

Interaction Design

Chapter 7 (June 05, 2013, 9am-12pm):
Prototypes



Bill Verplank / worked at Xerox 78-1986

Prototypes

- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process

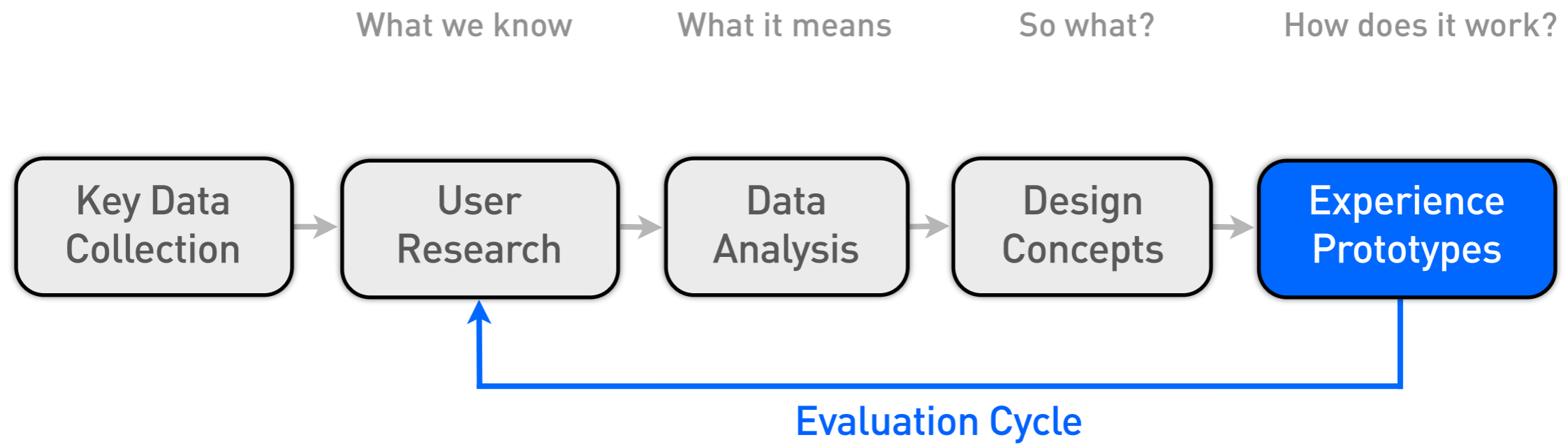
INTERACTION DESIGN



INTERACTION DESIGN



Why Prototype ?





Prototyping as a proof of concept

photo credits © alexander wiethoff



Prototyping as a design process

photo credits © alexander wiethoff



Prototyping as a communication tool

photo credits © alexander wiethoff

For the Designer: Exploration
Visualization
Feasibly
Inspiration
Collaboration

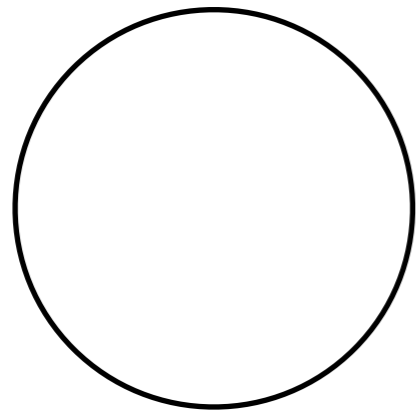
For the End User: Usefulness
A change of viewpoint
Usability
Desirability

For the Producer: Conviction
Specification
Benchmarking

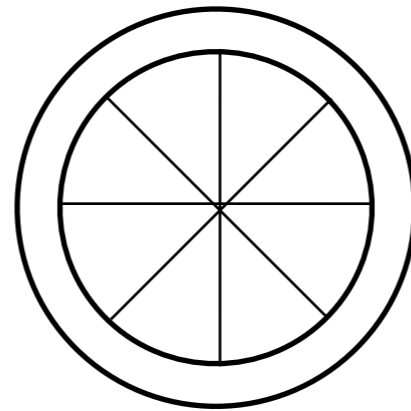
Prototypes

- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process

Fidelity v. Resolution



low resolution
low fidelity



low resolution
high 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

Focus on core interactions

Quick and Dirty

Early Validation

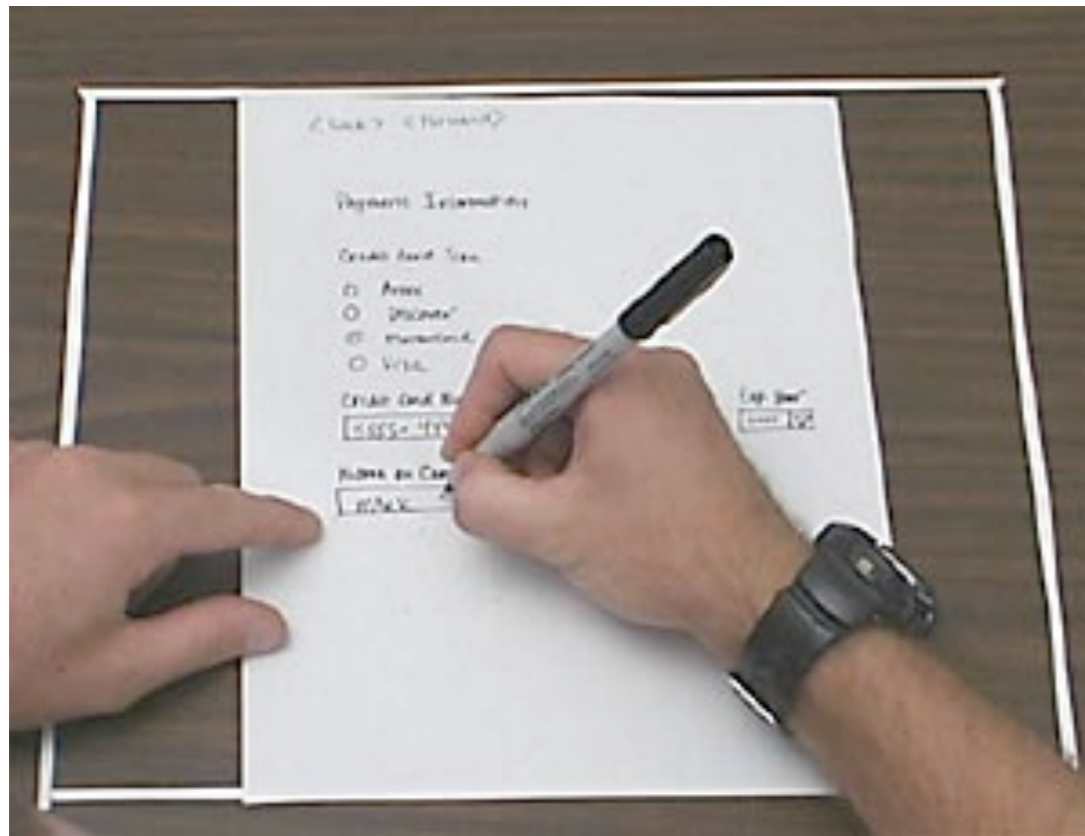
More Details

Focus on the whole

Deliberate and Refined

Concrete Ideas

looking back.....



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

vs.



