

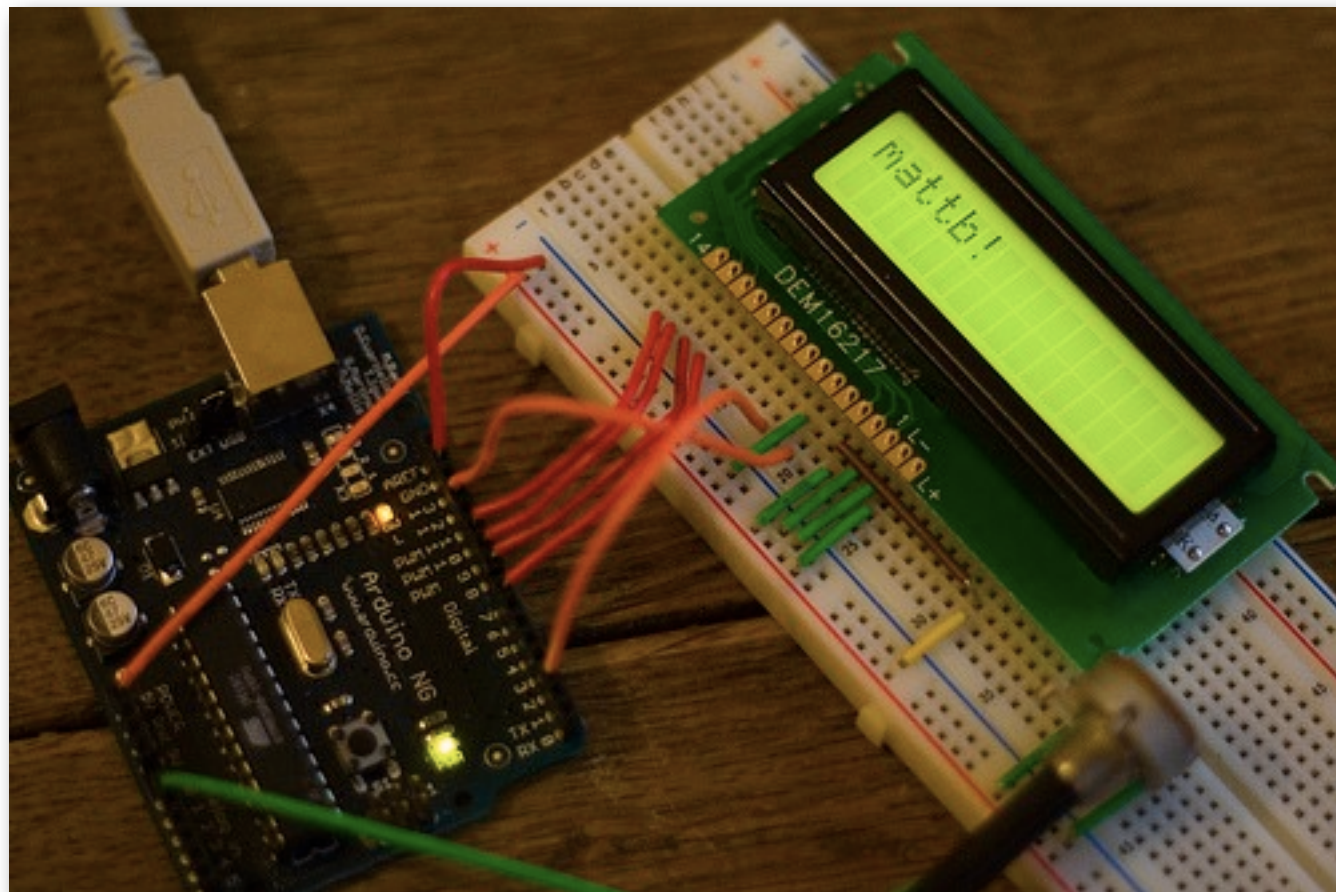
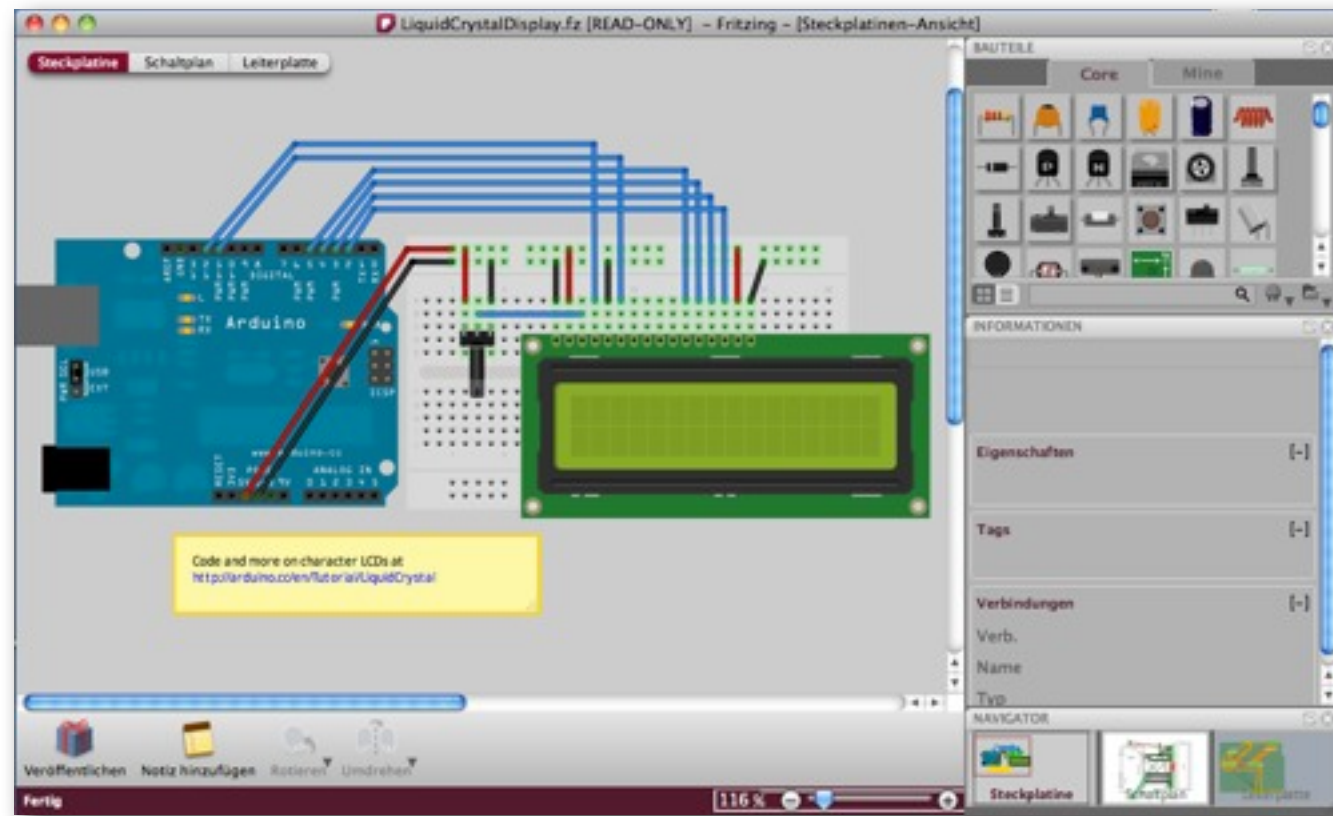
EDV & Multimedia Interaktionsdesign

12 – Prototypen

Prof. Dr. Jochen Koubek



Prototyp



Ein **Prototyp** soll dem Nutzer einen Eindruck des fertigen Systems ermöglichen.

Ziele im Prototyping



Ein Lo-Fi-Performance Papier Prototyp

Explorativ

Anforderungen ermitteln

Experimentell

Grundfunktionalität erkundbar machen

Performance

Einsetzbarkeit in der anvisierten Umgebung testen

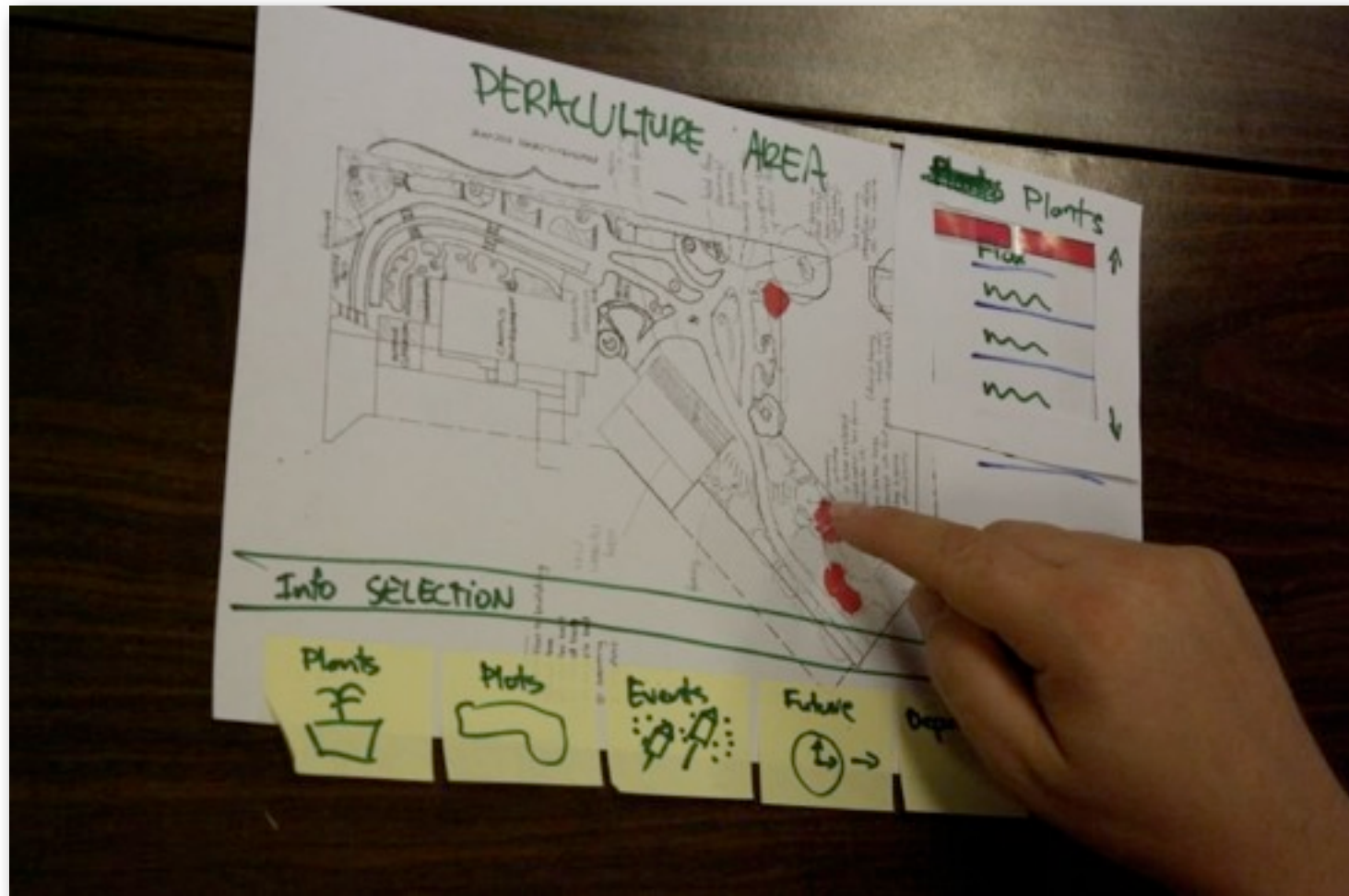
Evolutionär

Frühe Versionen erstellen

Didaktisch

Systemverständnis unterstützen

Merkmale von Prototypen



Ein breiter aber flacher Prototyp

Breite (Horizontal)

Eine Ebene (häufig die Oberfläche) wird umgesetzt.
Welcher Anteil der Produktfunktionalität wird repräsentiert?

Tiefe (Vertikal)

Ein Teilaspekt wird durch alle Ebenen umgesetzt
Wie detailliert wird die Funktionalität implementiert?

Aussehen

Das sinnliche Anmutung (häufig Aussehen) wird umgesetzt
Welche Ähnlichkeit gibt es mit dem fertigen Produkt?

Interaktion

Das Verhalten wird umgesetzt
Wie genau wird die Transformation von Eingabe zu Ausgabe simuliert?

