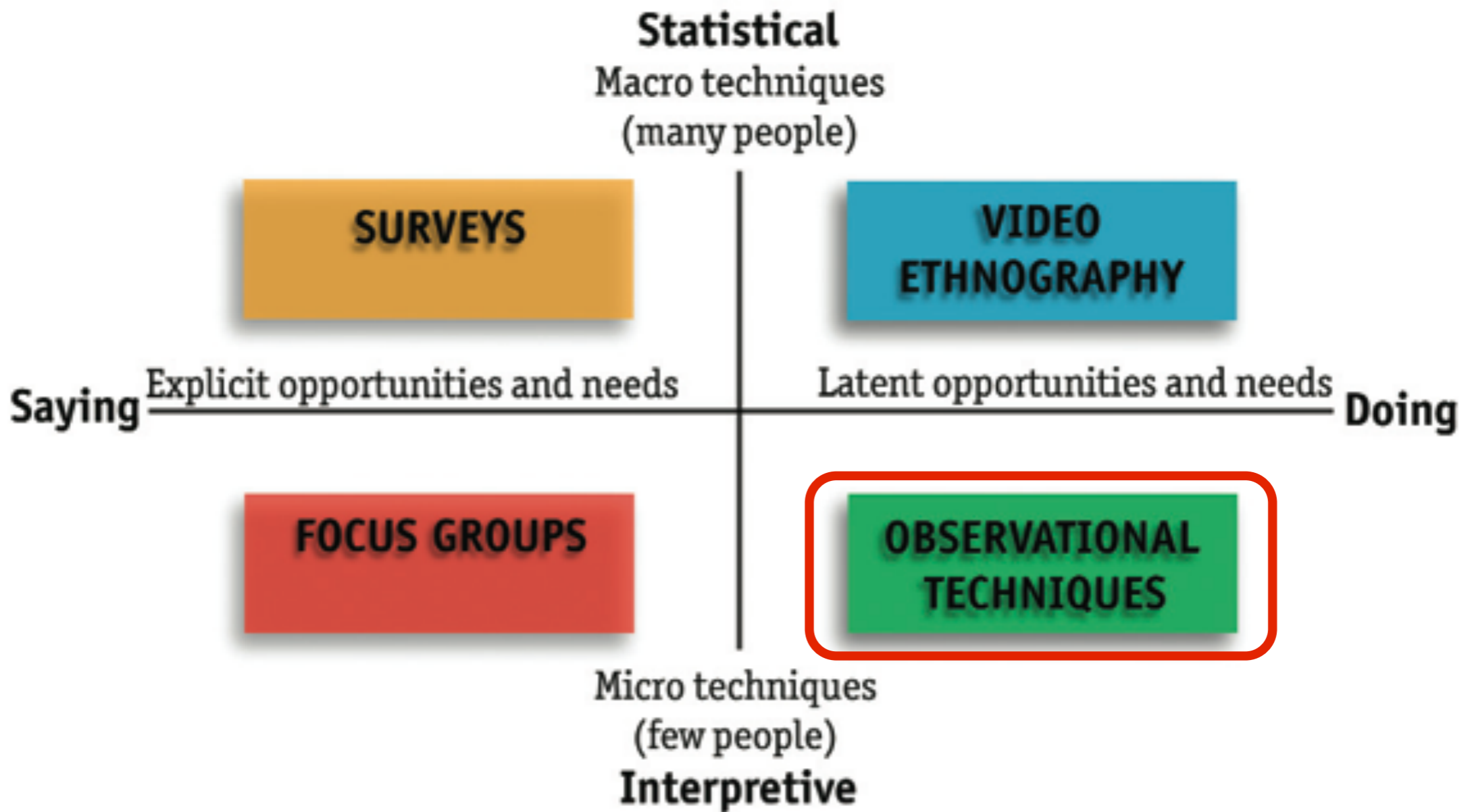


Prototyping UX - From Sketch to Prototype

Interaction Design - Alexander Wiethoff - SS2016

Ludwig-Maximilians Universität München

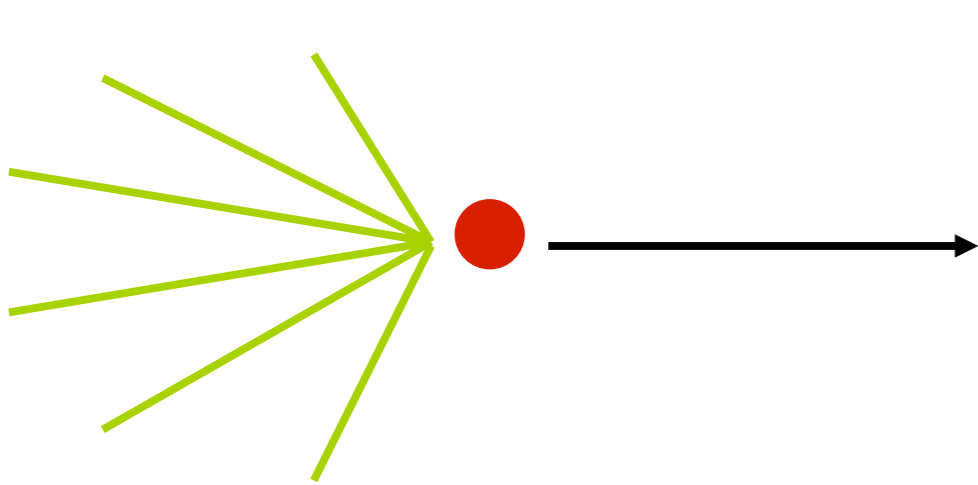
Recap Session Day 4:



source: [8]

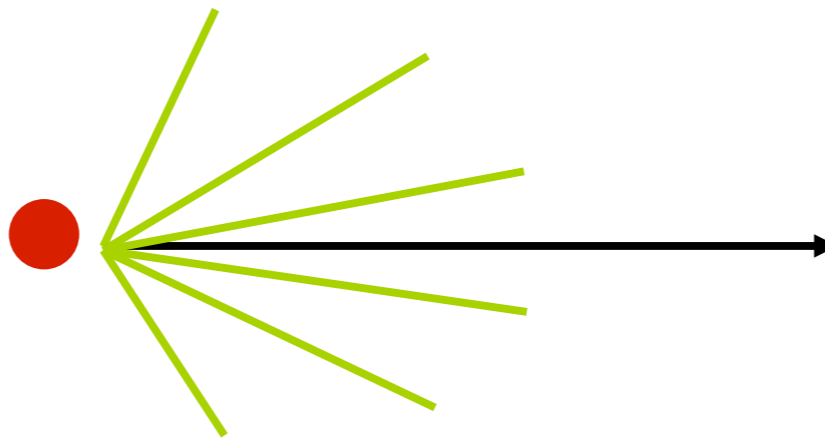
ANALYSIS

Definition of the system
What is the problem?



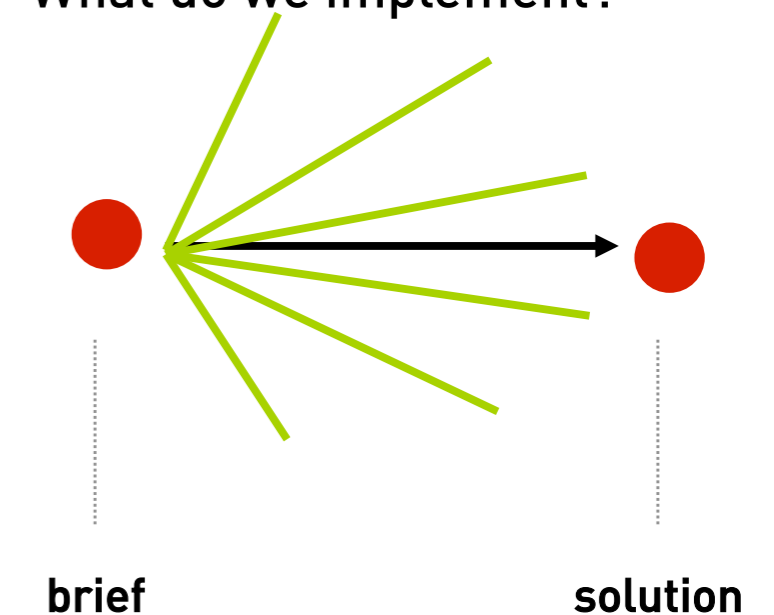
EVALUATION

Possible alternatives
What future do we want?



SYNTHESIS

Design of final solutions
What do we implement?



The designer is a
'problem-scouter'

The designer is a
'story-teller'

The designer is an
'executor'



source: [4]

Fly on the Wall

How

Observe and record behaviour within its context, without interfering with people's activities.

Why

It is useful to see what people do in real contexts and time frames, rather than accept what they say they did after the fact.

Example

By spending time in the operating room, the designers were able to observe and understand the information that the surgical team needed.



FLY ON THE WALL

source: [7]

Four key issues

- **Setting goals**
 - Decide how to analyse data once collected
- **Relationship with participants**
 - Clear and professional
 - Informed consent when appropriate
- **Triangulation**
 - Use more than one approach
- **Pilot studies**
 - Small trial of main study

Interviews

Unstructured - are not directed by a script. Rich but not replicable.

Structured - are tightly scripted, often like a questionnaire. Replicable but may lack richness.

Semi-structured - guided by a script but interesting issues can be explored in more depth. Can provide a good balance between richness and replicability.

Running the interview

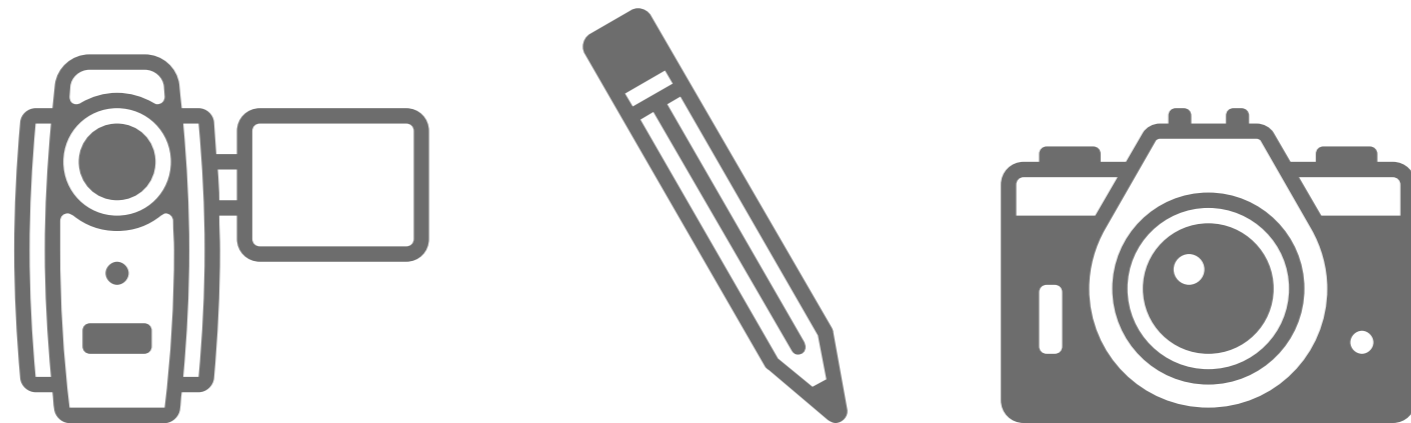
- **Introduction** – introduce yourself, explain the goals of the interview, reassure about the ethical issues, ask to record, present any informed consent form.
- **Warm-up** – make first questions easy and non-threatening.
- **Main body** – present questions in a logical order
- **A cool-off period** – include a few easy questions to defuse tension at the end
- **Closure** – thank interviewee, signal the end, e.g, switch recorder off.

