

# Interaction Design

Chapter 7 (May 13, 2015, 9am-12pm):

Prototyping UX - From Sketch to Prototype

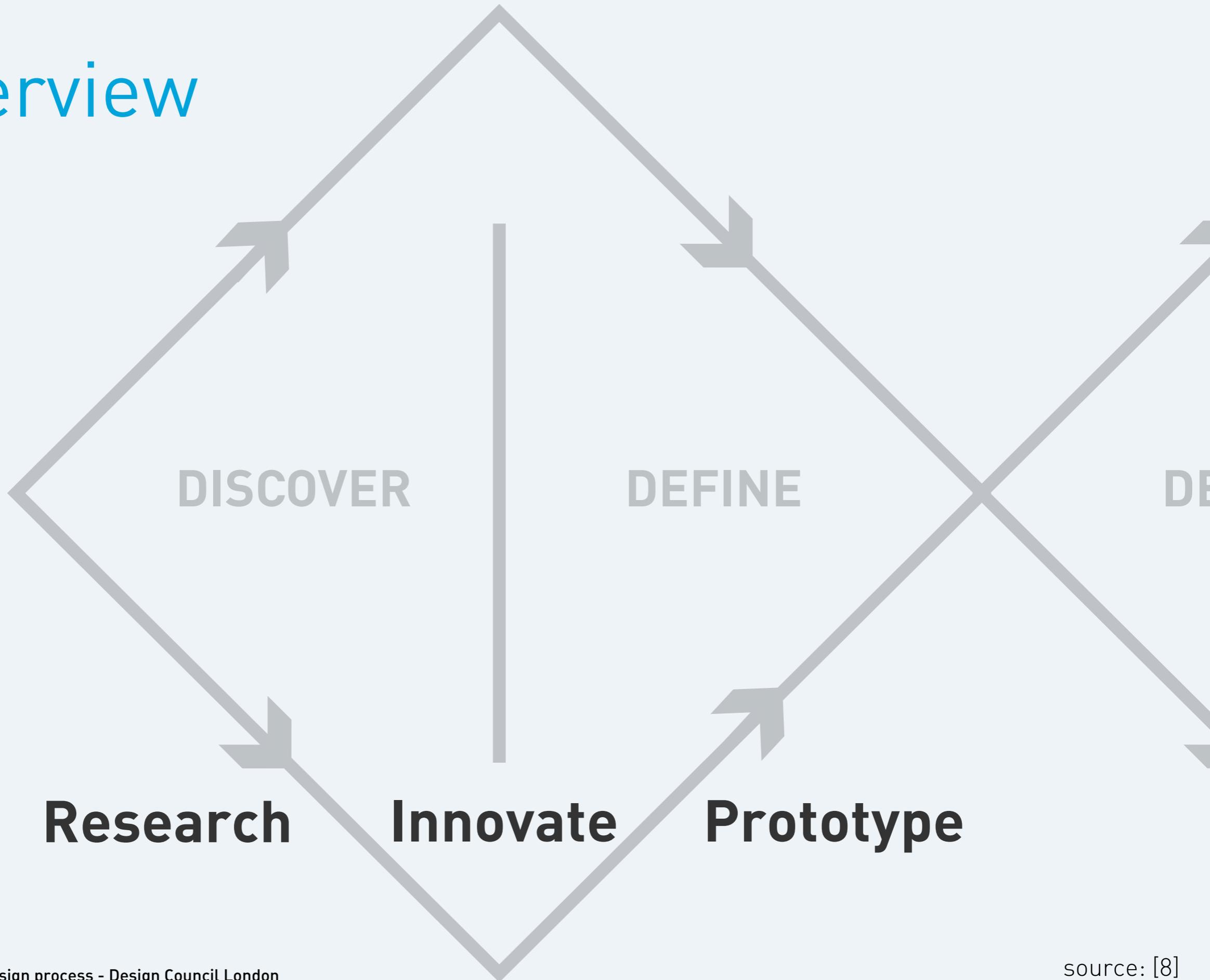
# Overview:

- Intro & Designprocess Phase
- Values and Levels of Prototyping
- UX Prototyping Techniques
- Prototyping Case Study

# User Experience Design



# Overview



# Overview

Tell a story  
Make it tangible

DISCOVER  
DEFINE

**Prototype**

DE

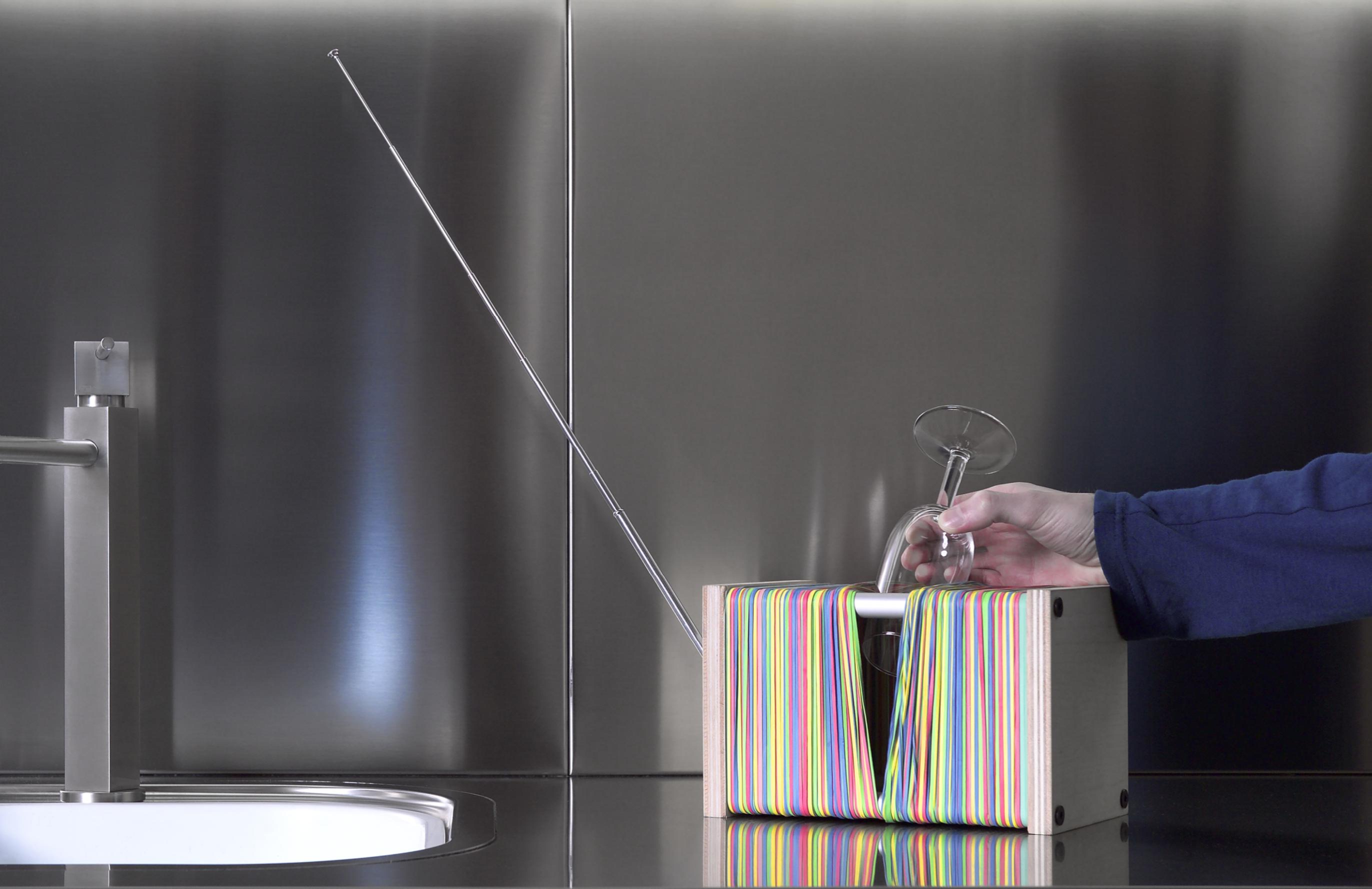


Some Examples  
of a school called  
**Interaction  
Design Institute  
Ivrea ...**  
(IDII)

**Task:** Design a new interface for one of the functions of a radio alarm clock or phone answering machine.













STRANGELY *familiar*

*Siena*



# Overview:

- Intro & Designprocess Phase
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**For the Designer:** Exploration  
Visualisation  
Feasibly  
Inspiration  
Collaboration

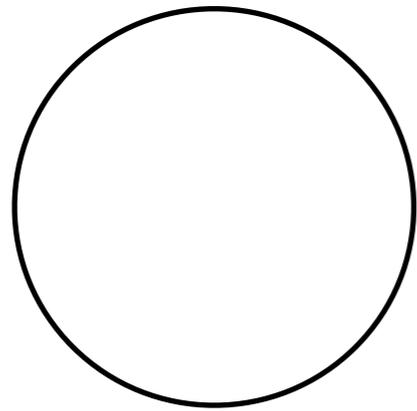
**For the End User:** Effectiveness / Usefulness  
A change of viewpoint  
Usability  
Desirability

**For the Producer:** Conviction  
Specification  
Benchmarking

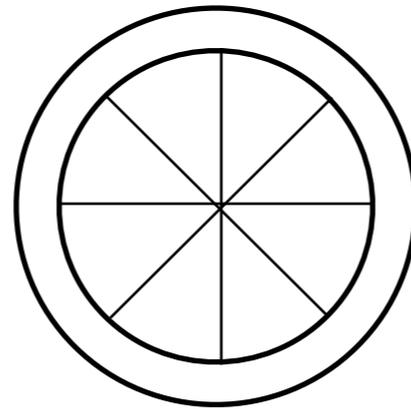
**It's really hard to design products by focus groups. A lot of times, people don't know what they want until you show it to them.**