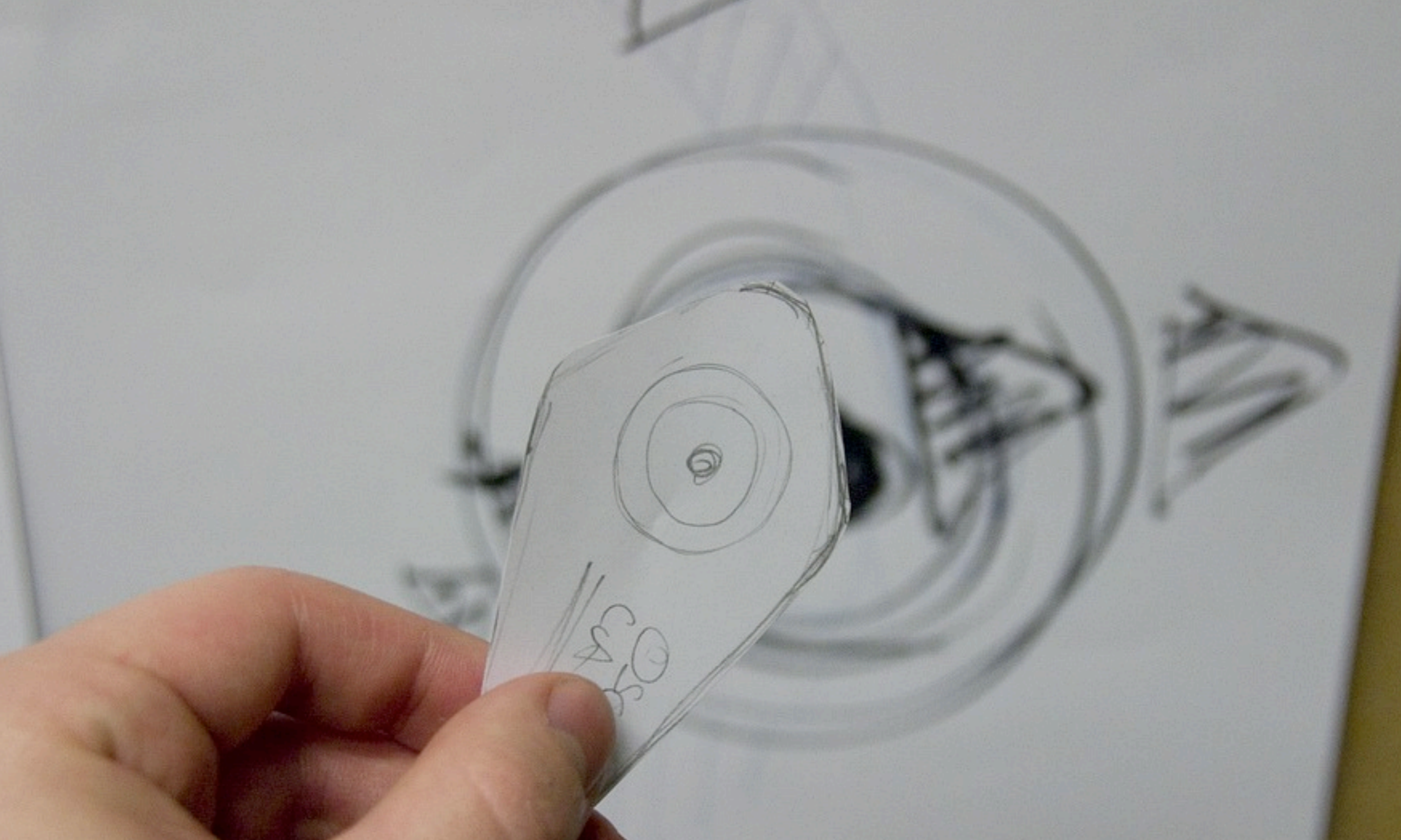
User test of a high-fidelity paper prototype of a homepage.

3 Main Prototyping Pillars and Directions

Paper Prototyping **Video Prototyping** **Hardware Prototyping**

Prototypes

- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process



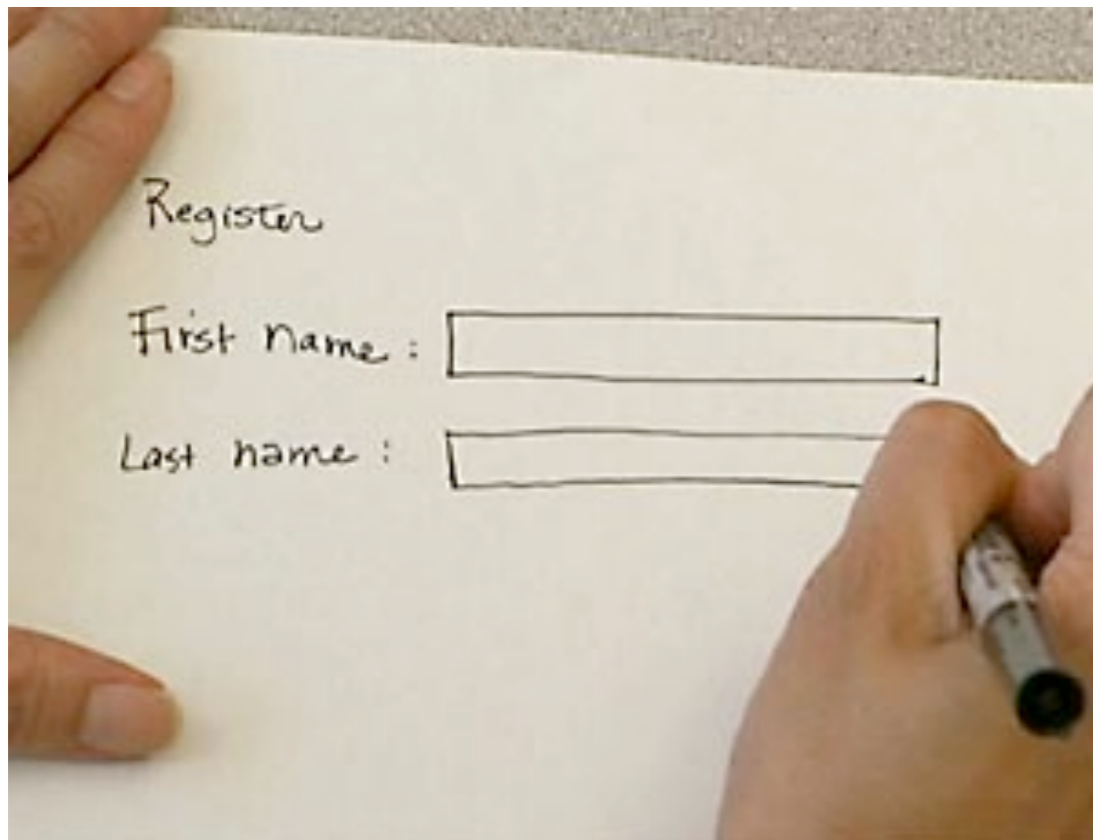
Paper-prototyping

What is it?

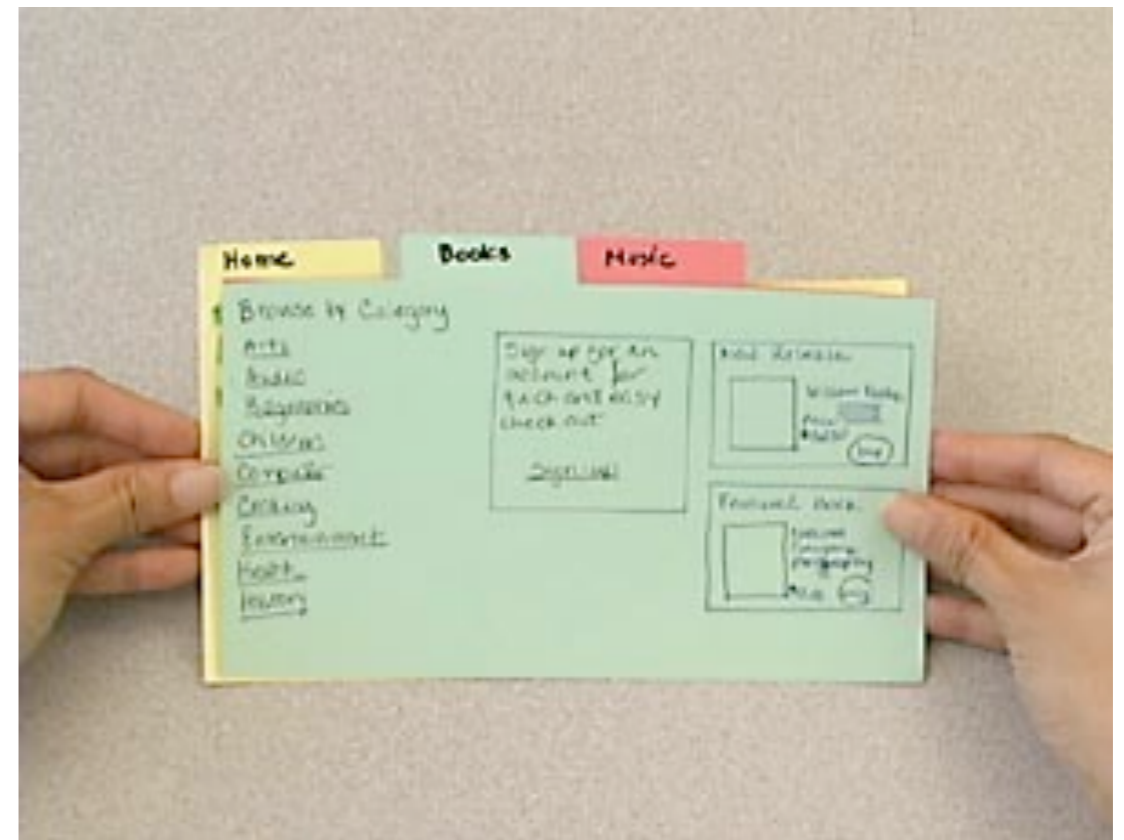
- widely used **method** in the user-centered design process
- helps developers to create **screen based** applications that meets the user's expectations and needs.
- throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.