Summary Creating a Good Questionnaire:

- Keep your questionnaire **short**. In fact, the shorter the better.
- Use **simple and direct language**. The questions must be clearly understood by the respondent.
- Begin with a few **non-threatening** and interesting items.
- Place the **most important items in the first half** of the questionnaire
- Leave **adequate space** for respondents to make comments.
- Perform **iterative pre-tests** and eliminate or replace questions that are hard to understand or lead to useless / unsatisfying results.
- Accommodate **all answers**

Summary

- Three main data gathering methods: interviews, questionnaires, observation
- Four key issues of data gathering: goals, triangulation, participant relationship, pilot
- Interviews may be structured, semi-structured or unstructured
- Observation may be direct or indirect, in the field or in controlled setting
- Techniques can be combined depending on study focus, participants, nature of technique and available resources



source: [8]

Prototyping UX - From Sketch to Prototype

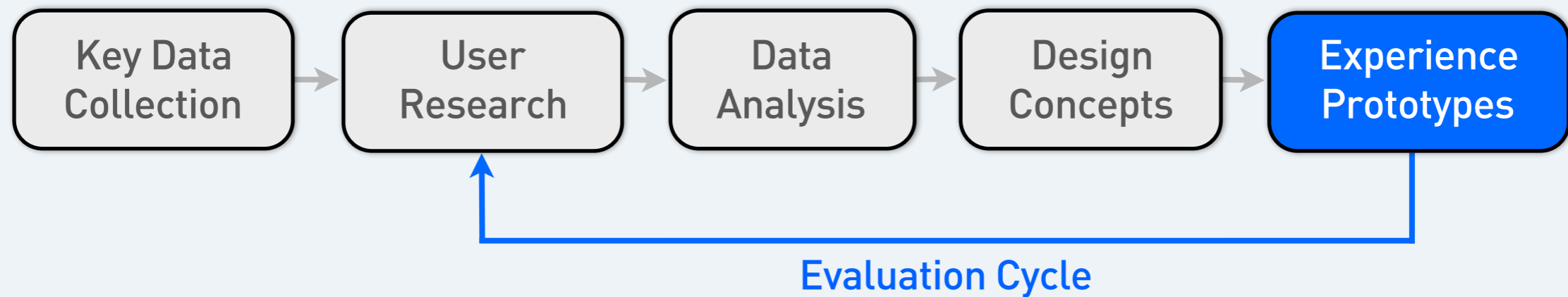
Interaction Design - Alexander Wiethoff - SS2016

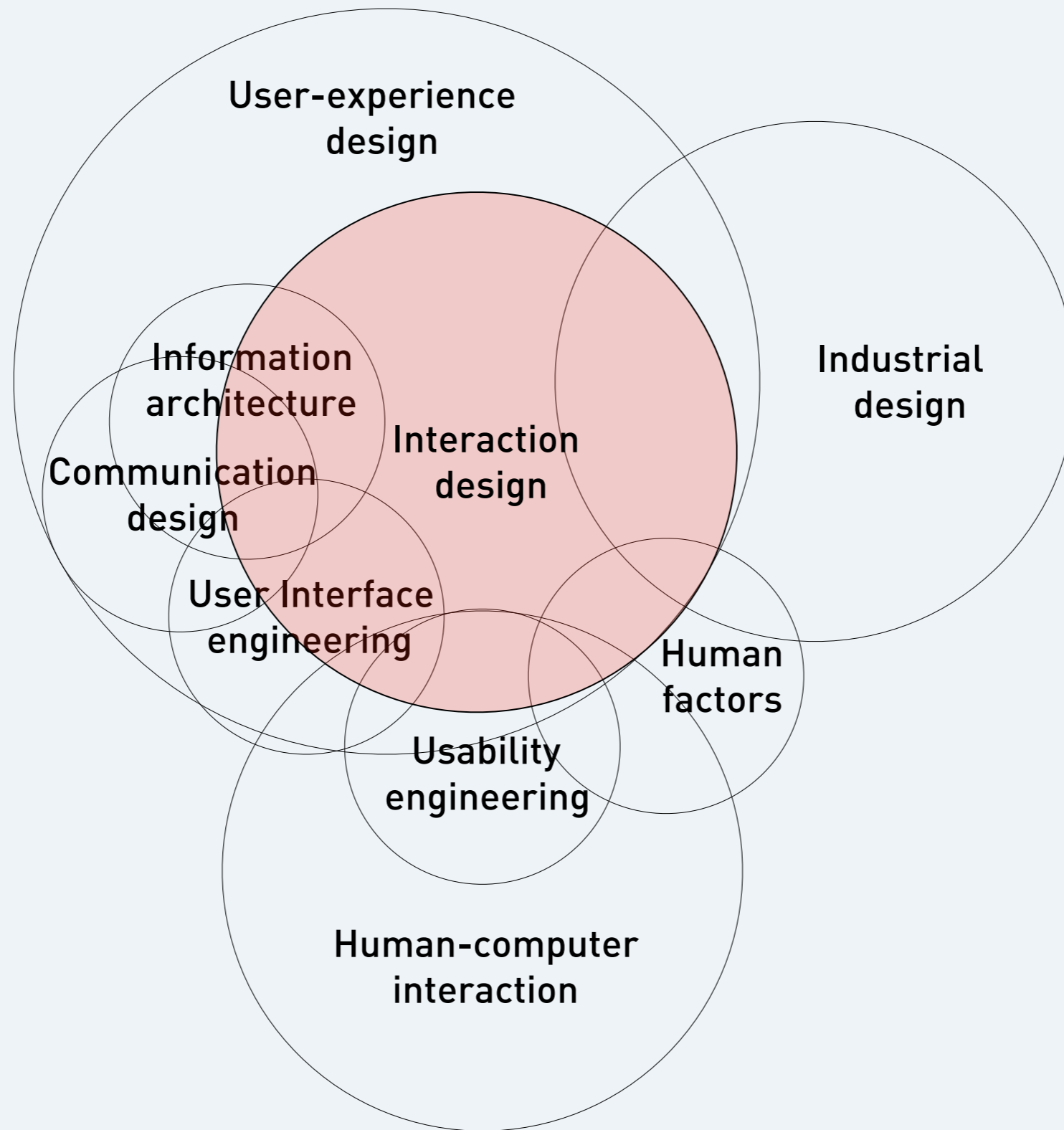
Ludwig-Maximilians Universität München

Overview:

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

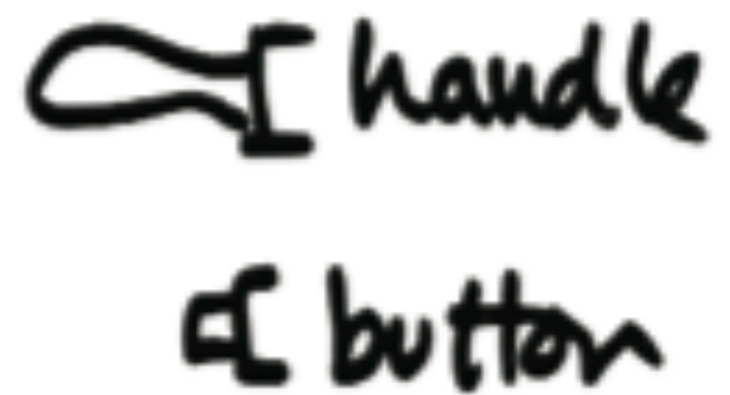
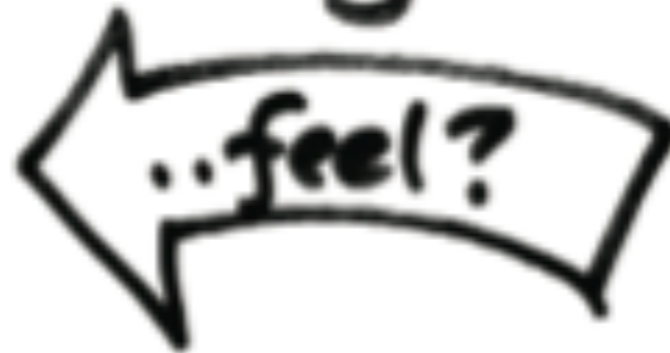
Overview





INTERACTION

How do you...



User Experience Design



Overview

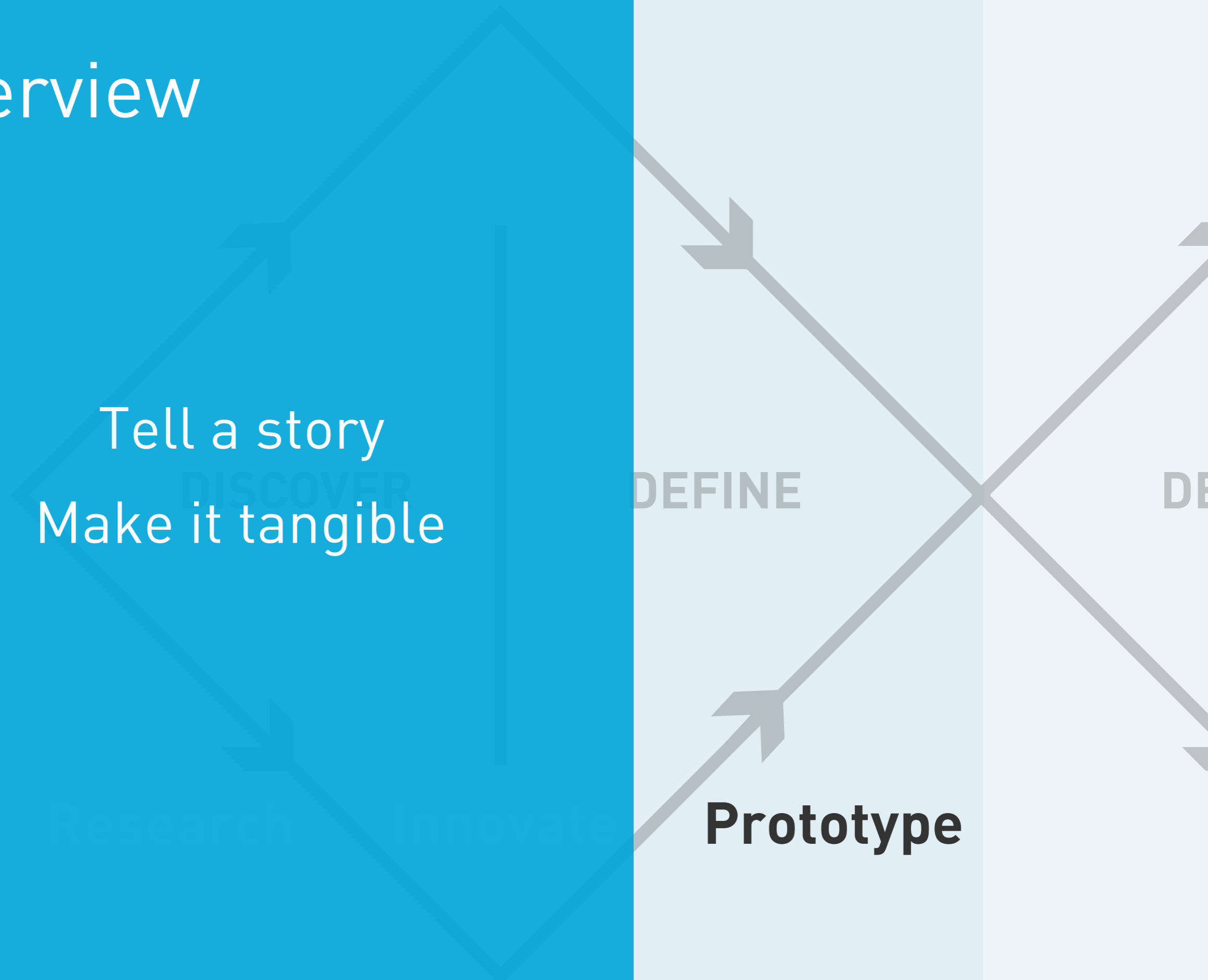
Tell a story
Make it tangible

DISCOVER

DEFINE

DE

Prototype



Overview:

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

For the Designer: Exploration
Visualisation
Feasibly
Inspiration
Collaboration

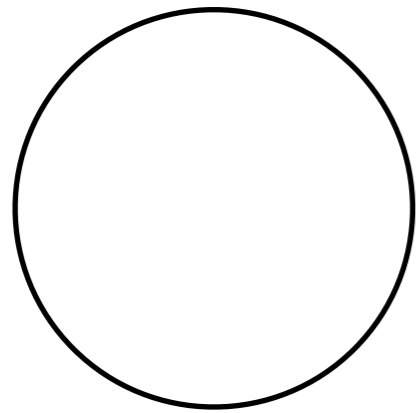
For the End User: Effectiveness / Usefulness
A change of viewpoint
Usability
Desirability

For the Producer: Conviction
Specification
Benchmarking

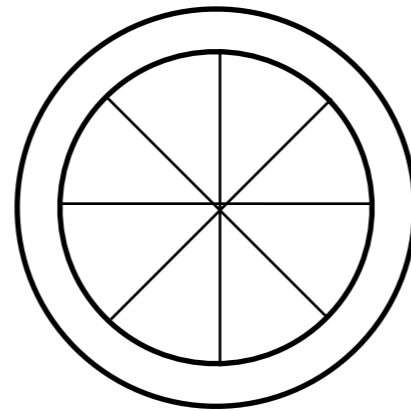
It's really hard to design products by focus groups. A lot of times, people don't know what they want until you show it to them.