Steve Jobs

# Fidelity v. Resolution



low resolution  
low fidelity



high resolution  
low fidelity



high resolution  
high fidelity

Low Fidelity

High Fidelity



Open Discussion

Sharp Opinions

Prompting Required

Self Explanatory

Quick and Dirty

Deliberate and Refined

Early Validation

Concrete Ideas

Low Resolution

High Resolution



Less Details

More Details

Focus on core interactions

Focus on the whole

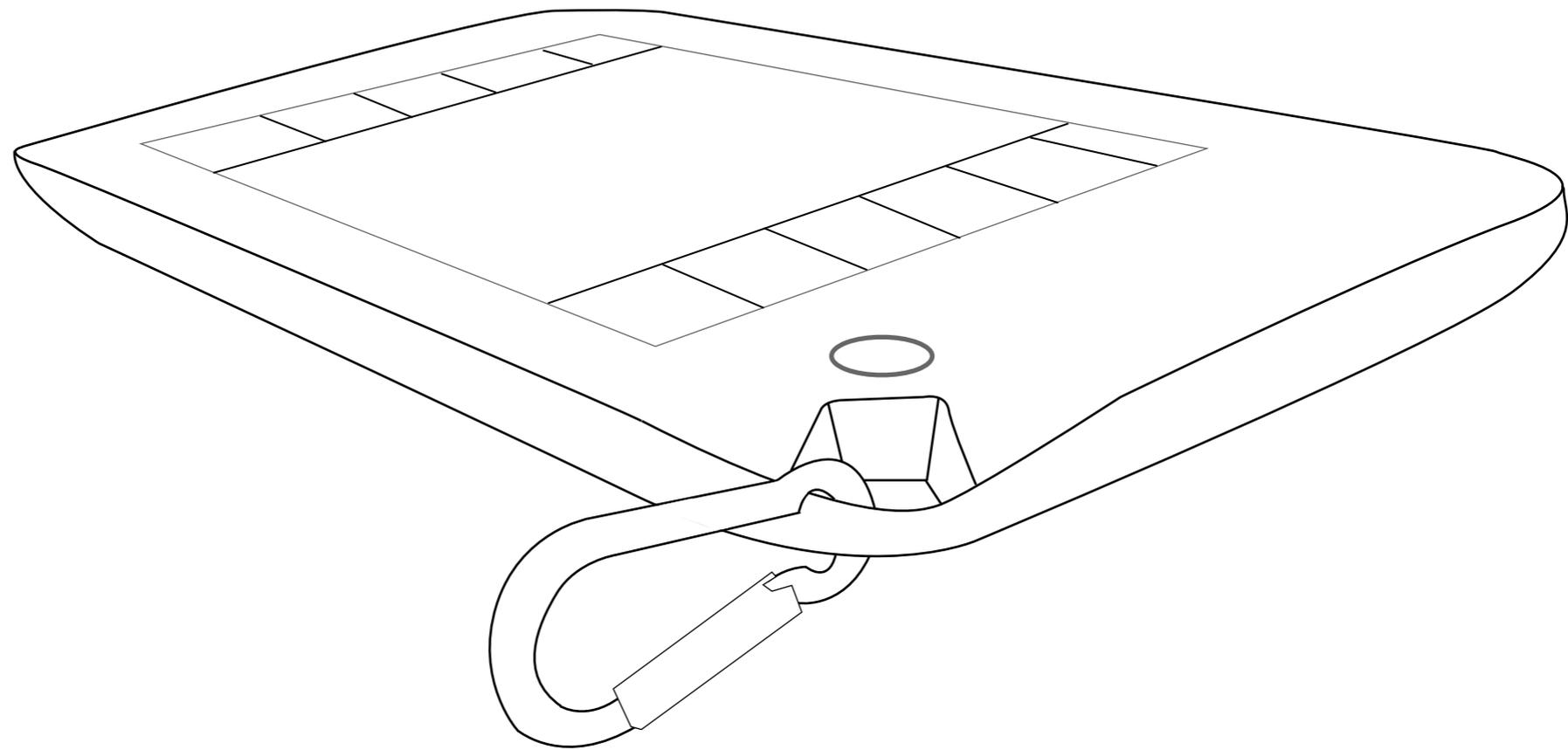
Quick and Dirty

Deliberate and Refined

Early Validation

Concrete Ideas

1st Iteration  
low-res/low-fi

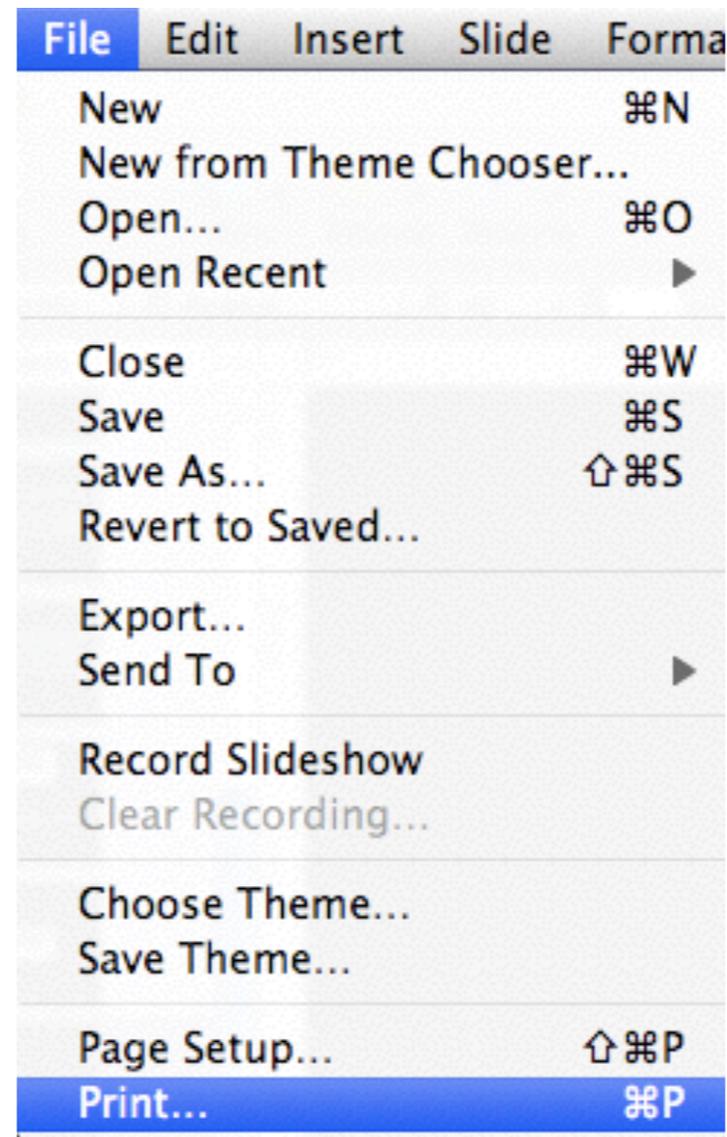


4th Iteration  
high-res/high-fi





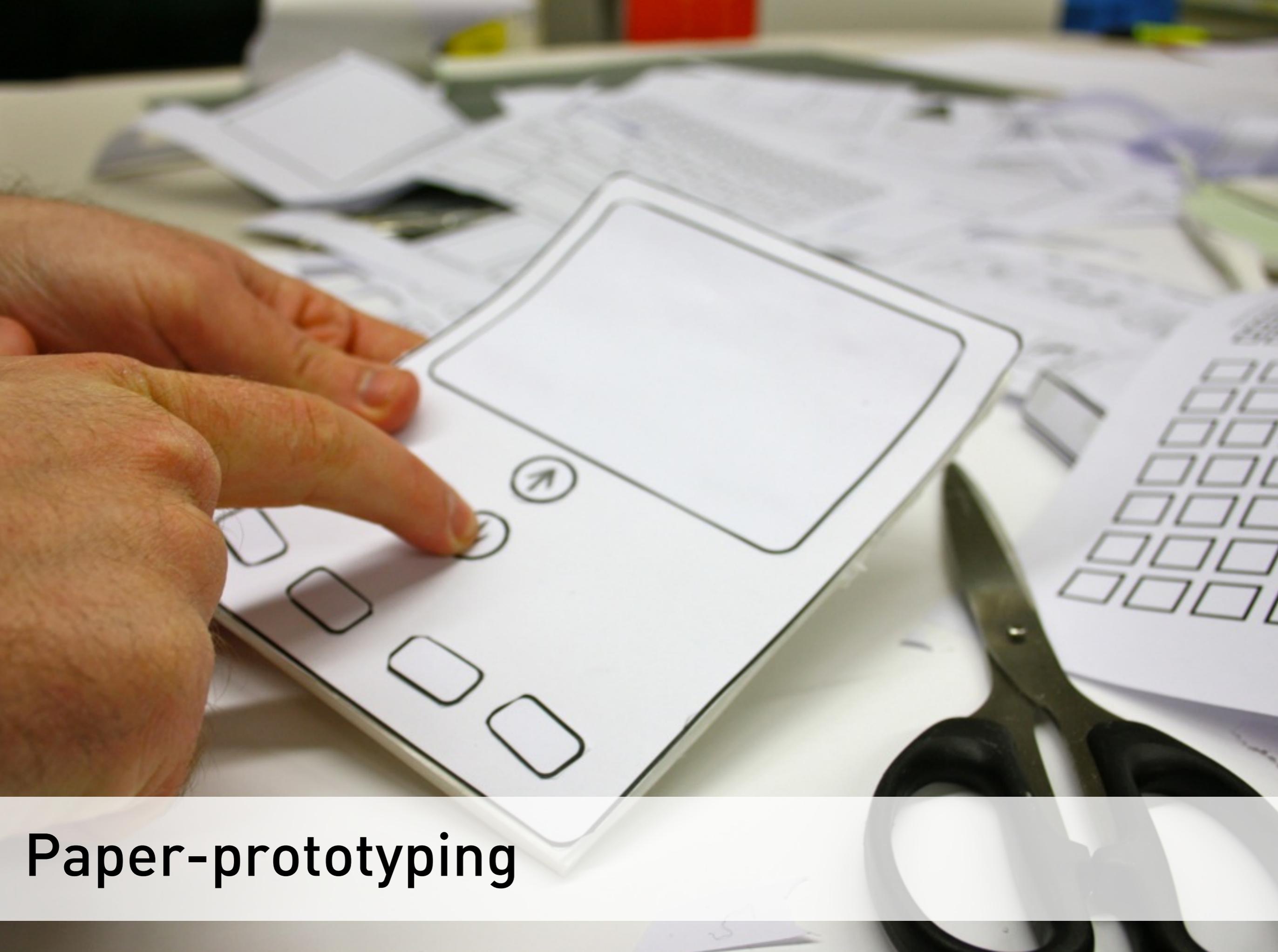
**80/20 rule**



**A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.**

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- **UX Prototyping Techniques**
- Prototyping Case Study



# Paper-prototyping

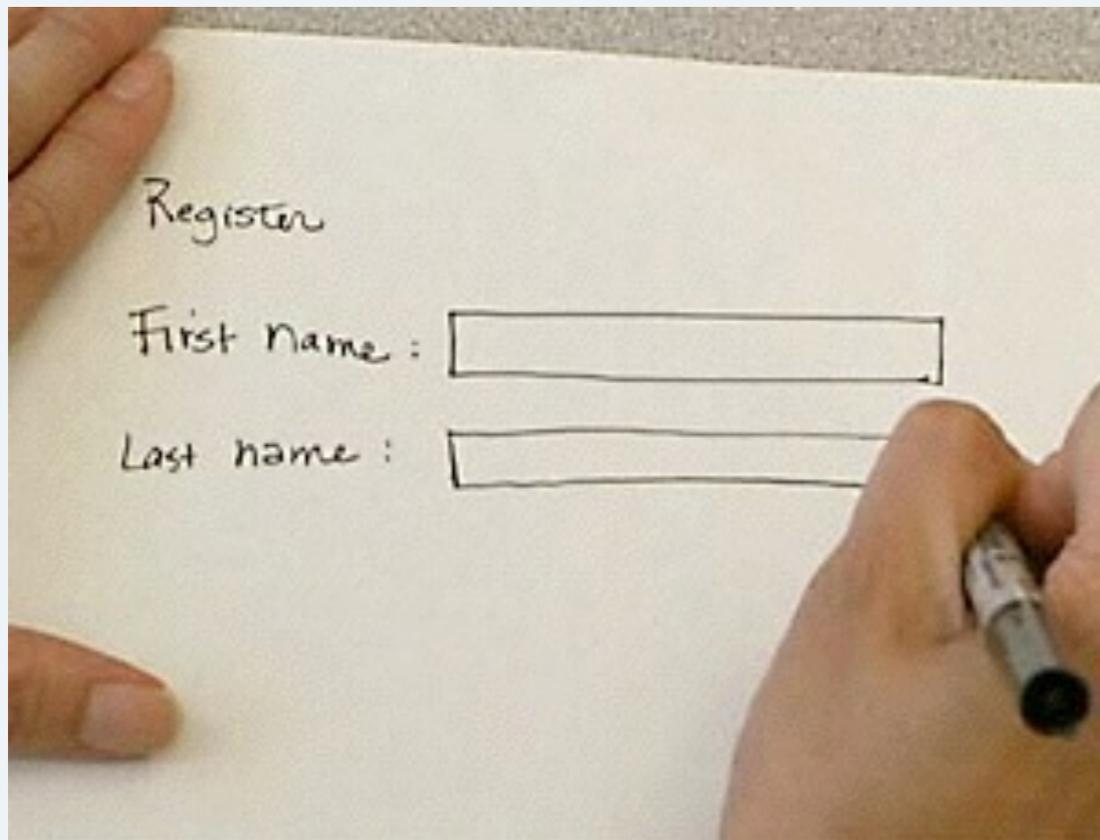
# What is it?

Paper prototyping is a widely used method in the user-centered design process, a process that helps developers to create products/screen based applications that meets the user's expectations and needs.

