User Experience Design I (Interaction Design)

Day 7 - (16.12.2021 + 13.01.2022 9-12 a.m.)

Prototyping User Experiences

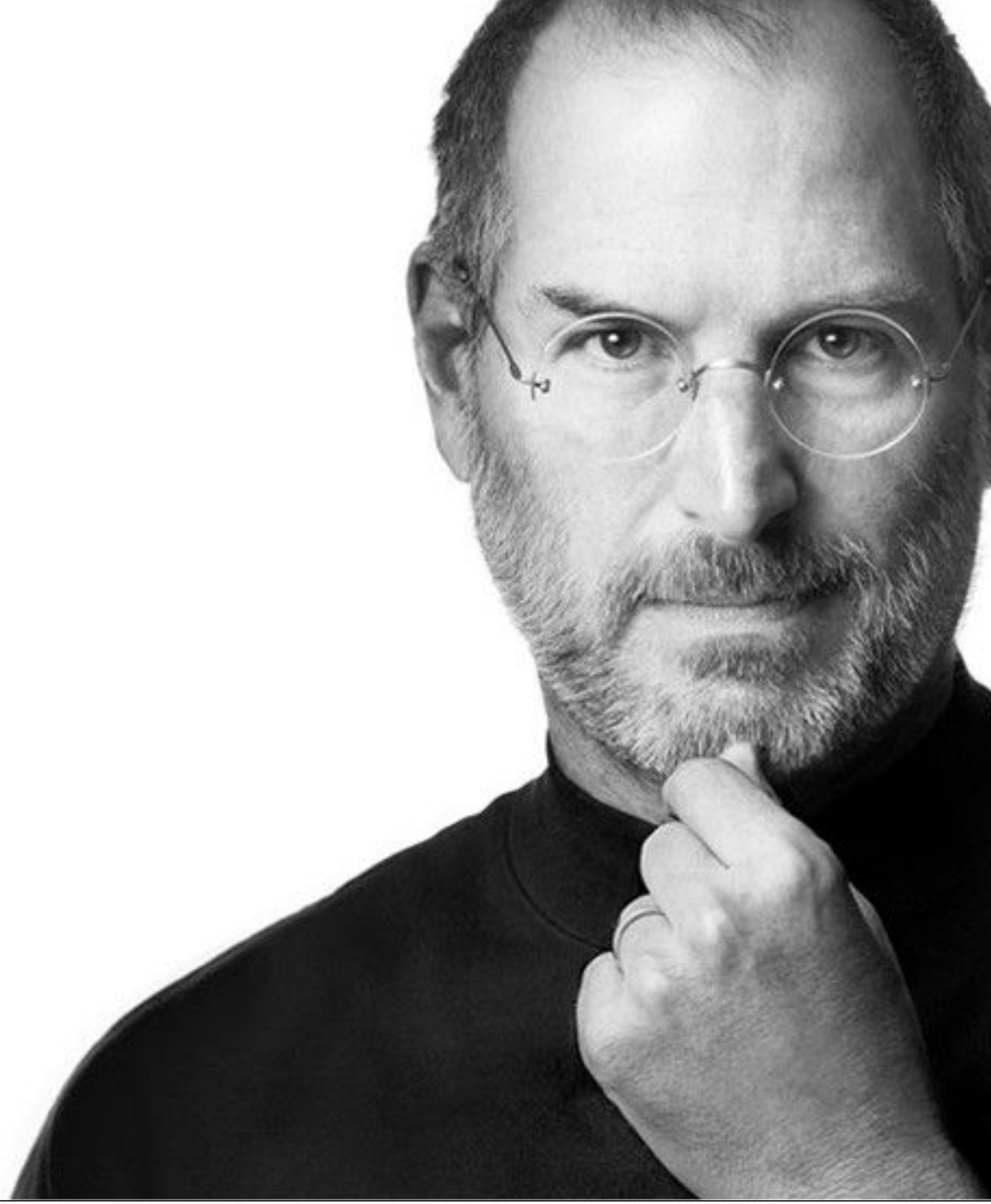
- Prototyping Values and Dimensions
- Low vs. High Fidelity
- Sketching-in-Hardware
- Video-Prototyping