Steve Jobs

Fidelity v. Resolution



low resolution
low fidelity



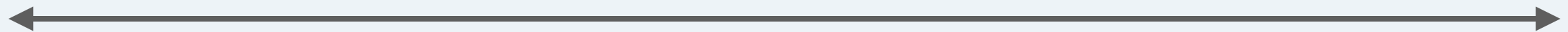
high resolution
low fidelity



high resolution
high fidelity

Low Fidelity

High Fidelity



Open Discussion

Sharp Opinions

Prompting Required

Self Explanatory

Quick and Dirty

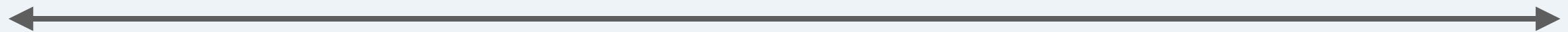
Deliberate and Refined

Early Validation

Concrete Ideas

Low Resolution

High Resolution



Less Details

More Details

Focus on core interactions

Focus on the whole

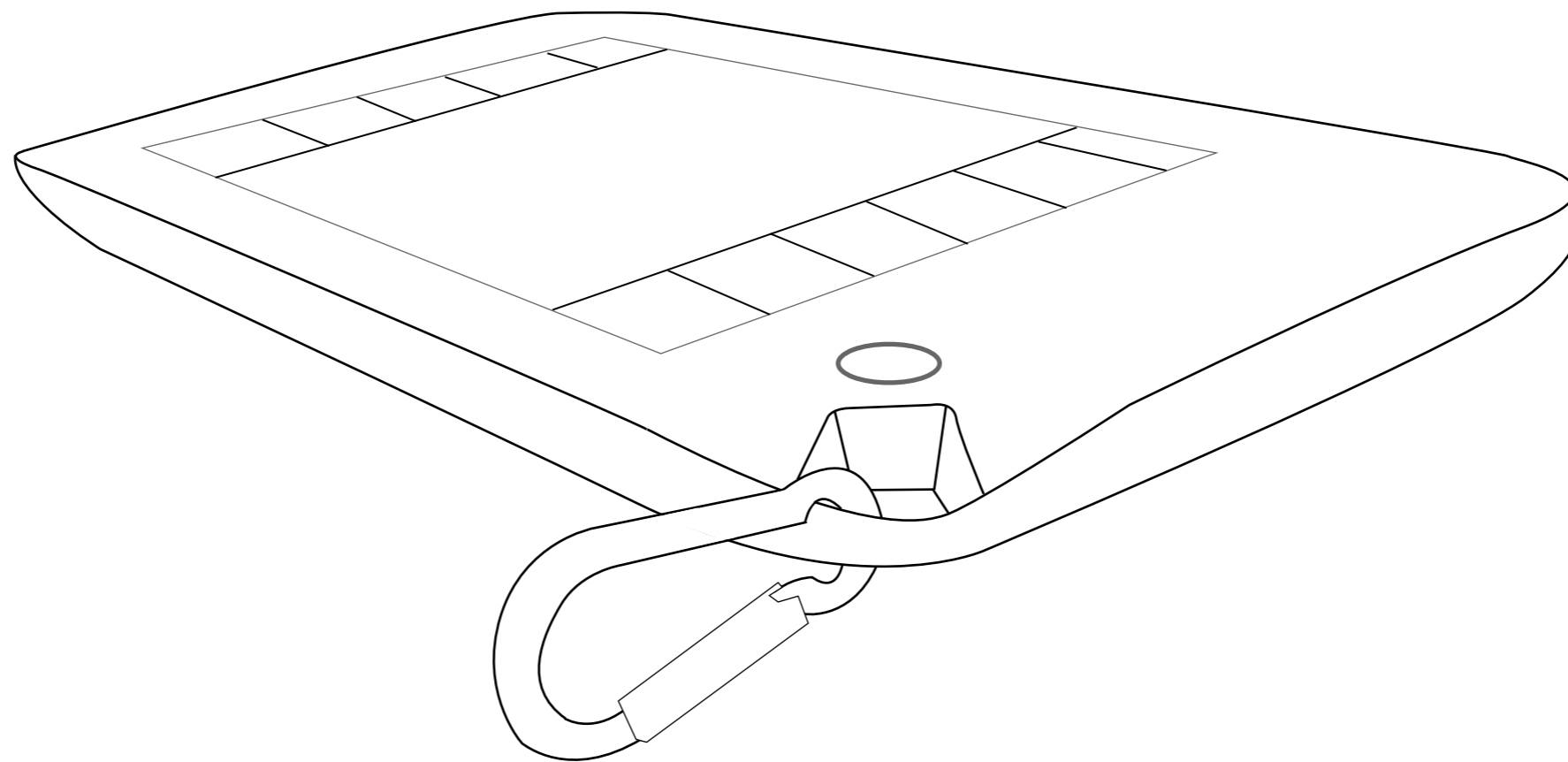
Quick and Dirty

Deliberate and Refined

Early Validation

Concrete Ideas

1st Iteration
low-res/low-fi

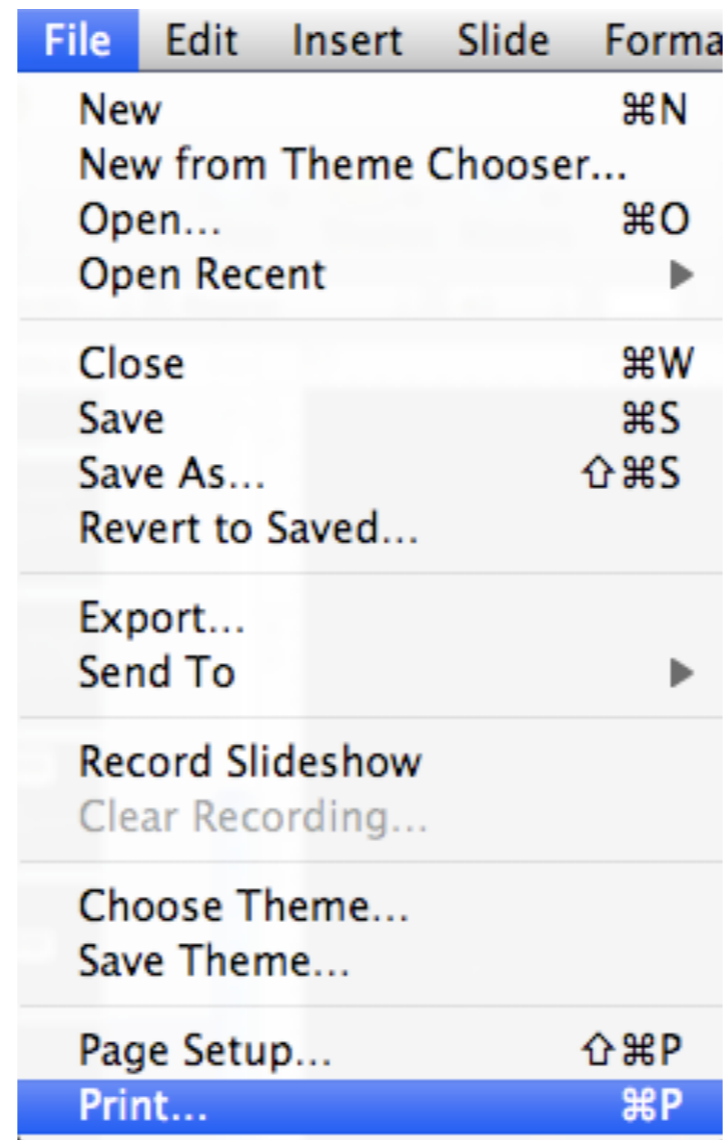


4th Iteration
high-res/high-fi

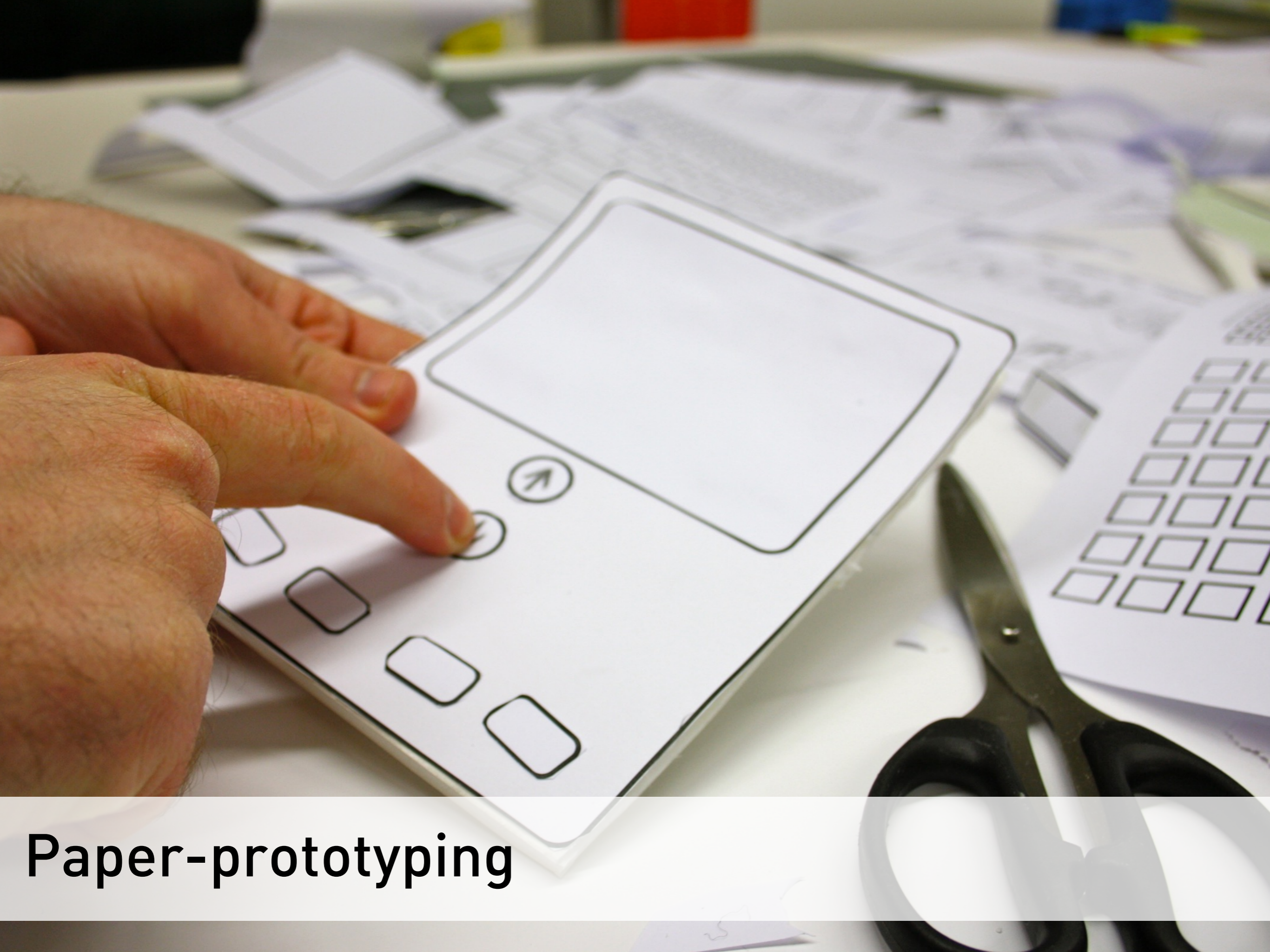




80/20 rule



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.