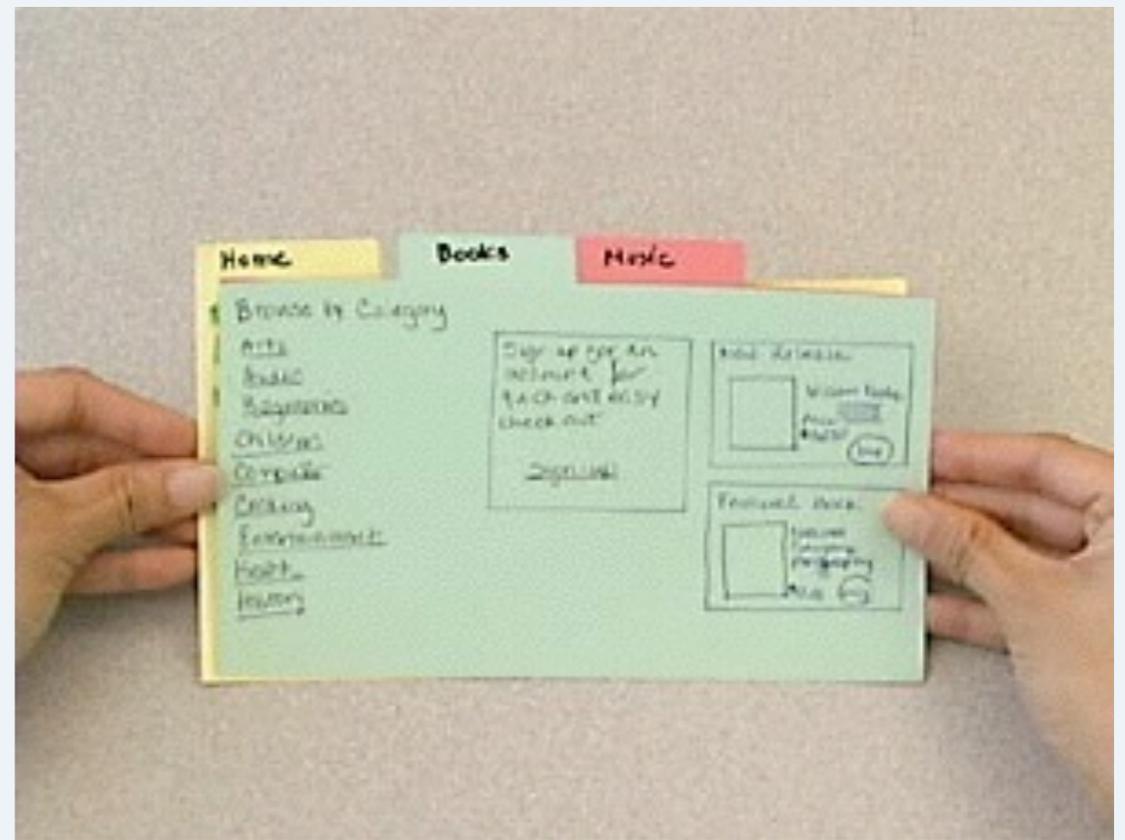
It is **throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.

# History

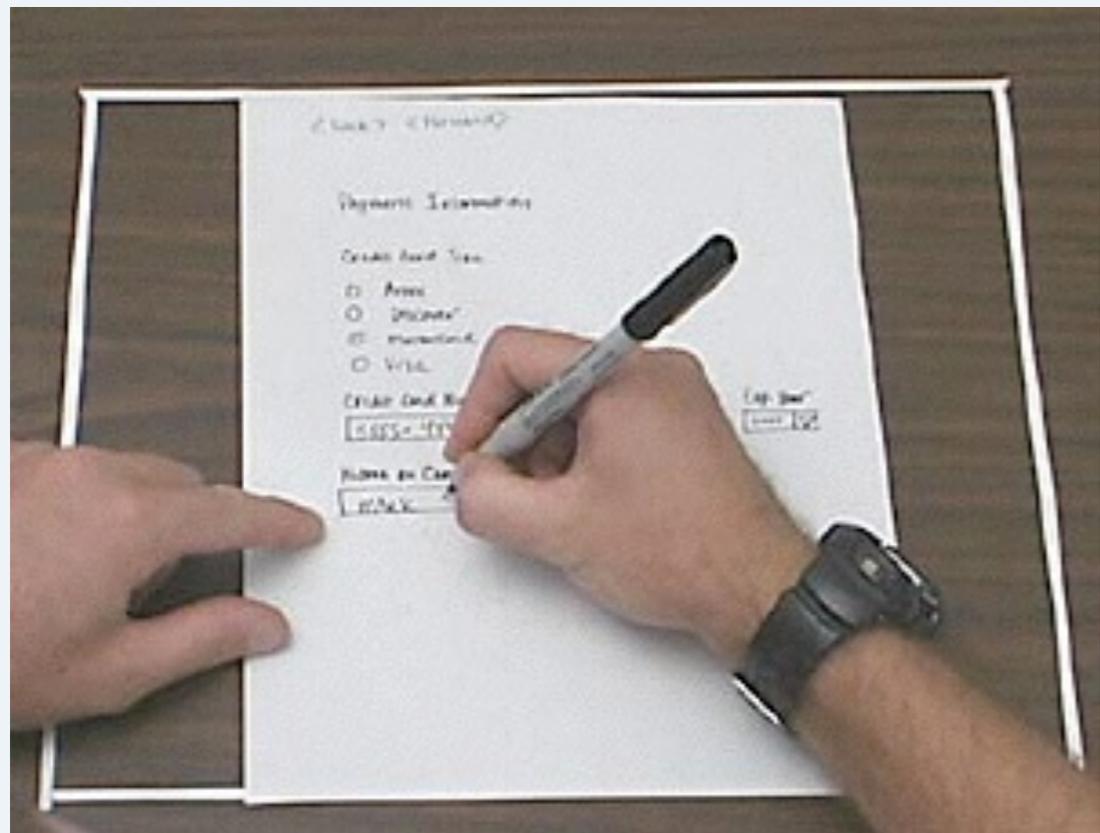
Paper prototyping started in the mid 1980s and then became popular in the mid 1990s when companies such as IBM, Honeywell, Microsoft, and others started using the technique in developing their products.



Paper prototype of a typical form-filling screen



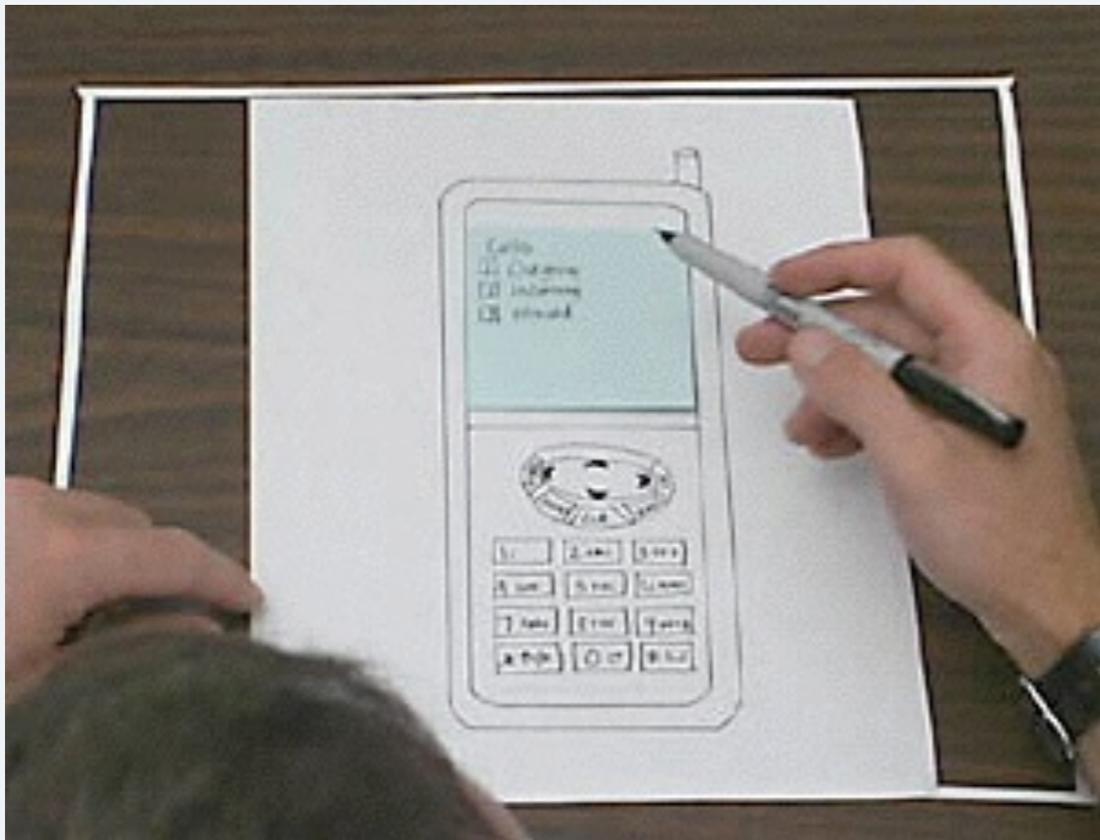
Paper prototype of a tabs-based design



User test of a low-fidelity paper prototype of a website



Typical set-up of the usability laboratory for a test session with a paper prototype



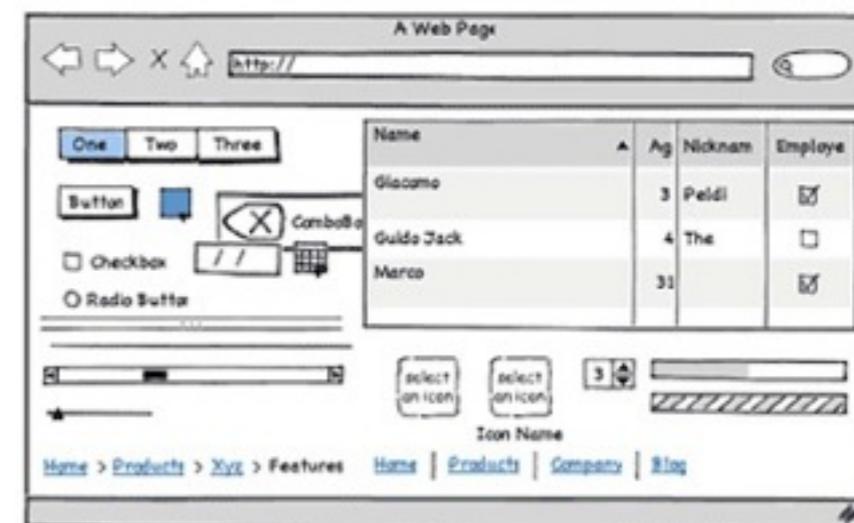
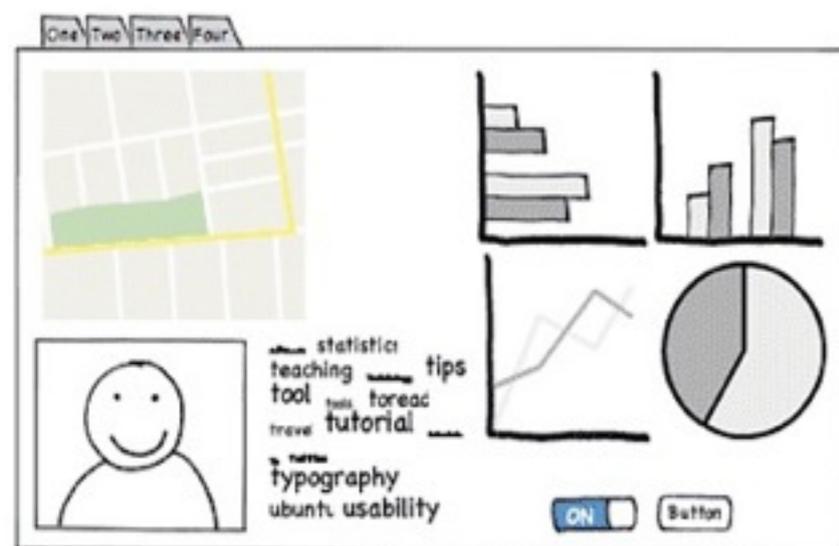
User test of a device-based interaction



User test of a high-fidelity paper prototype of a homepage.



Testing hardware user interfaces: mockup of a kiosk.



