DESIGN PORTFOLIO

WENDY JU

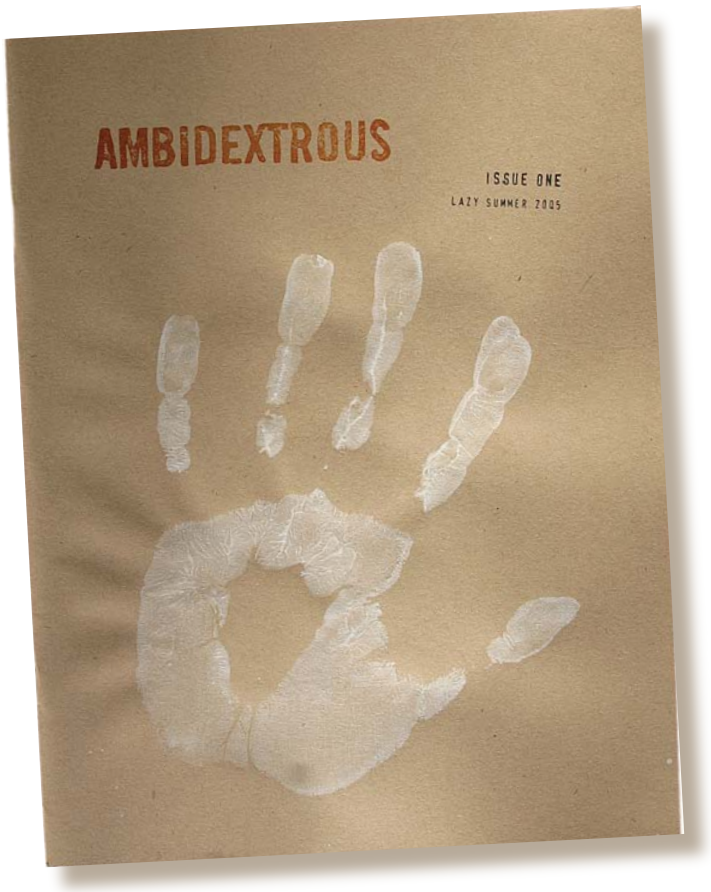
I am a design generalist.

While I appreciate the talents of those who develop expertise in specific domains, with specialized tools, materials and processes, I personally enjoy bending my skill set to a wide variety of design challenges, and picking things up along the way.

This portfolio showcases my broad and exploratory approach to design.

AMBIDEXTROUS MAGAZINE

January 2005 – present

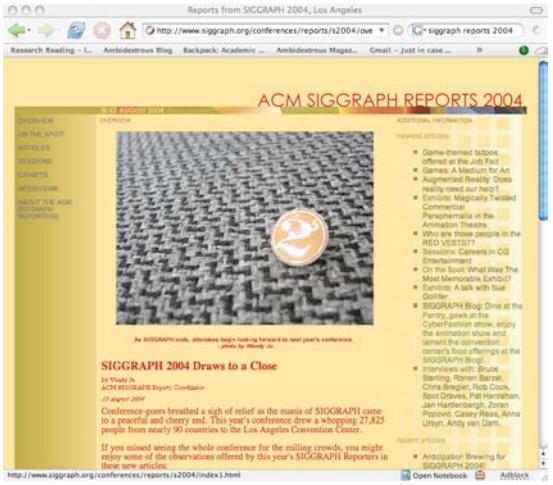


description Ambidextrous Magazine is Stanford University's Journal of Design. I was motivated to start Ambidextrous because I felt that there should be a forum for the wider design community to discuss their common enthusiasms and concerns. I helmed the magazine as Co-Editor in Chief for the first year, and am now continuing as Editor At Large. The magazine is self-published and self-distributed; because of this, I have been largely responsible for the design of the magazine's look and feel, its editorial direction, its business model, its technical production and even the web site of the magazine.

collaborators Lawrence Neeley, Charlotte Burgess Auburn, Corina Yen, Lora Oehlberg, Bjoern Hartmann, Micah Lande, Lilly Irani.