Paper-prototyping

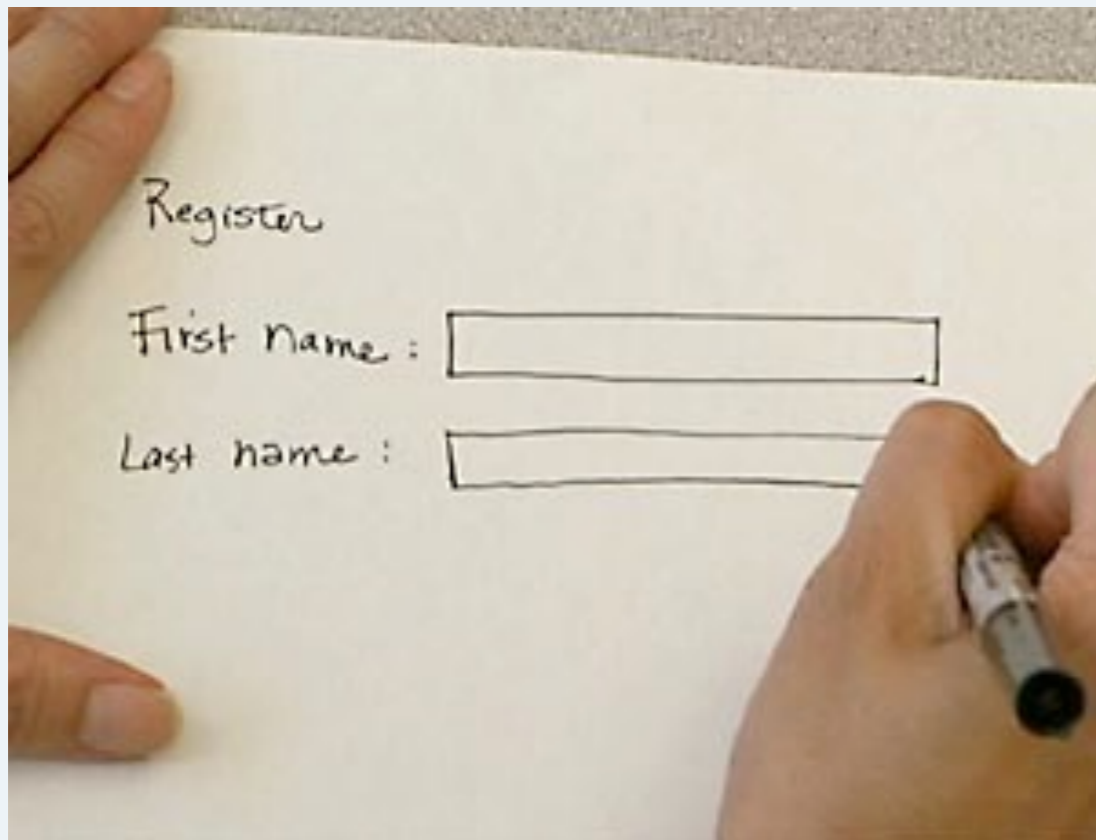
What is it?

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.

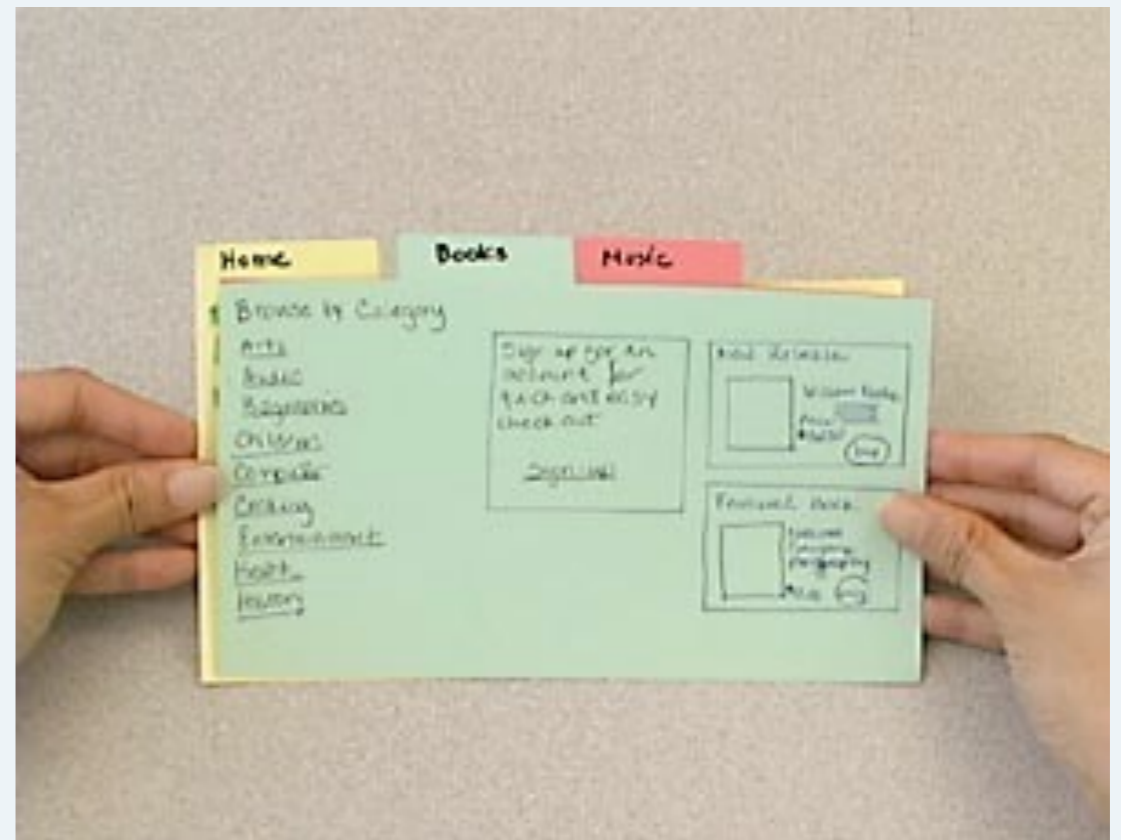
It is **throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.

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



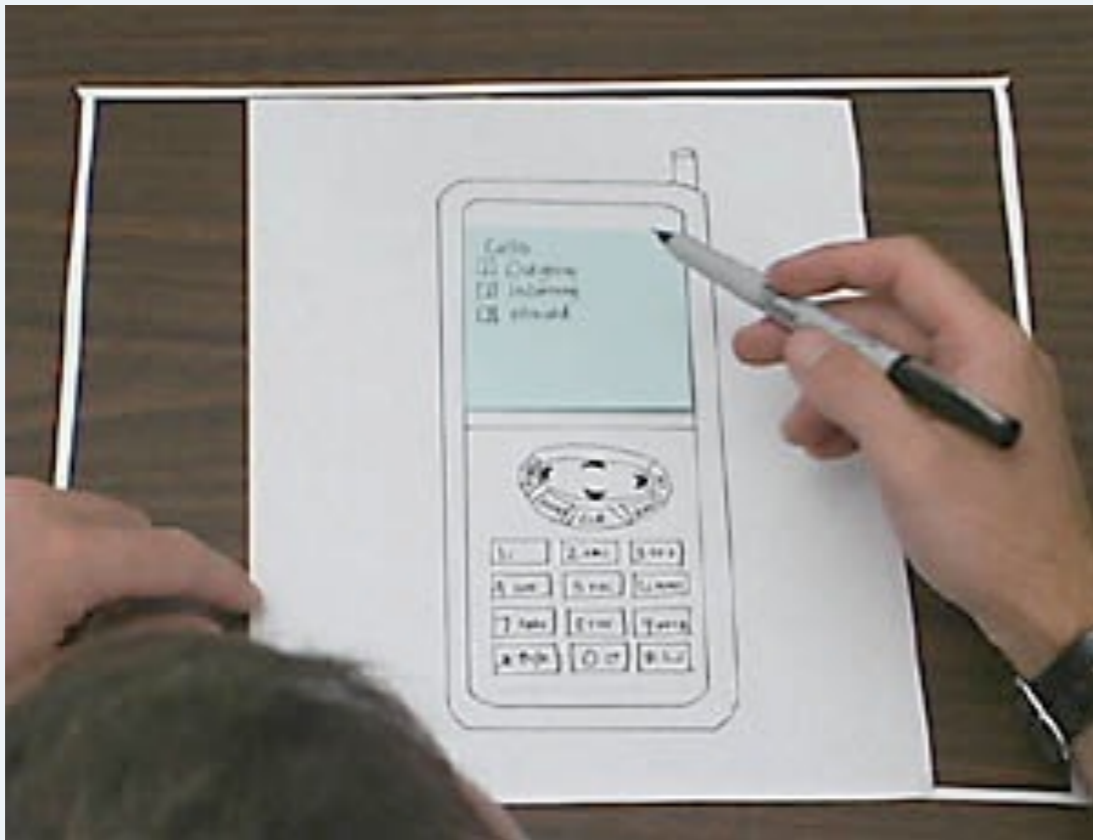
Paper prototype of a tabs-based design



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



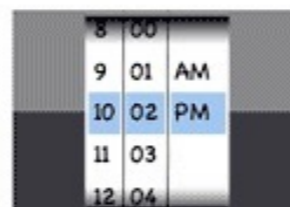
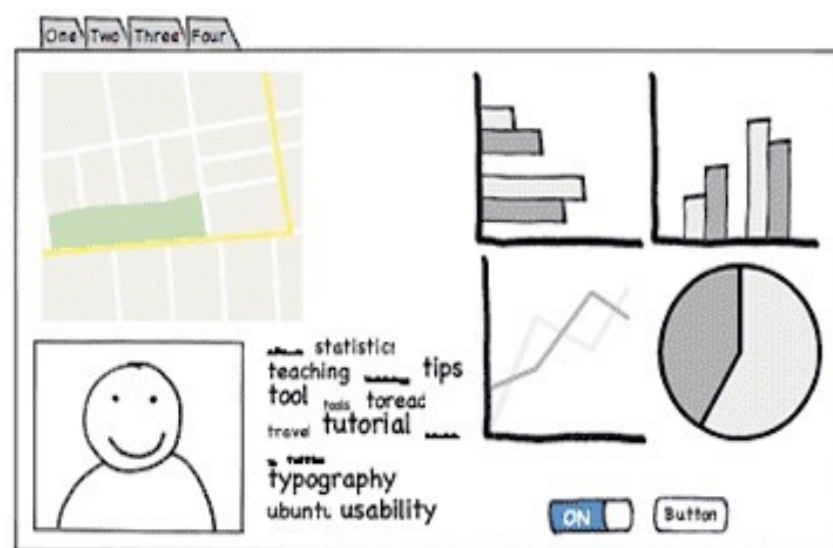
User test of a device-based interaction



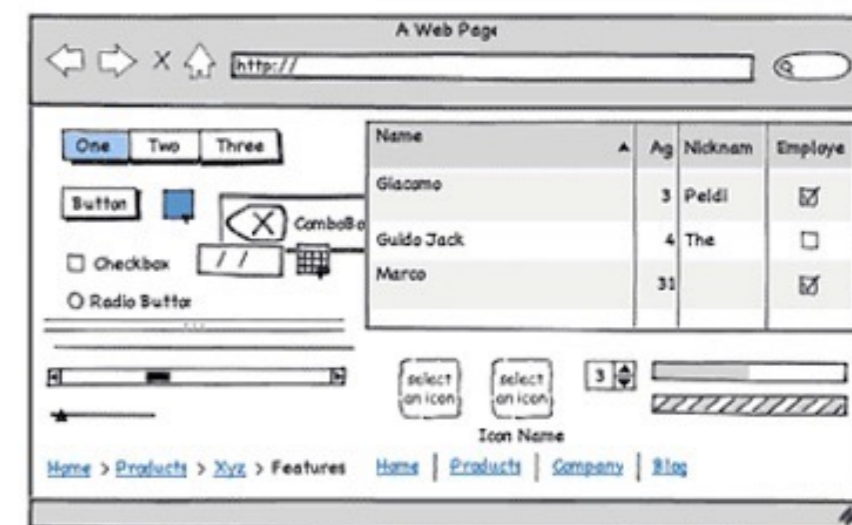
User test of a high-fidelity paper prototype of a homepage.