Prototyping User Experiences

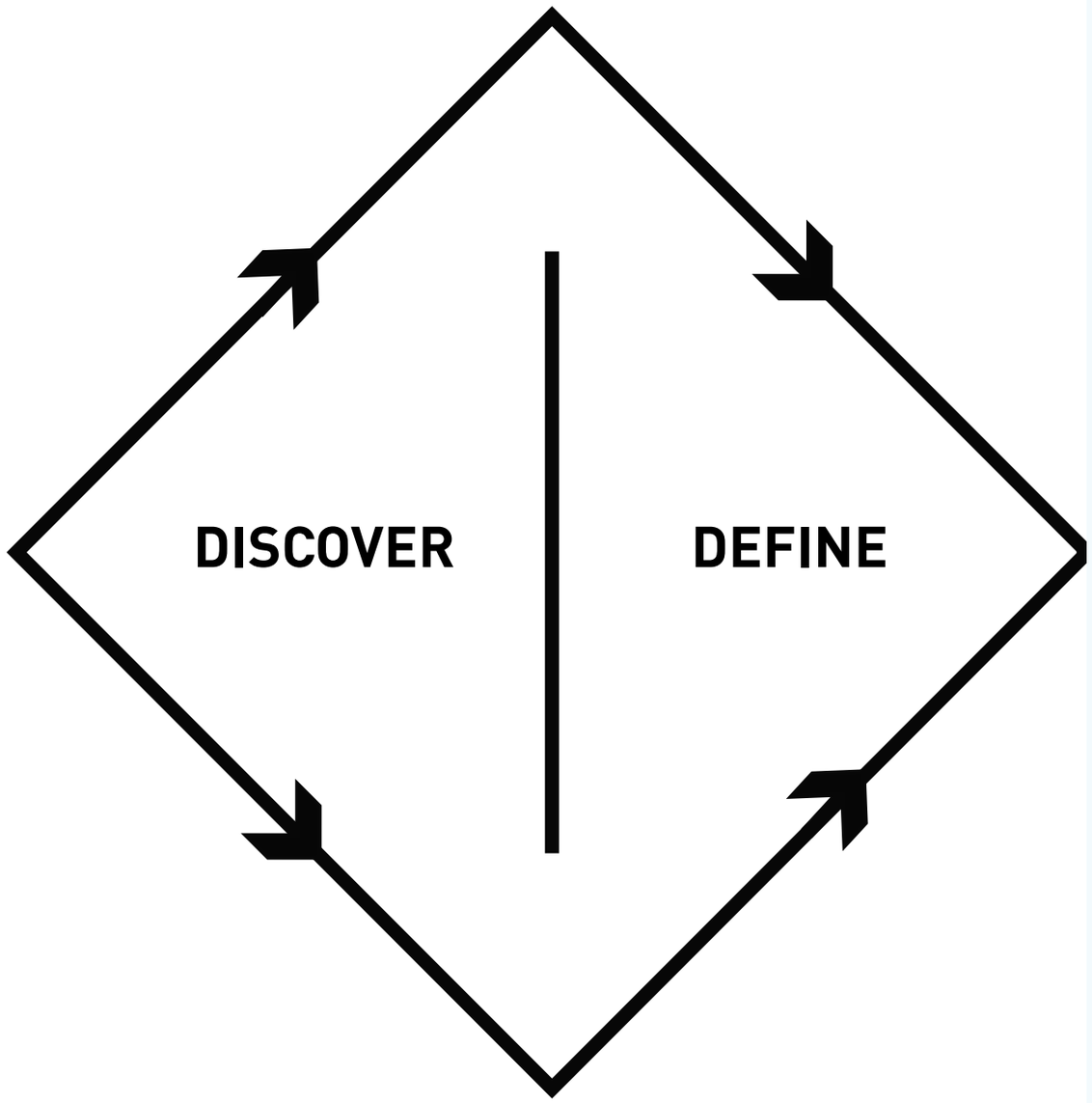
- Prototyping values and dimensions
- Examples: Physical Experience Prototypes
- UX Video Prototyping