SIGGRAPH REPORTS

Summer 2003 & Summer 2004



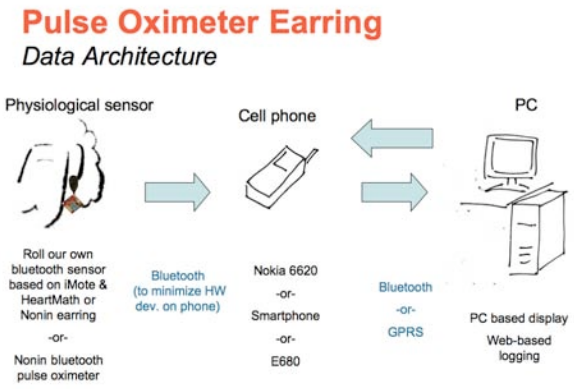
description

The ACM SIGGRAPH Reports Program was created to help broaden the experience of SIGGRAPH conference sponsors and attendees through online news coverage of the ideas, events and stories of the conference. The student volunteers of the program aspire not only to convey the breadth of the conference's many venues, but also to explore in depth the personalities, issues and culture that are an enduring legacy of the graphics community.

As the editor for this program, I created the online template for the Reports web site, as well as designing the backend that enabled reporters to easily upload stories and photos. My technical designs made it possible to initiate real-time coverage of the conference, and to substantially increase the number of articles logged by Reporters each year.

PULSE-OXIMETER EARRINGS

Summer 2005



description The Intel Digital Health Pulse Oximeter Earring Project is a distributed health sensing application to provide persistent health monitoring. Pulse oximetry hardware clipped to the patients ear communicates over Bluetooth using compact Intel iMote technology to send data to the patient's cell phone, which acts as a gateway for disseminating information to their personal computer, their dedicated health weblog or possibly to their doctor's health server.

I designed the concept and a functional prototype of this pulse oximeter system in a short time period by re-appropriating sensor technologies and integrating disparate open-source toolkits; this project incorporated sensor design, embedded programming, mobile device application development, and server-side web application design.

collaborators Margaret Morris, *Intel Digital Health Group*

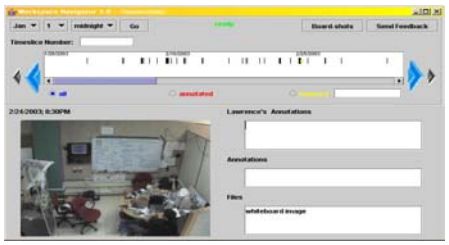
CUSTOM ROAD BICYCLE FRAME

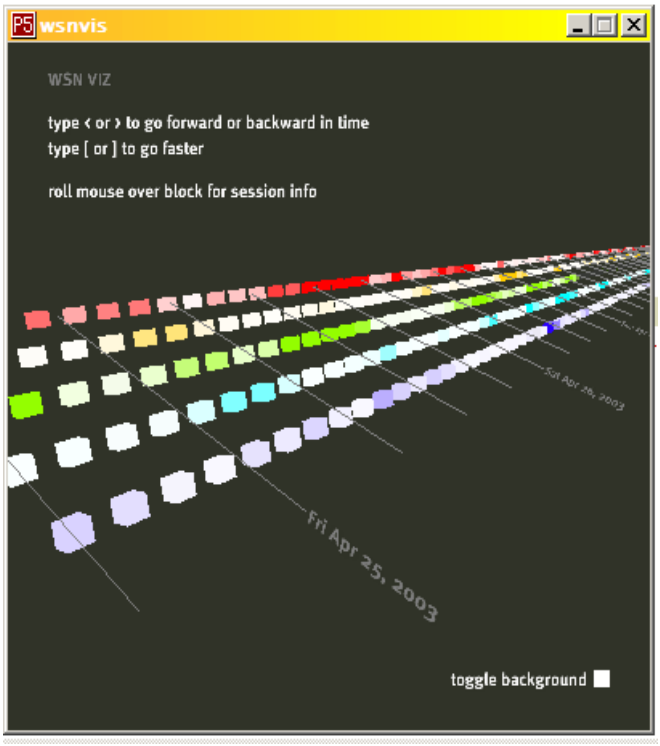
Spring 2003

description I designed this custom road bicycle frame as a project for a bicycle frame-building course. The frame is built of steel tubing, which I designed and milled to fit my physical geometry, and is joined using old-fashioned lugs, which I hand-carved and silver-brazed for a unique Art Nouveau look. The decorative elements on the top tube and the seat tube were formed from brass strips, which were silver-brazed to the tube and masked during the paint process to create visual contrast.