History of Paper Prototyping

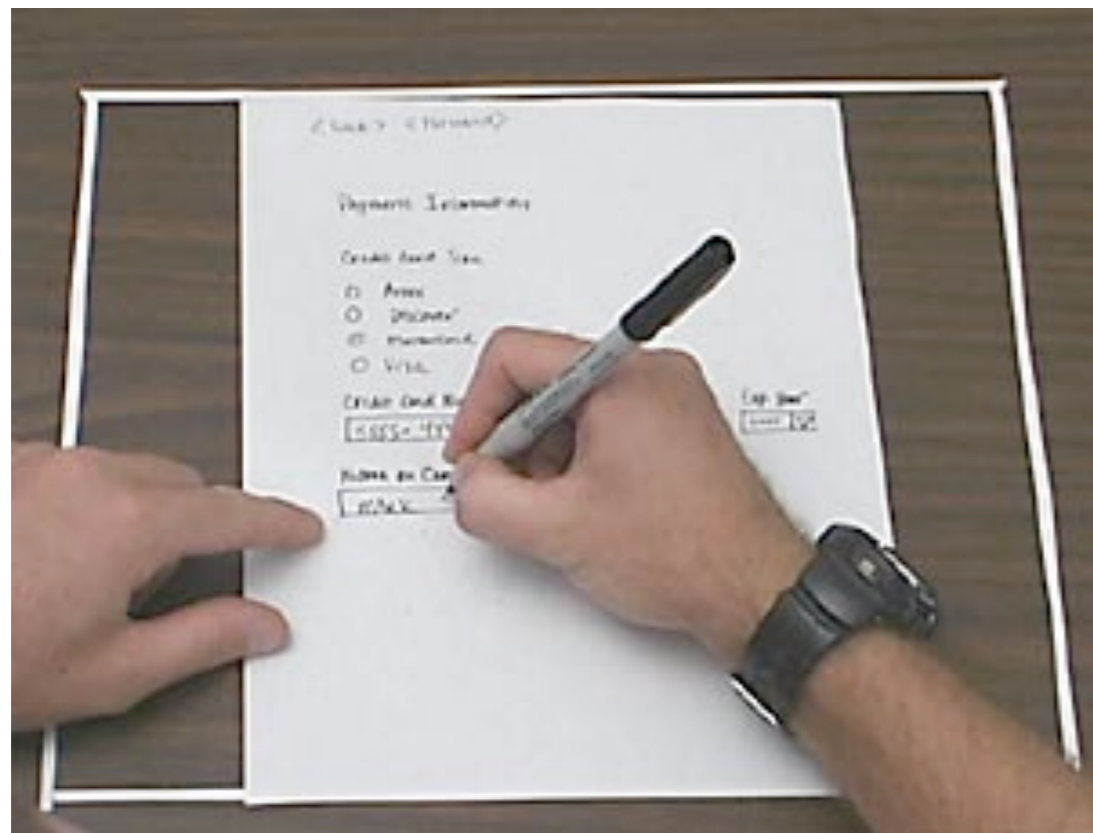
- started in the mid 1980s
- became popular in the mid 1990s when companies such as IBM, Honeywell, Microsoft, and others started using the technique in developing their products.



Typical form-filling screen



Tabs-based design



User test of a paper prototype



Typical set-up of a usability test



Device-based interaction



High-fidelity prototype of a homepage.



Mockup of a kiosk.



You can mockup real size products and environments which capture a degree of realism and while keeping it open for interpretation or further development.



Daum *[faded text]* *[faded text]*



- [faded button]*
- [faded button]*

- [faded button]*
- [faded button]*
- [faded button]*
- [faded button]*
- [faded button]*

[faded text]

<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>
<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>	<i>[faded]</i>