Testing hardware user interfaces: mockup of a kiosk.



- Use F for closed folders
- Use F for open folders
- You may also use this
- and this
- or this
- and this
- or even this
- and this
- Use - for a file icon
- or _ to leave a space for your own
- use spaces or dots for hierarchy
- Just like
- this



<http://www.balsamiq.com/products/mockups>
PopApp

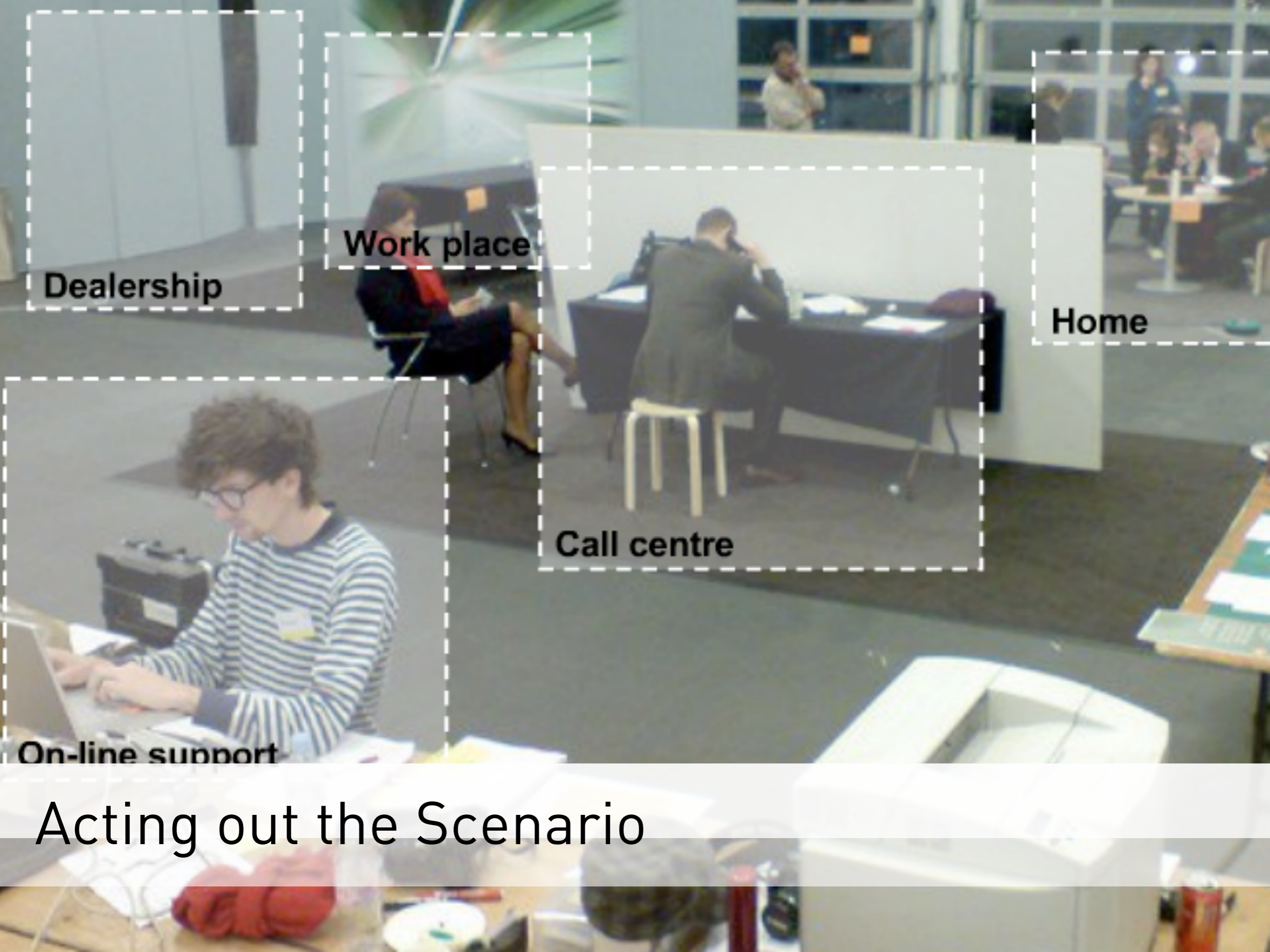
Handwritten notes on a piece of paper, possibly a ledger or account book. The text is written in a cursive script, likely Urdu or Hindi. The page features a header with the word "Dawn" and some illegible text. Below this is a table with several columns and rows of entries. The table is partially obscured by a vertical sidebar on the left containing several small boxes and labels. At the bottom of the page, there are two more rows of text, possibly a summary or footer.

NO	DATE	DESCRIPTION	AMOUNT	TOTAL
1	1/1/11
2
3
4
5
6
7
8
9
10

Source: YouTube



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

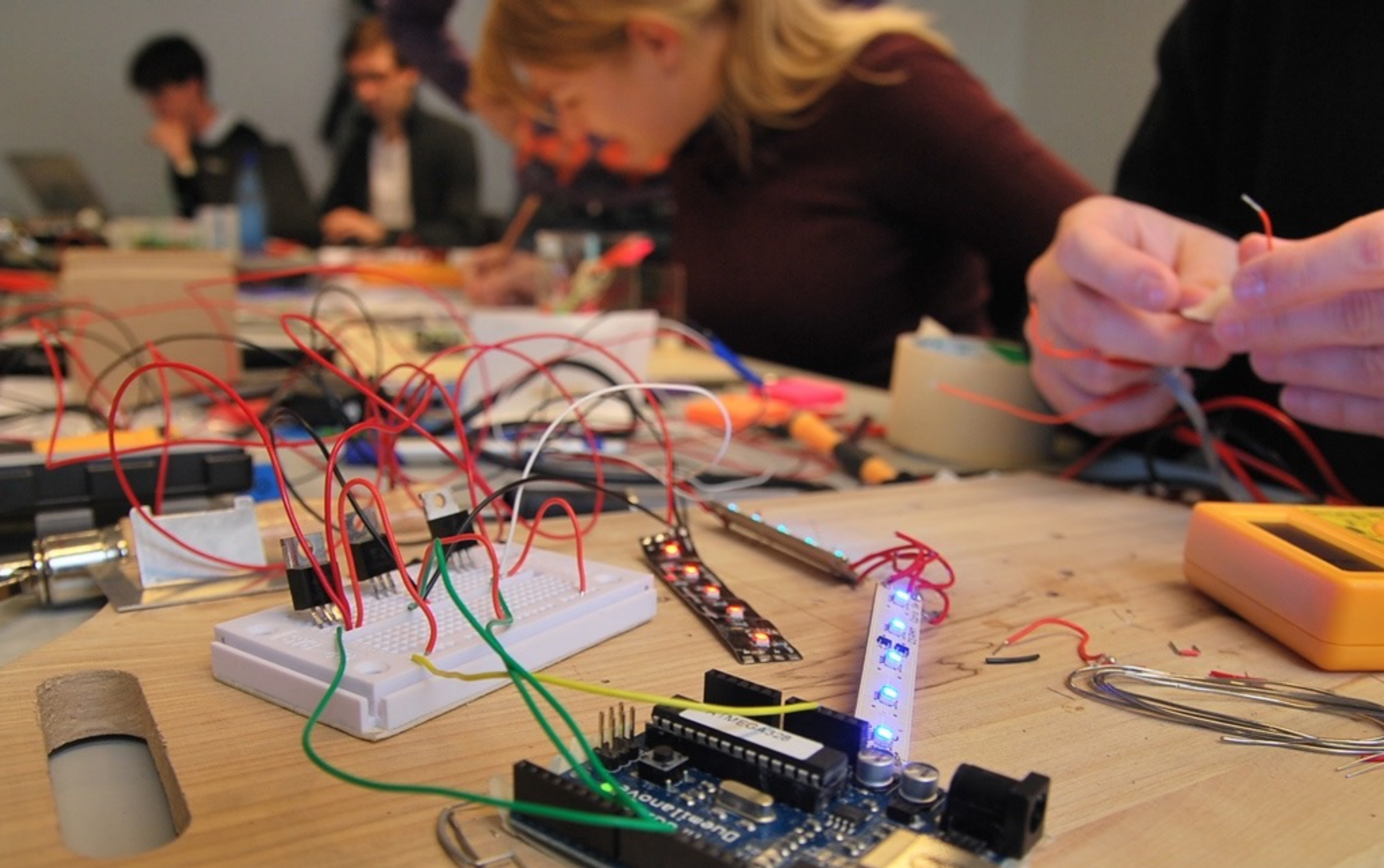
(crossing on demand)