WORKSPACENAVIGATOR VIZ

Winter 2003





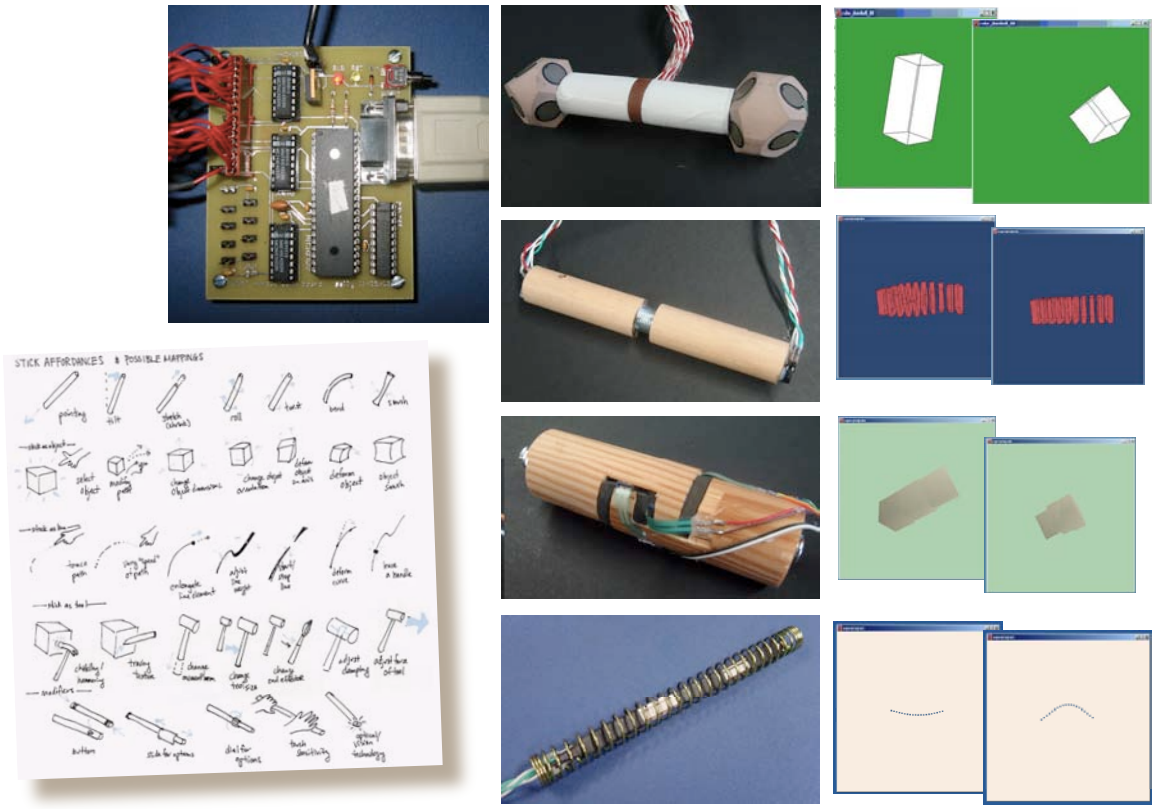
description

WorkspaceNavigator supports knowledge capture and reuse for teams engaged in unstructured, dispersed, and prolonged collaborative design activity in a dedicated physical workspace. It enables post-facto retrieval of multiple streams of data from the work environment, including overview snapshots of the workspace, screenshots of in-space computers, whiteboard images, and digital photos of physical objects.

As part of the Workspace Navigator project, I designed WorkspaceNavigator Viz to provide a overview of overall workspace activity for the teaching team of the class where we deployed Workspace Navigator in a six-month field test. This Java program, created using the Proce55ing development environment, allowed course instructors and project managers to gain high-level awareness into the activity and production of different teams, and provided a good point of access for more detailed information.

FIDGETS

Fall 2002



description FIDGETs (Force Input Devices for Graphical Environment Tweaking) are a collection of manipulable input devices designed to explore the range of human physical interactoin that can be harnessed for interacting with desktop design environments. The goal of the project was to provide a broad system architecture that enables rapid prototyping and testing of as many manipulable tools as possible in a quarter time-frame.