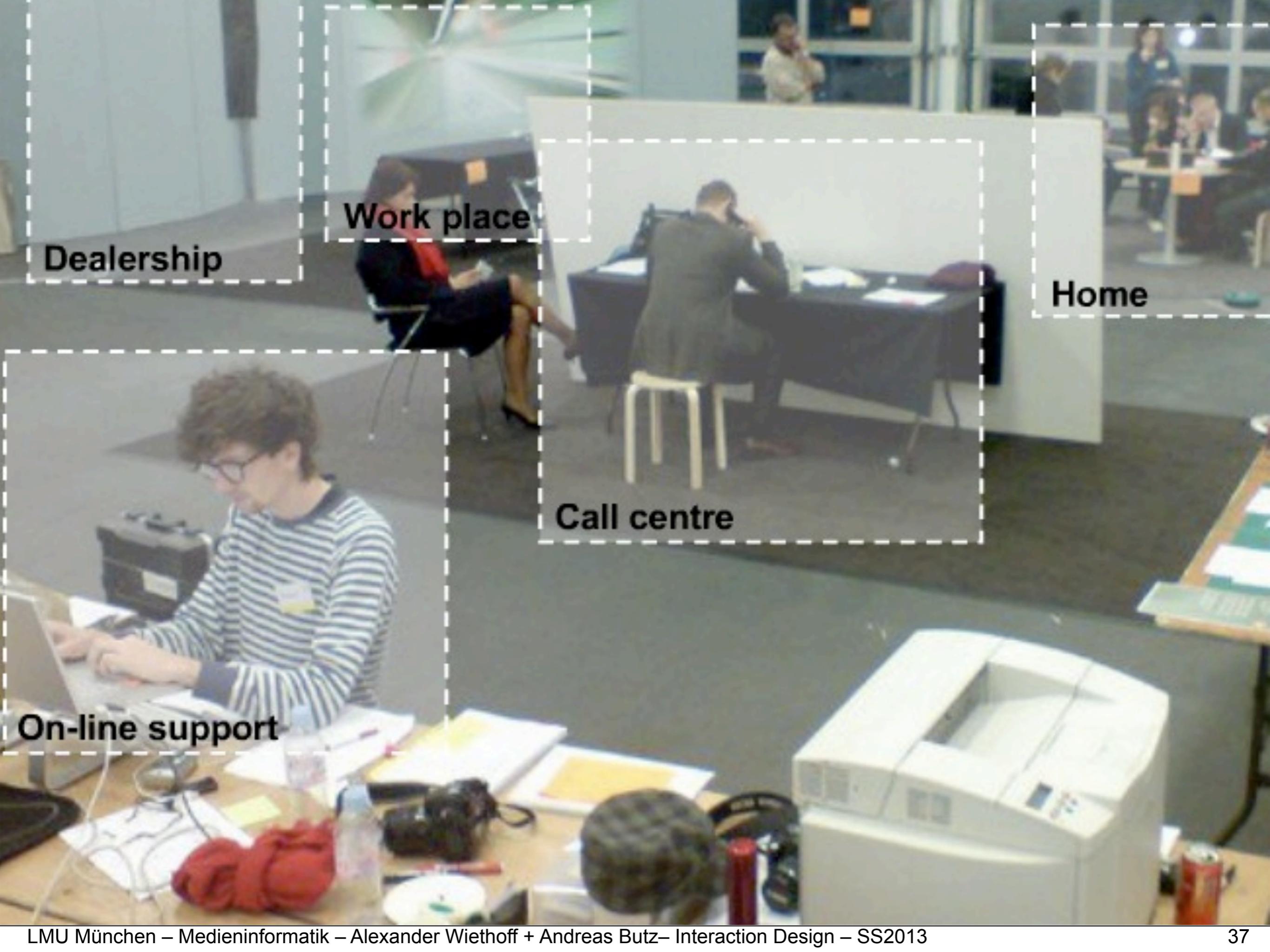
Prototypes

- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process



Video-prototyping

Image Source: CIID



Dealership

Work place

Home

Call centre

On-line support

EXAMPLE: Video Prototypes

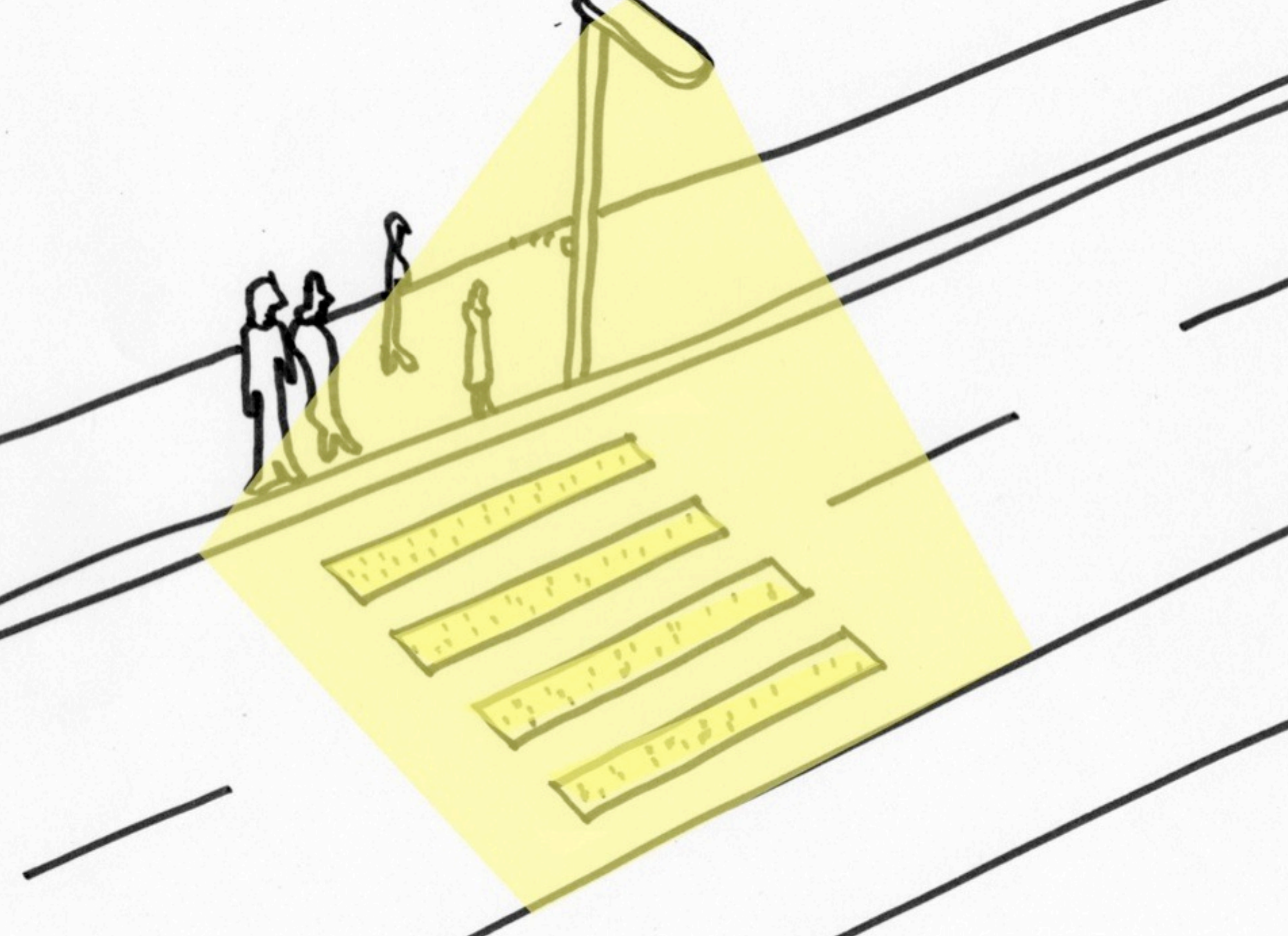
low resolution
low fidelity
(a whole new world)

A whole new world

high resolution
low fidelity
(rotterdam hospital)



low resolution
high fidelity
(crossing on demand)



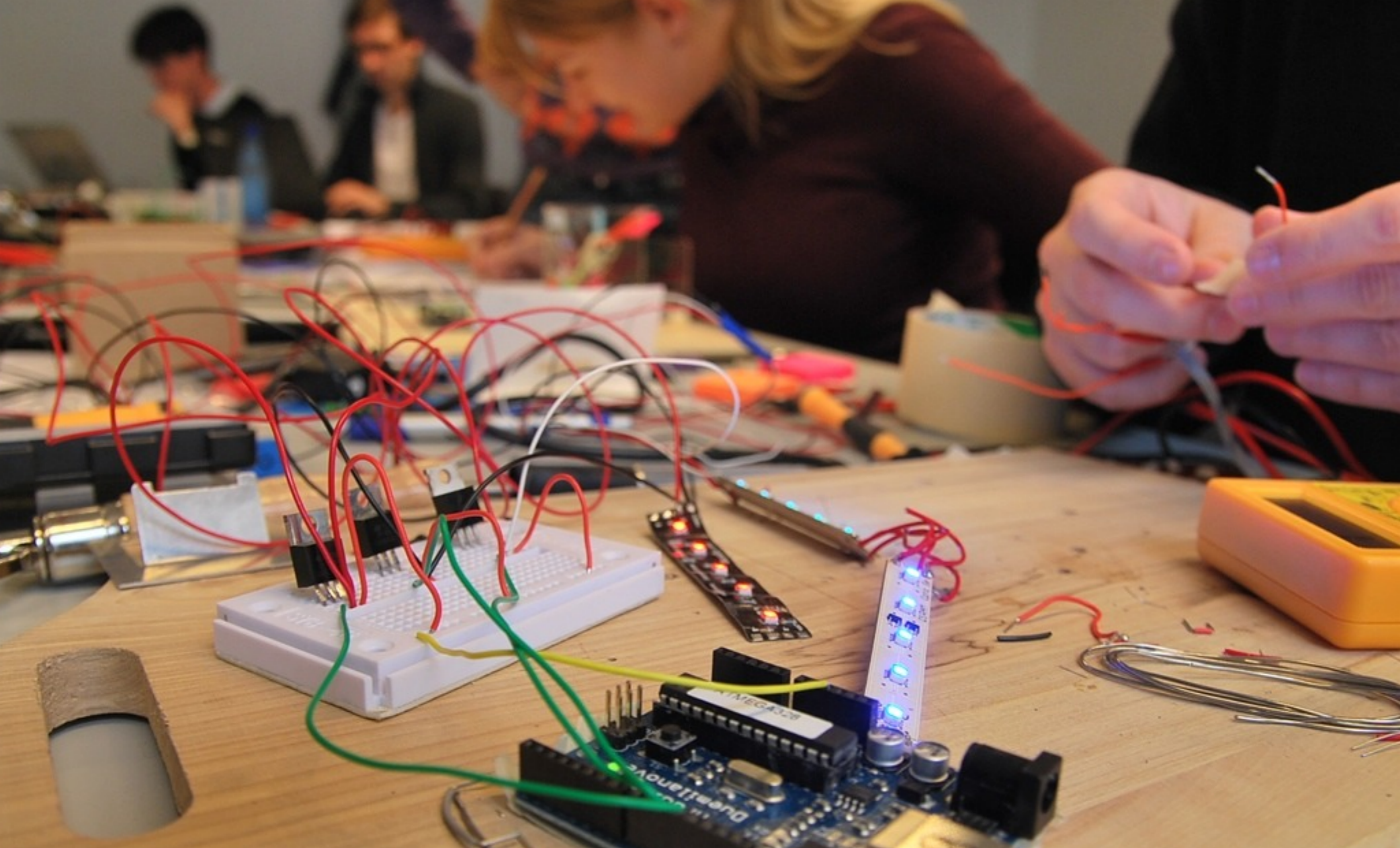
Zebra Zone

The Smoke & Mirror Approach



Prototypes

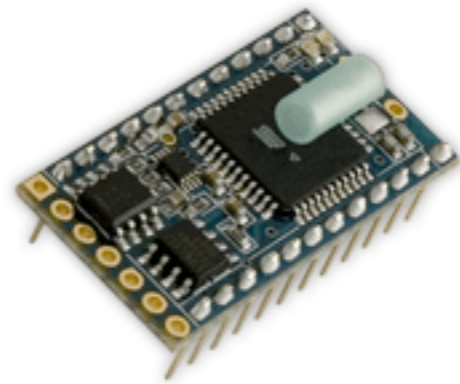
- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process