Arten von Prototypen

Lo-Fi

Skizze

Storyboards

Wireframes

Papier

Mi-Fi

Mock-Ups

Wizard-of-Oz

Experience

Prototyp

Protoyp-Theater

Hi-Fi

Computereinsatz

Rasche

Implementierung

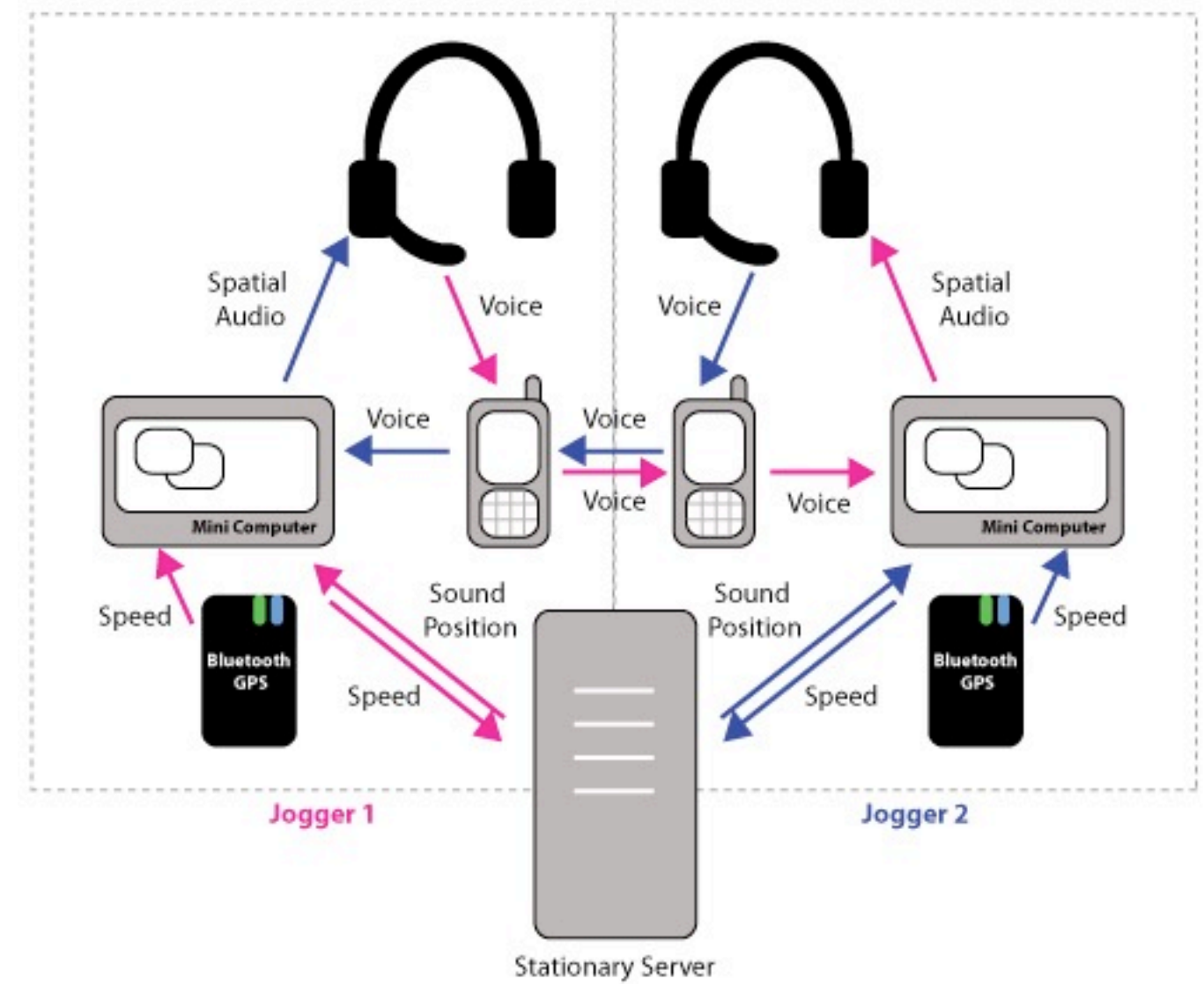
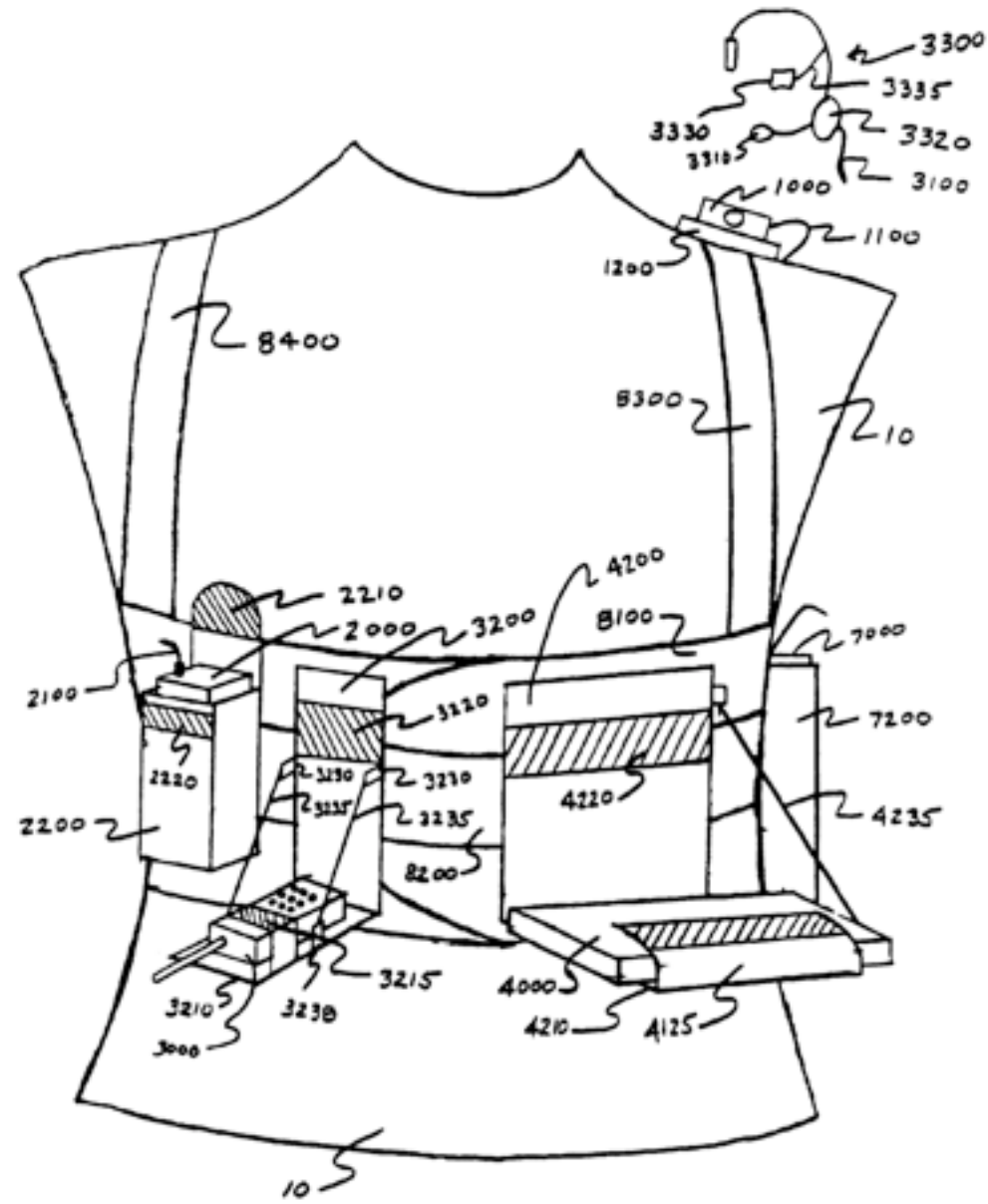
Lo-Fi-Prototypen

Ein Lo-Fi-Prototyp erfüllt sein Ziel ohne digitaltechnische Unterstützung.