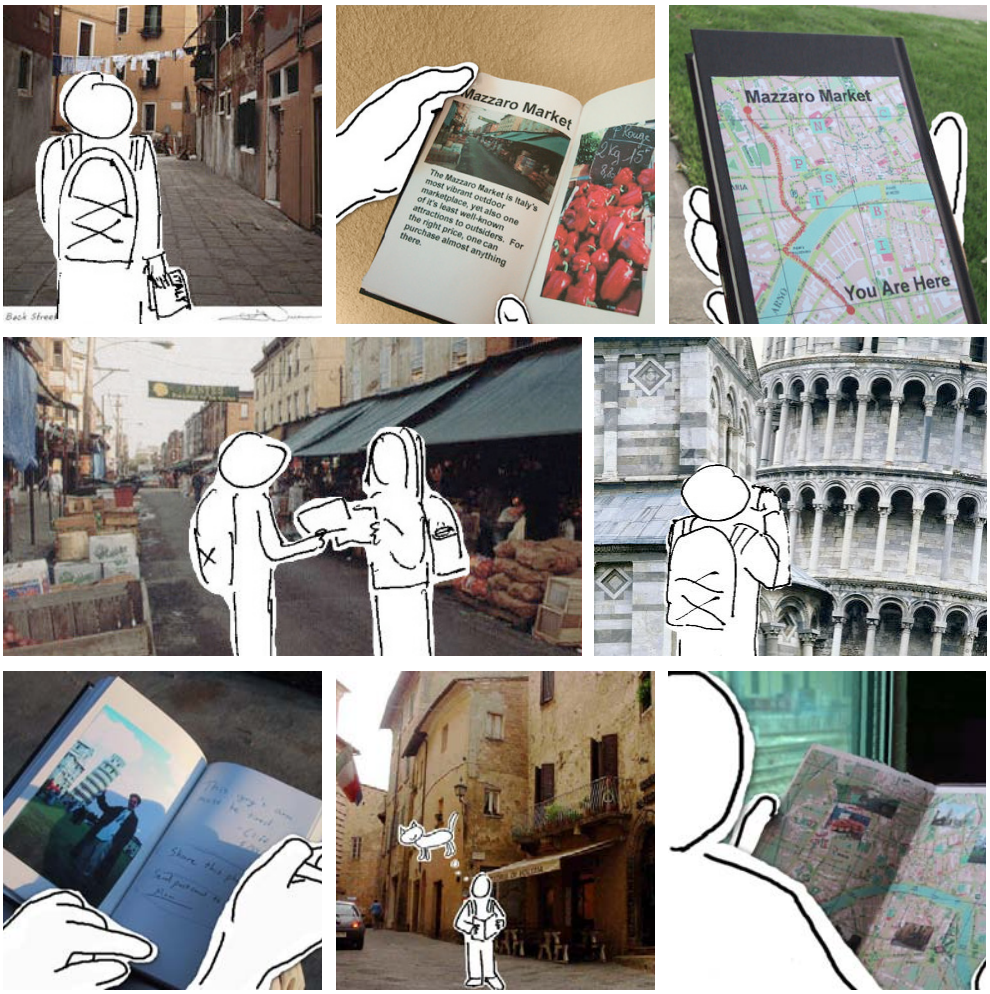
For this project, I designed and programmed circuit boards to interface with a broad range of sensors; these were matedwith ten different prototype input devices, which were demonstrated to work with cross-platform Java software created using Proce55ing libraries and development environment.

collaborators Sally Madsen and John Fiene.