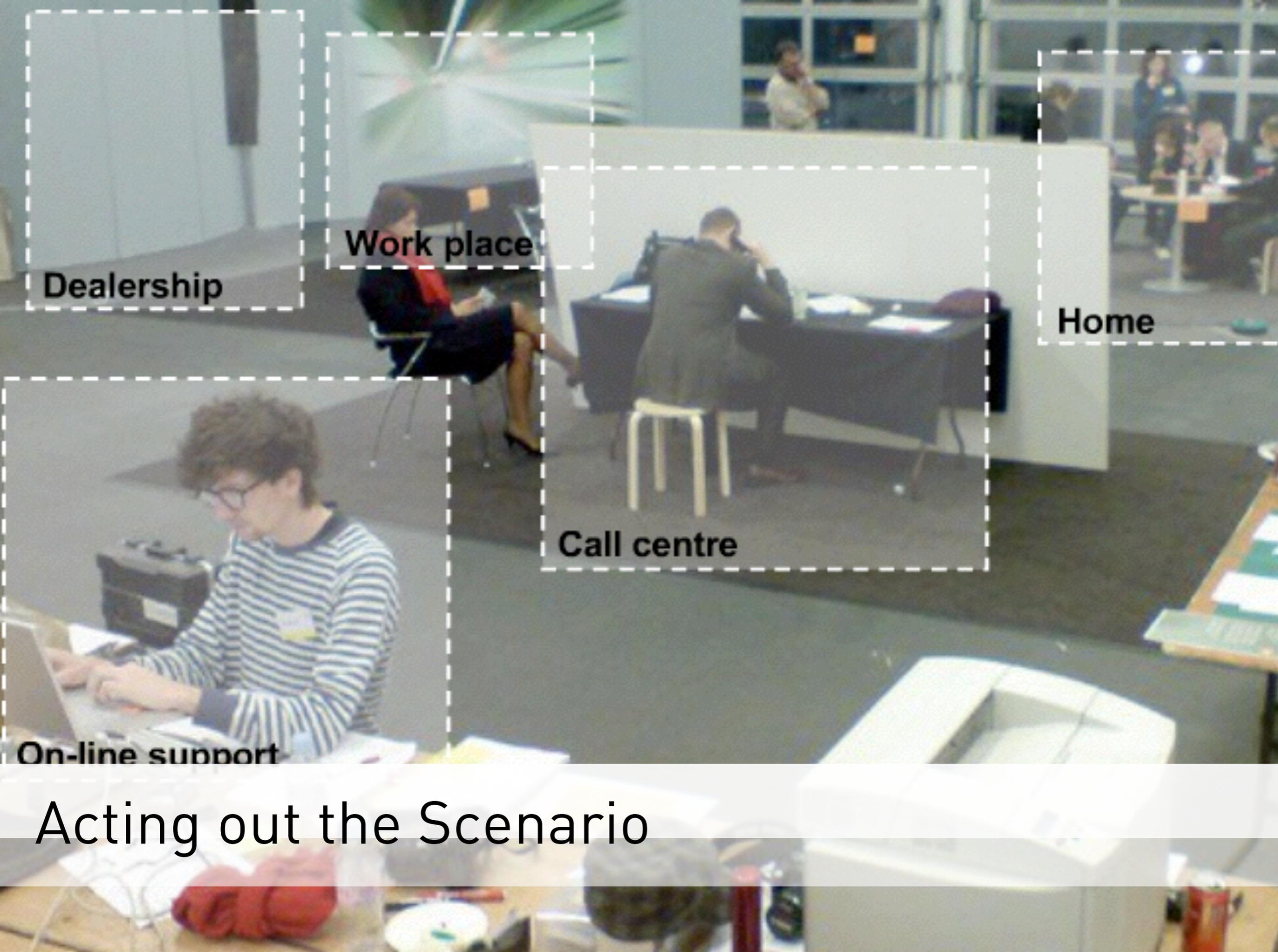
Handwritten notes on a piece of paper with a header and a table. The header contains the text "Dawn this" and some symbols. The table has several columns and rows of handwritten text.

Header: Dawn this [unclear] [unclear] [unclear]

[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]
[unclear]	[unclear]	[unclear]	[unclear]	[unclear]	[unclear]