Für Ideen, Abläufe, Kontexte

Skizze

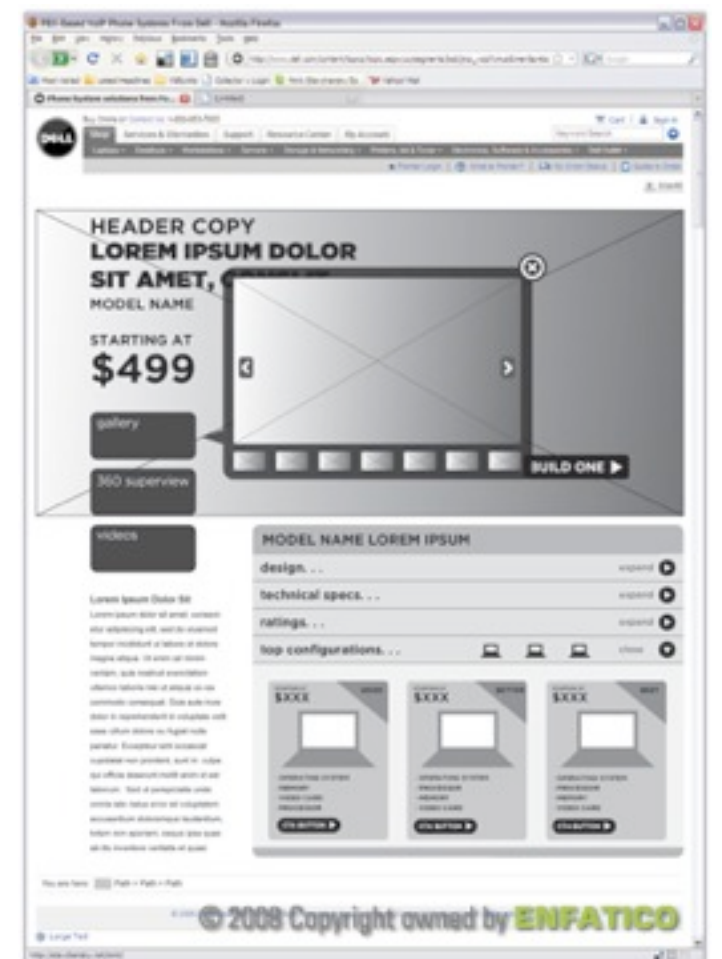


Wireframes

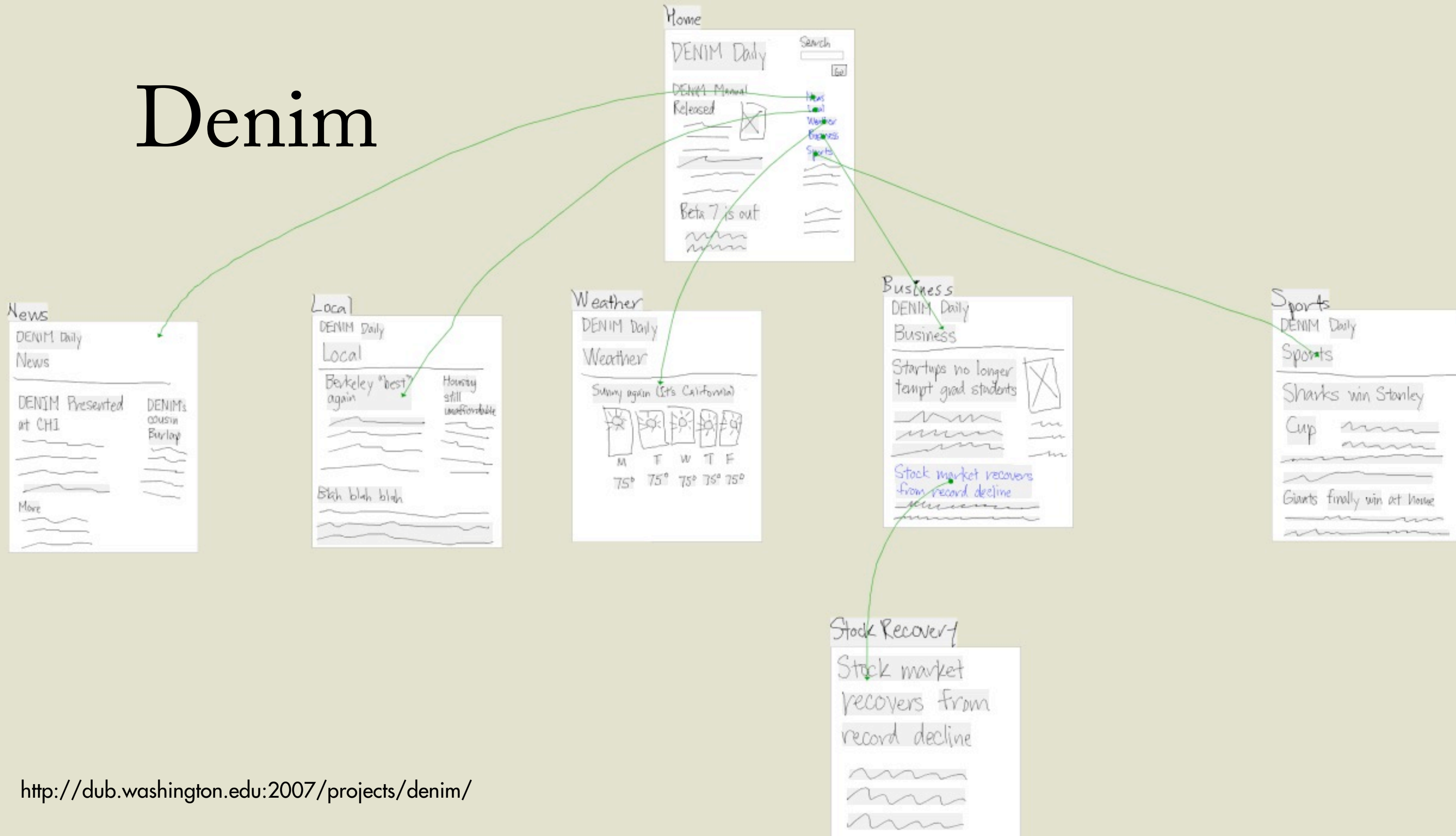


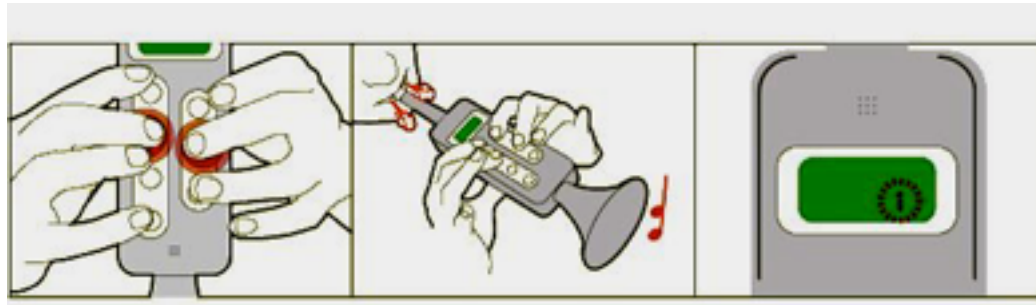
© 2008 Copyright owned by **ENFATICO**

<http://stavchansky.net/work.php?wID=49&cat=3>



Denim





Monster Belly Storyboards v2.0 July 6, 2009

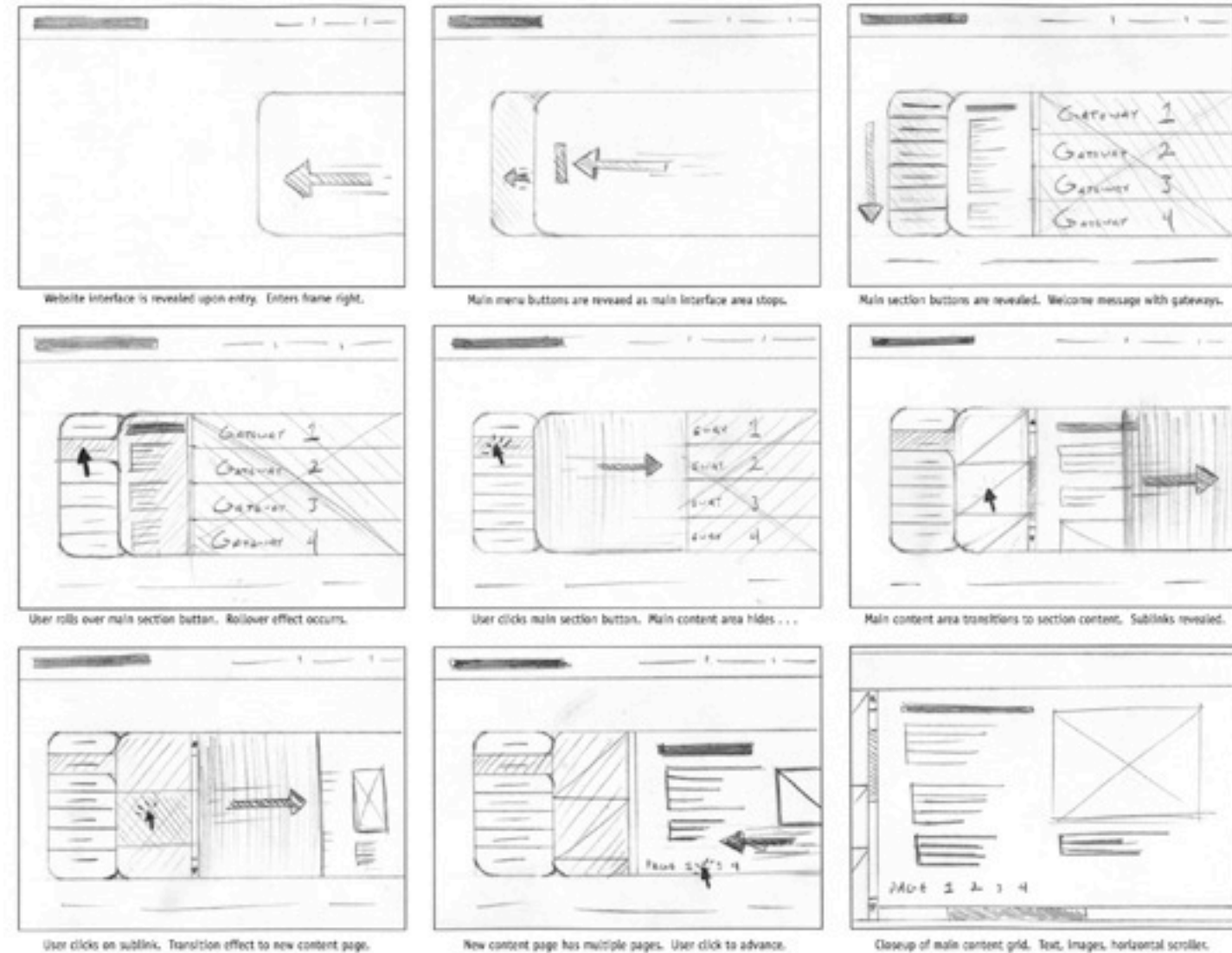
STORYBOARDING IS A VISUAL WAY OF THINKING ABOUT THE USER EXPERIENCE. IT'S A WAY OF THINKING ABOUT THE USER EXPERIENCE THAT IS VISUAL, EASY TO UNDERSTAND, AND EASY TO SHARE. IT'S A WAY OF THINKING ABOUT THE USER EXPERIENCE THAT IS VISUAL, EASY TO UNDERSTAND, AND EASY TO SHARE.



STORYBOARDING IS A VISUAL WAY OF THINKING ABOUT THE USER EXPERIENCE. IT'S A WAY OF THINKING ABOUT THE USER EXPERIENCE THAT IS VISUAL, EASY TO UNDERSTAND, AND EASY TO SHARE. IT'S A WAY OF THINKING ABOUT THE USER EXPERIENCE THAT IS VISUAL, EASY TO UNDERSTAND, AND EASY TO SHARE.



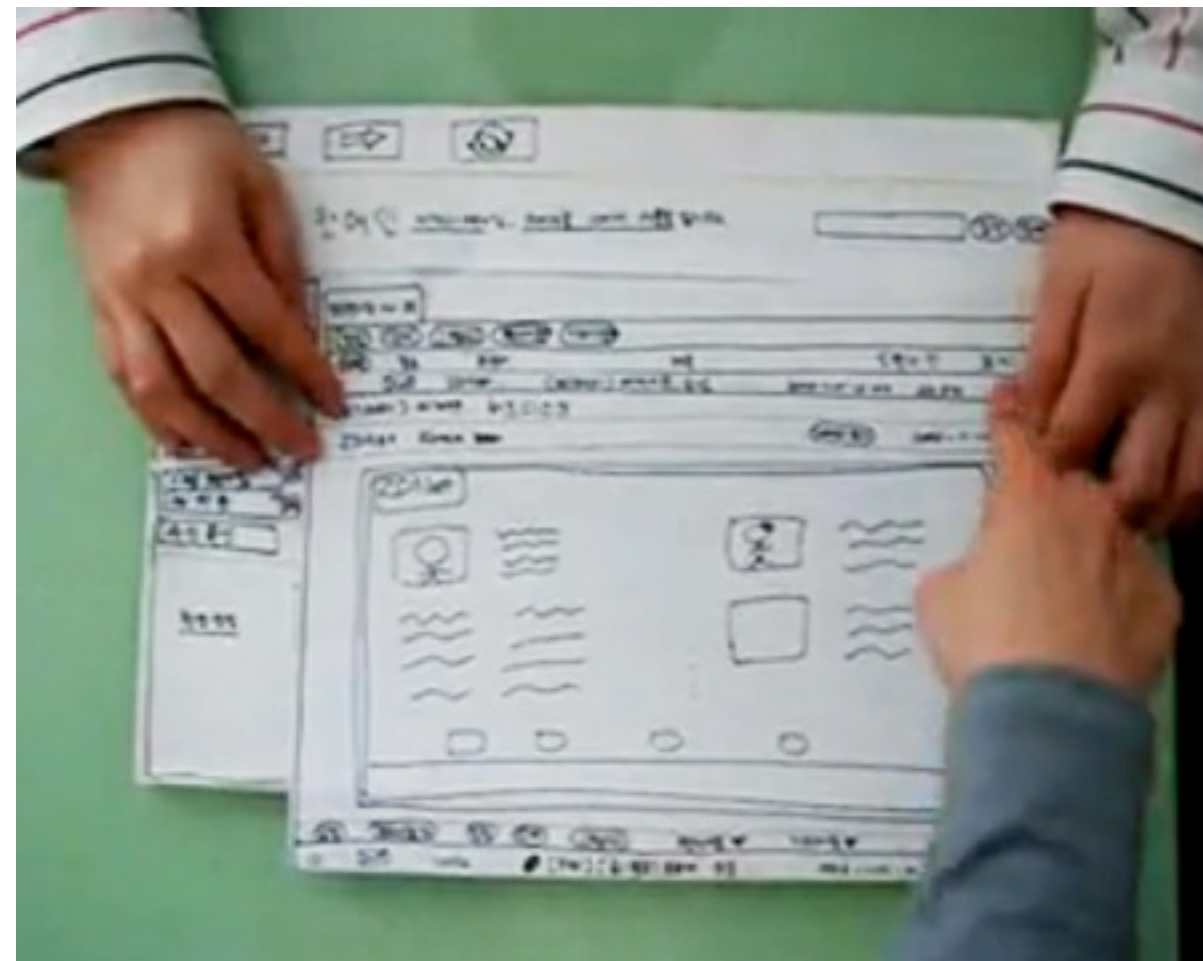
Storyboards



<http://stavchansky.net/work.php?wID=42&cat=3>

Storyboards basieren auf den Szenarios der Anforderungsanalyse

Papier-Prototypen



Es muss nicht immer digital sein: Ob Spiele oder Grafische Benutzeroberflächen – Tests mit Papierprototypen sind zielführend, einfach in der Herstellung und machen Spaß.

Paper-Prototyping mit Karteikarten



Ausstattung

Weißes Papier, unliniert, 11-17", stabil

5-8"-Karten

Klebebänder, Post-It-Kleber

Farbige Stifte, Marker

Sticky Notes

Overhead-Folien

Scheren, Cutter, Lineale, Pflaster

Zeitgrenze setzen

Modelle bauen, keine Illustrationen

Test vorbereiten

1. Nutzer auswählen
2. Testszenarien vorbereiten
3. Üben

Test auswerten

Vor und Nachteile von Lo-Fi

Vorteile

Schnell, billig erstellt

Schnell veränderbar

Kann Spaß machen

Nachteile

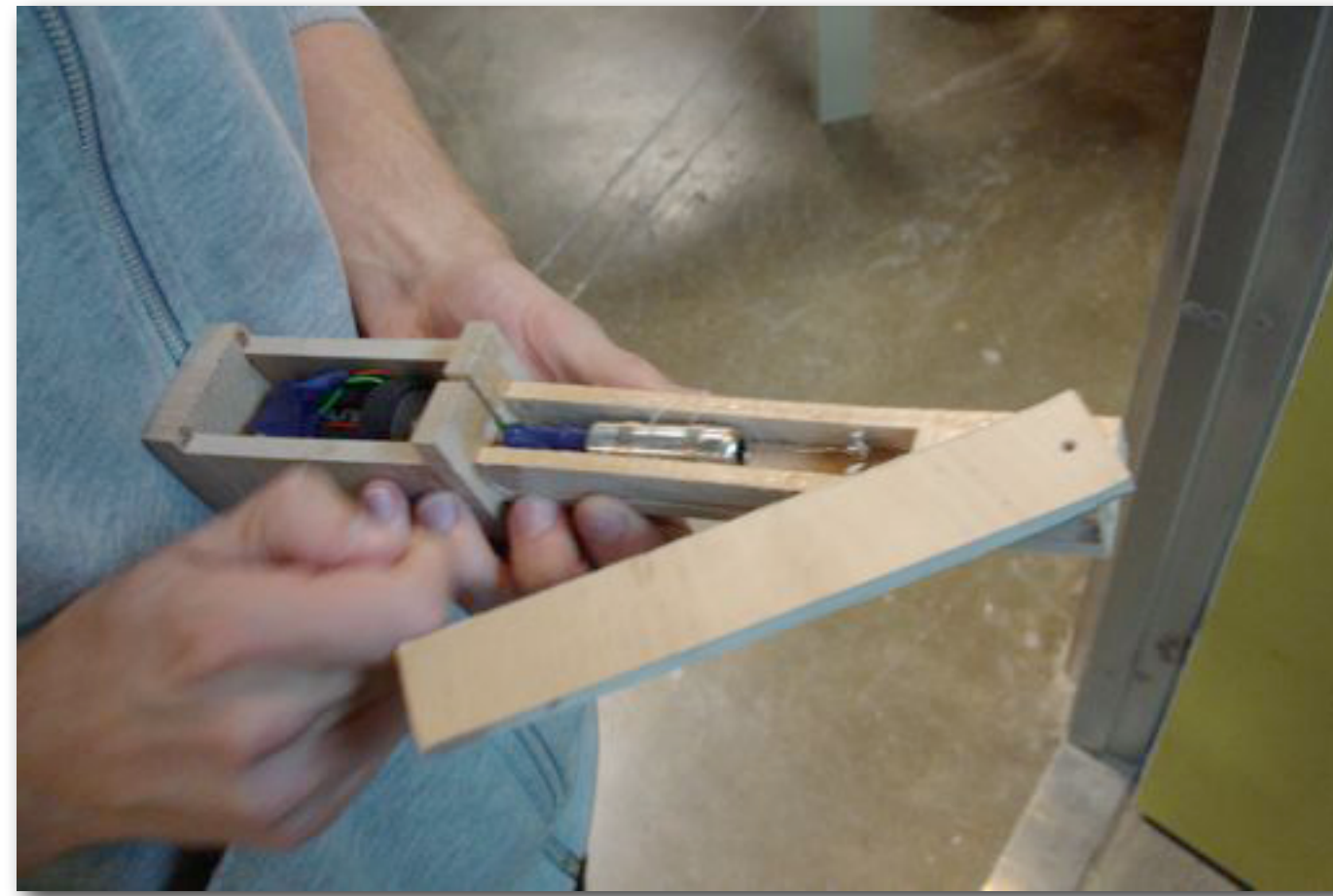
Abstrakt für Designer und Nutzer

Sehr abhängig vom Moderator

Evtl. technisch nicht umsetzbar

Mi-Fi-Prototypen

Breite, Tiefe, Interaktion und Visualität sind eingeschränkt



Designstudie

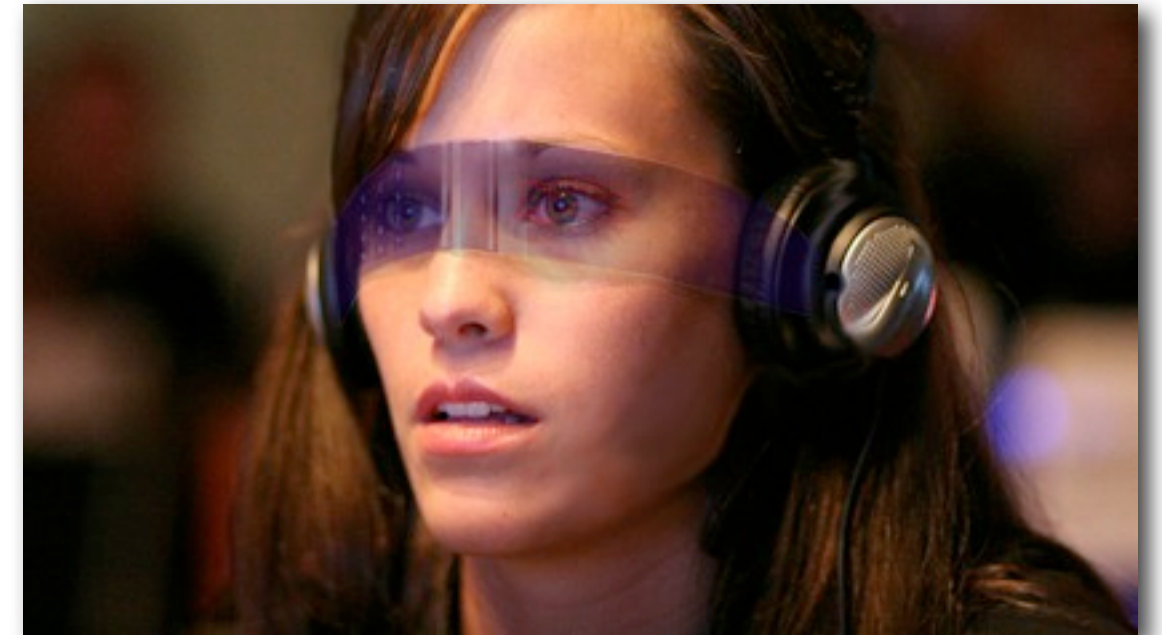
Eine Designstudie zeigt, wie das Produkt aussehen könnte, ist aber nur eine aufwändige Skizze