sponsor Fakespace Labs

HITCHHIKER'S GUIDE

Spring 2002



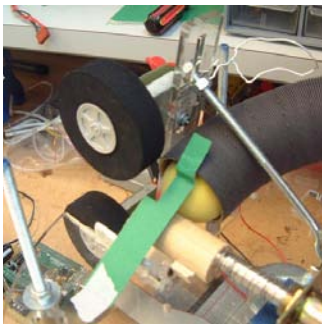
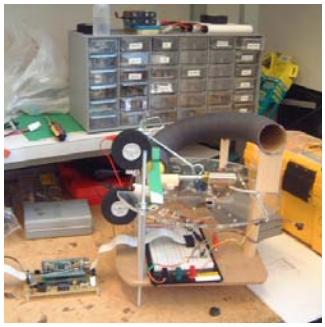
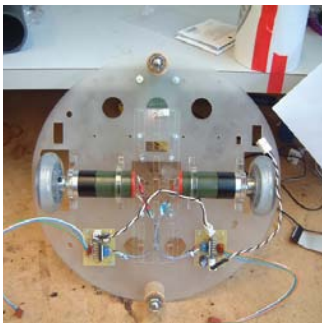
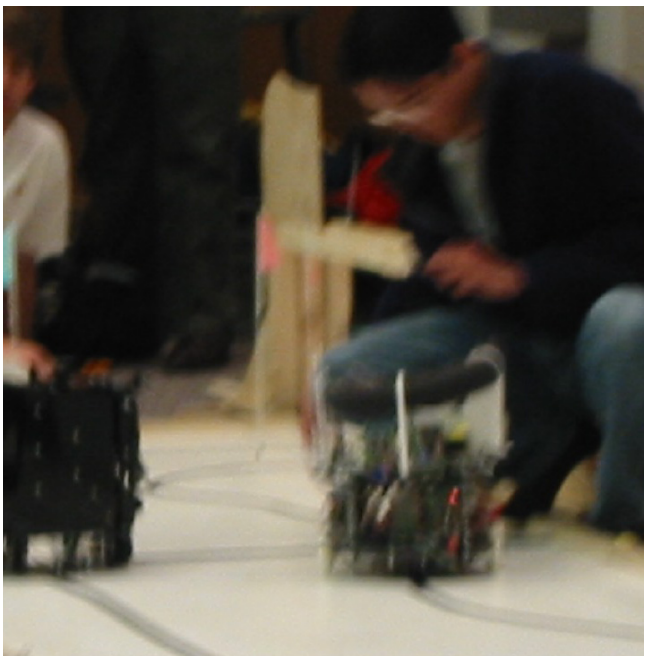
description Hitchhiker's Guide is a storyboard that outlines the features and function of a collaborative community-based context-aware travel guide. It demonstrates these features through the depiction of the adventures of an imaginary user, Cliff, a twenty-something guy backpacking his way across Italy. This project one first-prize in Stanford's annual Big Idea Festival.

For this project, I created a novel illustration technique for our storyboard which combines digital photos of existing contexts and settings and sketchs of hypothetical users. This format is effective at communicating the details of a designed scenario; at the same time, it is easy to produce and conveys the provisional nature of the storyboard.

collaborators Thai Tran

MECHATRONIC BIATHLON ROBOT

Winter 2002 & Winter 1996

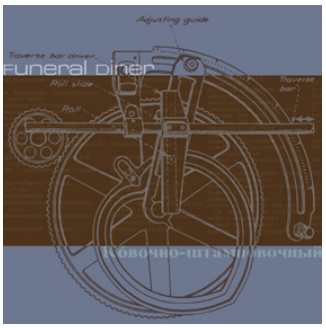

description For Stanford Smart Product Design's Winter robotics competition, my team designed a robot that would race another robot in a biathlon event where the robots would race around a track, stopping to shoot Nerf balls at four targets marked by infrared beacons. The robot used electromagnetic sensing to find its designated course, PID to control its speed, and a shooting assembly constructed with a two-stage loading/projecting mechanism.

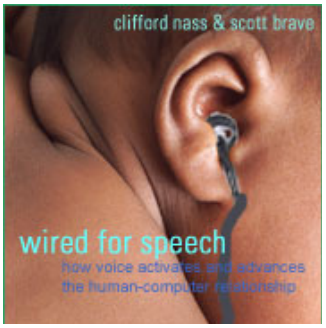
I developed the shooting mechanism for this robot, as well as its overall software architecture and state machine.

collaborators Alan Regala & Eric Blair

IDENTITY/PROMOTION

2001 – present



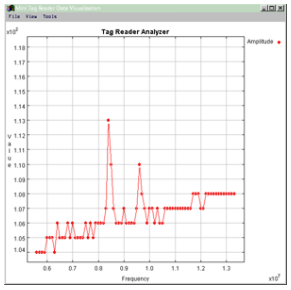


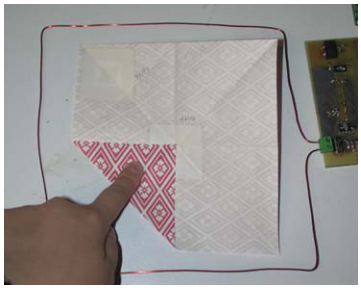
description

As part of my research group participation, I frequently draw on my capabilities as a graphic designer to create logos, concepts for book covers, t-shirts, websites, posters, CD covers, and other miscellaneous objects of design.