“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



Double Diamond



DEFINE STAGE

- The generation of initial ideas and project development
- Ongoing project management
- Corporate objectives agreed and project sign-off

At the Define stage, a combination of the ideas or directions identified during the Discover stage are analysed and synthesised into a brief with actionable tasks related to new and existing product or service development. The Define stage ends with a clear definition of the problem(s) and a plan for how to address this through a design-led product or service. In practice, the Define stage ends in a project go-ahead through corporate level sign-off.

source: [8]

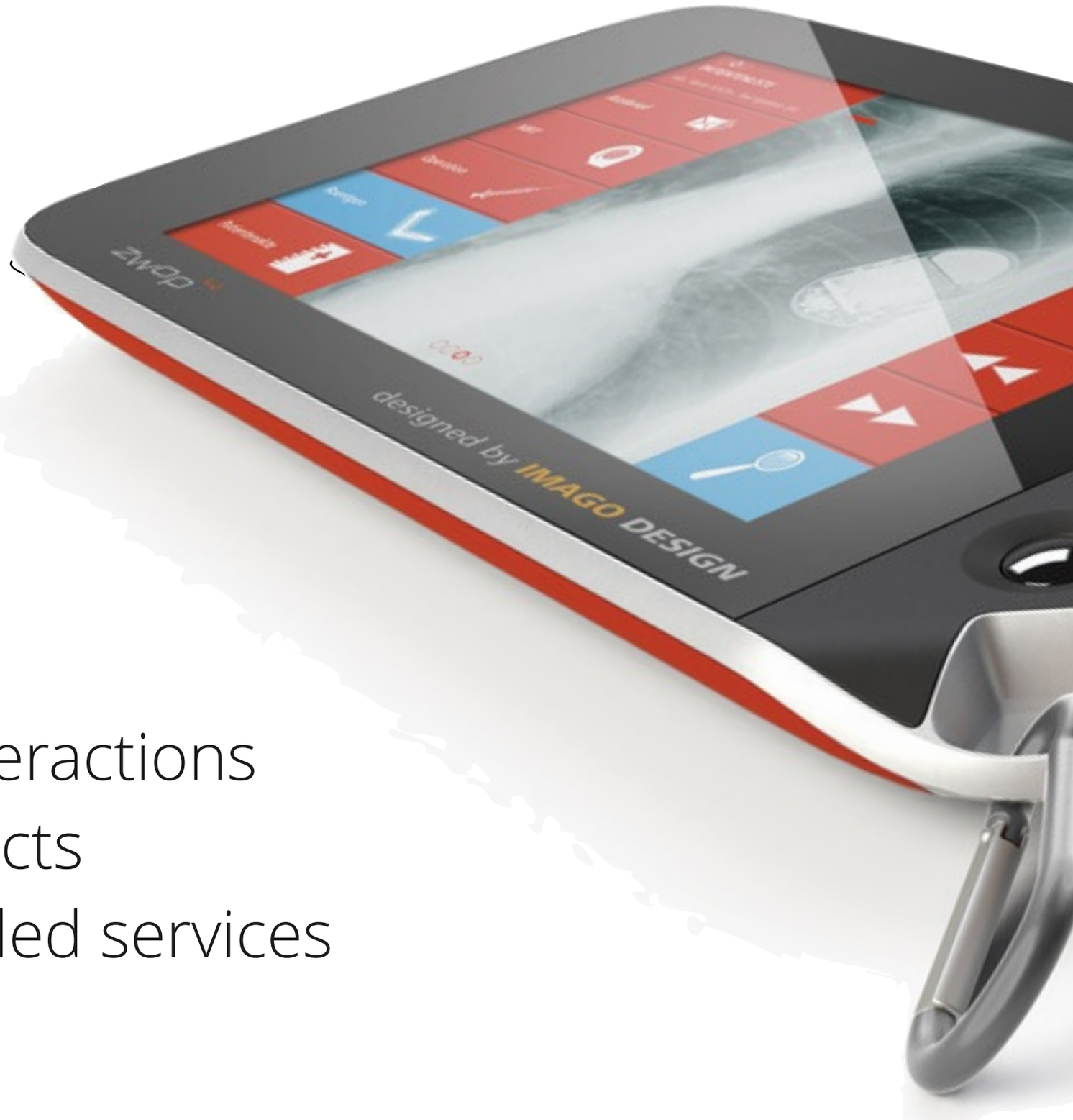
We define prototypes as any representation of a design idea, regardless of medium.