100 \$ Laptop



e-Newspaper

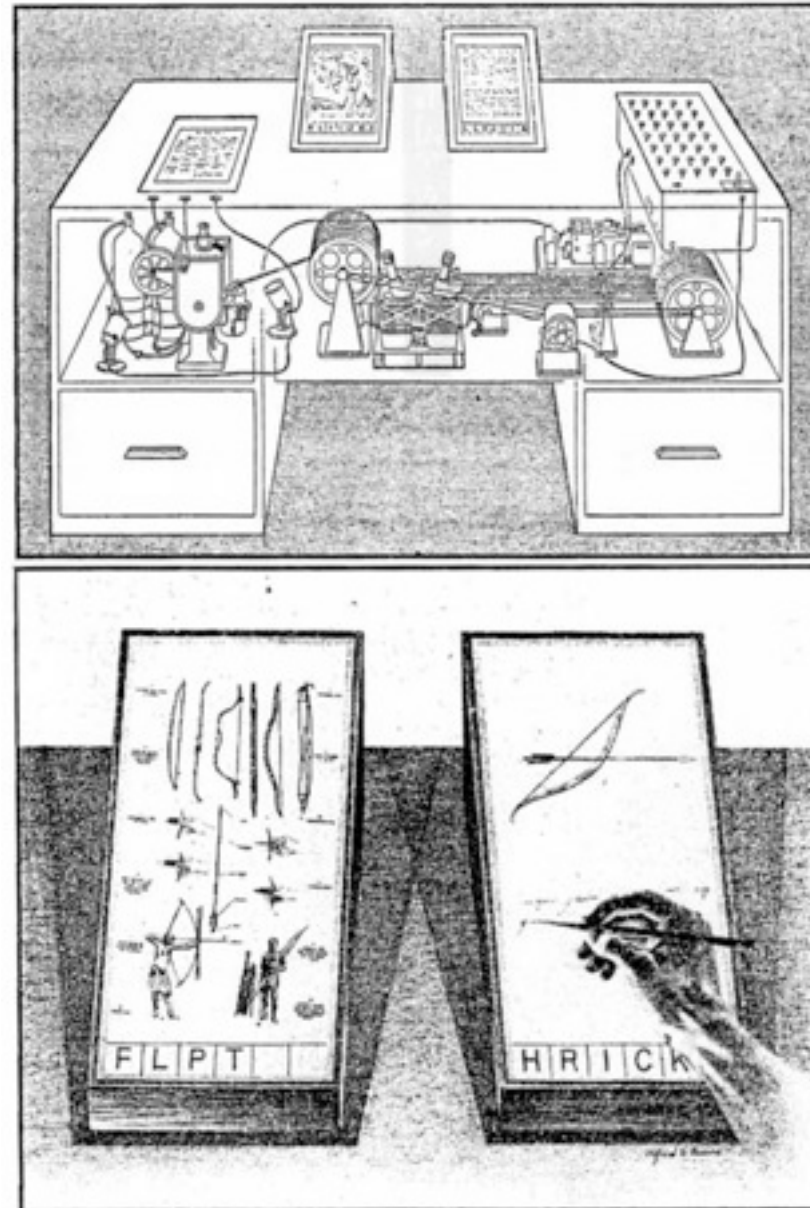


Wearable Computing

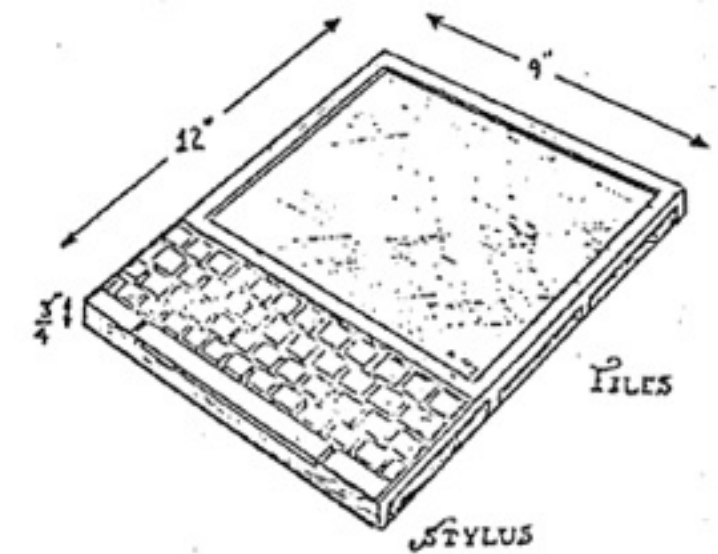
Berühmte Designstudien



Ramelli: Bücherrad, 16. Jh.



Bush: Memex, 1945



Kay: Dynabook, ca. 1972



Usage Video



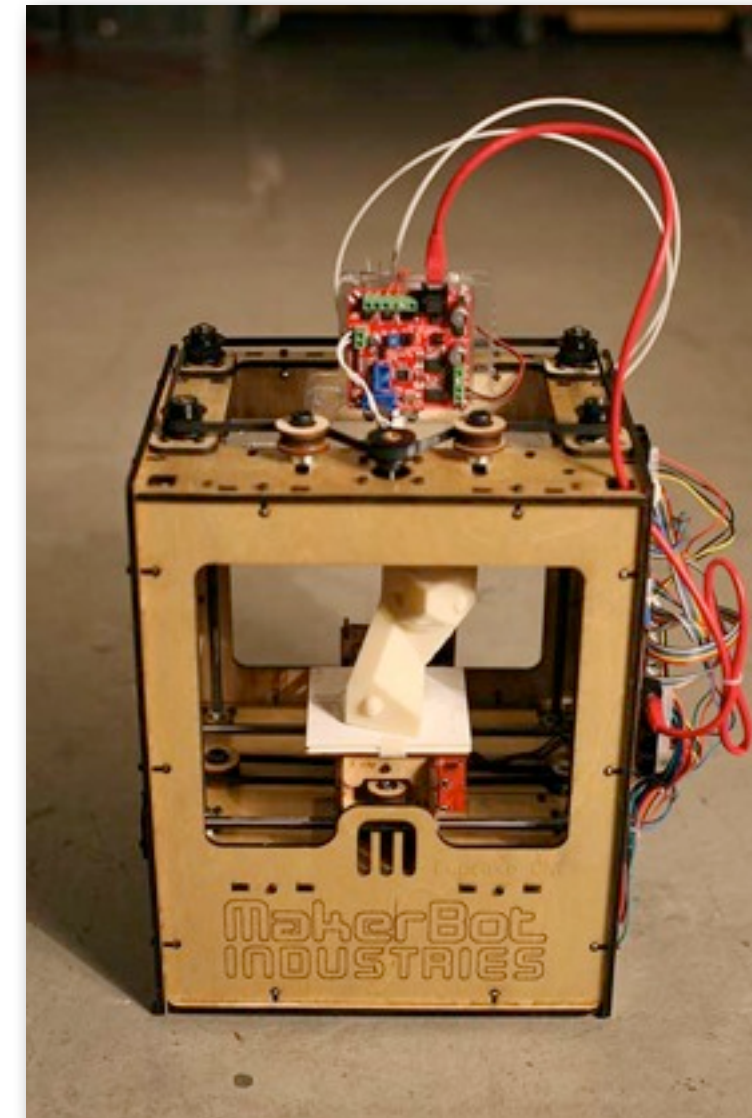
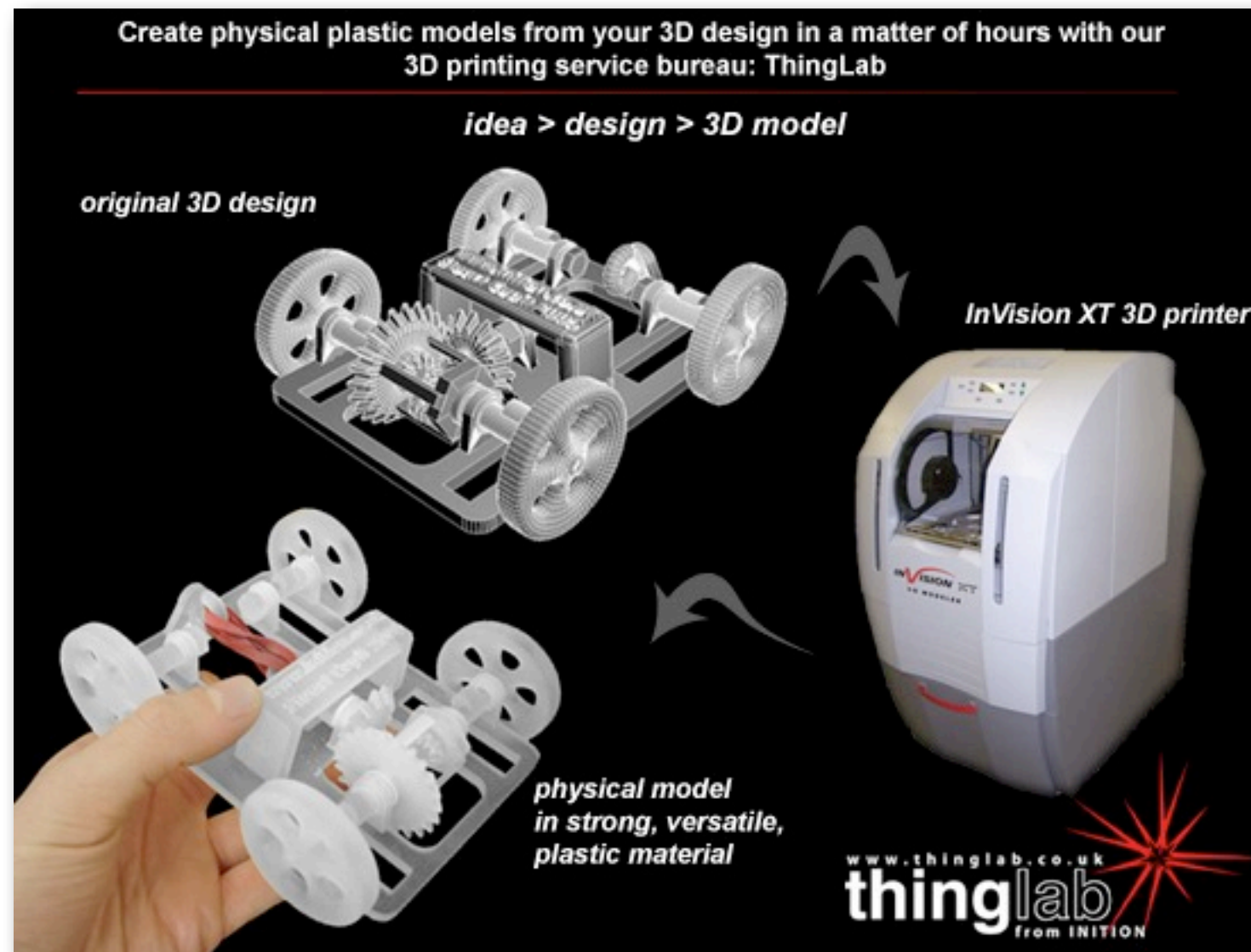
http://www.youtube.com/watch?v=tY_7HpqDrdQ&feature=related



<http://www.youtube.com/watch?v=NwVBzx0LMNQ>

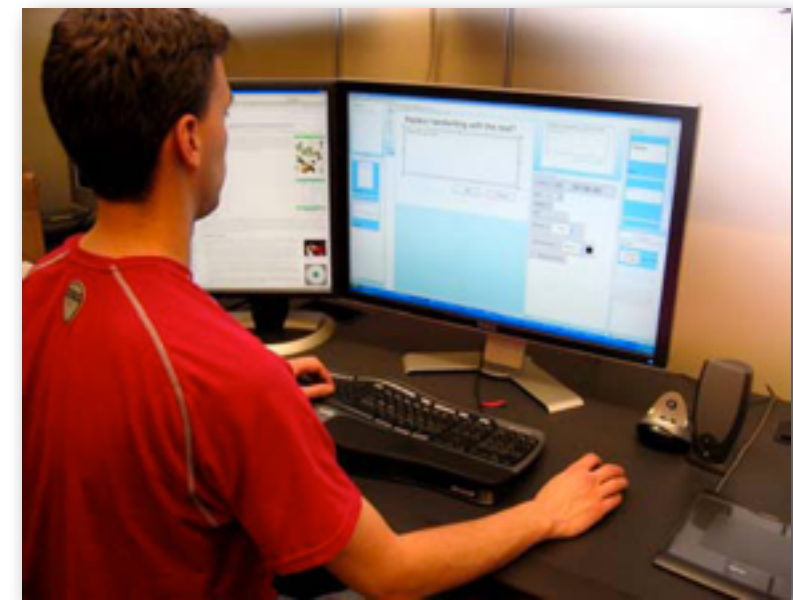
Mockups

Mockups repräsentieren die Erscheinung des Systems, ohne notwendigerweise Funktionalitäten zu implementieren.