# Video-prototyping



**Dealership**

**Work place**

**Home**

**Call centre**

**On-line support**

**Acting out the Scenario**



Quick Kiosk Mock-up

EXAMPLES

**Video Prototypes**

low resolution

low fidelity

**(a whole new world)**

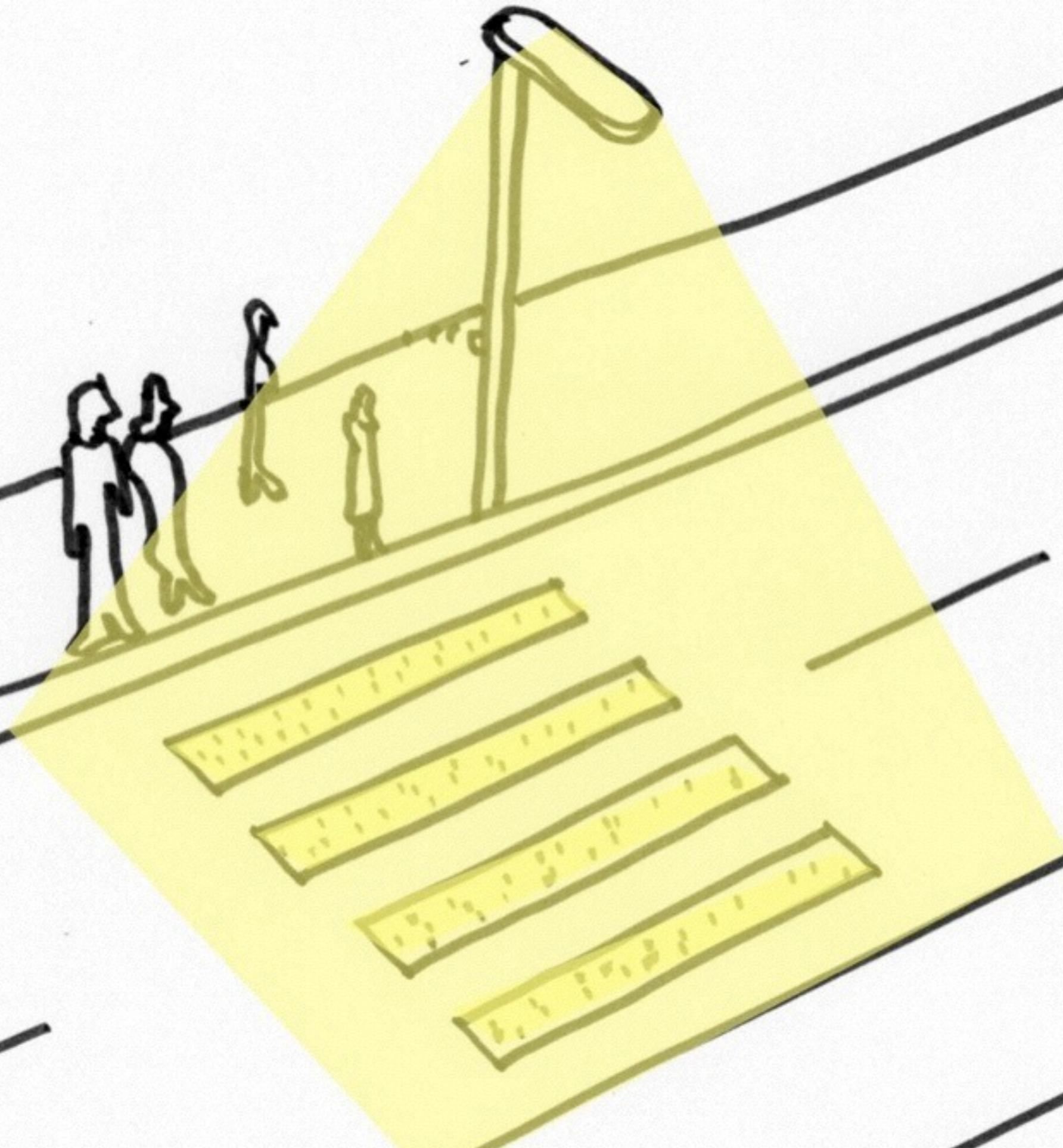
A whole new world



low resolution

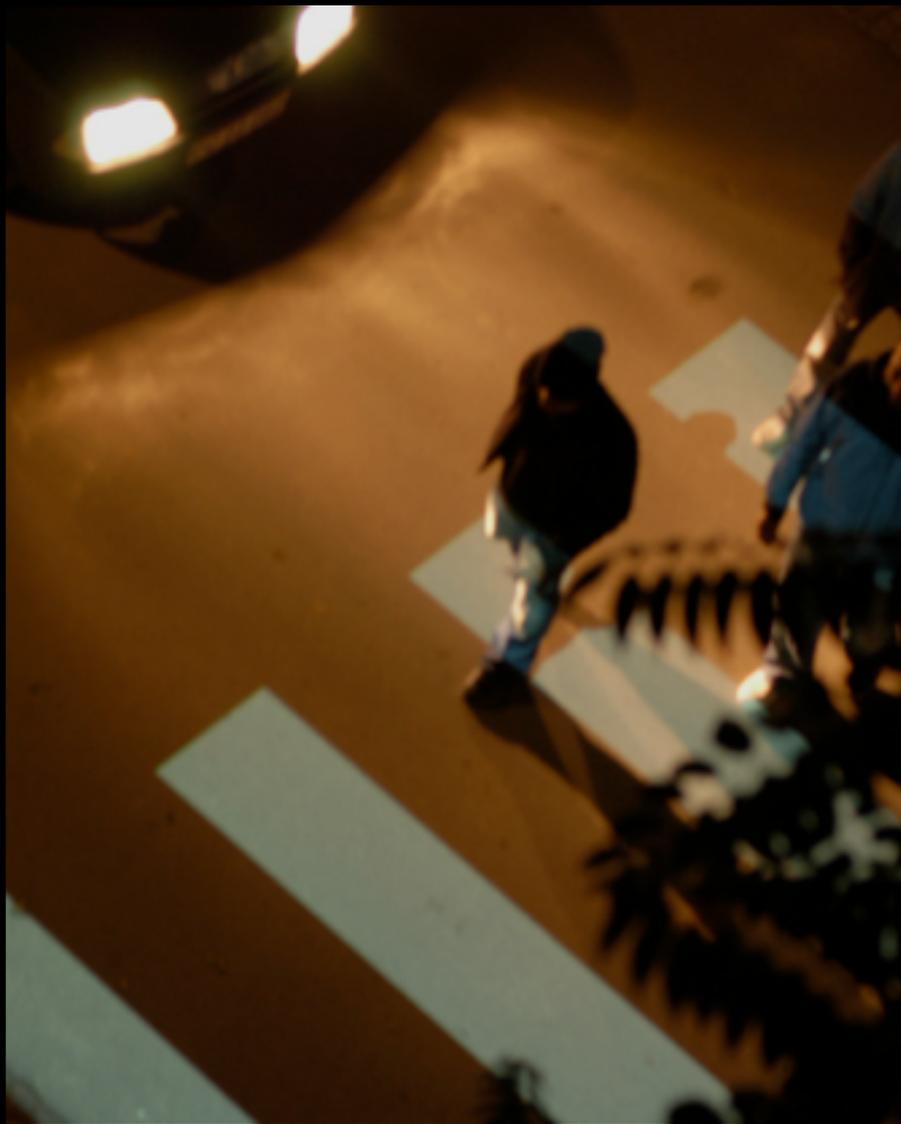
high fidelity

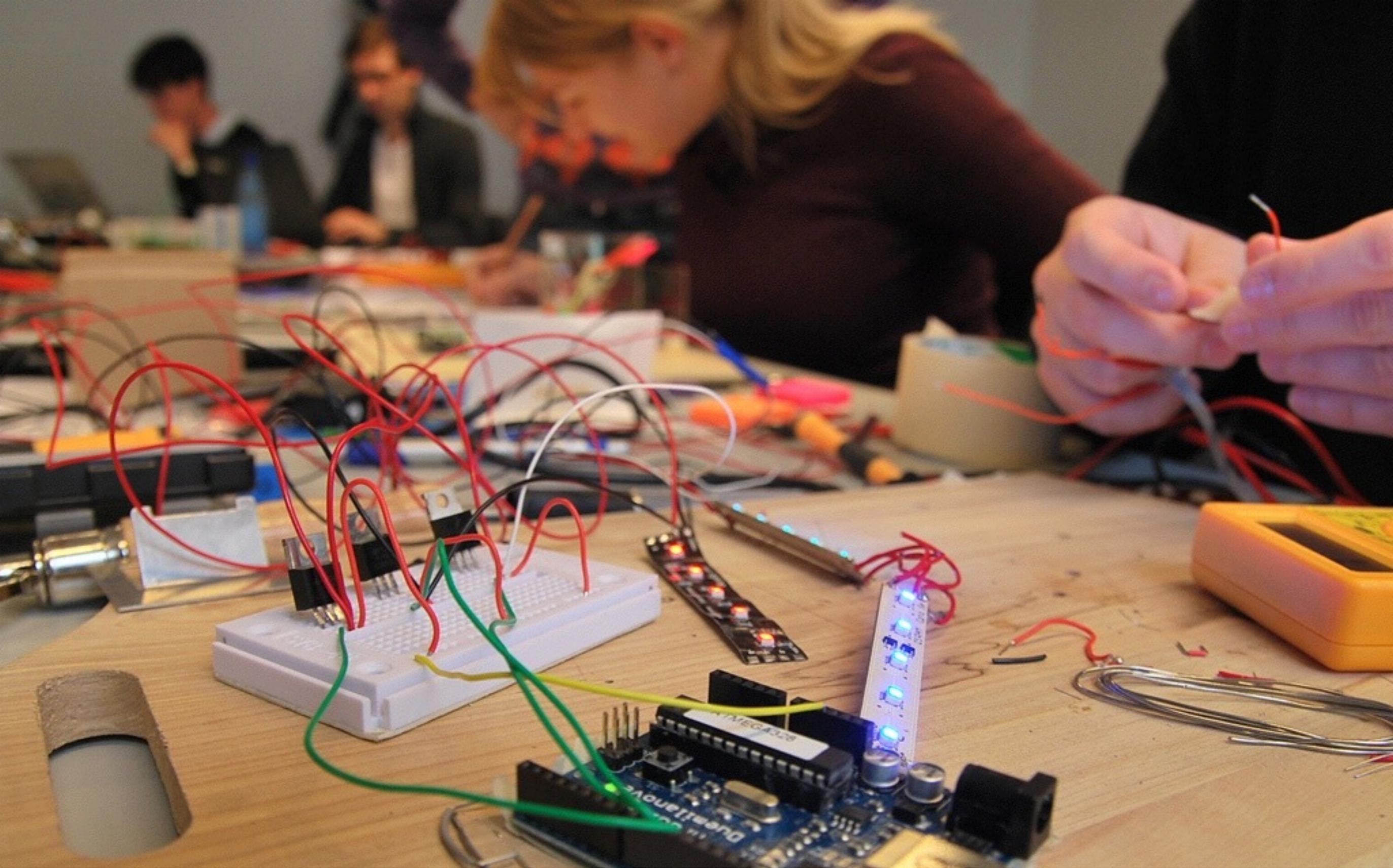
**(crossing on demand)**



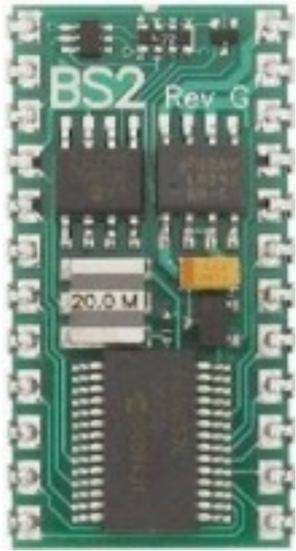
# Zebra Zone

# The Smoke & Mirror Approach

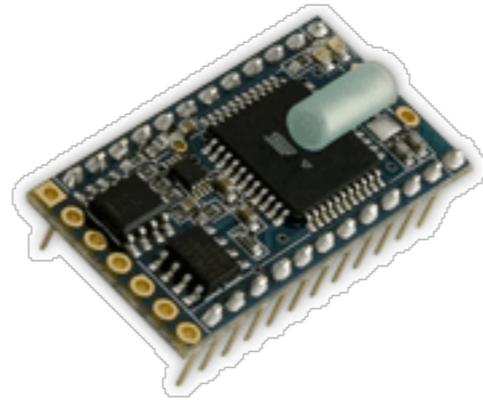




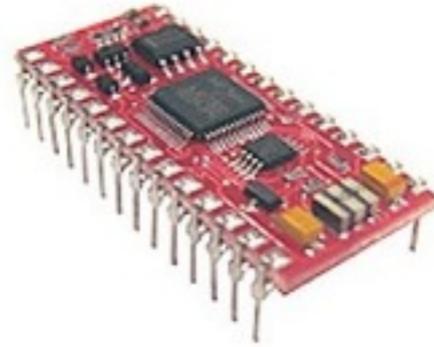
# Sketching with Hardware



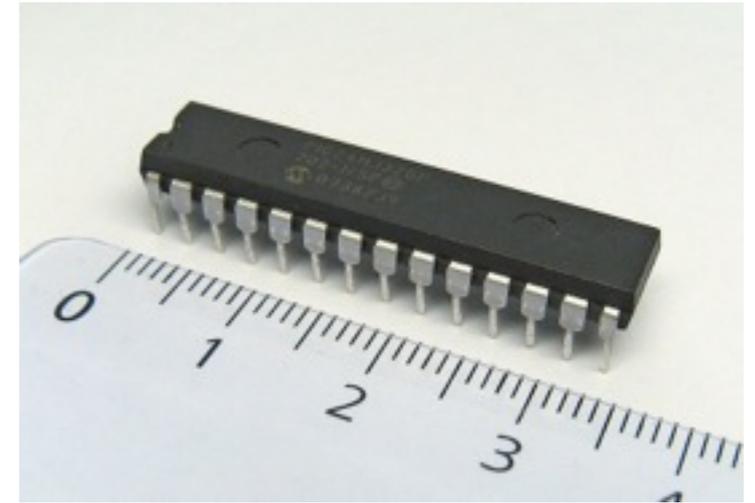
basic stamp



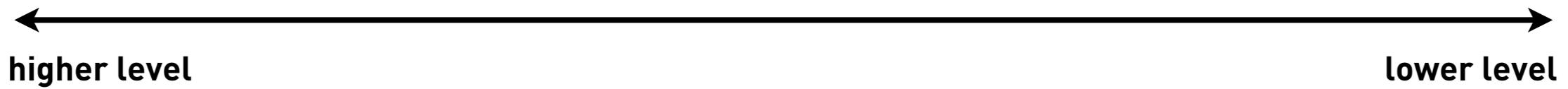
bx 24



basic atom



pic



**Assembly**



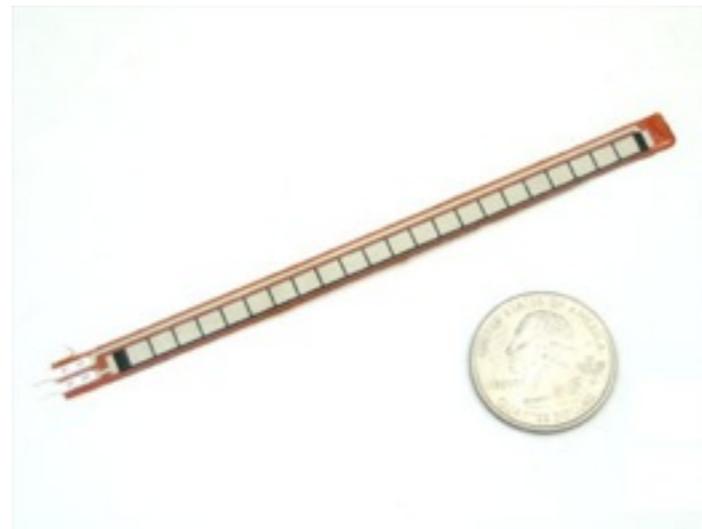
Atmel AT Mega 328



Raspberry Pi



Thermistor



Bend Sensor



PIR Sensor



Force Sensor



Potentiometer



Magnet Switch



Distance IR Sensor

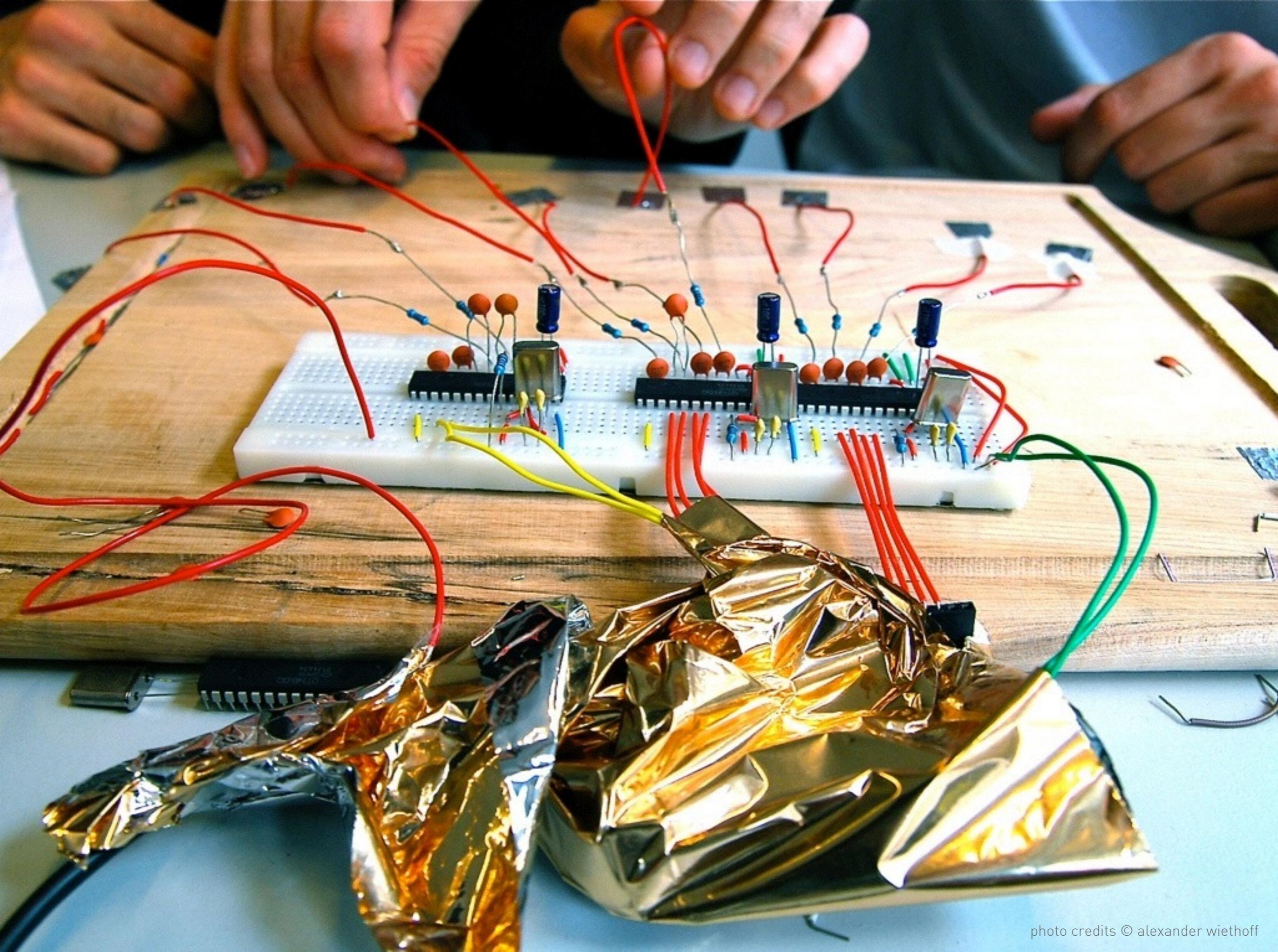


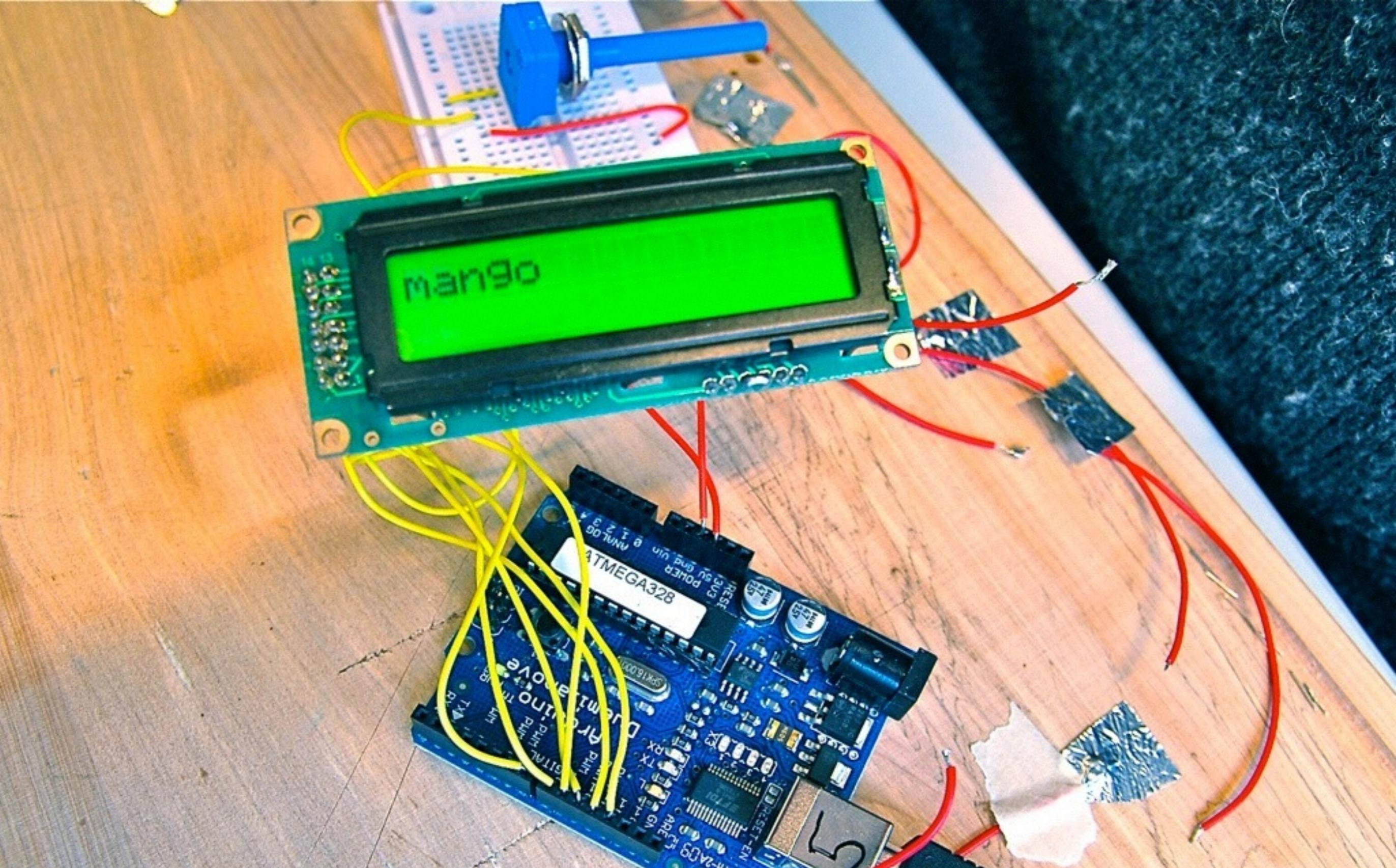
Touch QT Sensor



Ultrasound Sensor







**Quick** video overview



# Overview:

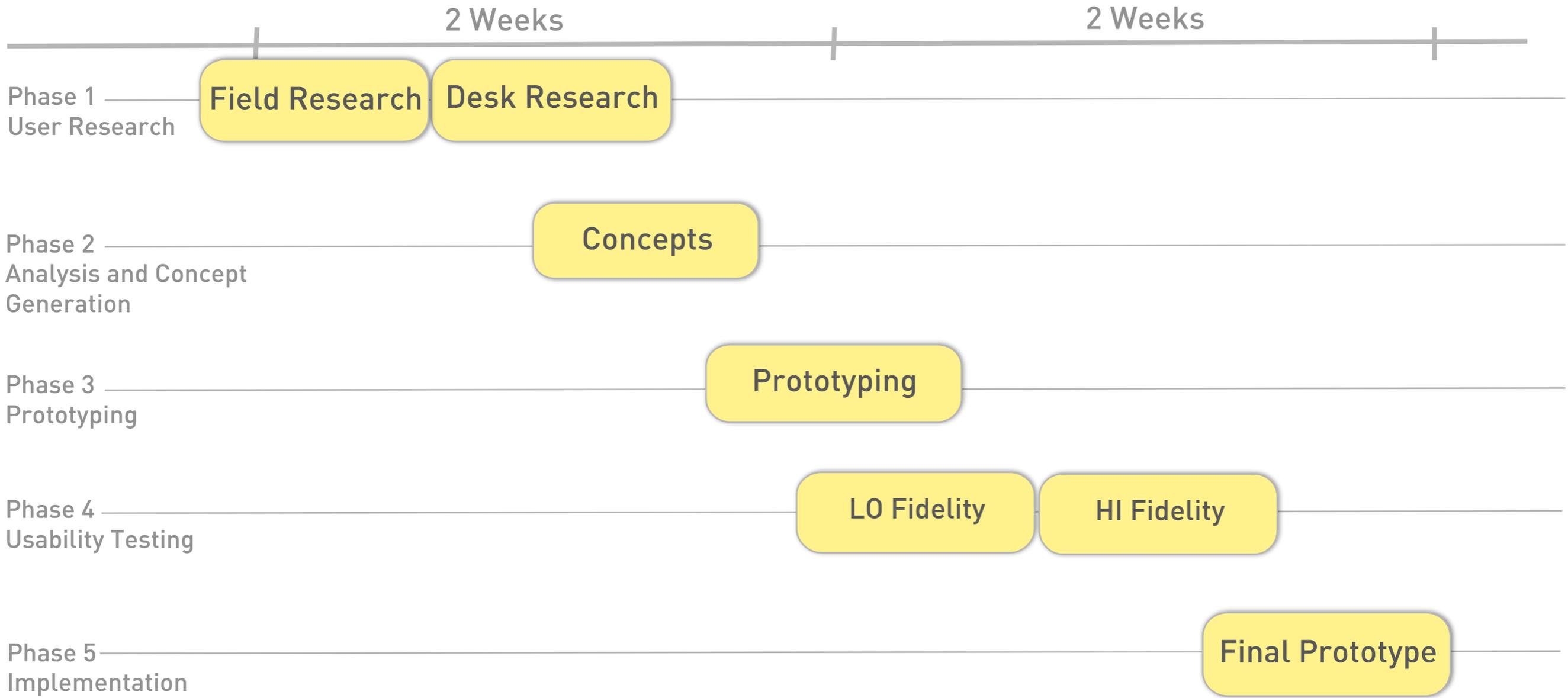
- Intro & Designprocess Phase
- Values and Levels of Prototyping
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- Prototyping Case Study