Houde and Hill

An original type, form, or instance that serves as a model on which later stages are based and judged.

American Heritage Dictionary

Three main design contexts in the UX domain which can be expressed trough prototypes:



1.) Screen based interactions
2.) Interactive products
3.) Technology enabled services

source: [6,8]

Creating Experience Prototypes during the design process pursues different goals: (Purpose)

1.) Exploring a context / research
2.) Examining design problems / testing
3.) Evaluating solutions / presentation

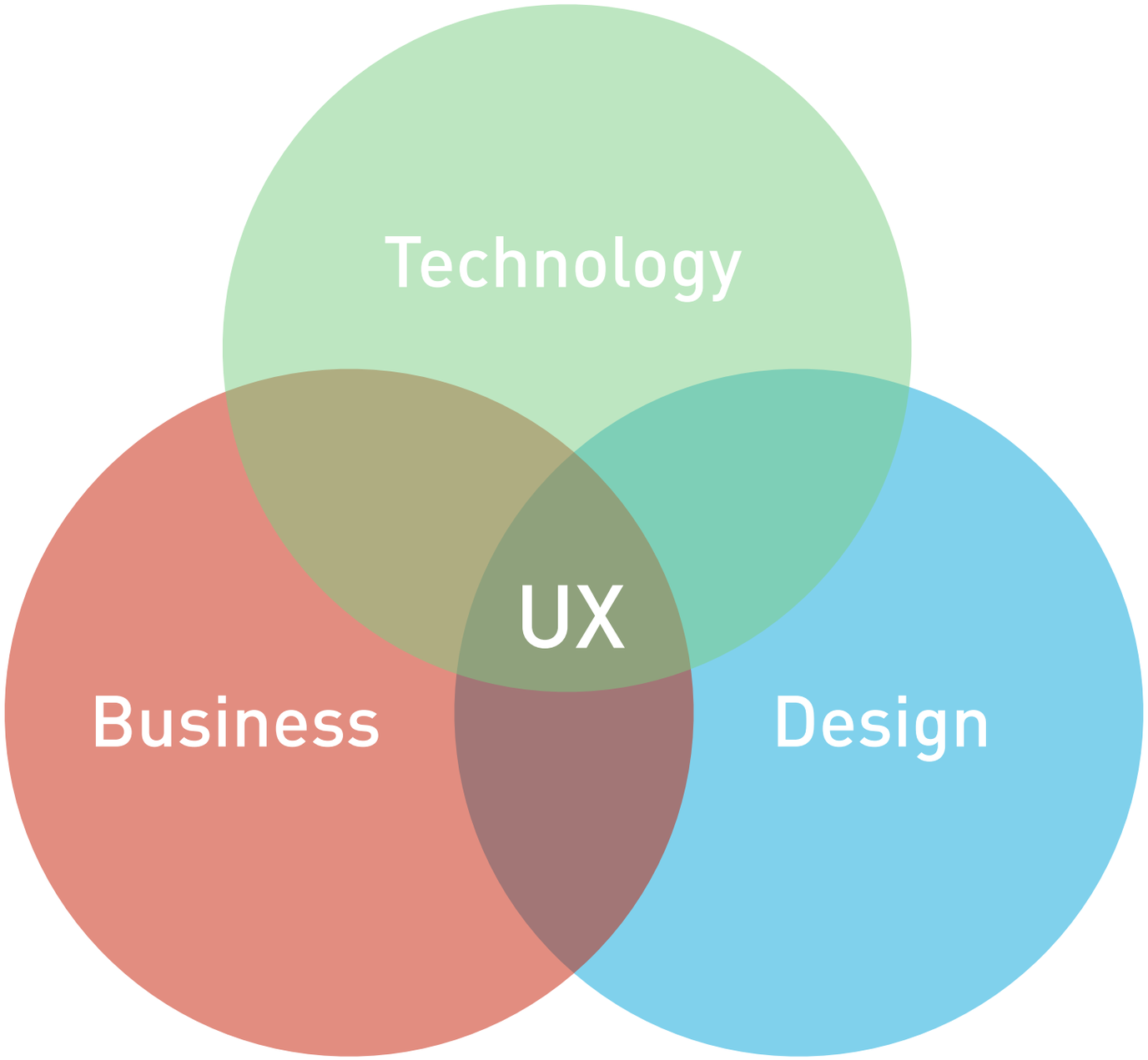
source: [6,8]