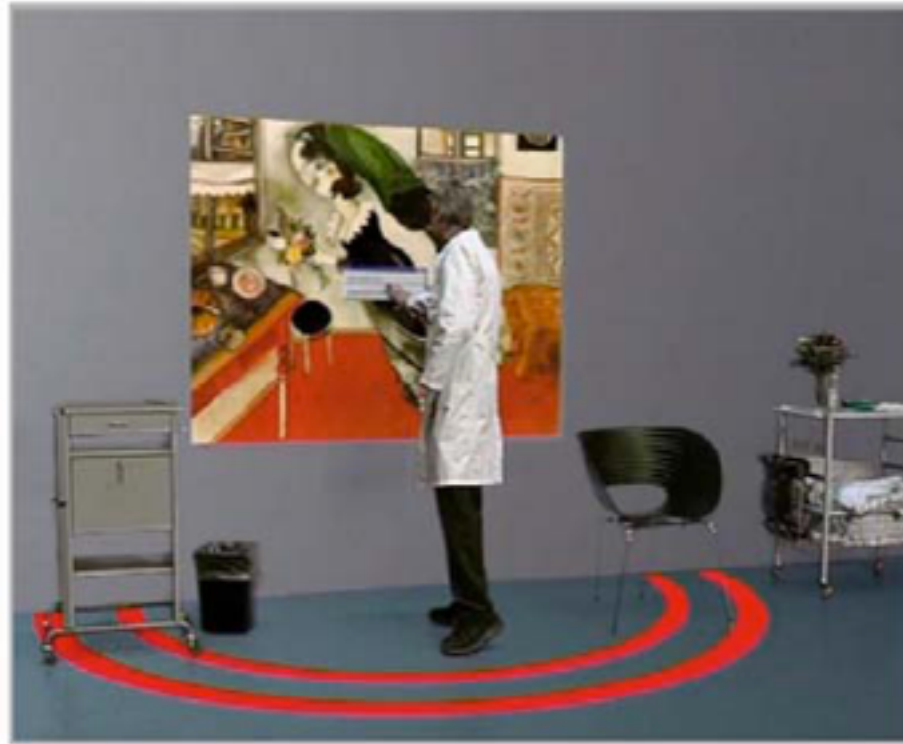


3D-Drucker ermöglichen u.a. das Erstellen von realistischen Mockups

Interaktion: Wizard-of-Oz-Prototypen



Prototyp-Theater



Ein Szenario wird vor einem Bluescreen durchgespielt und in der Postproduktion zu einem vollständigen Usage-Video ausgebaut.

Figure 4. Diana enters in a post office and has to take a number for the cue. There are several buttons to push for the numbers according to the service. Beside each button there is an explanation in Finnish, Diana scans the words with her magic thing, which are translated into English.

Experience Prototyping

Experience Prototype is any kind of representation, in any medium, that is designed to understand, explore or communicate what it might be like to engage with the product, space or system we are designing.



Figure 2: Experiencing a train journey.

The team combined objective passenger research with subjective discovery as they played out roles they assigned each other.



Figure 4: *Bodystorming layouts for an airplane interior.* Ideas were generated and evaluated rapidly by the team as they directly experienced physical and social issues in this full-scale environment.

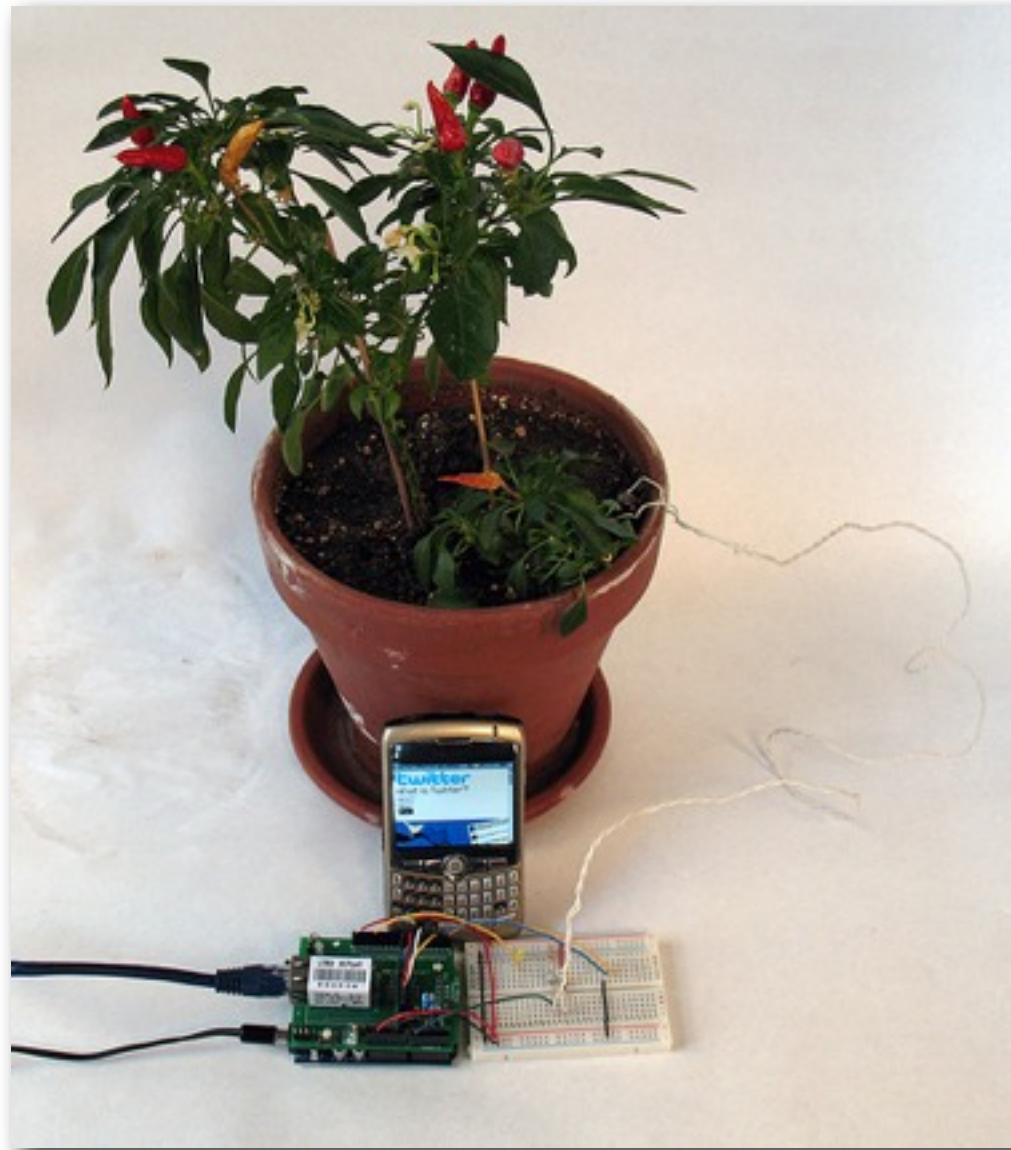
Hi-Fi-Prototypen



Figure 6: *Digital camera interaction architecture prototype.* The prototype used a desk-top computer's processing power to manipulate the dynamic qualities of the control system and screen behavior.

Für Gestaltung,
Aussehen, Zeitverhalten,
genaue Funktionen

Funktionsfähige Prototypen

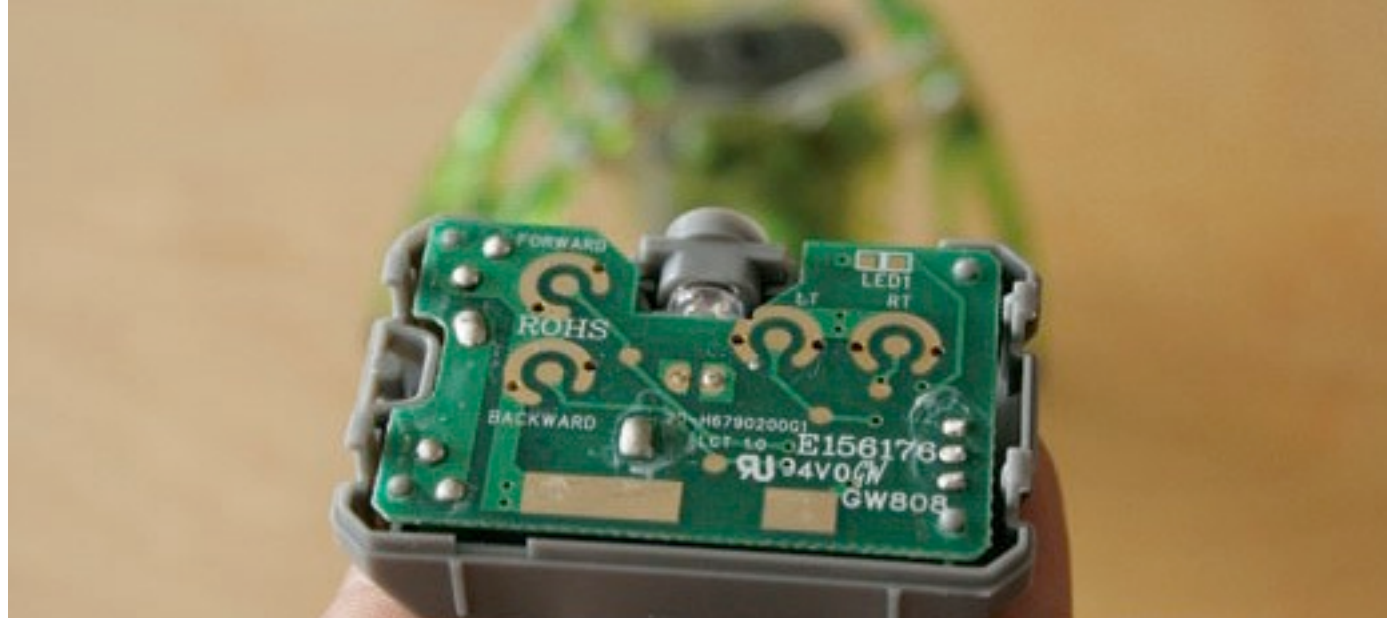


<http://shebytes.posterous.com/inspiring-arduino-project-botani-calls-twitte>

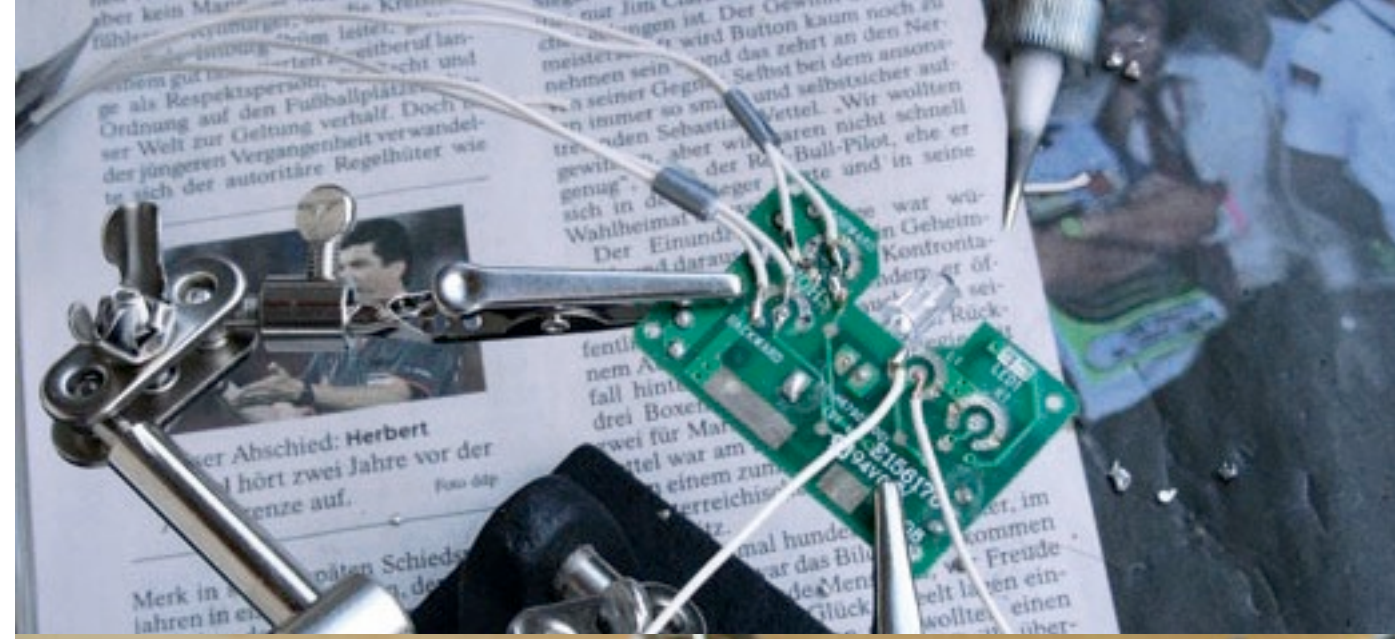
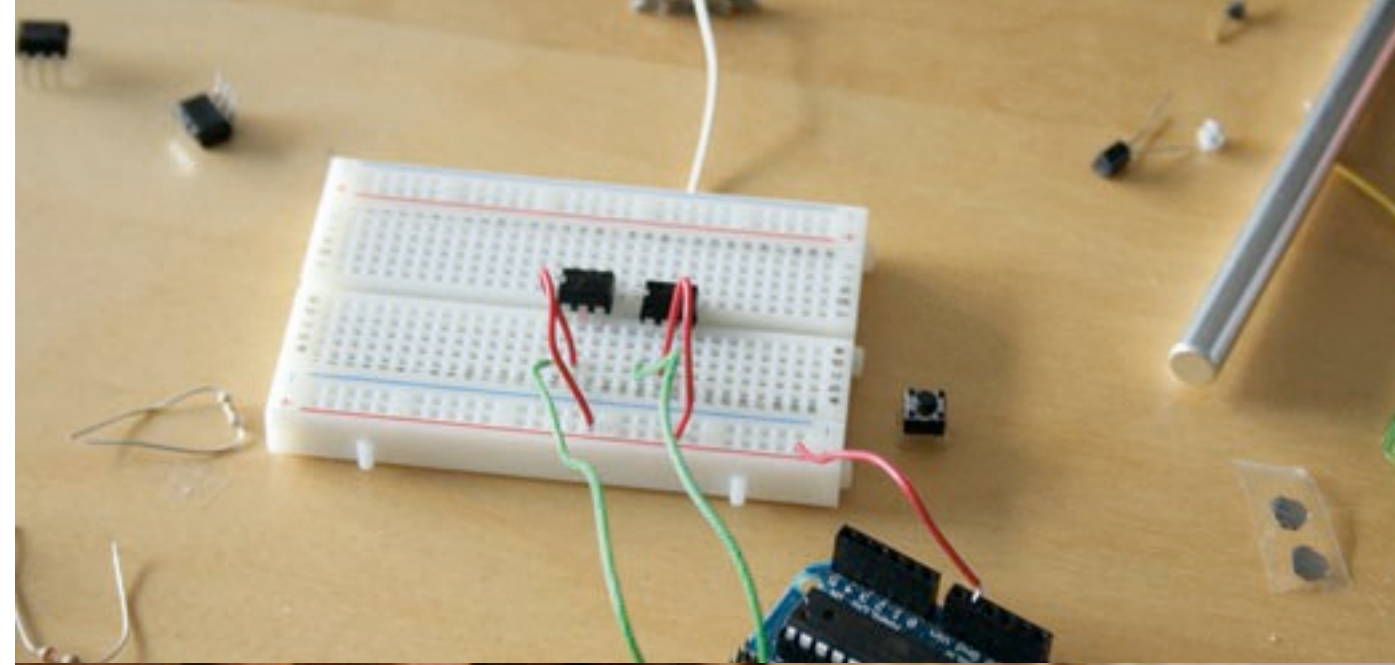
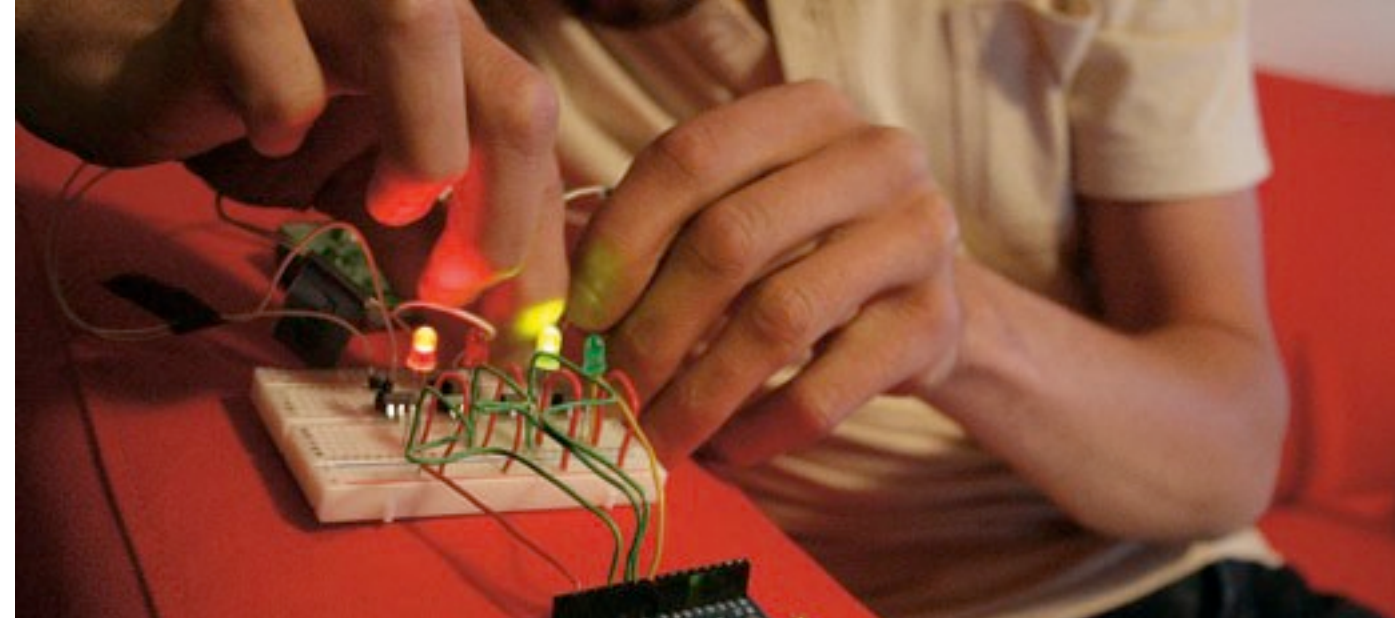