Sketching with Hardware



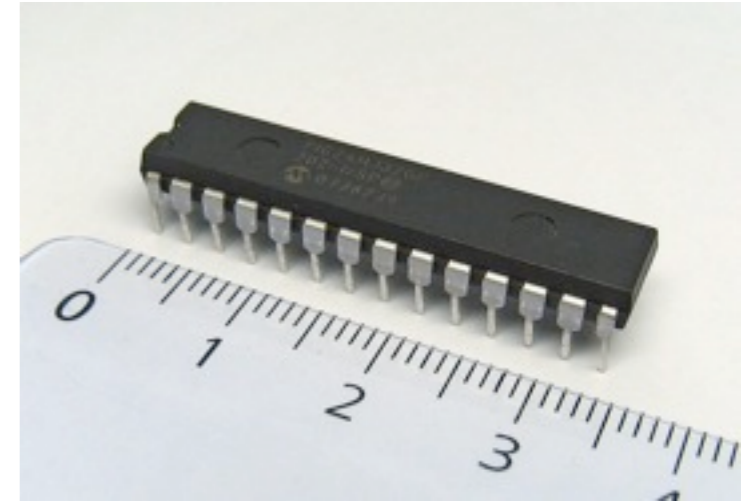
basic stamp



bx 24



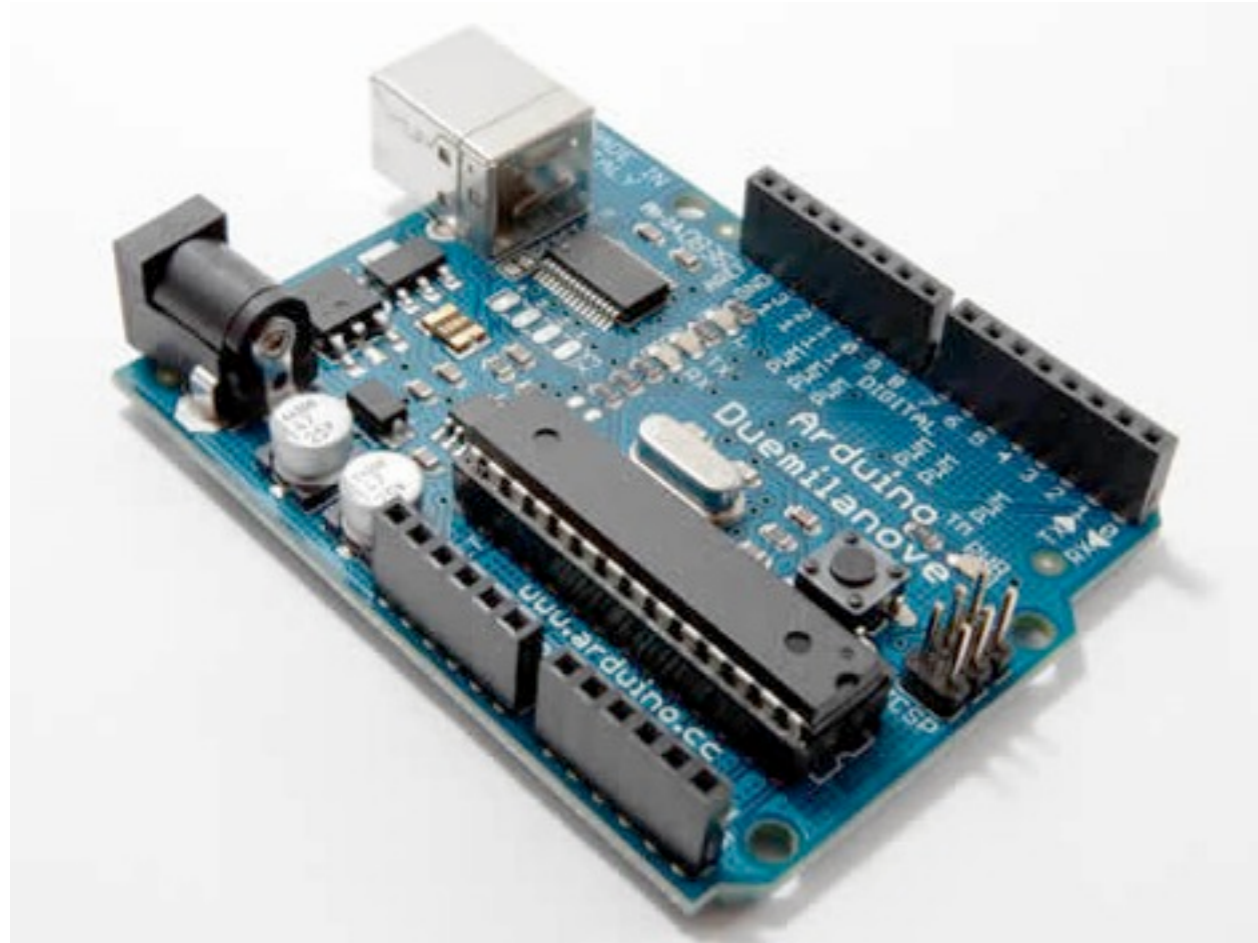
basic atom



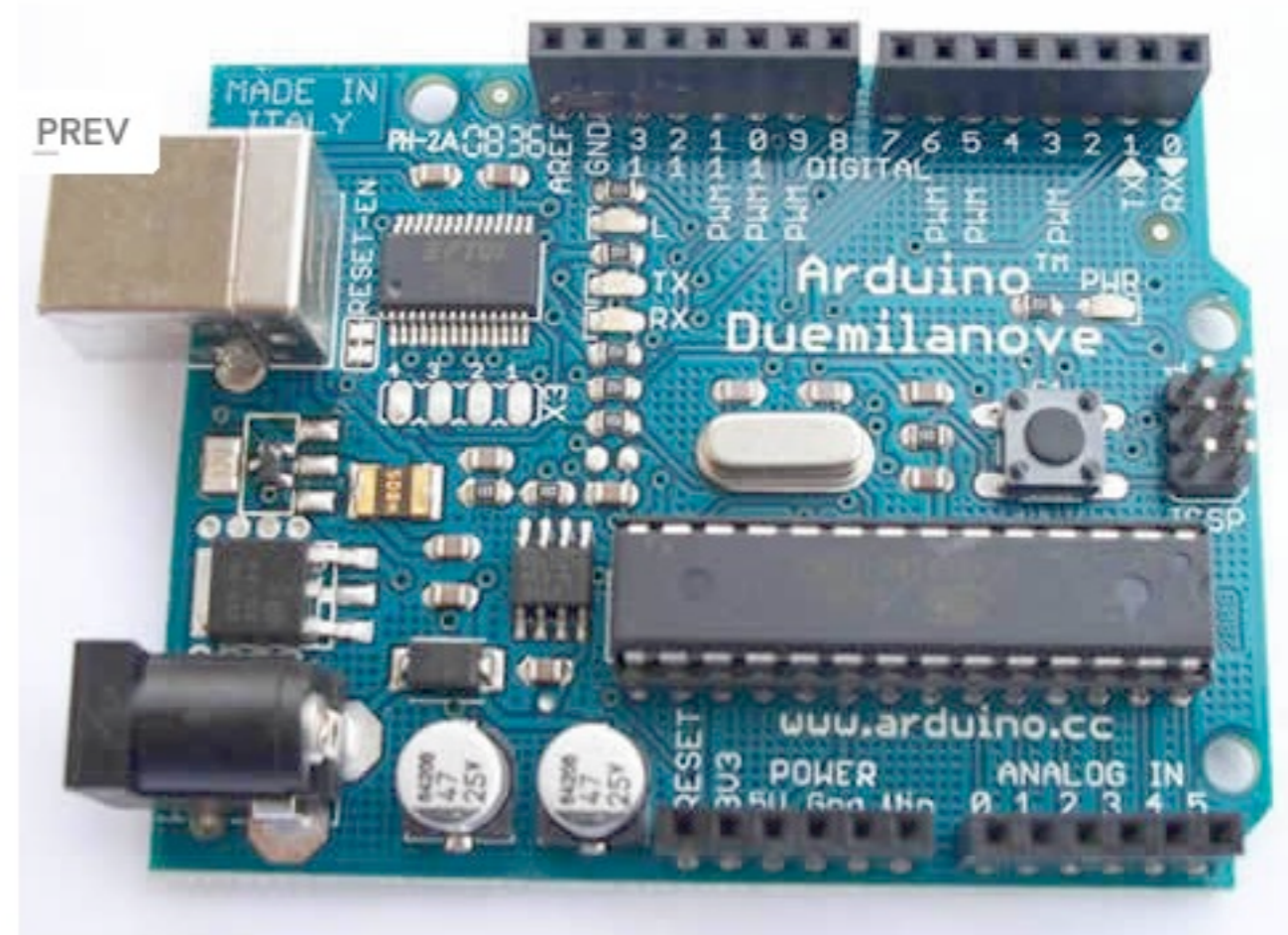
pic



Assembly



Atmel AT Mega 328



Atmel AT Mega 328



Thermistor



Bend Sensor



PIR Sensor



Force Sensor



Potentiometer



Magnet Switch



Distance IR Sensor

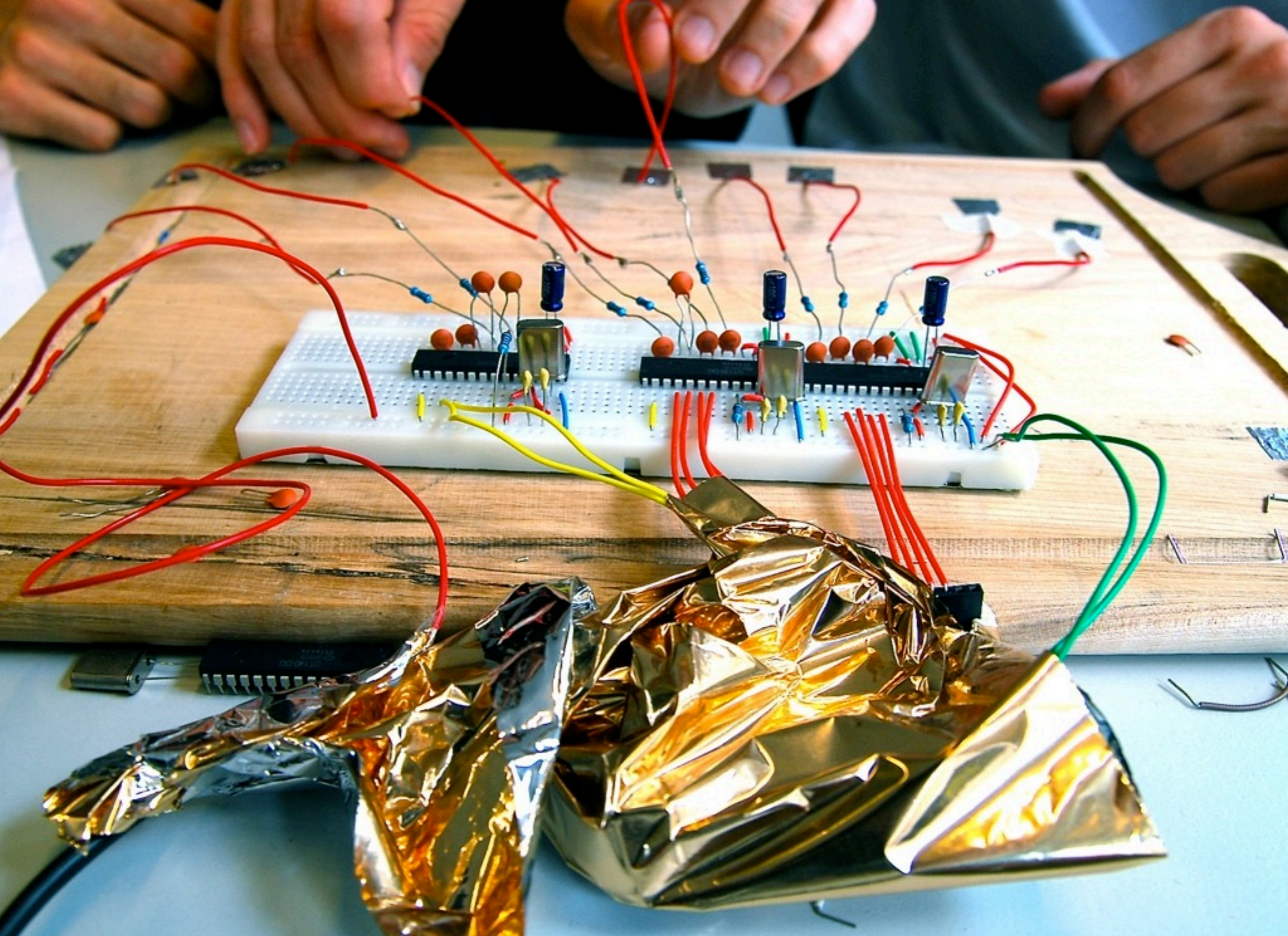


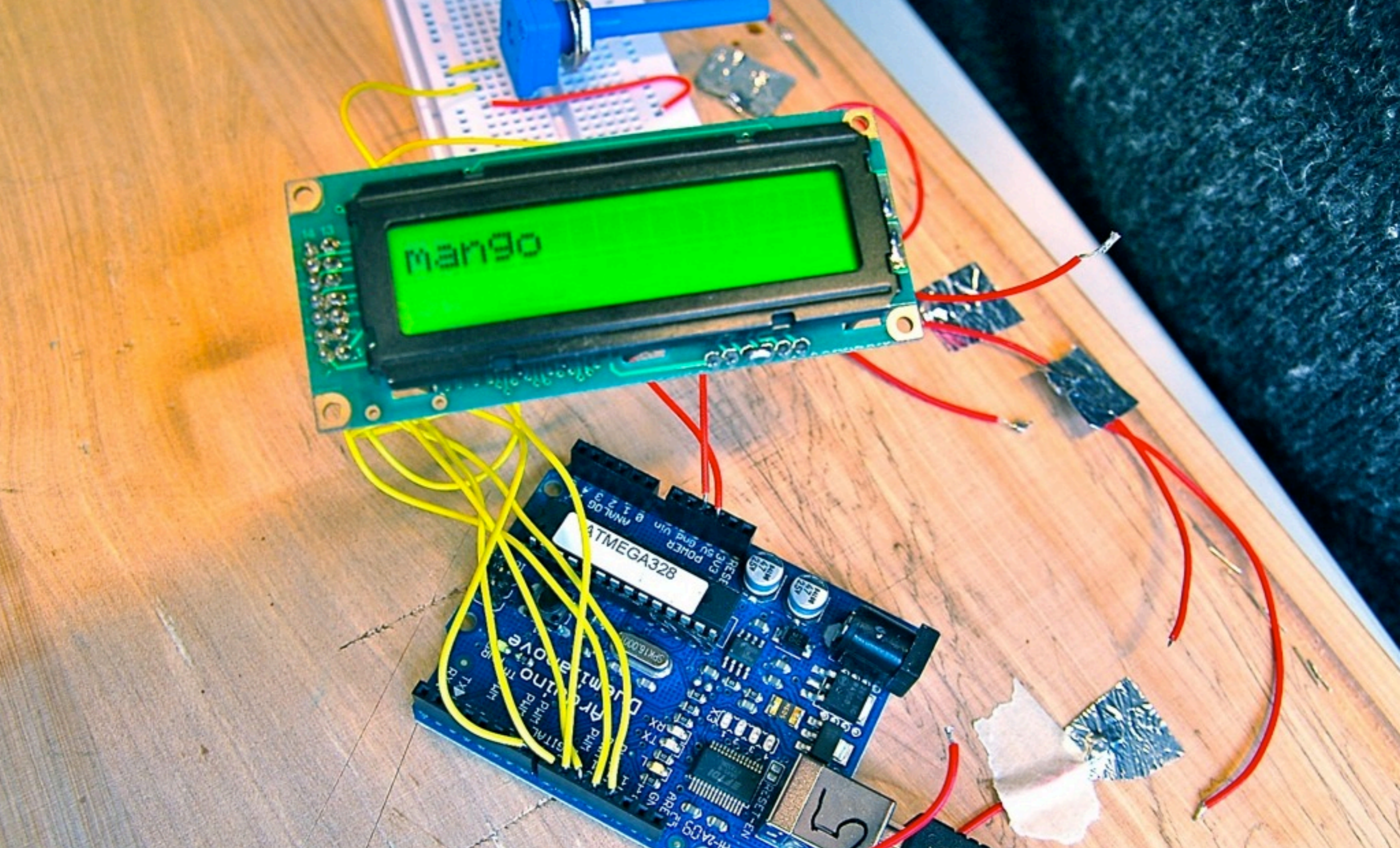