In summary:

Prototypes are **design-thinking enablers** deeply embedded and immersed in UX design practice.

Prototypes are **learning and discovery tools** for generating and refining UX design ideas.

source: [6,8]



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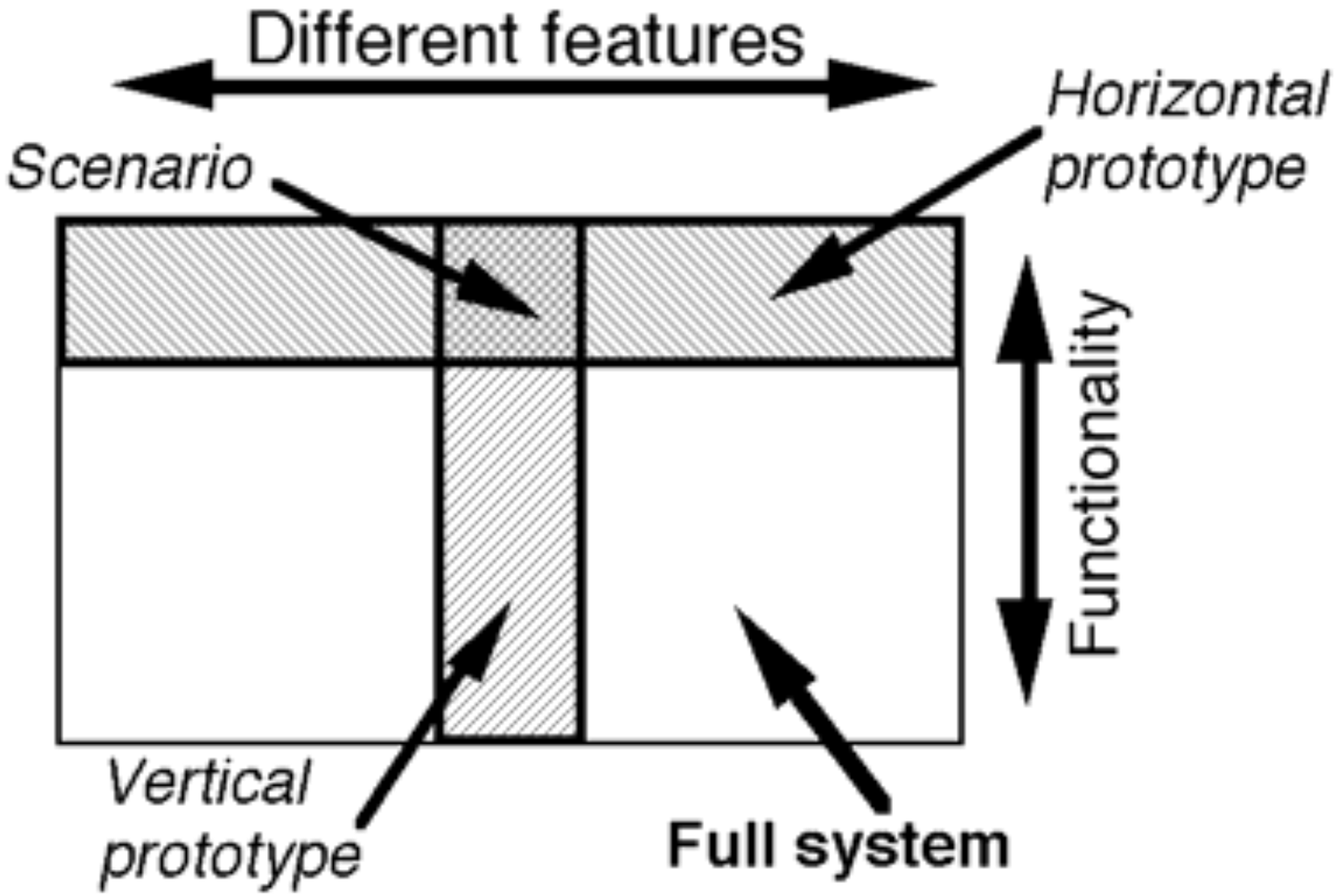
http://semanticstudios.com