ORIGAMI DESK

2001





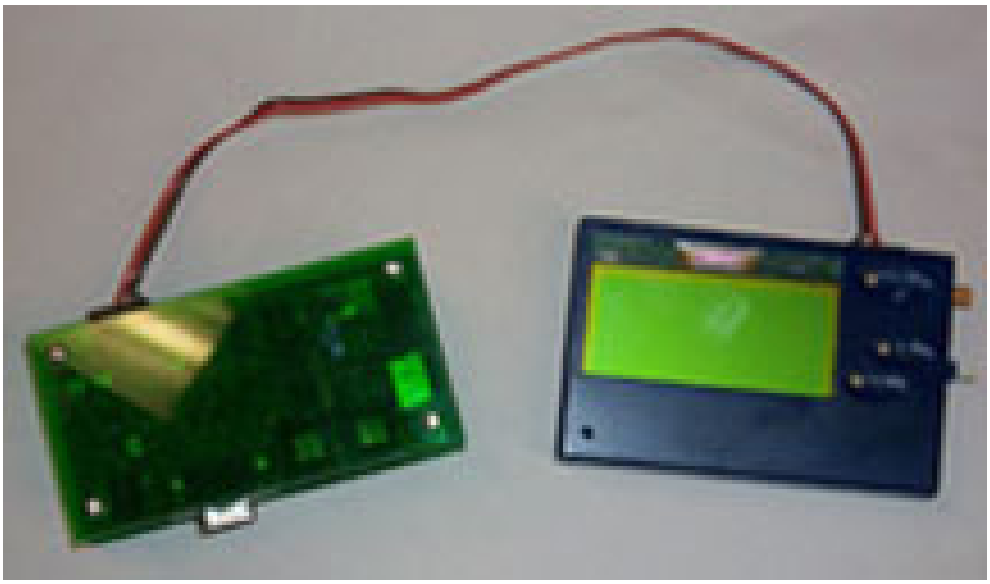
description Origami Desk is an interactive installation where users learn to fold paper into beautiful shapes. Origami Desk improves on traditional origami diagrams by showing videos that demonstrate what the hands should do, projecting lines onto the paper indicating where the folds should be, and monitoring the paper folding to give the budding origami artist feedback if their folding should go awry.

I directed the overall project, but I personally spearheaded the design, testing and production of the projects chief invention, the fold-sensing paper. By using strategically placed Electronic Article Surveillance tags of different frequencies, the Origami Desk was able to sweep resonant frequencies to detect and give people feedback on their folding. The paper itself doubled as promotional material; it was designed using veluum so that participants could see the tags and better understand how the system worked; the resulting products worked as advertising for the exhibit.

collaborators Leonardo Bonanni, Jenn Yoon, Becky Hurwitz, Tlke Judd, Rich Fletcher, Matthew Reynods & Rehmi Post

PENGACHU

Winter/Spring 2001



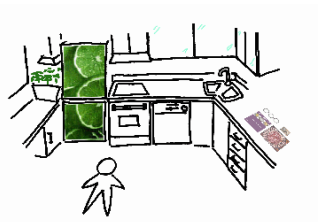
description Pengachu is a handheld Linux server; it was designed as a low-cost open-source effort to enable broader access to computing technology. Its design is based on Motorola's Dragonball processor capable of running uCLinux. The server was fully autonomous; its form factor, roughly the size fo a cassette deck, included a LCD display and interface buttons. We were subsequently contracted to build a version of this server that would piggyback on the StarTac phone.

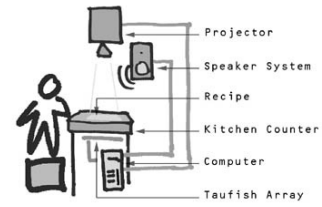
I modelled the physical layout of components on the Pengachu's board to make its tiny form factor possible, and used Solidworks to design the SLA plastics that housed the electronics. As we developed demonstration software, I designed prototype software applications for the phone using C.

collaborators Rehmi Post & Matthew Reynolds

COUNTERACTIVE

1999-2000





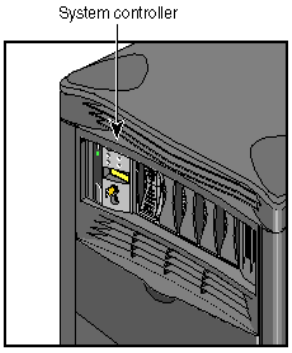
description The CounterActive kitchen couter provides instructions and pictures to show people how to cook a variety of recipes–but it also has the capability to provide movies, music and help on demand. The goal of the project was to use embedded technologies to make cooking easier and more entertaining.