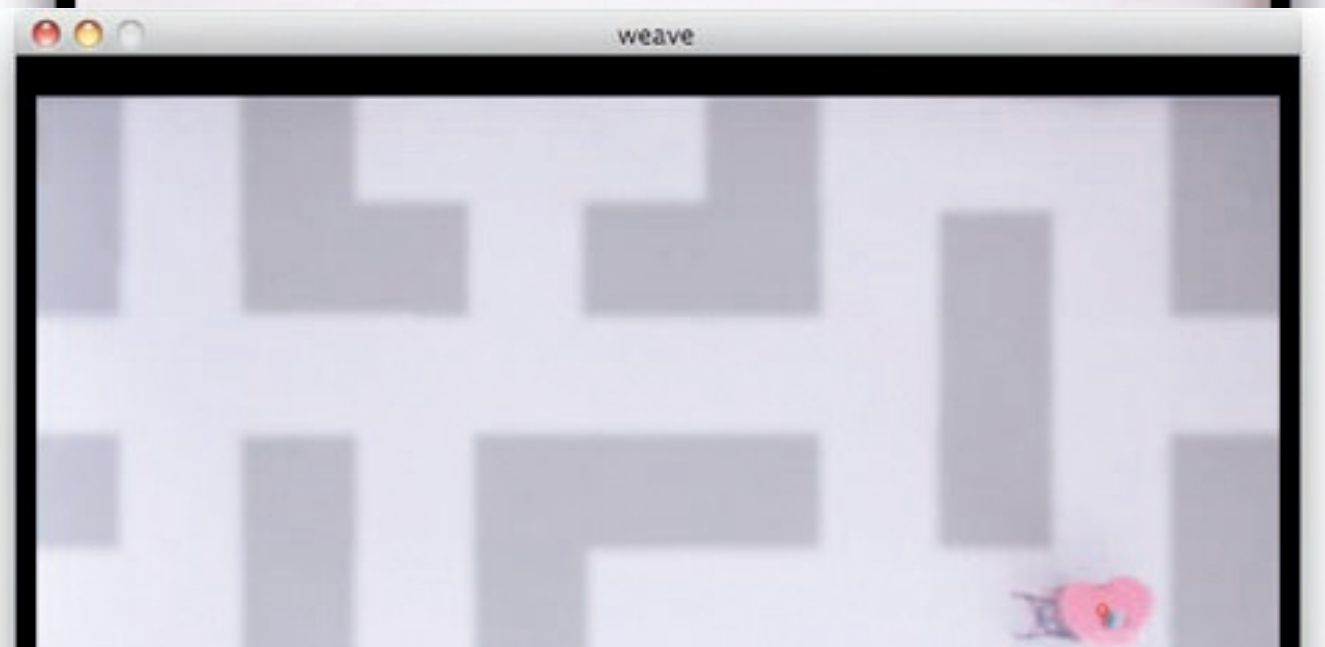
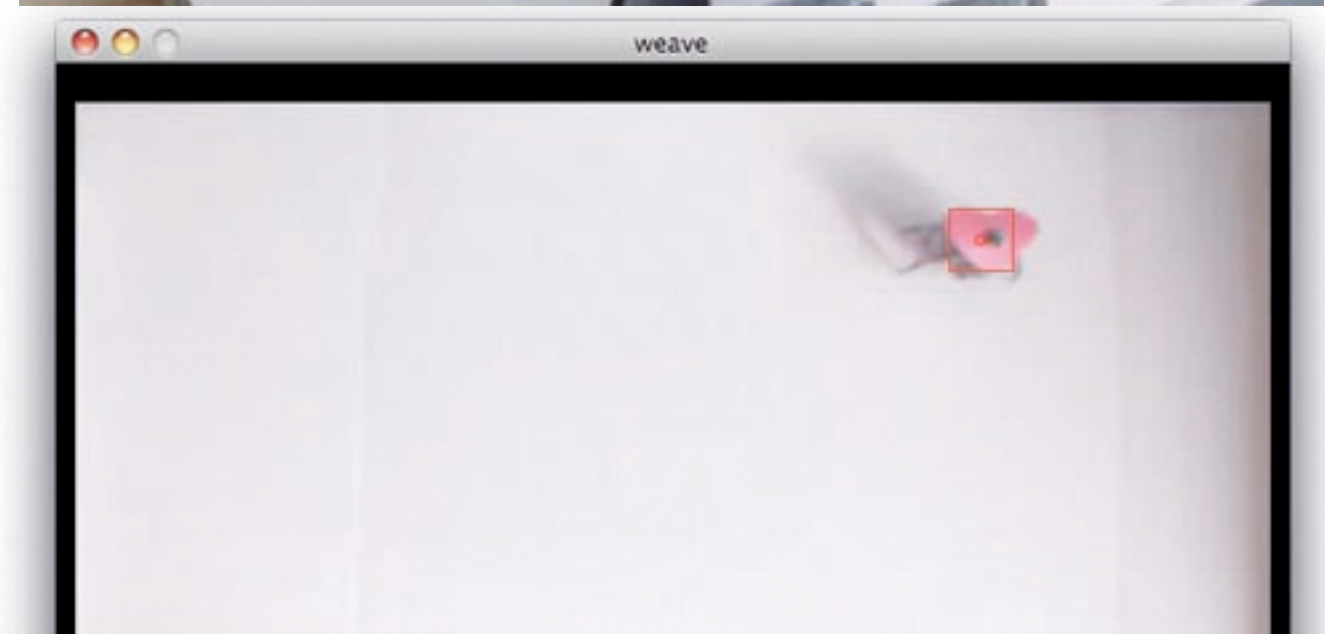
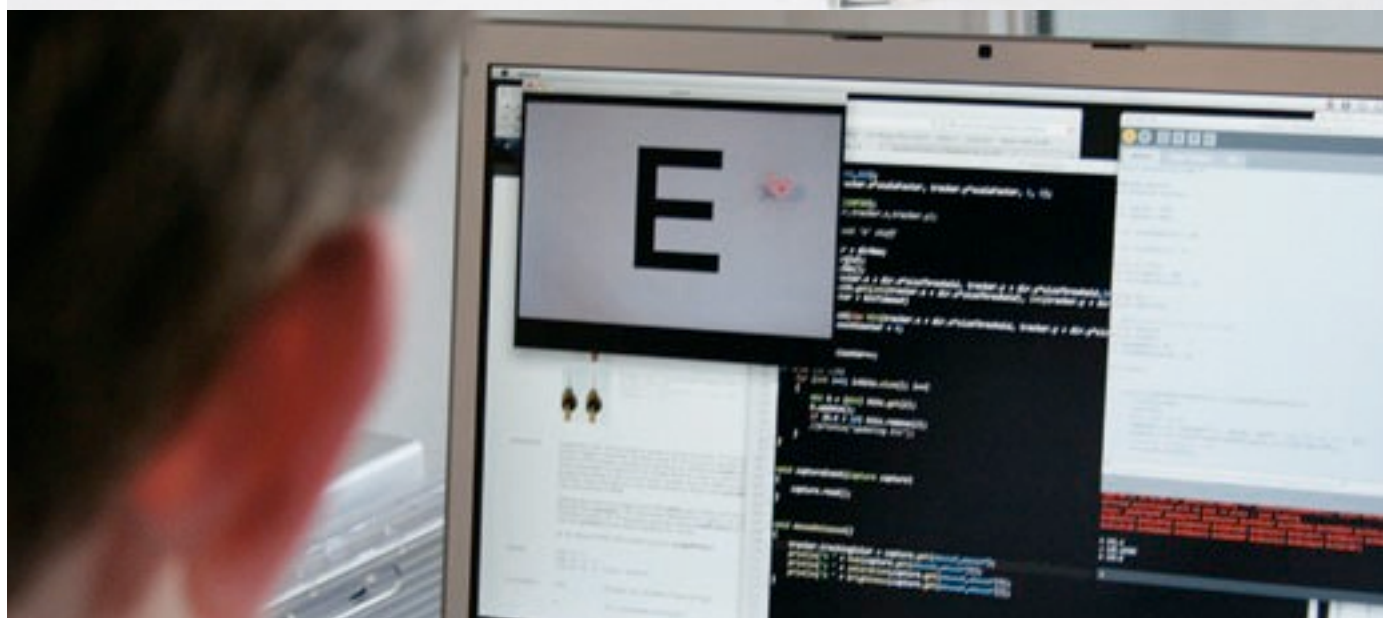
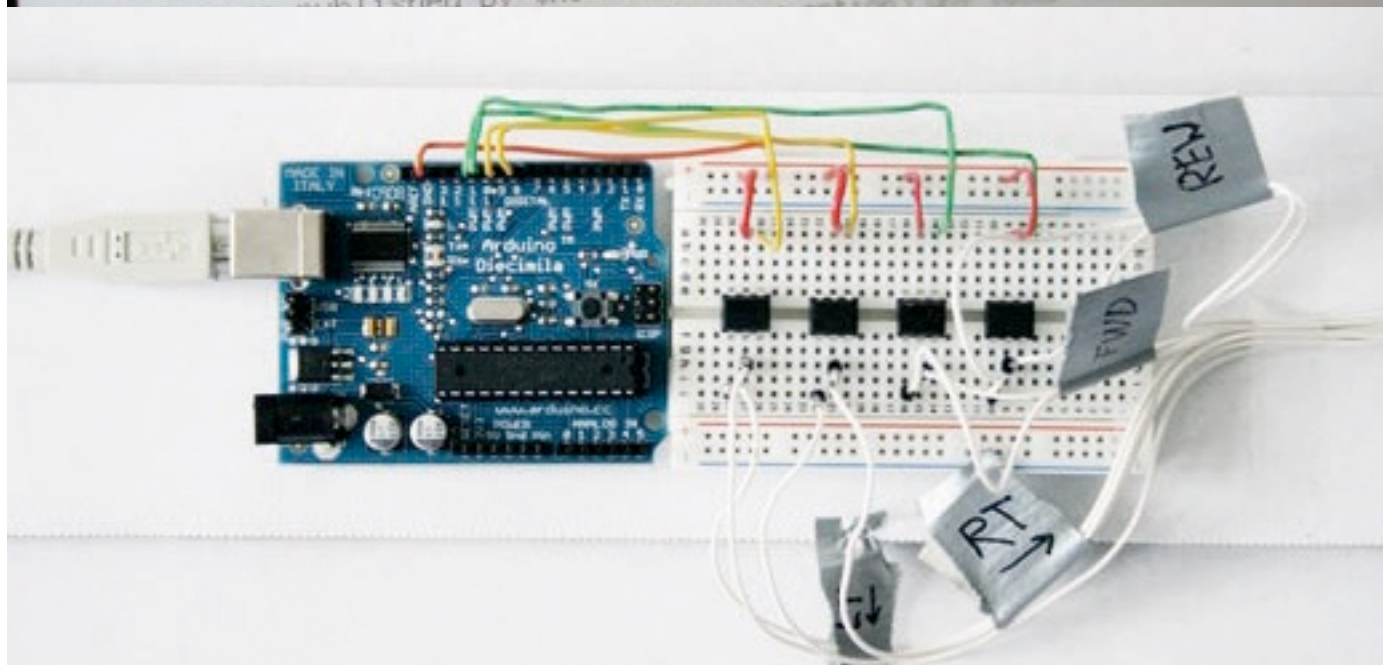
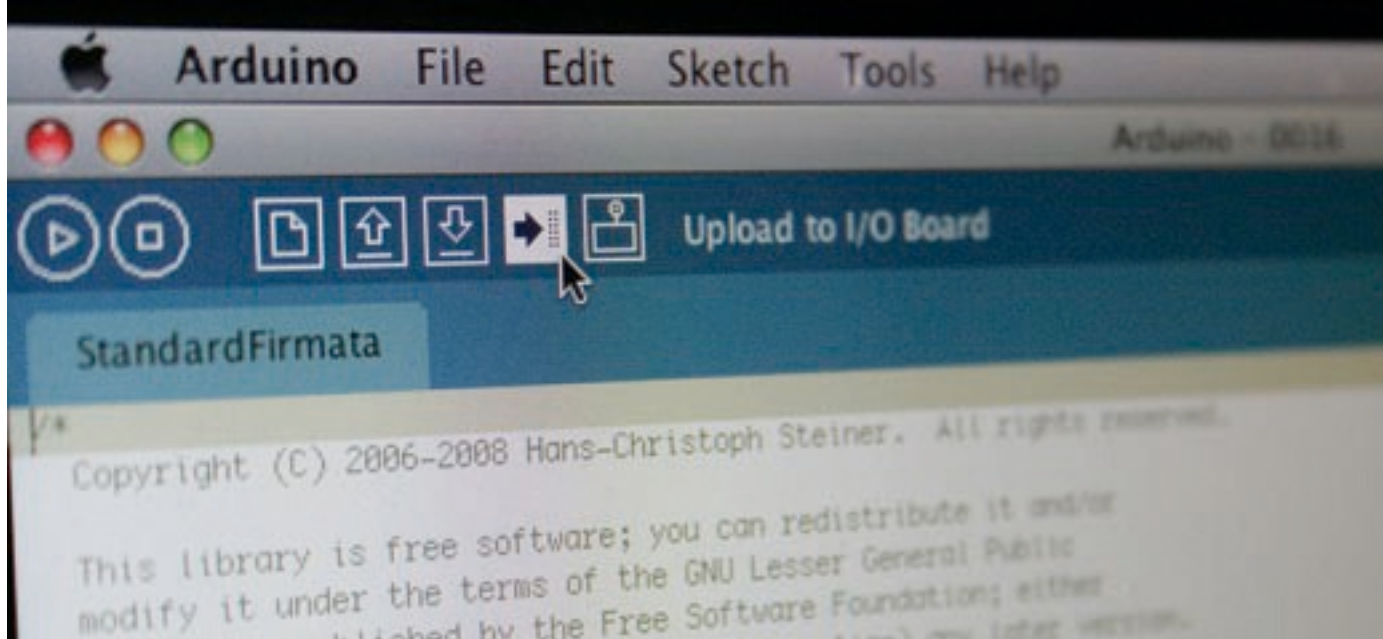
Energy Race, ein Projekt im iLab.