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.

http://www.swissknifeshop.com/media/catalog/product/cache/1/image/5e06319eda06f020e43594a9c230972d/v/m/vm_53831--91_sol_front_ax1000.jpg

source: [7]

Horizontal vs, Vertical Prototypes



80/20 rule

https://media.nngroup.com/media/editor/2012/12/10/guerrilla_scenario_fig.gif

Questions:	Stakeholders:	
Role	**For the Designer:**	Exploration Visualisation Feasibly Inspiration Collaboration
Look´n´feel	**For the End User:**	Effectiveness / Usefulness A change of viewpoint Usability Desirability
Implementation	**For the Producer:**	Conviction Specification Benchmarking

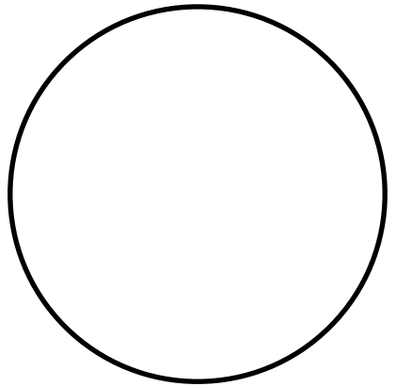
source: [5]

To design well, (UX) designers must be willing to use different tools for different prototyping tasks; and to team up with other people with complementary skills.

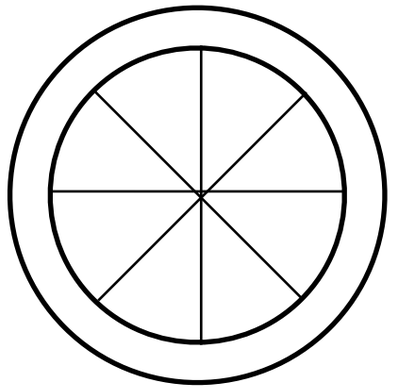
Houde and Hill

source: [5]

Fidelity v. Resolution



low resolution
low fidelity



high resolution
low fidelity

high resolution
high fidelity

resolution = amount of detail
fidelity = closeness to the eventual design (product/service)

source: [5,8]

Low Fidelity

High Fidelity

Open Discussion	Sharp Opinions
Prompting Required	Self Explanatory
Quick and Dirty	Deliberate and Refined
Early Validation	Concrete Ideas

source: [5,8]