Touch QT Sensor



Ultrasound Sensor







Quick video overview



Prototypes

- Benefits of Prototypes
- Low vs. High Fidelity / Resolution
- Interacting with Paper
- Video Envisionment and the Wonderful Wizard of Oz
- Sketching in Hardware
- Different Prototypes in the Design Process



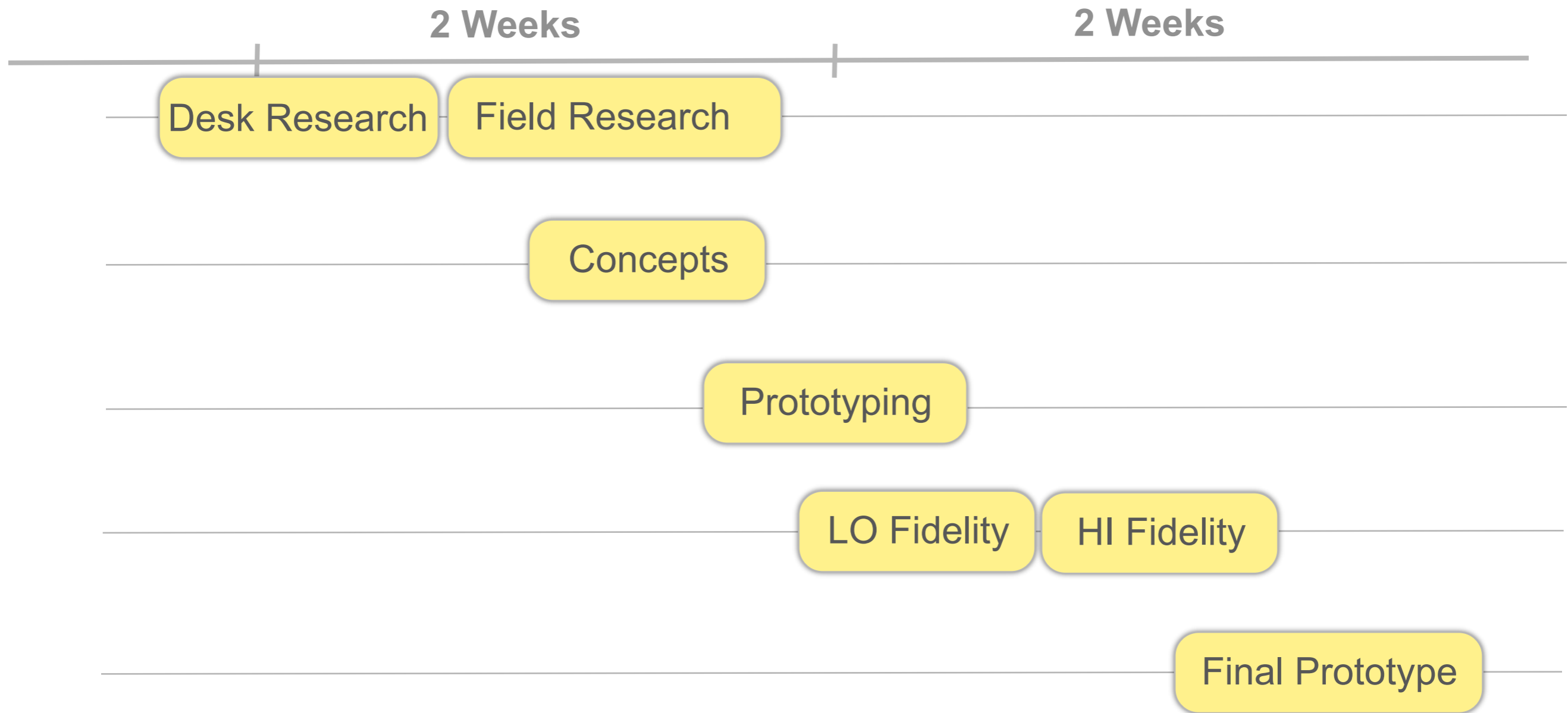
Some Examples
from a school
called
**Copenhagen
Institute of
Interaction
Design
(CIID)**