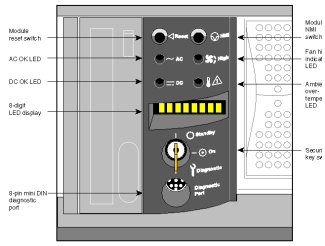
CounterActive integrates capacitive sensing hardware, projection technology and dynamic web pages as part of its overall system design. The recipes themselves were feats of design that required food photography, digital video editing and javascript programming. Part of the counter's appeal was our visual language, which was distinct from that of Microsoft Windows, and based on the aesthetic we observed by benchmarking cooking shows and magazines.

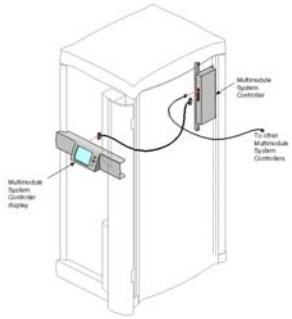
collaborators Tilke Judd, Bonny Lee, Camilo Guacqueta, & Becky Hurwitz

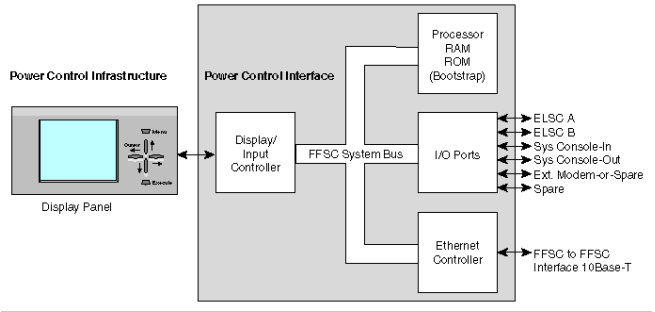
ORIGIN 2000 SYSTEM CONTROL

1997-1999









description SGI's Origin2000 scalable server system used a ccNUMA architecture to allow customers to configure systems with anywhere form 4 to 256 processors using modular hardware. Part of the challenge of this design was developing a scalable architecture for the embedded system controllers that monitors and controls the server's physical and electrical performance prevent and remedy system failures.

On this project, I developed the interfaces between electromechanical parts (such as fans) and the embedded controllers. I also designed all the cables and mechanical circuit boards for the system, and helped design the user interface featured on the front of the machines. In addition, I was also involved in designing the scalable architecture of the system, and in allotting different degrees of functionality to different levels of the control hierarchy.

TAU BETA PI SPRING FIELD DAY

Spring 1997

description

Each year, Tau Beta Pi invites 10-15 local high schools to the Stanford campus to teach students what engineering is about. As TBP's Pre-college Outreach officer, I planned the Spring Field Day Event, coordinated volunteers and acted as a liason to local teachers to organize logistics.

My most inspired addition to this annual tradition is the invention of the Egg Launch. As many students seemed to have experience with tried and true engineering challenges such as the Egg Drop, the Spaghetti Cantilever Bridge and the Newspaper Tower, I devised a new and exciting challenge in which students were given limited materials to design a rocket payload unit that would protect an egg through a 150 foot launch.

INTERACTIVE FURNITURE SET

Spring 1997

description For Interval Research's 1997 University Workshop, which asked student teams to develop human-computer interactions filled with humor, I lead a team of student designers in the creation of an interactive furniture set that enabled diners to draw funny messages and sketches that would appear over the heads of their fellow diners. The set consisted of chairs equipped with screens in their tall backs, and a table with PDAs embedded in its bezeled edges which users could draw in. We created two geneartions of chair prototypes, which used Apple Powerbooks running screens created in Macromedia Director 5.0. This project won the "Best Prototyping Award" at the workshop.

collaborators Nancy Bersteinsson, Mathieu Farrugia, & Antonio Sistos