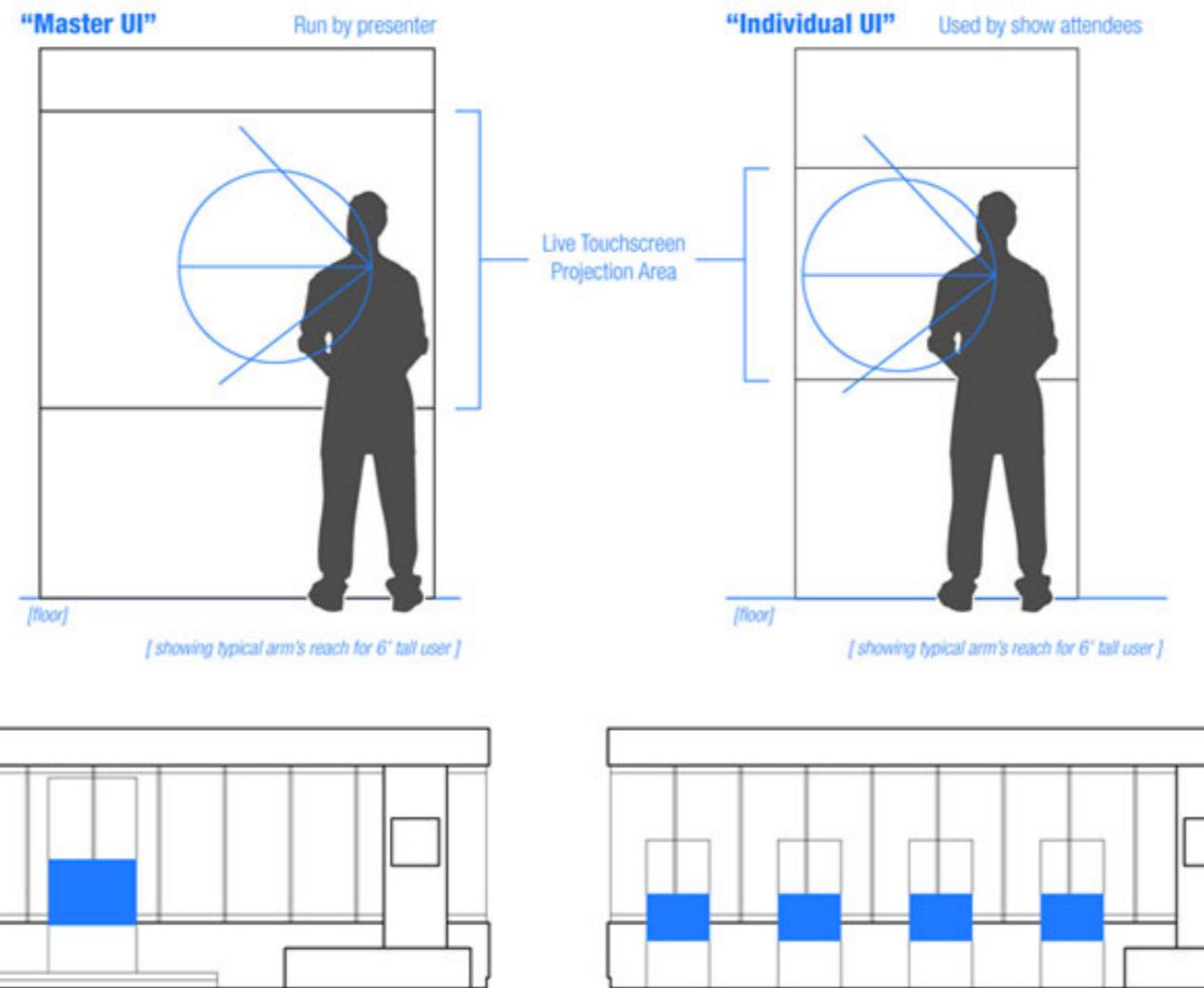
content**map**



We kept IA as simple as possible, tracking content in a spreadsheet.

Deliverables: Interaction Design

touchscreen overview



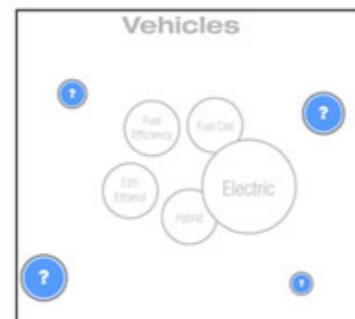
This project required architectural and ergonomic wireframes.

Deliverables: Interaction Design

fast facts

Fast Facts are small tidbits of information that are primarily tied to a narration. There should be less than 3-5 of them at any one time to ensure that the user isn't unnecessarily distracted. This also allows them to be broad and not necessarily tied to the content of one specific detail section.

Fast Facts are expandable upon press (we are currently investigating drag or flick behaviors for technical feasibility). Pressing on a Fast Fact would cause it to stop floating, move towards the viewer/picture plane (scaling up in size), and open to reveal its content. To close a fast fact, the viewer simply presses it again (or possibly flicks it away).