photo credits © alexander wiethoff



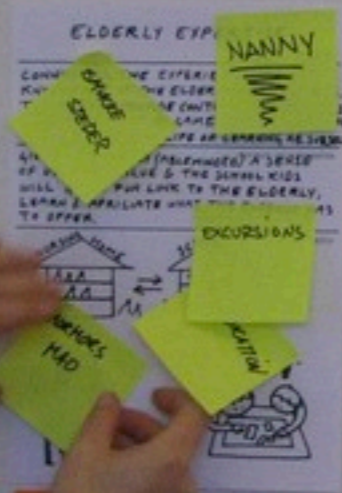
Some Examples
from a school
called
**Copenhagen
Institute of
Interaction
Design
(CIID)**

photo credits © alexander wiethoff





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



UI interface for the elderly

SPECIALIZED BROADBAND REMEDIATION PROXY SERVER

TV channels elderly focus OTIUM PROXY

RFID STORYTELLER



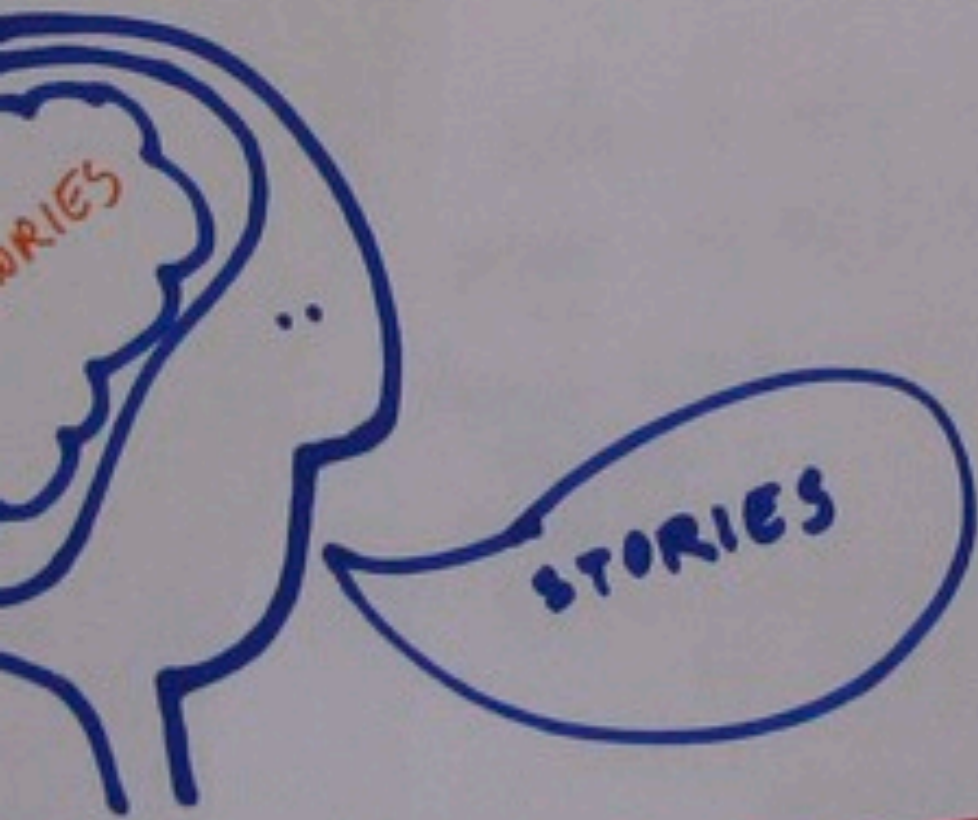
MEMORIES - Experiences - Trivia

make storytelling

Screen wall
See through walls from water tank
changing walls (walls turn into streets)

WIFI POLAROID





↳ Social studies!



THE ELDERLY (ONLY) EXPERIENCE USE THROUGH

FROM THE STORIES

THE ELDERLY (ONLY) EXPERIENCE USE THROUGH

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

THE TIME MACHINE

TIME MACHINE

THE KIDS CAN TRAVEL IN TIME

THE ELDERLY

SAVING KIDDLER

THE ELDERLY

SAVING KIDDLER

SPIN FOR

KEYWORDS TO

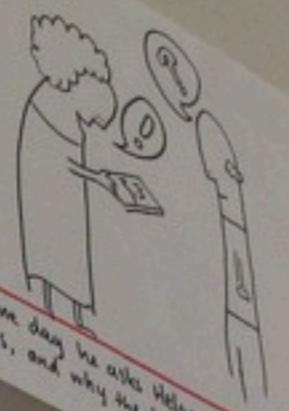
KEY VALUE

- Making old people reconnect with their past and their family.

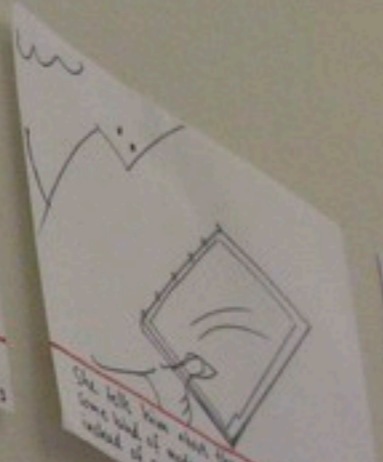
He noticed that his neighbor Helga often get visits from her grandchildren. Apparently they look at old photos, but the album looks a bit strange.