Some Examples  
from a school  
called  
**Copenhagen  
Institute of  
Interaction  
Design  
(CIID)**



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Design  
(CIID)**





- SOCIAL NETWORKING
- OTTIUM™
- SCREEN WALL
- E-MAIL - TO - LETTER
- SKYPE - TV
- FAMILY FRAME + POLAROID
- ELDERLY AS RESOURCE (~~SCREENPHONE~~)
- GREEN HOUSE (PET HOME?)
- TIME MACHINE
- STORYTELLING DEVICE
- MEMORY - TRIVIA

ELDERLY EXPERIENCE

CONNECTIONS AND EXPERIENCE  
KNOWLEDGE AND SKILLS  
THE ELDERLY  
THEir CONTINUED  
LIFE AS LEARNING RESOURCES

(Mentored) A SERIES  
OF VISITS TO THE ELDERLY  
WILL LINK TO THE ELDERLY,  
LEARN & APPRECIATE WHAT THEY  
TO OFFER.

NANNY

EXCURSIONS

WALKING

AREA

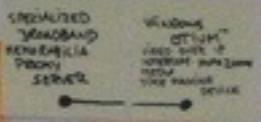
CHANGE  
ORDER

NANNY

EXCURSIONS

WALKING

UI  
- interface  
web portal  
for the  
elderly



TV channels  
elderly  
focus  
OTTIUM  
PROF

CHANGE  
Link to user  
history  
1-8-03

RFD  
SHRETLER



MEMORIES  
- Experience  
- Title  
- Content  
- Storytelling  
- Photos  
- Videos  
- Audio  
- Text

Small  
storytelling

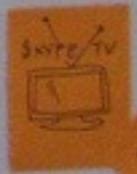
See through  
walls / see  
what's behind

Screen wall  
included  
camera  
space

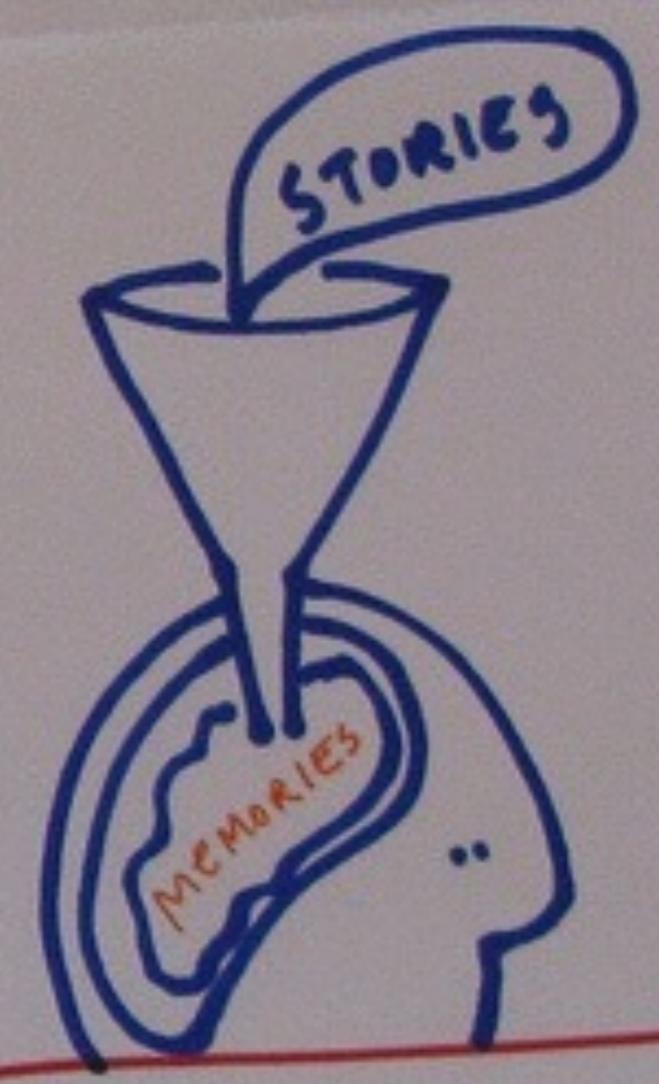
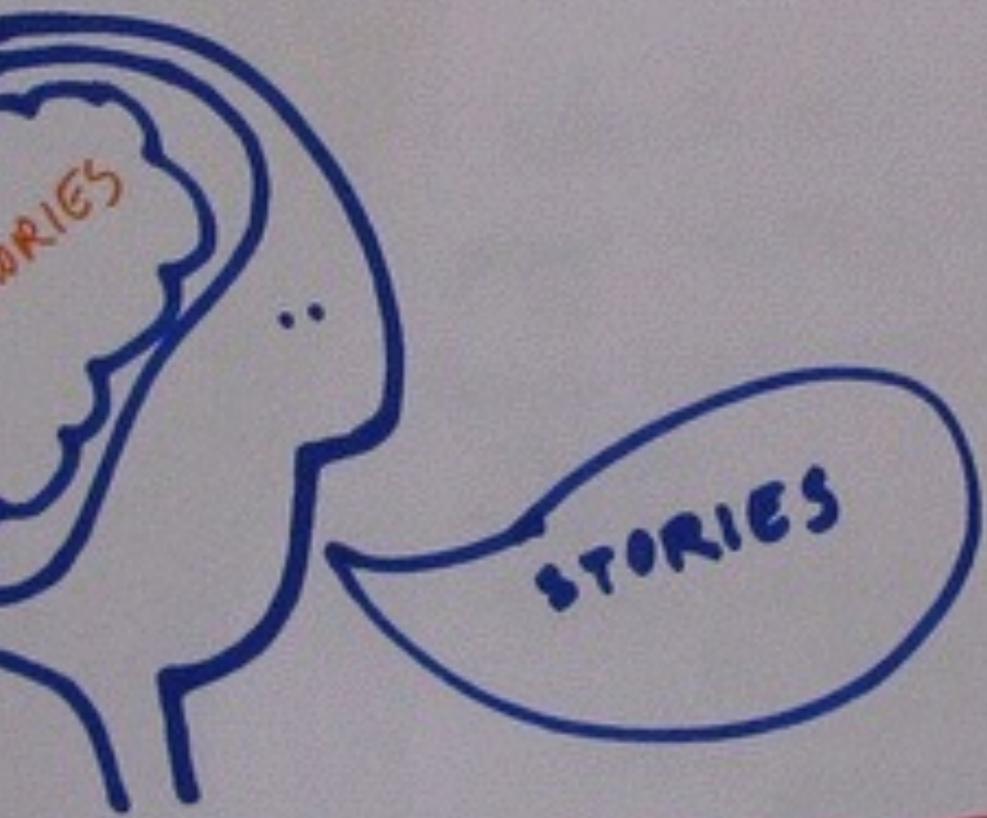
changing  
walls  
(walls turn  
into streets)