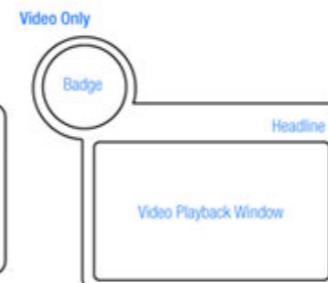
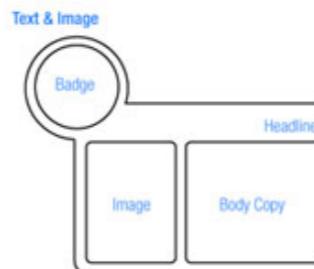


Typical Fast Fact icons floating within a screen's secondary region

Three different Fast Fact icons



Anatomy of an expanded Fast Fact icon



FINAL BANNER STATE

Flexible "ticker" area for latest content links

Primary Messaging Area

Launch Countdown Icons

More ▲

LOREM IPSUM SUM EST DOLOR
Quisque ac justo auctor mauris vestibulum luctus. Aenean mollis vehicula eros. Nunc nunc lectus, posuere a, pretium non, suscipit et, quam.

Loem ipsum dolor est nonummy era fugelium.

More ▼

time to { be a hero }

Have what it takes to be a hero? [take our quiz](#)

Need more innovative ideas? [read our feeds](#)

What are others saying? [check the blogs](#)

Microsoft LONG PRODUCT NAME 2008 Microsoft LONG PRODUCT NAME 2008 Microsoft LONG PRODUCT NAME 2008

column 1 (240px) column 2 (240px) column 3 (240px)

720px wide

INTERACTION STATES

QUIZ BUTTON

Default:

Have what it takes to be a hero? [take our quiz](#)

Hover:

Have what it takes to be a hero? [take our quiz](#) | win a prize!

button expands to reveal payoff

PRODUCT MODULES

Default:

Microsoft LONG PRODUCT NAME 2008

Hover:

Quisque ac justo auctor mauris vestibulum luctus. Aenean mollis vehicula eros. Nunc nunc lectus, posuere a, pretium non, suscipit et, quam. Ut eu ligula. Aenean ac purus.

Learn More

Translucent panel holds key launch or partner benefit details

Whole region is one button

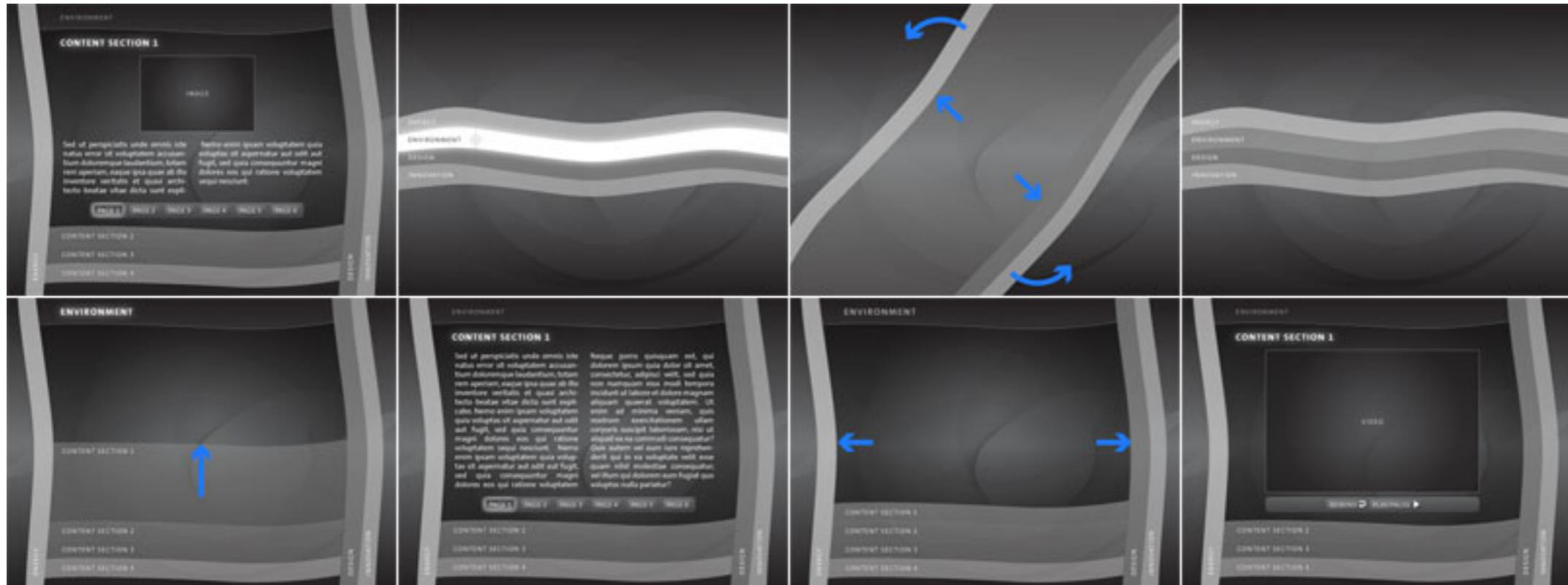
Microsoft LONG PRODUCT NAME 2008

Link to main product page

page 7

Most of our interaction design wireframes are standard, annotated diagrams...