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



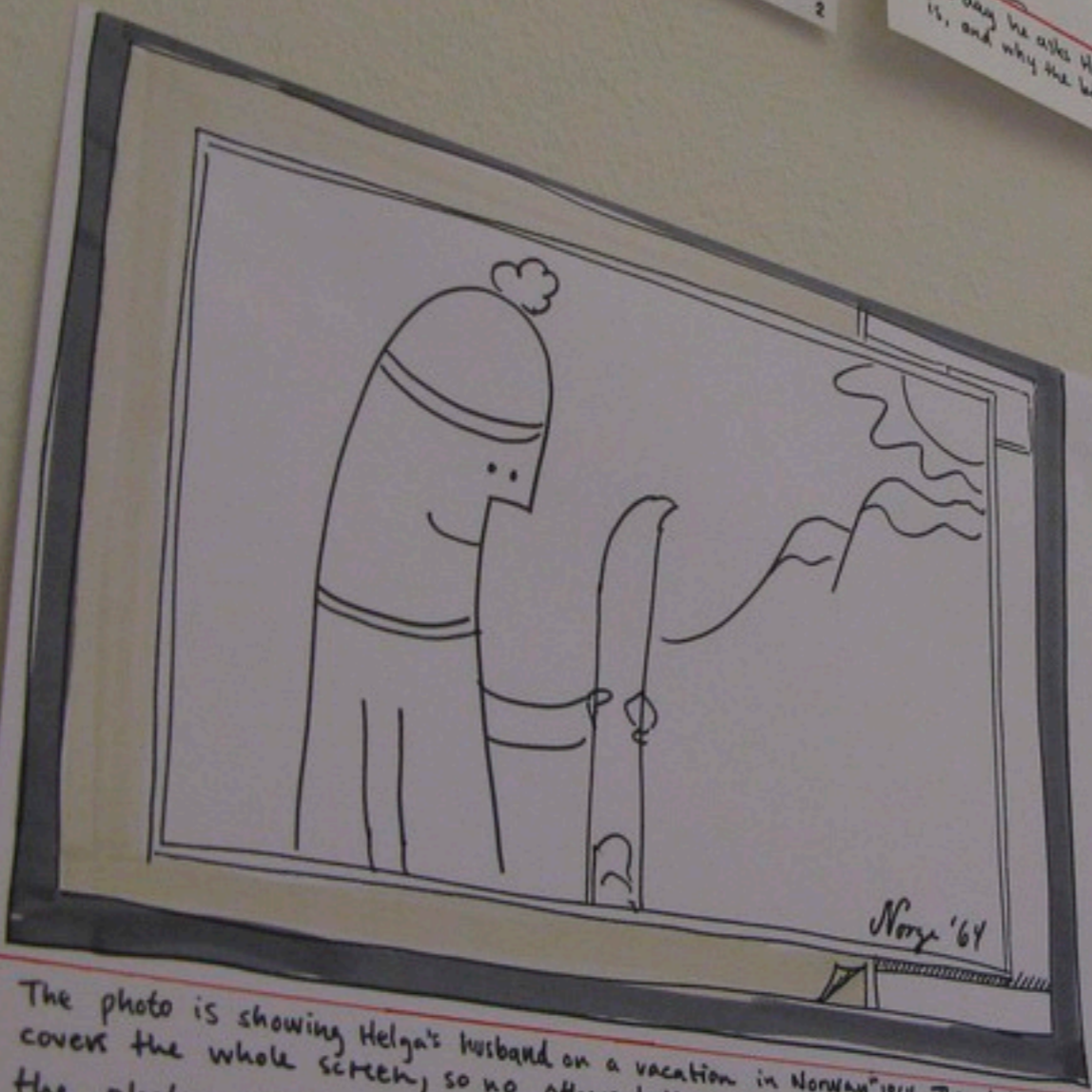
She tells him what the photo-album really is, some kind of modern device that has a screen.



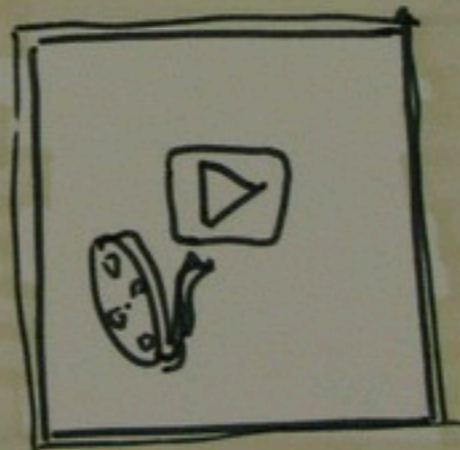
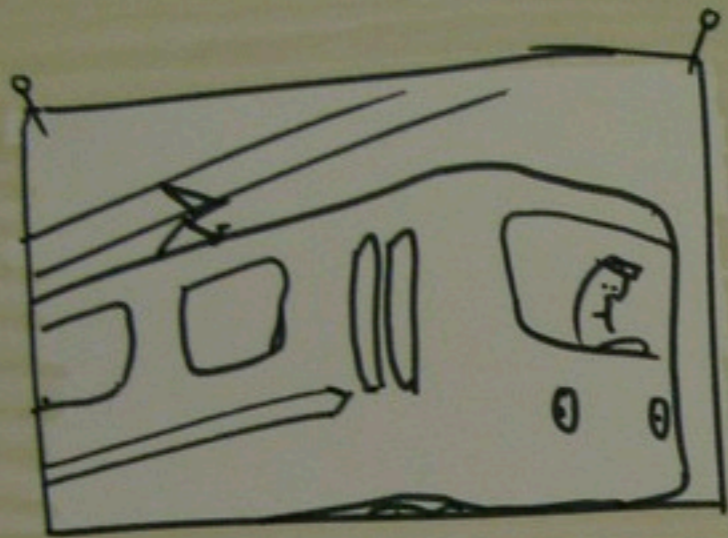
"So you have personal photos in it? But wait, didn't I also see a photo from Reinken in there?" Albert asked.



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



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 it's original size.



Album

Box

1967

1966

1965

1964

1963

1962

1961

1960

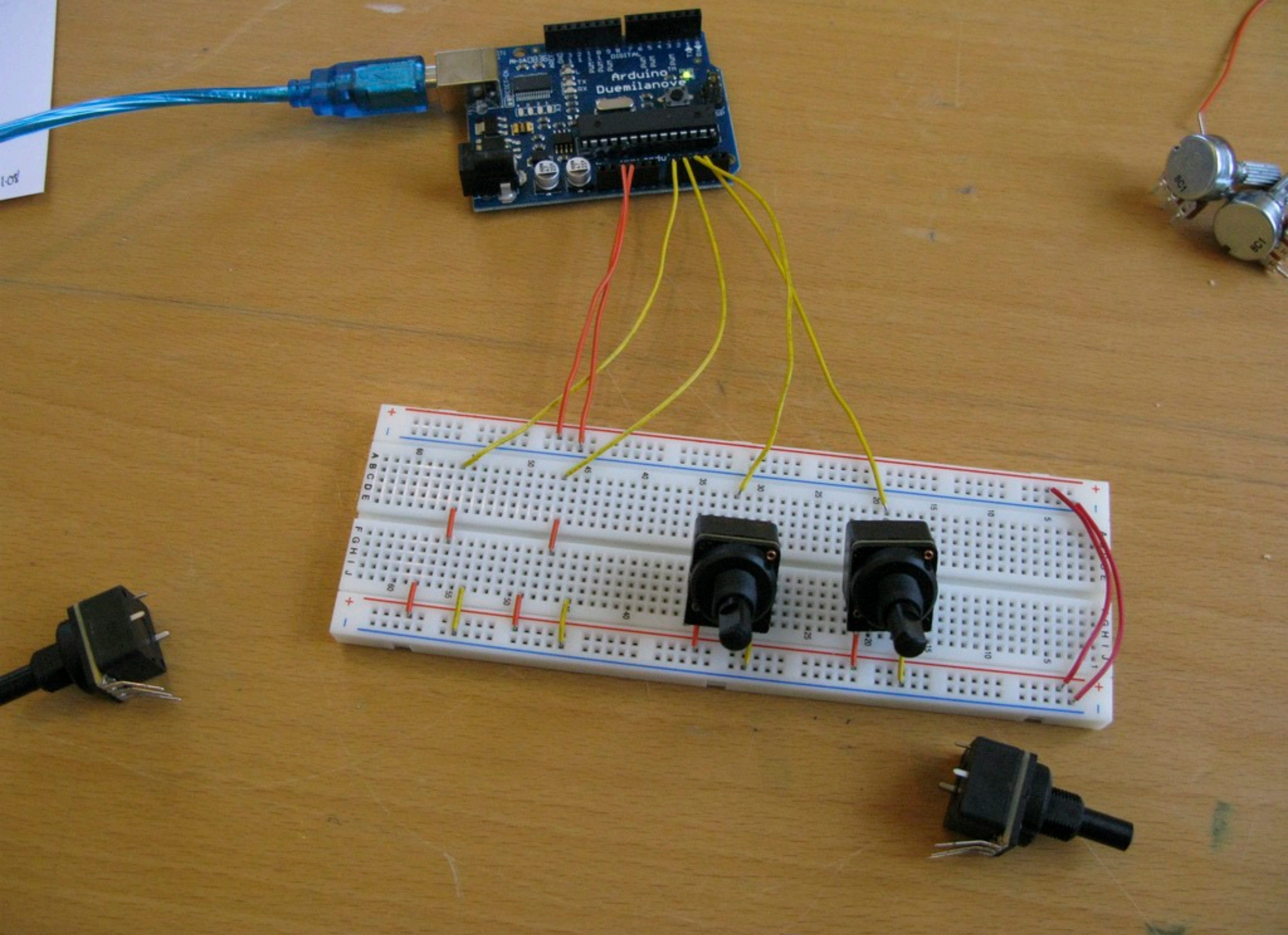
1950

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.















Viseaften


Journalistforeningen

1968, Music

198

Favorites


De



OH!
WHAT A LOVELY WAR

Glenn Gauer
1978, Radio Theater

1975 1980 19 Favorites De



OH!
WHAT A LOVELY WAR

Glenn Gauer
1978, Radio Theater

1975 1980 19 Favorites De

References (Books):

- [1] Buxton, W. Sketching User Experiences, *Morgan Kaufmann* 2007.
- [2] Norman, D. The Psychology of Everyday Things, *Basic Books* 1988.
- [3] Moggridge, B. Designing Interactions, *MIT Press*, 2006.