UI  
POLAROID

CHANGE  
Link to user  
history  
1-8-03



PICTURE  
FRAME  
1 ASPECT

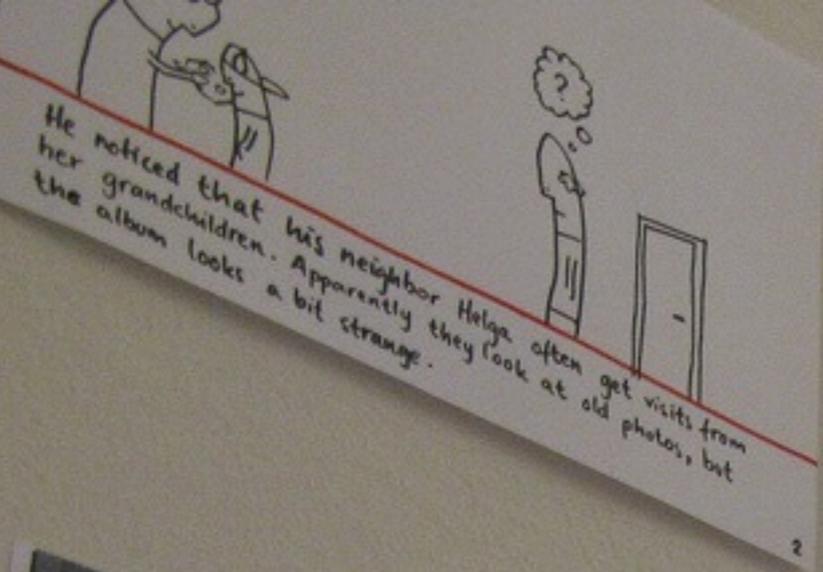


↳ Social studies!

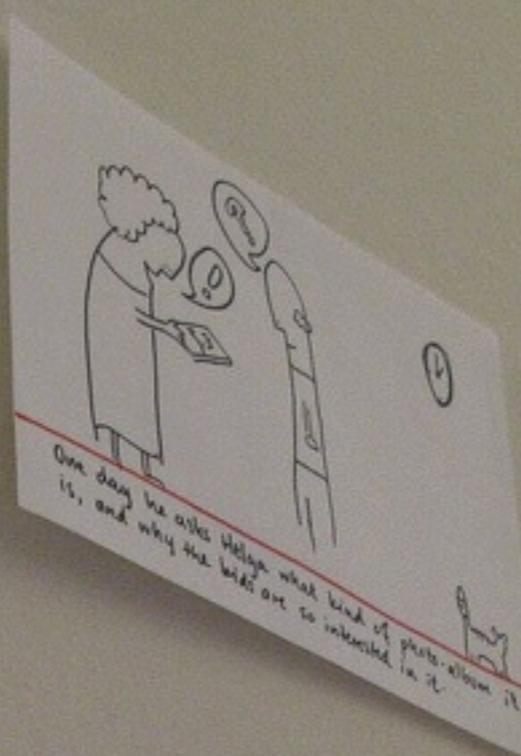




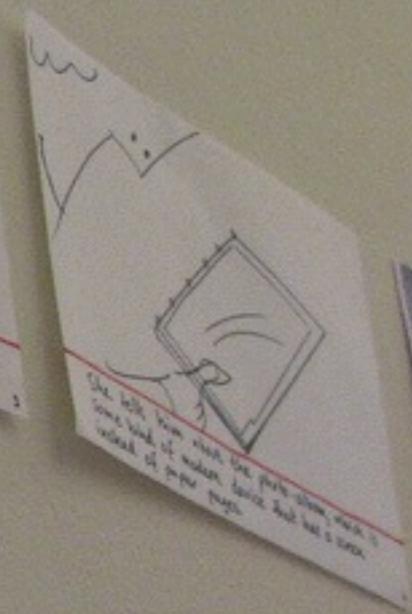
els a bit



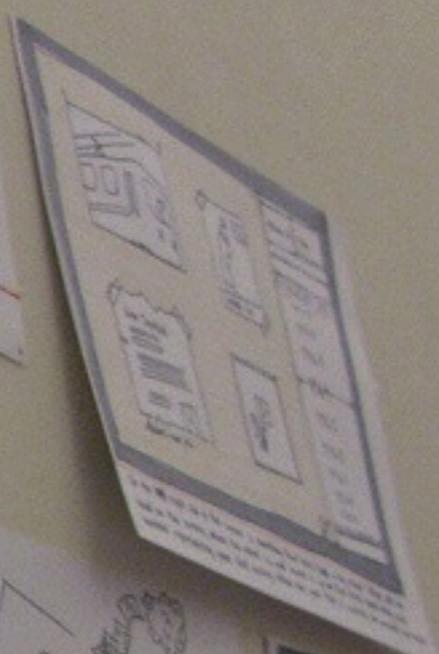
He noticed that his neighbor Helga often get visits from her grandchildren. Apparently they look at old photos, but the album looks a bit strange.



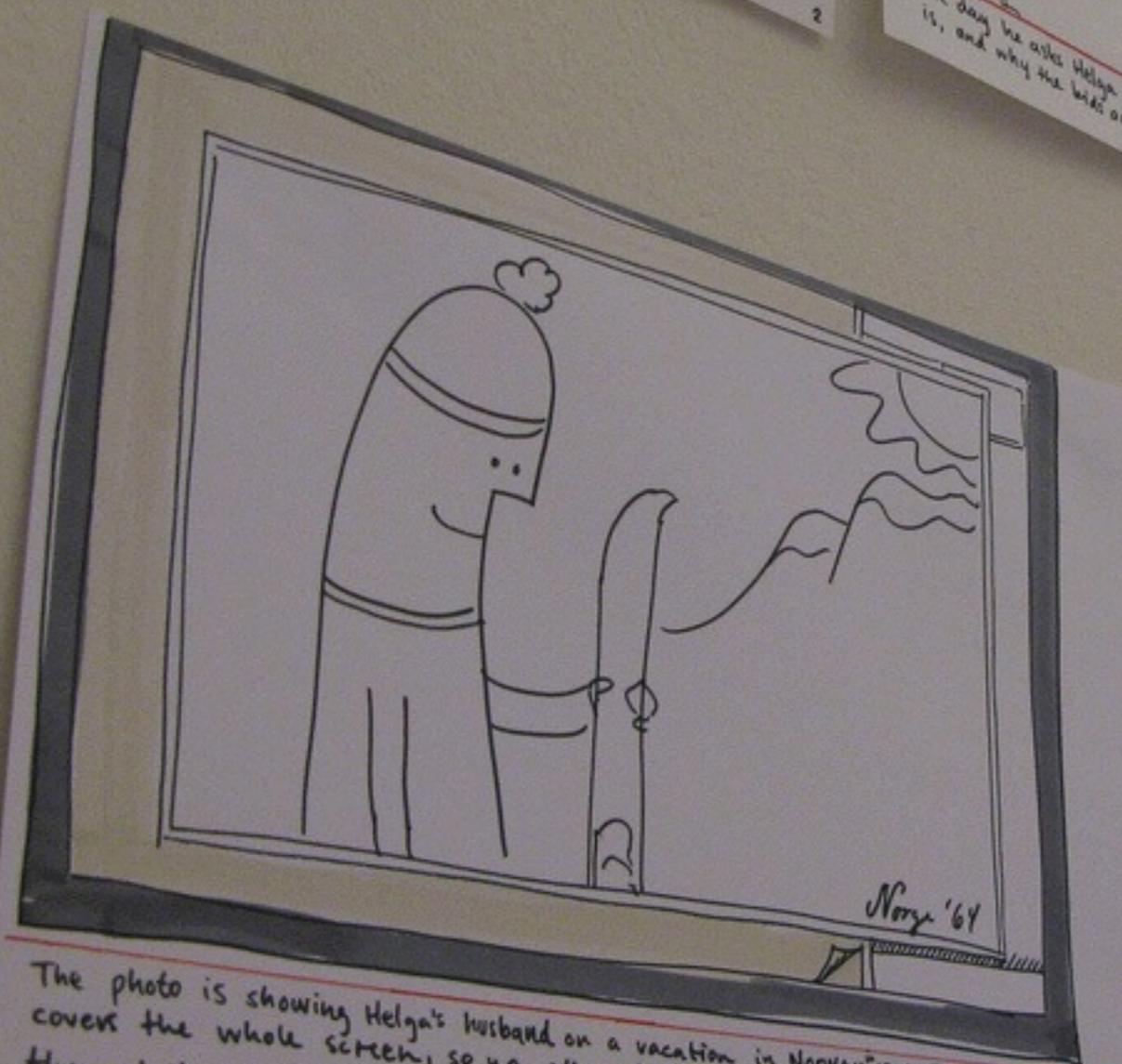
One day he asks Helga what kind of photo-album it is, and why the kids are so interested in it.



She tells him that the photo-album which is some kind of modern device that has a screen instead of paper pages.



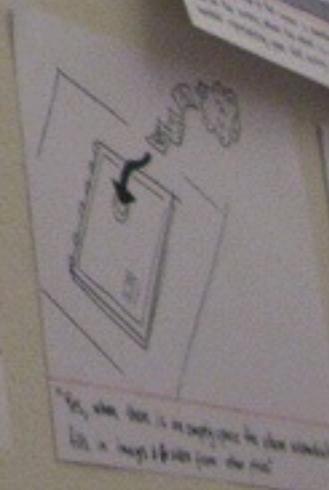
The photo album is a modern device that has a screen instead of paper pages. It is a digital photo album that can be used to view and manage photos.



The photo is showing Helga's husband on a vacation in Norway 1964. The photo covers the whole screen, so no other buttons can be pressed. She touches the photo again, and it shrinks to its original size.