Low Resolution

High Resolution

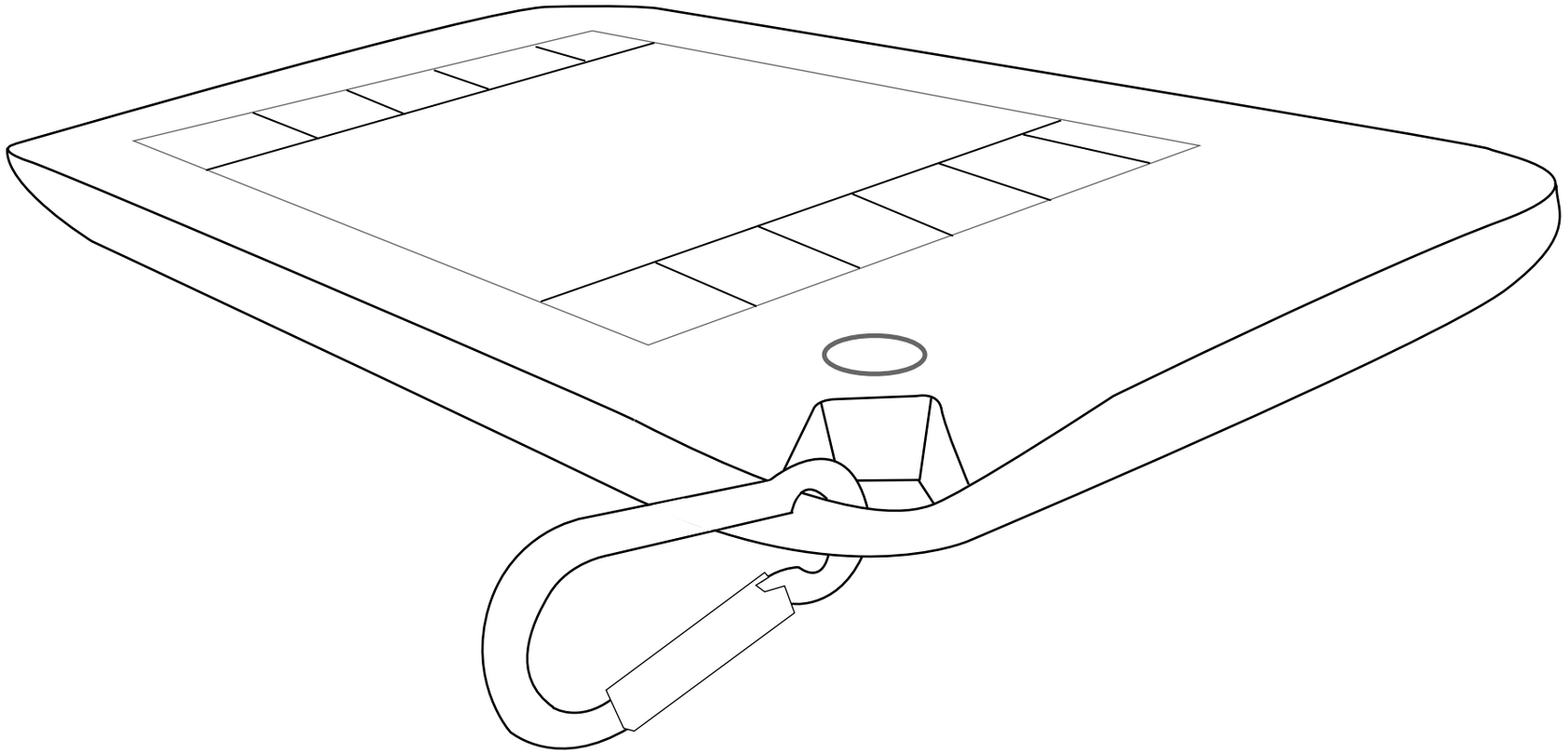
Less Details	More Details
Focus on core interactions	Focus on the whole
Quick and Dirty	Deliberate and Refined
Early Validation	Concrete Ideas

source: [5,8]

Prototyping User Experiences from scratch

- Sketches and Wireframes
- Paper Prototypes
- Storyboards

1st Iteration
low-res/low-fi



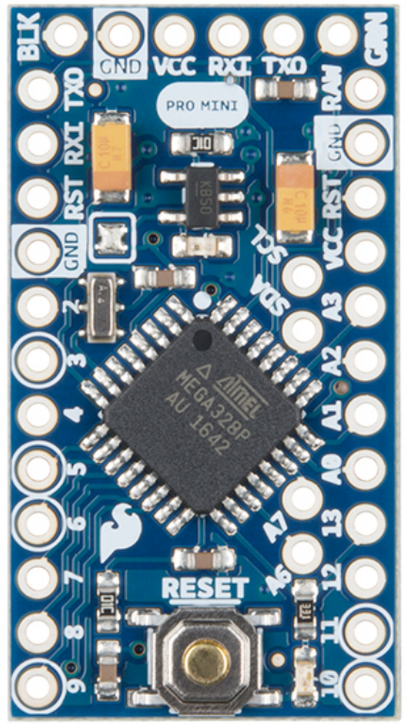
Prototyping User Experiences from scratch