Deliverables: Storyboards



...but on this project, the interaction and visual designer collaborated on high-fidelity (but grayscale) storyboards to ensure client understanding.

Deliverables: Visual Design



Intense iteration reduces surprises and builds consensus, sometimes making visual design an exercise in dialing in the details.

Deliverables: Pre-Show Testing



Using prototype hardware, sample content, and legibility test patterns, we literally moved into our hardware partner's studio and tested like hell.

Deliverables: Pre-Show Staging



We went onsite and staged on the final production hardware.

Showtime: The Final Product.



Showtime: The Final Product.



Showtime: The Final Product.



What I Learned: The Challenges

- **The Fear Factor: Getting Permission to Touch**
 - People don't like touching other people's stuff
 - Touch displays not only looks expensive...they are
 - Users need to feel that they have permission to touch
 - "Touch me:" The new "click here?"

What I Learned: The Challenges

Granting Permission



Microsoft Surface attracts users by using beauty to initiate childlike exploration.

What I Learned: The Challenges

- Large-Scale Touch Displays: Resolution
 - Rear-projection, IR-sensing is most common methodology
 - Even the highest end projectors only project <1280px wide
 - Touch surfaces are many feet across
 - Do the math!

What I Learned: The Challenges

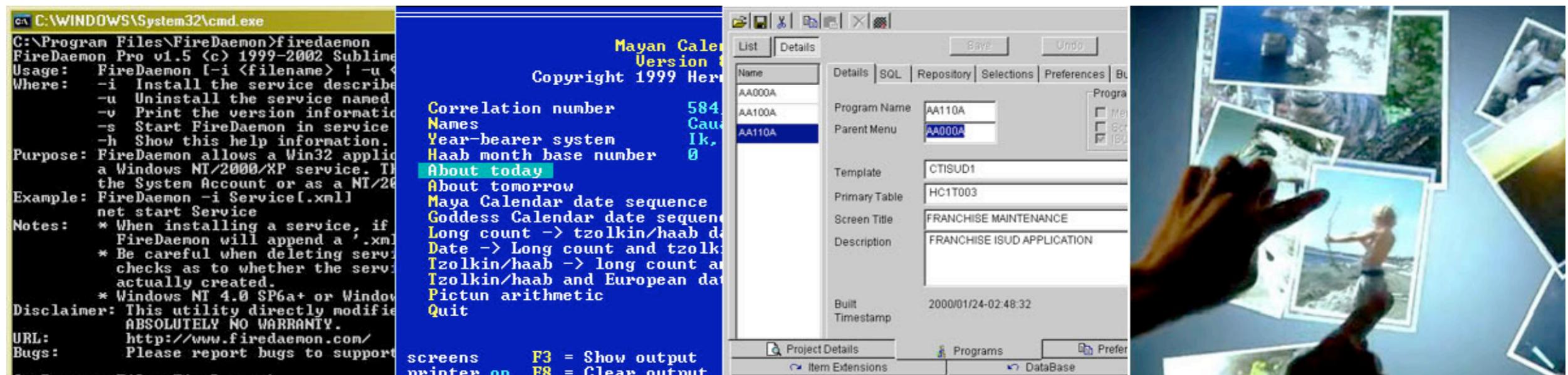
- Installation Computing: Typical Challenges
 - Load-in, set-up/installation
 - Support and on-call assistance
 - Software and content updates
 - Hardware Failures
 - Massive accessibility issues
 - Labor unions!

What I Learned: The Challenges

- Environmental Design Challenges
 - Many adventures in poor signage, half-assed hardware, and unnecessarily fragile (or costly) materials
 - Ambient light and sound are your enemies
 - You usually directly control none of this

(Quick aside: Beyond the GUI)

The Evolution of the Digital User Interface



Command Line Interface (CLI)

Text User Interface (TUI)

Graphical User Interface (GUI)

Natural User Interface (NUI)

What I Learned: The Successes

- The Natural User Interface
 - Beyond the GUI
 - Solution to Tufte-ian “Administrative Debris” or “UI Chrome”
 - Direct and Contextual Manipulation of Onscreen Objects
 - Few expectations around this experience - room to have fun!
 - Natural ≠ Intuitive
 - Very poor for many, many tasks and modes of input
 - NUIGroup.com/forums

What I Learned: The Successes

- Large-Scale Touch Displays: 3 Experience Zones
 - 50-foot experience: ATTRACT
 - 10-foot experience: INFORM
 - Shared content experience
 - Learn the UI conventions by observation
 - Social interactions with simultaneous users breaks down fear, answers questions
 - 2-foot experience: INTERACT

Parting Thoughts

- **Bastardize everything.**
 - Mash up processes and deliverables
 - Cross-pollinate with techniques from other industries
 - Get inspired: Music! Field Trips! Crafts! Architecture! Science!
- **Do what you love.**
 - Get your passion and obsessions into your work
 - Do what's appropriate, not what's expected

Thanks. Questions?

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