Tentakel-Roboter



<http://www.spiegel.de/netzwelt/games/0,1518,647596,00.html>





Wearable Computing

Steve Mann's "wearable computer" and "reality mediator" inventions of the 1970s have evolved into what looks like ordinary eyeglasses.



(a)
1980



(b)
Mid 1980s



(c)
Early 1990s



(d)
Mid 1990s



(e)
Late 1990s

Ubiquitous Computing



Pranav Mistry: Sixth Sense

<http://www.youtube.com/watch?v=mUdDhWfpqyg>

Werkzeuge

Die im iLab betreut werden

Exhibition



[Branching Morphogenesis](#)
by Sabin+Jones LabStudio



[Telekom Realtime Information Graphics](#)
by Zum Kuckuck

Books



[Processing: A Handbook for Visual Designers and Artists](#)
By Casey Reas and Ben Fry

[Learning Processing](#)
By Daniel Shiffman



» Download Processing

Processing is an open source programming language and environment for people who want to program images, animation, and interactions. It is used by students, artists, designers, researchers, and hobbyists for learning, prototyping, and production. It is created to teach fundamentals of computer programming within a visual context and to serve as a software sketchbook and professional production tool.

Processing is free to [download](#) and available for GNU/Linux, Mac OS X, and Windows. To contribute to the project's development, please visit <http://dev.processing.org/>, which includes bug tracking and instructions for building the code, downloading the source, and creating libraries and tools.

Processing is an open project initiated by [Ben Fry](#) and [Casey Reas](#). It evolved from ideas explored in the Aesthetics and Computation Group at the MIT Media Lab.

Please check out recent Processing activity on the Web:

[OpenProcessing](#)
[Processing @ Vimeo](#)
[Processing @ del.icio.us](#)
[Processing @ Flickr](#)
[Processing @ YouTube](#)

Updates

18 Oct 2009
Processing 1.0.8 released.

18 Oct 2009
Software from Sabin+Jones LabStudio added to the [exhibition](#).

2 Oct 2009
Software from Zum Kuckuck added to the [exhibition](#).

4 Sep 2009
Processing 1.0.7 released.

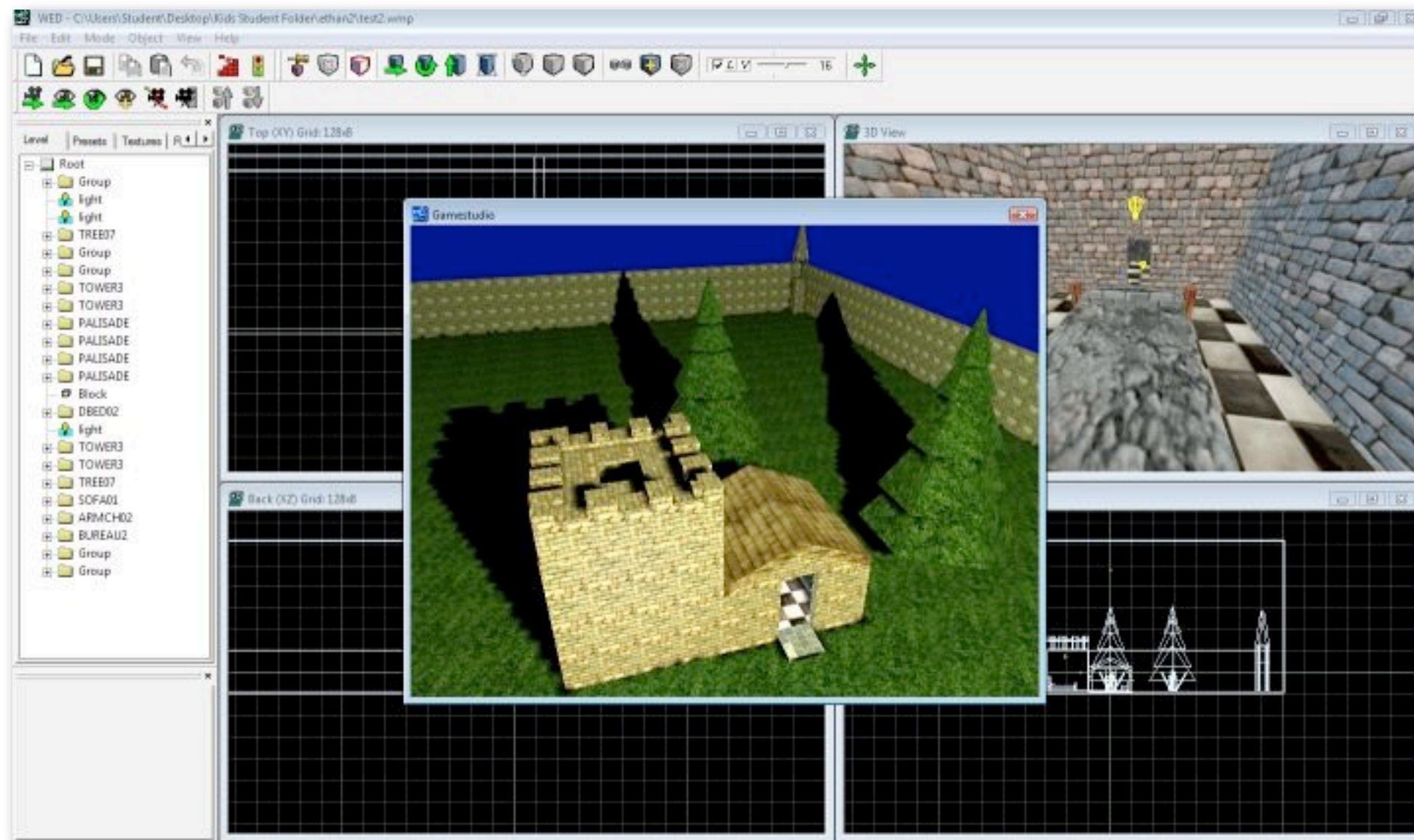
3 Sep 2009
Software from Ben Hemmendinger added to the [exhibition](#).

24 Aug 2009
Nine new libraries added to [Contributions](#): tslib by Nikolaus Gradwohl, MRI3DS and ObjImport by Victor Martins, IntegralHistogram by Giovanni Tarducci and