Zebra Zone

The Smoke & Mirror Approach

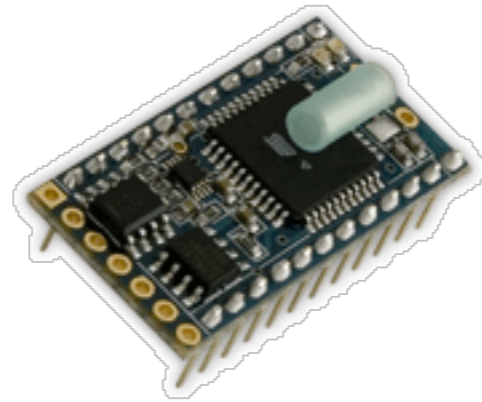




Sketching with Hardware



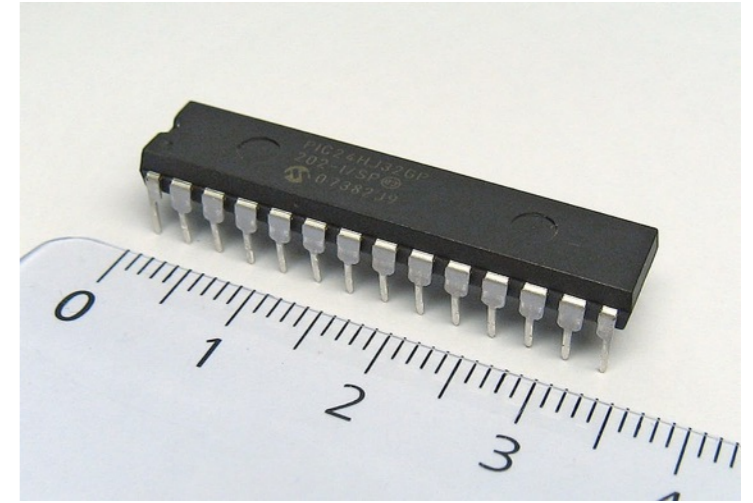
basic stamp



bx 24



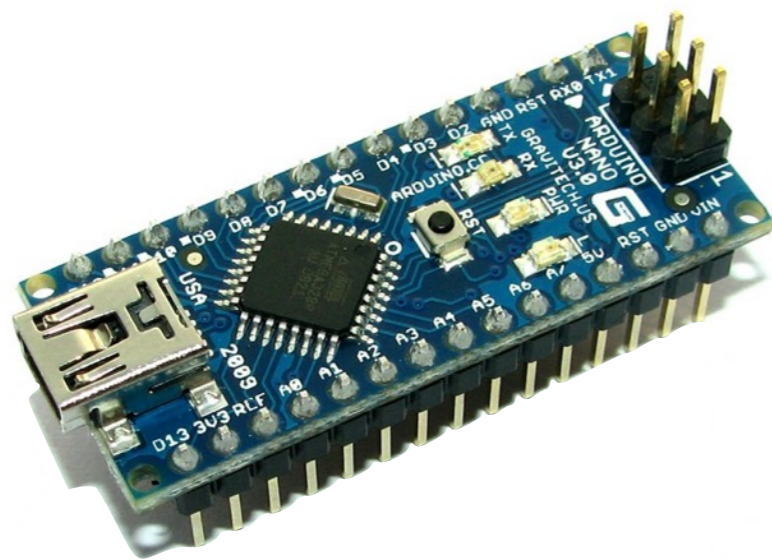
basic atom



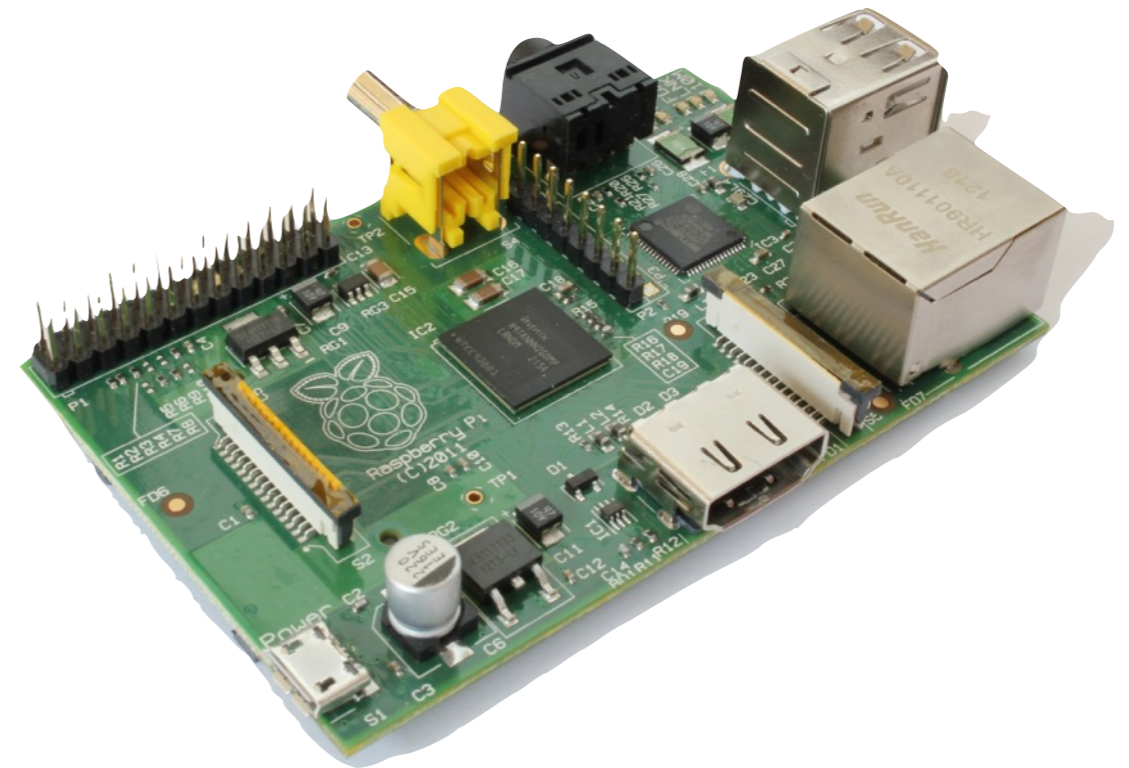
pic



Assembly



Atmel AT Mega 328



Raspberry Pi



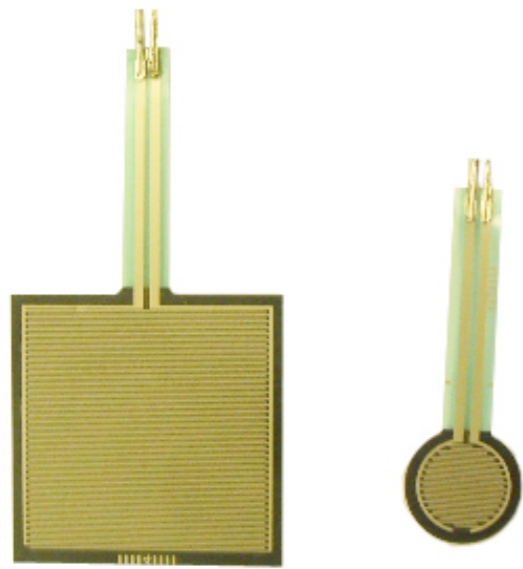
Thermistor



Bend Sensor



PIR Sensor



Force Sensor



Potentiometer



Magnet Switch



Distance IR Sensor

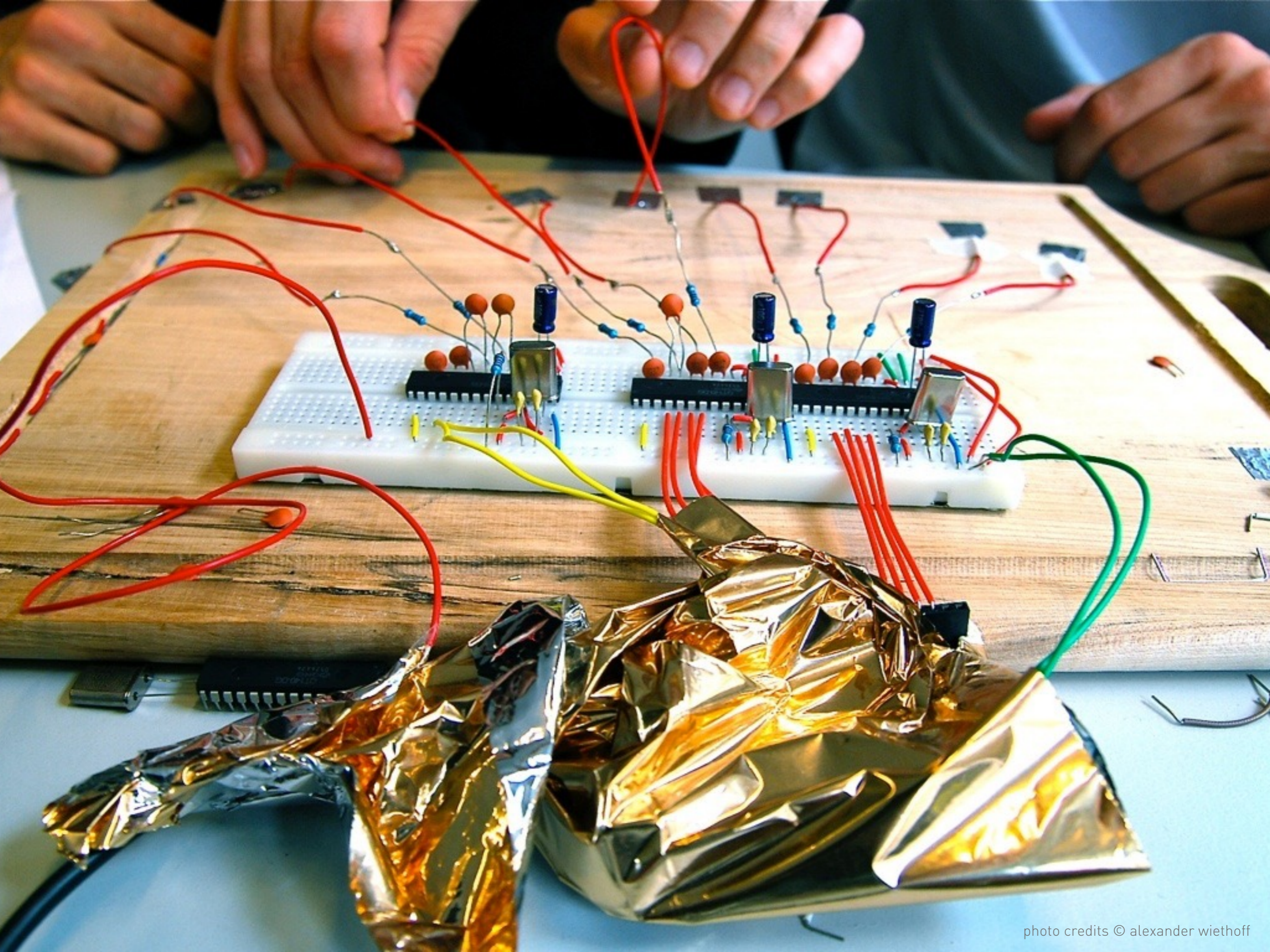


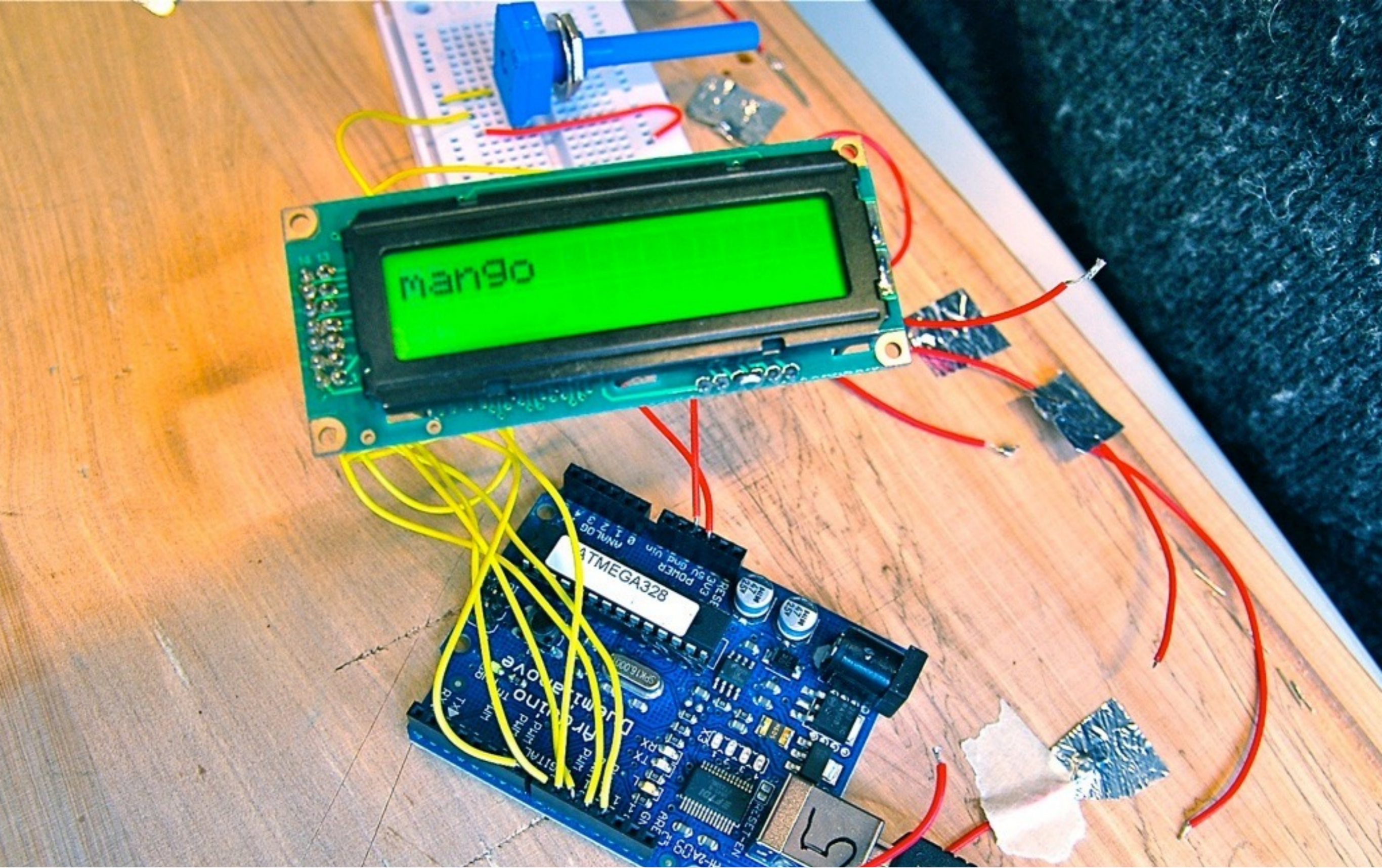
Touch QT Sensor



Ultrasound Sensor







Quick video overview

Overview:

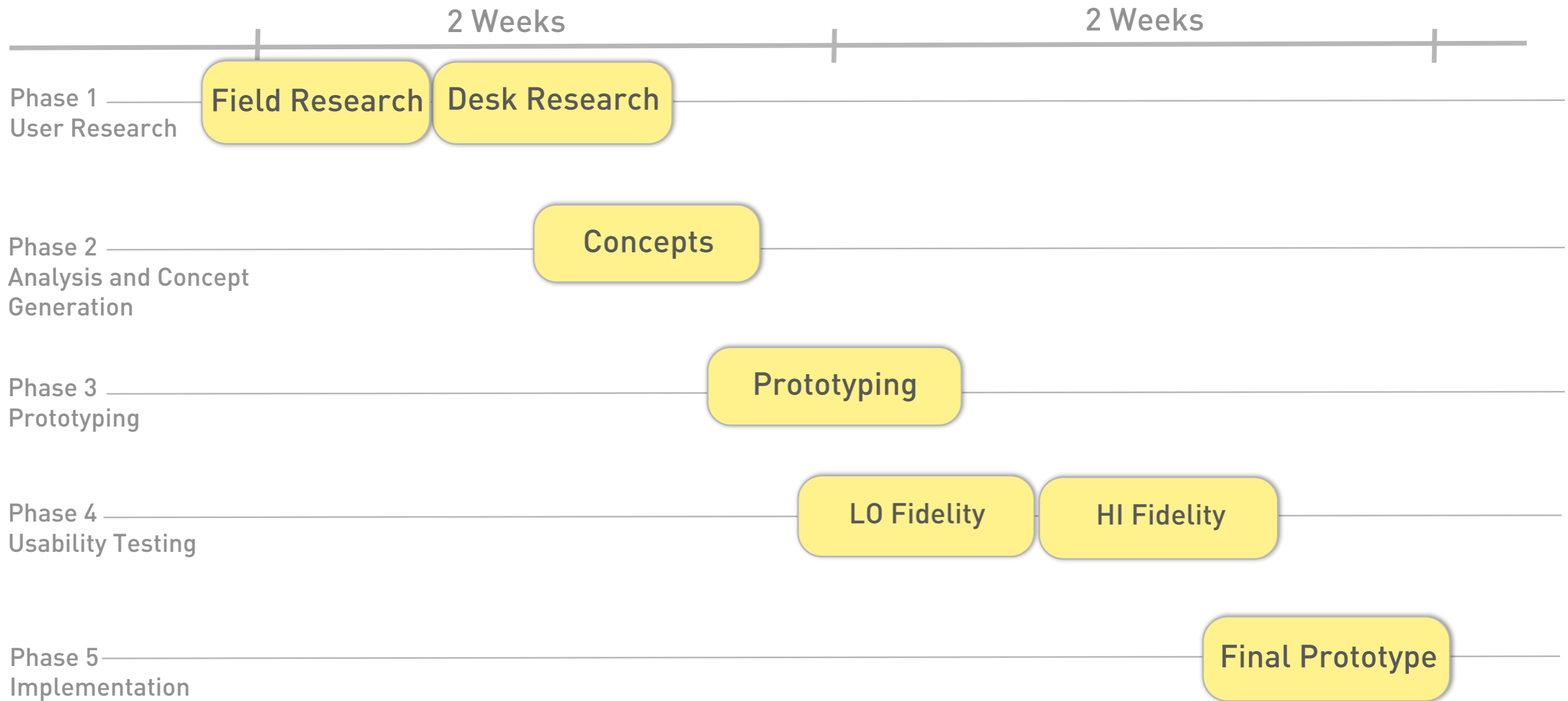
- Intro & Designprocess Phase
- Values and Levels of Prototyping
- UX Prototyping Techniques
- Prototyping Case Study



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



Some Examples
from a school
called
**Copenhagen
Institute of
Interaction
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

CONVINCING THE ELDERLY TO USE TECHNOLOGY IS A CHALLENGING TASK. THE ELDERLY ARE OFTEN OVERCAUTIOUS AND MAY BE UNFAMILIAR WITH THE CONCEPTS OF DIGITAL TECHNOLOGY. A SERIES OF WORKSHOPS AND ACTIVITIES WILL BE CONDUCTED TO LINK THE ELDERLY TO THE ELDERLY, LEARN & APPRECIATE WHAT THE ELDERLY HAVE TO OFFER.

CHANCE ORDER

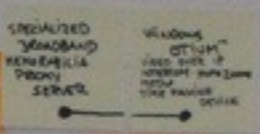
NANNY

EXCURSIONS

WALKS

MAD

UI - interface and portal for the elderly



TV channels elderly focus OTTIUM PROFY

Control Panel to help elderly

RFD'S SHEETLIER



MEMORIES - Experience - Trivia content

enable storytelling

See through walls / see what's behind

Screen wall - virtual / common space

changing walls (walls turn into streets)

with POLAROID

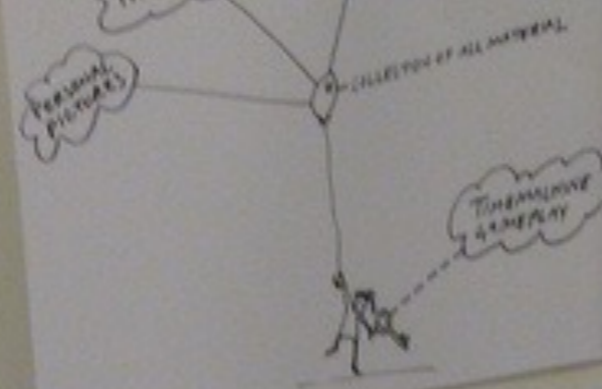
SKYPE TV

PICTURE FRAME + OBJECT





↳ Social studies!



...learning from their own and their family.

THE ELDERLY (ONLY) EXPERIENCE USE THROUGH

THE TIME MACHINE

NO POTTER ...

...the machine ...

THE VIDEO GAME

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

...the game ...

TIME MACHINE

THE KIDS CAN TRAVEL IN TIME

THE ELDERLY

SOLVING RIDDLE IN GAME

SPIN FOR REWARDS TO BRACK WITH

THE DEV ...

AND IS ...

PHANTOM ...

RECENTLY ...

THREE ...

LOCAL ...

A SOLID ...

TRAVEL ...

... INTO ...

SIC ...

CON ...

KNOW ...

THE ...

INT ...

THRO ...

... OF ...

WILL ...

LEAV ...

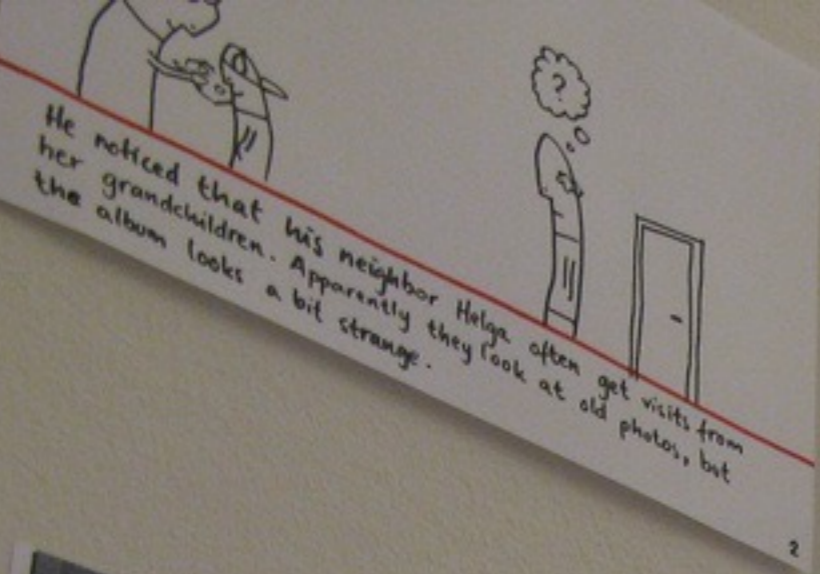
TO ...

... THE ...

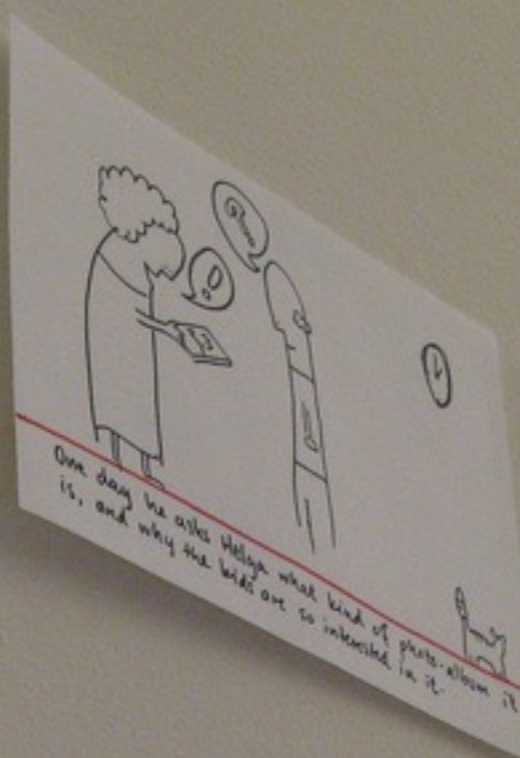
... THE ...

... THE ...

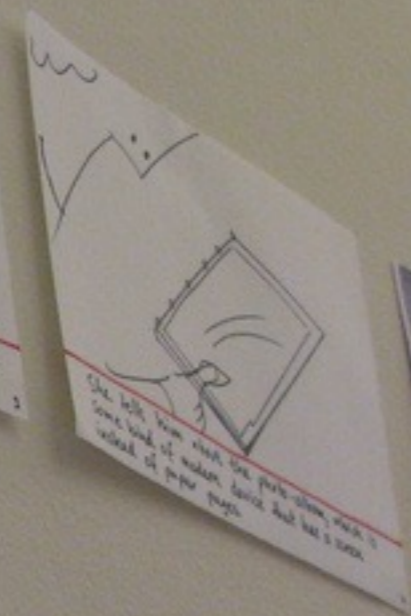
... as
... a bit



1 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.



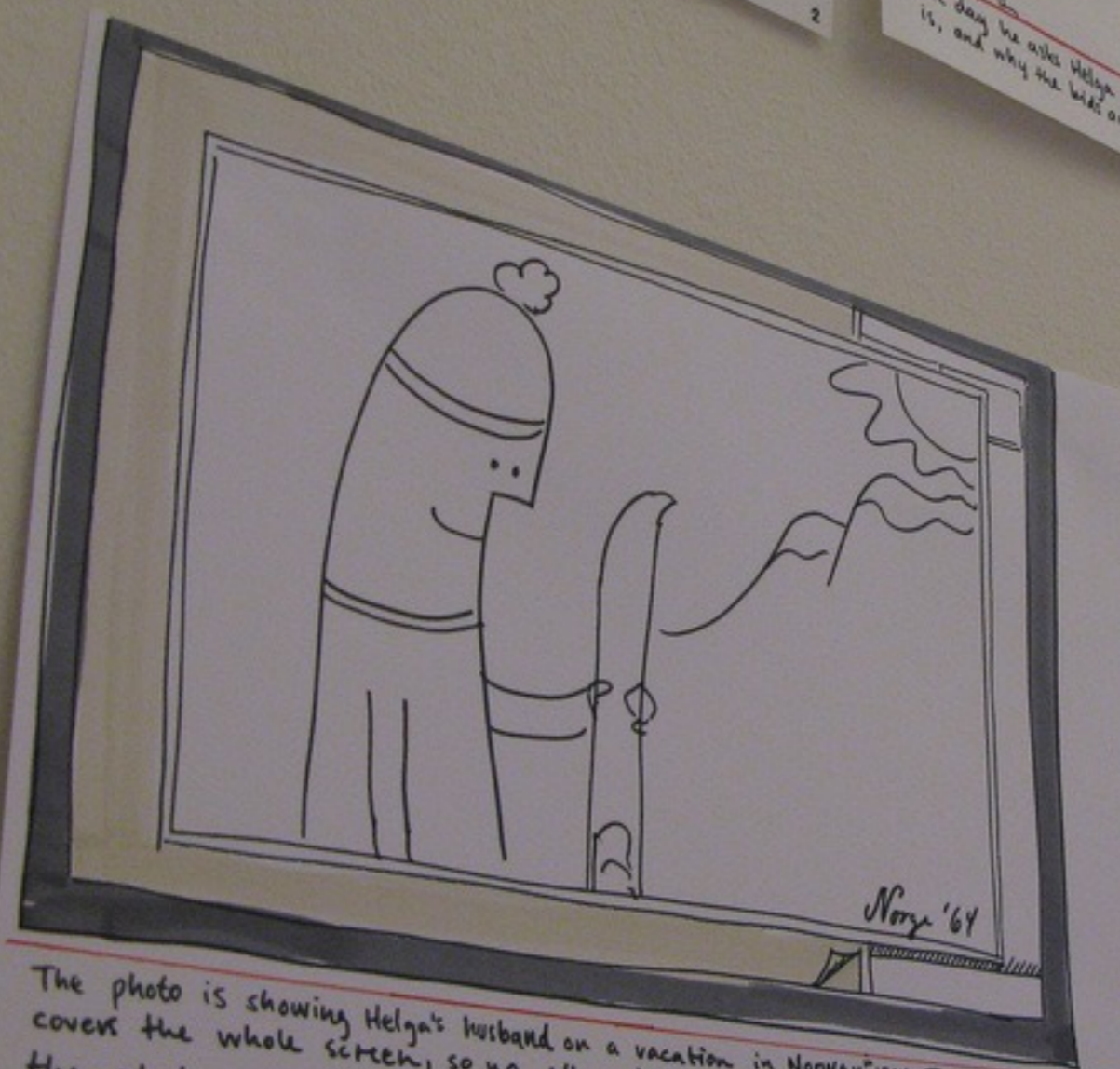
2 One day he asks Helga what kind of photo-album it is, and why the kids are so interested in it.