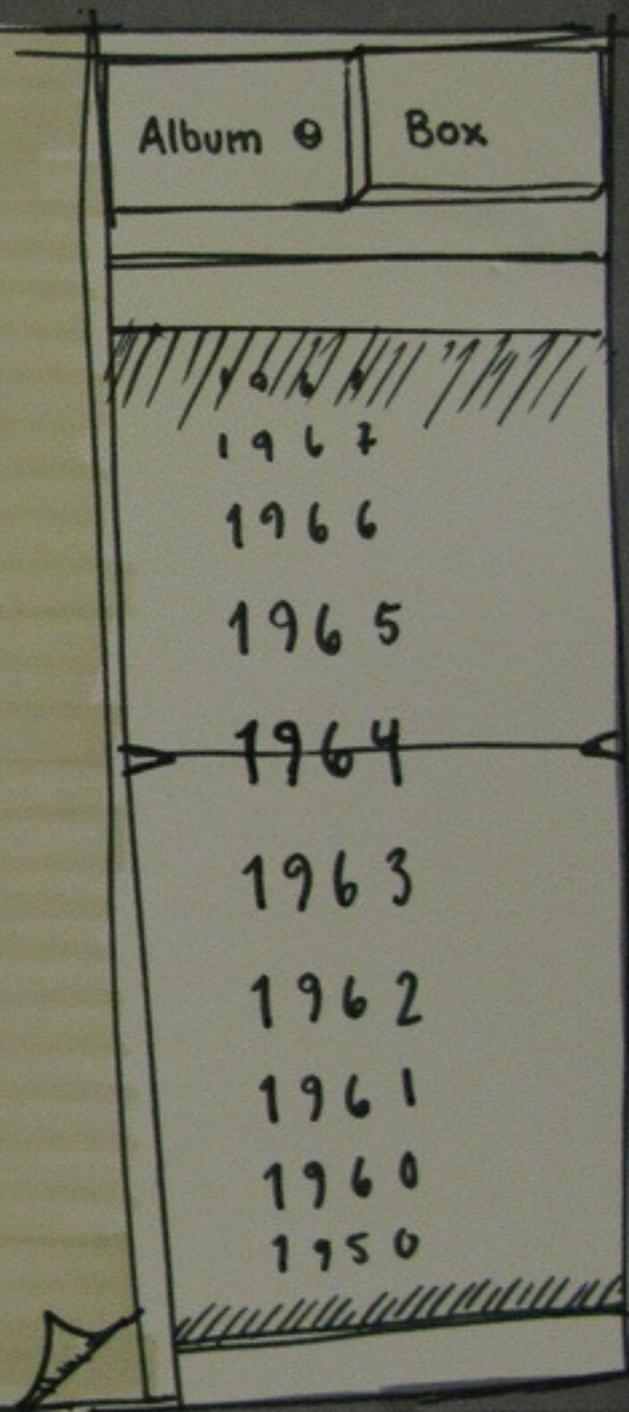
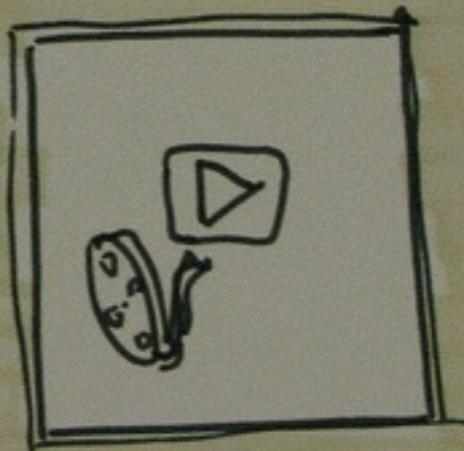
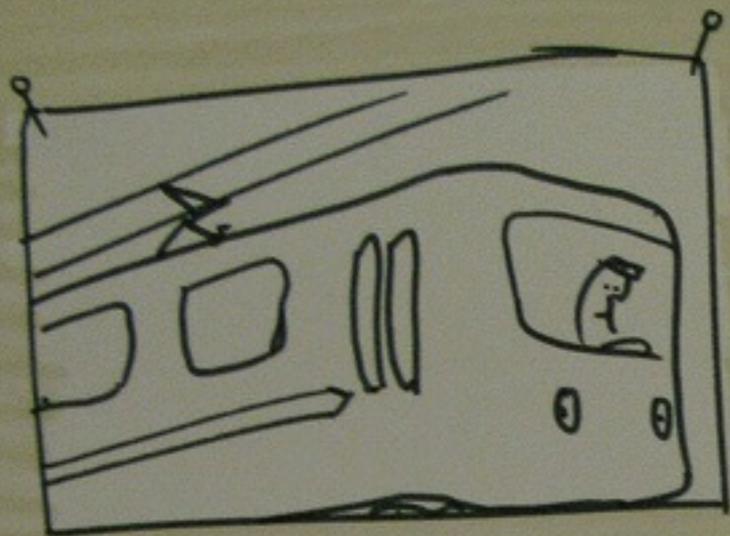
"So you have personal photos in it? But wait, didn't I also see a photo from Polviken in there?" Albert asked.



"Yes, when there is no space more the photo automatically fits in images & photos from other times."



The photo album is a modern device that has a screen instead of paper pages. It is a digital photo album that can be used to view and manage photos.

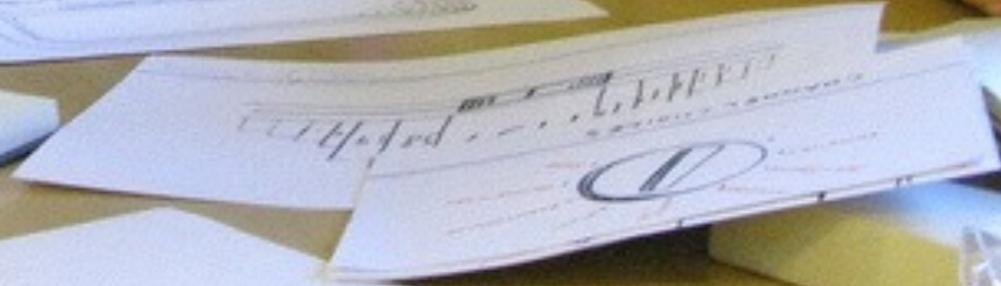
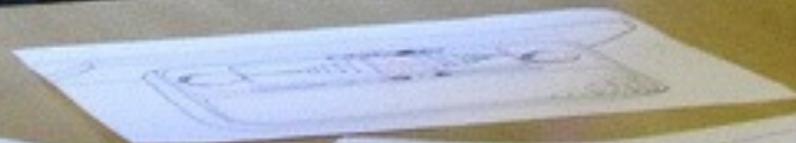


On the ~~left~~ right side of the screen is something that looks like a big wheel. Helga puts her hand on the screen, where the wheel is, and moves it up. The wheel starts rolling and numbers representing years start moving. When the year 1964 is centered, she removes her hand.

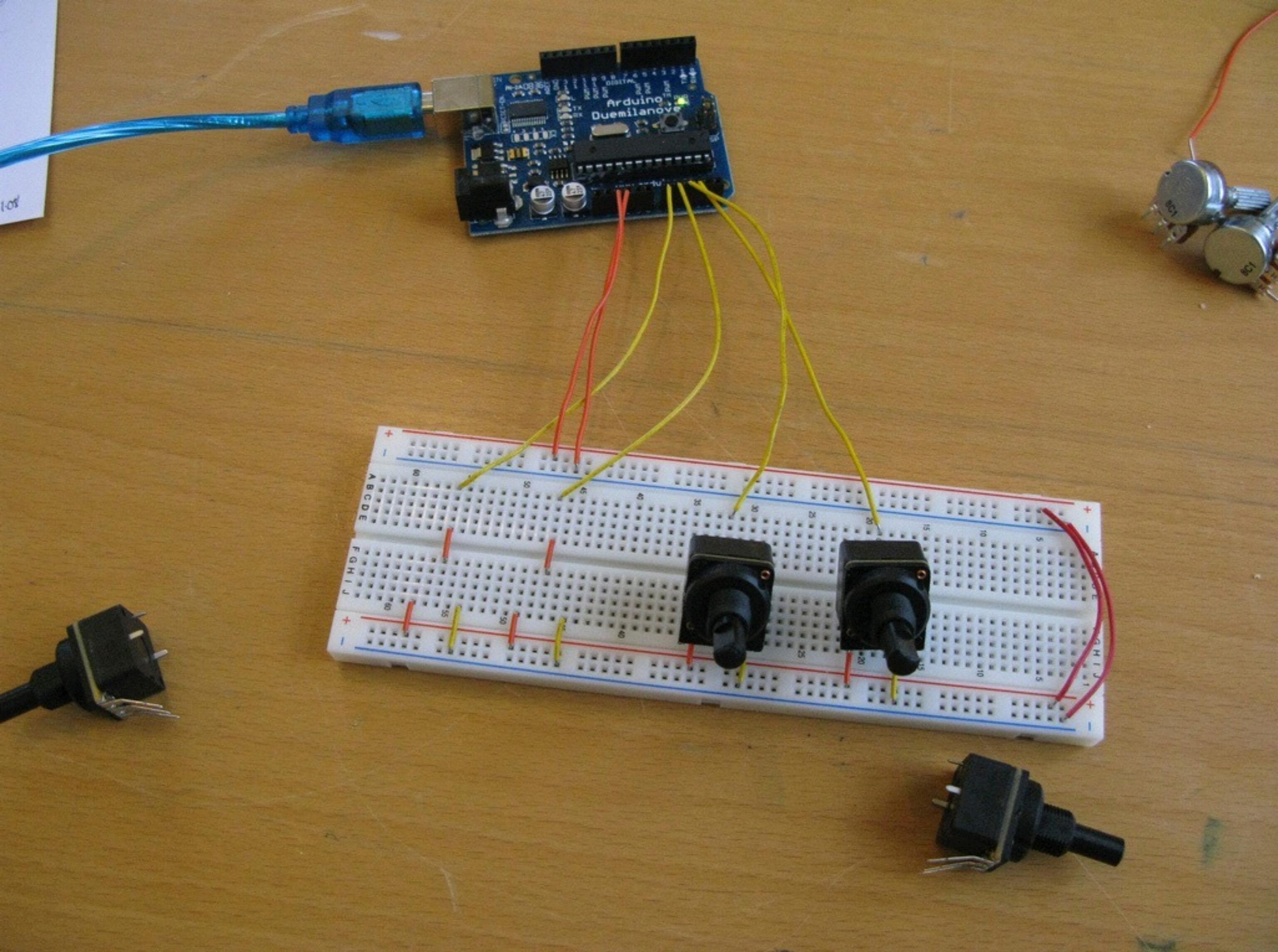




ROSINA WACHSMEYER









Viseaften  
Journalistforeningen  
1968, Music

1965    1970    15    Favorites





Viseaften

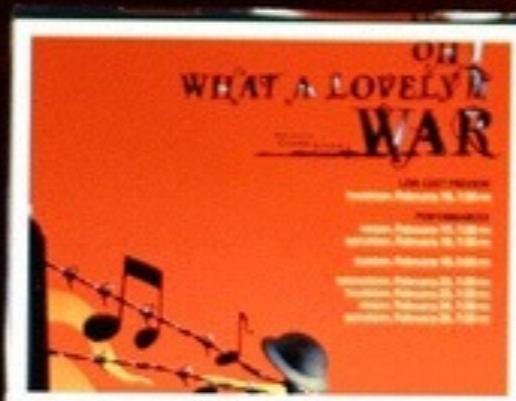
Journalistforeningen

1968, Music

198

Favorites

De



# What a lovely war

Glenn Gauer

1978, Radio Theater

1975

1980

19

Favorites

DC

OH I  
WHAT A LOVELY  
WAR

PERFORMED BY  
Glenn Gauer

1978, Radio Theater

1975 1980 19 Favorites DC

**Thanks** for your attention !

## References (books)

### **Bill moggridge: designing interactions**

Publisher: The MIT Press; 1 edition (October 1, 2007)

ISBN-10: 0262134748

### **Bill buxton: sketching the user experience**

Publisher: Morgan Kaufmann (March 30, 2007)

ISBN-10: 0123740371

### **Don norman: the design of everyday things**

Publisher: Basic Books (September 17, 2002)

ISBN-10: 0465067107

### **Kevin mullet: designing visual interfaces**

Publisher: Prentice Hall PTR (December 15, 1994)

ISBN-10: 0133033899

links: [www.ciid.dk](http://www.ciid.dk)

[www.arduino.cc](http://www.arduino.cc)

[http://www.useit.com/papers/guerrilla\\_hci.html](http://www.useit.com/papers/guerrilla_hci.html)

[www.medien.ifi.lmu.de/id](http://www.medien.ifi.lmu.de/id)