Processing

processing.org

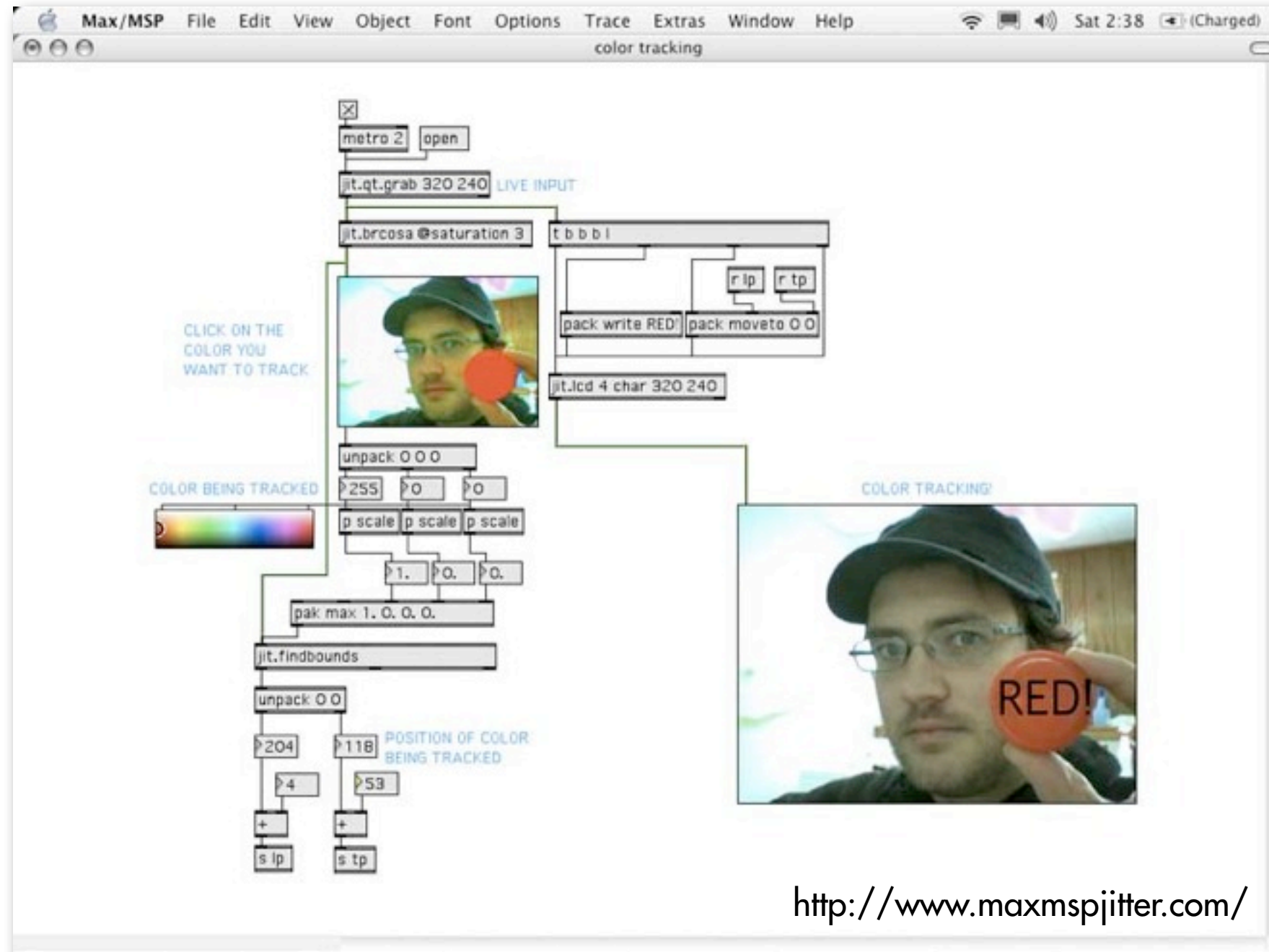
Game Studio A7



www.conitec.net/german/gstudio/

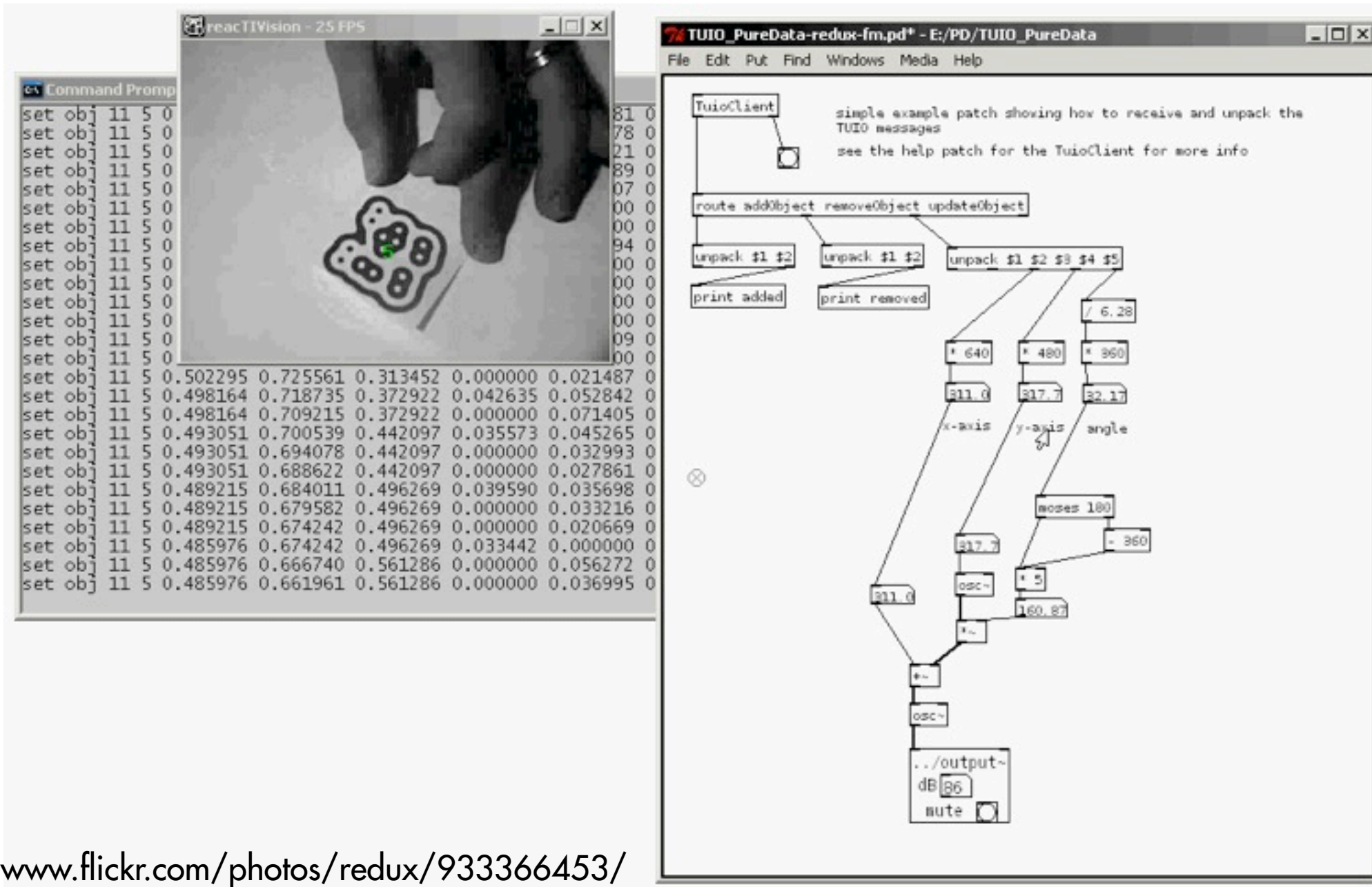
MAX / MSP / Jitter

<http://cycling74.com/products/>



Pure Data

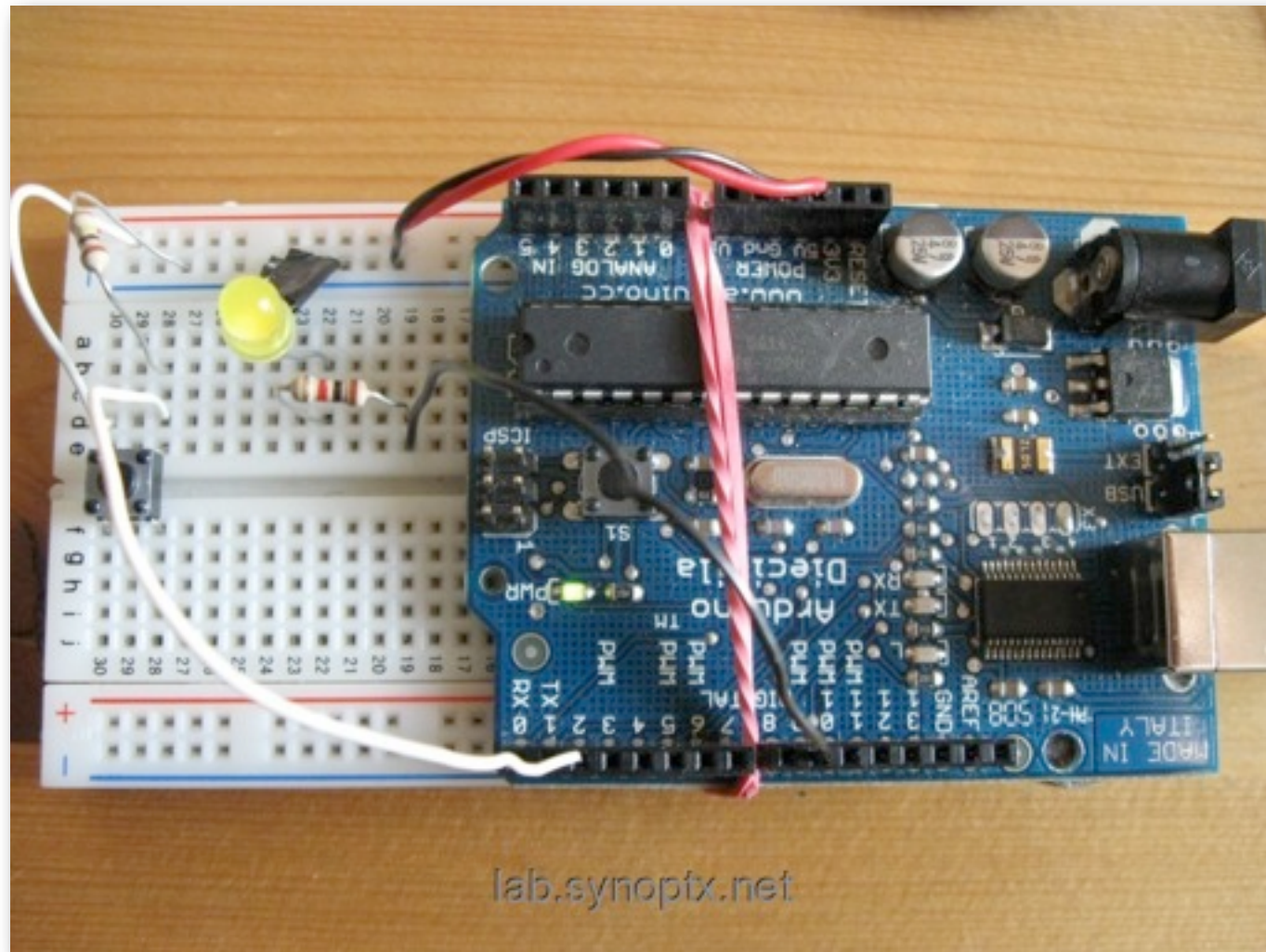
puredata.info

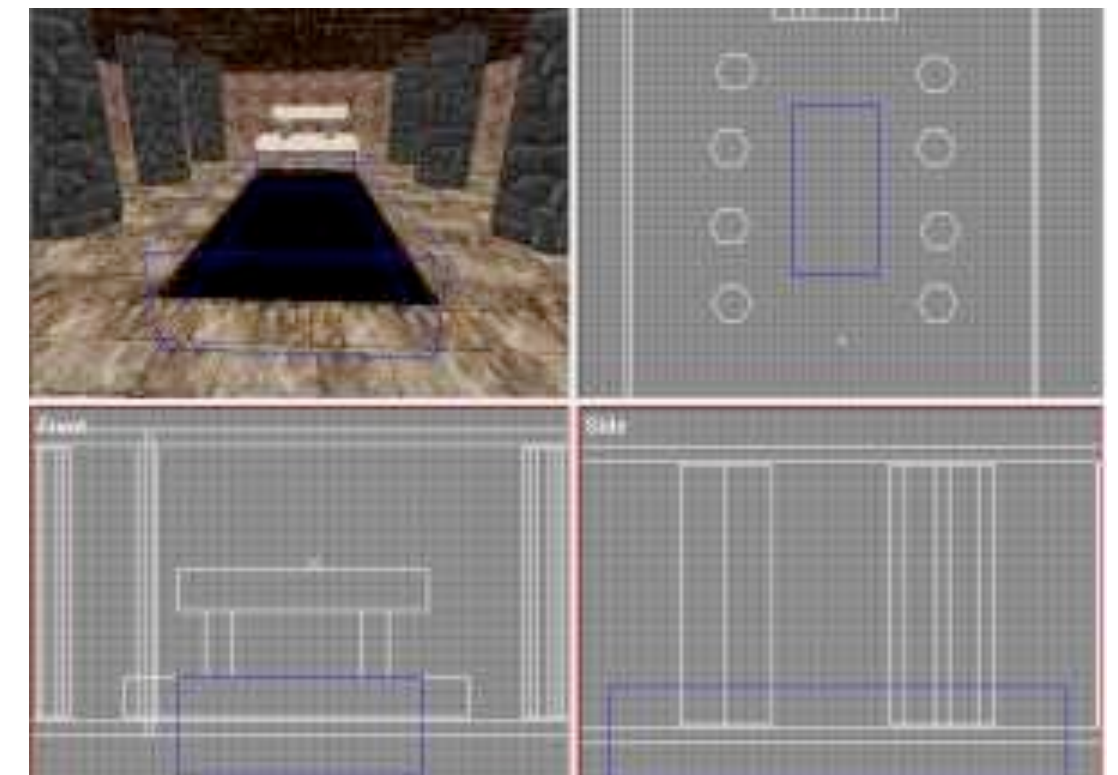
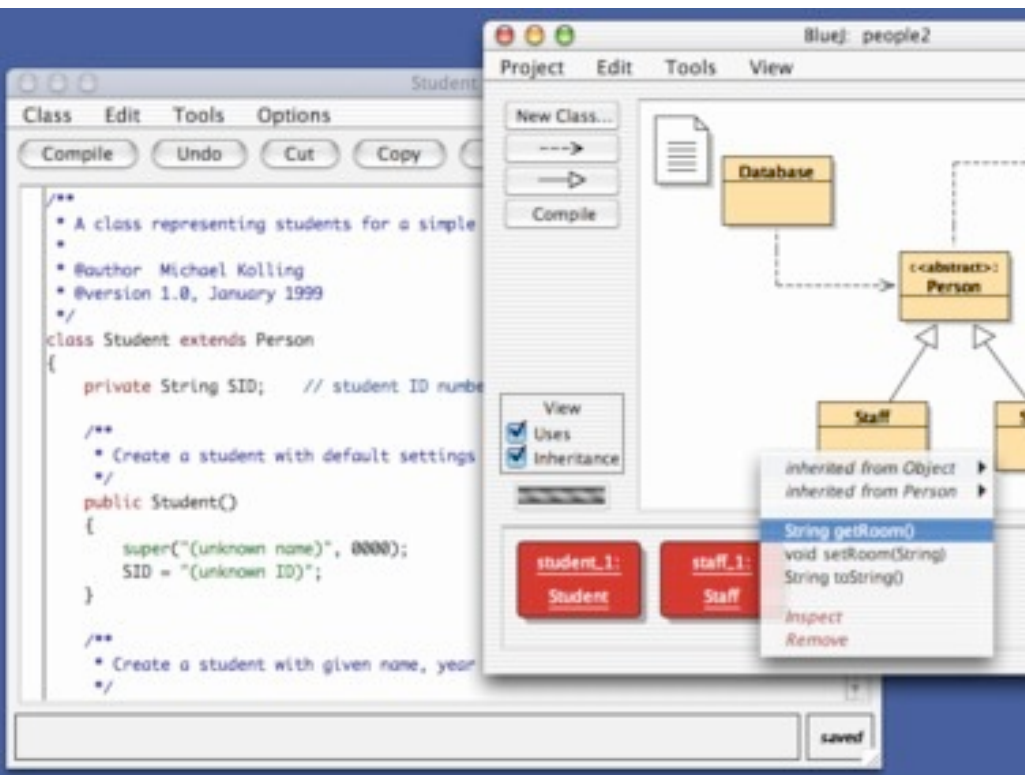
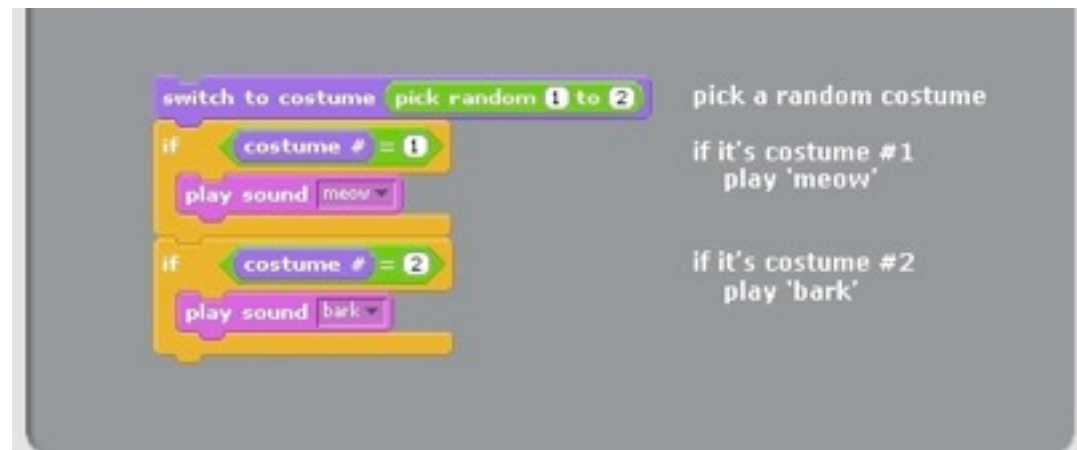


<http://www.flickr.com/photos/redux/933366453/>

Arduino / Lillypad

arduino.cc





Squeak | Etoys | Hackety Hack | Scratch | BlueJ | Reality Factory