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



4 The photo album is a special kind of photo album. It has a screen that shows the photos. You can touch the screen to see the photos. It is very modern and interesting.



5 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.



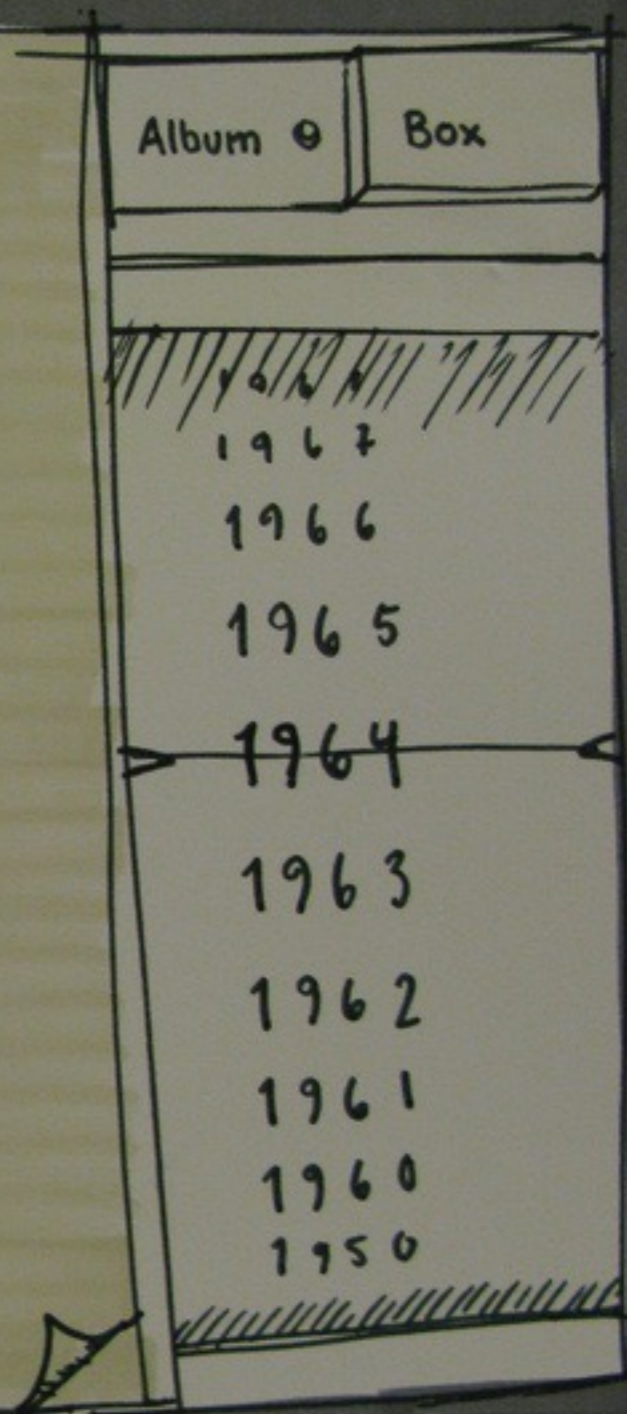
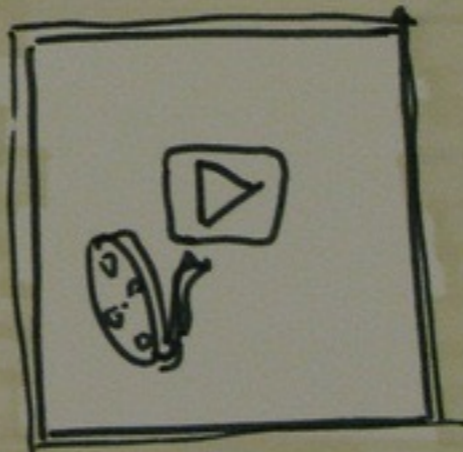
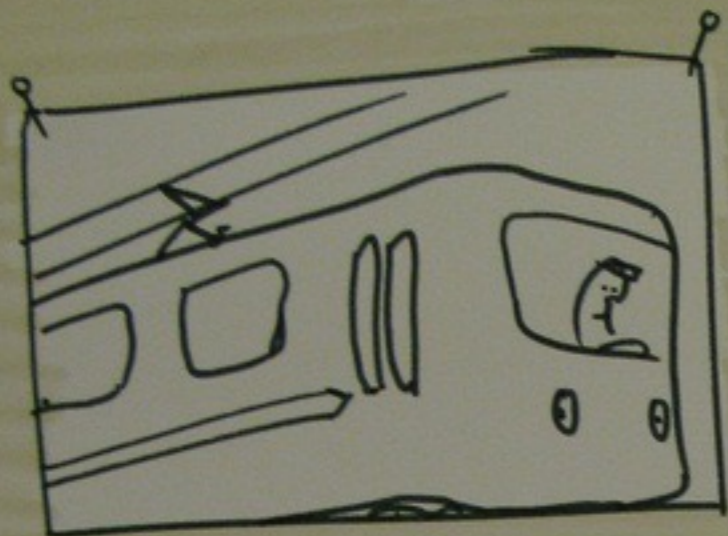
6 "So you have personal photos in it? But wait, didn't I also see a photo from Pöytäken in there?" Albert asked.



7 "Yes, when there is no space on the screen automatically lists in images & photos from other times."



8 They got started to look at the photos. Helga was very happy to see the photos. She showed them the photos from the album. They were very interested in the photos.

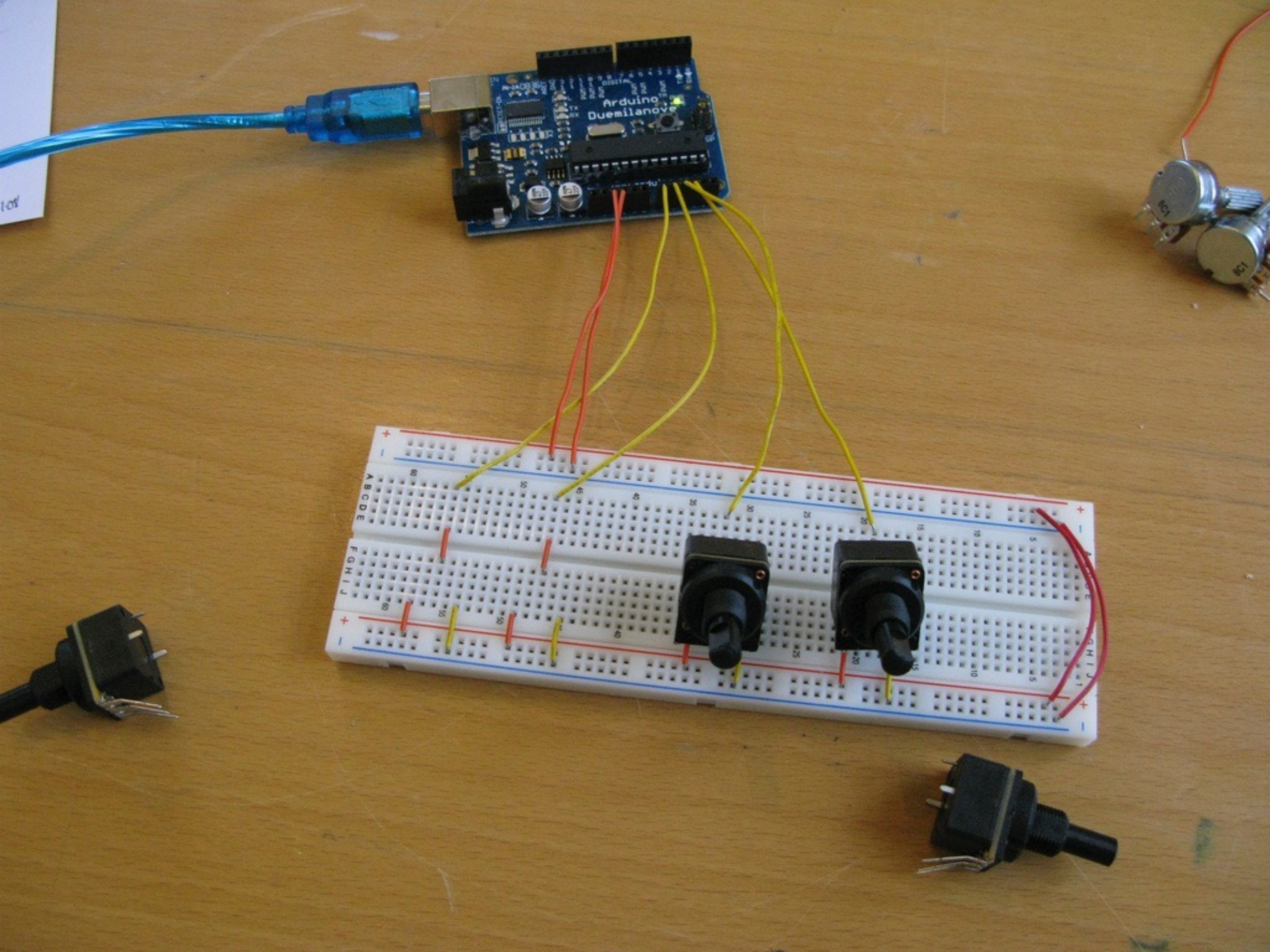


On the ~~left~~ right side of the screen is something that looks like a big wheel. Helga puts her hand on the screen, where the wheel is, and moves it up. The wheel starts rolling and numbers representing years start moving. When the year 1964 is centered, she removes her hand.











Viseaften
Journalistforeningen
1968, Music

1965 1970 15 Favorites





Viseaften

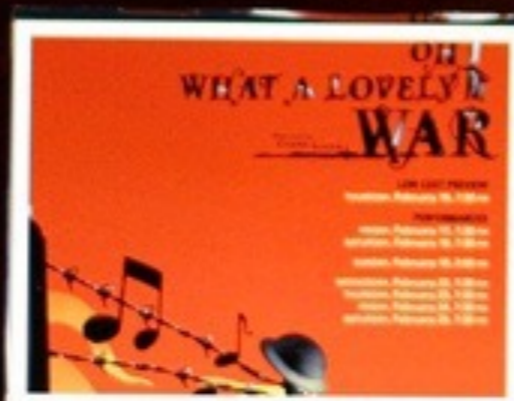
Journalistforeningen

1968, Music

198

Favorites

De



What a lovely war

Glenn Gauer

1978, Radio Theater

1975

1980

19

Favorites

Do

OH!
WHAT A LOVELY WAR
GLEN 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

www.arduino.cc

http://www.useit.com/papers/guerrilla_hci.html

www.medien.ifi.lmu.de/id