- Design drafts and mock-ups
- Functional prototypes
- 3D Printing

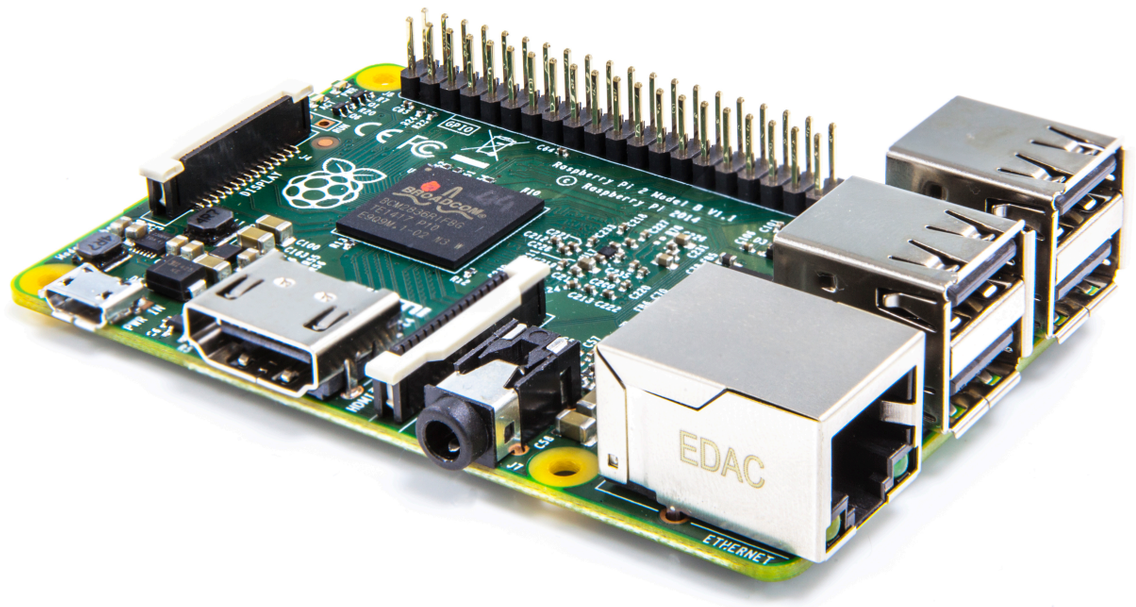
4th Iteration
high-res/high-fi

Sketching in Hardware…

…is an annual summit on the design and use of physical computing toolkits. Participants from a wide variety of disciplines and backgrounds discuss tools for creating digital products, environments, and experiences: how to make them, why to make them (and why not), how to use them, how to teach with them, and how to understand their impact.



Atmel AT Mega 328



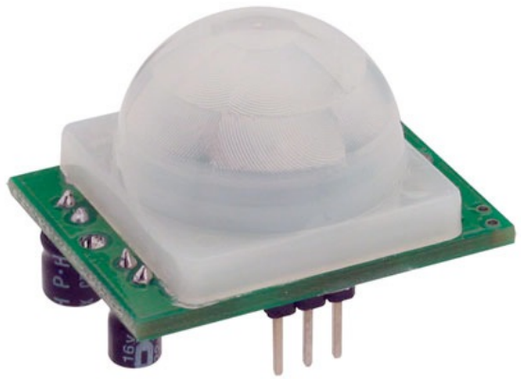
Raspberry PI

http://upload.wikimedia.org/wikipedia/commons/3/3d/RaspberryPi.jpg
http://www.onlymine.de/wp-content/uploads/arduino-nano-board-z.jpg

http://sketching-in-hardware.com/

Thermistor

Bend Sensor



PIR Sensor

Force Sensor

Potentiometer

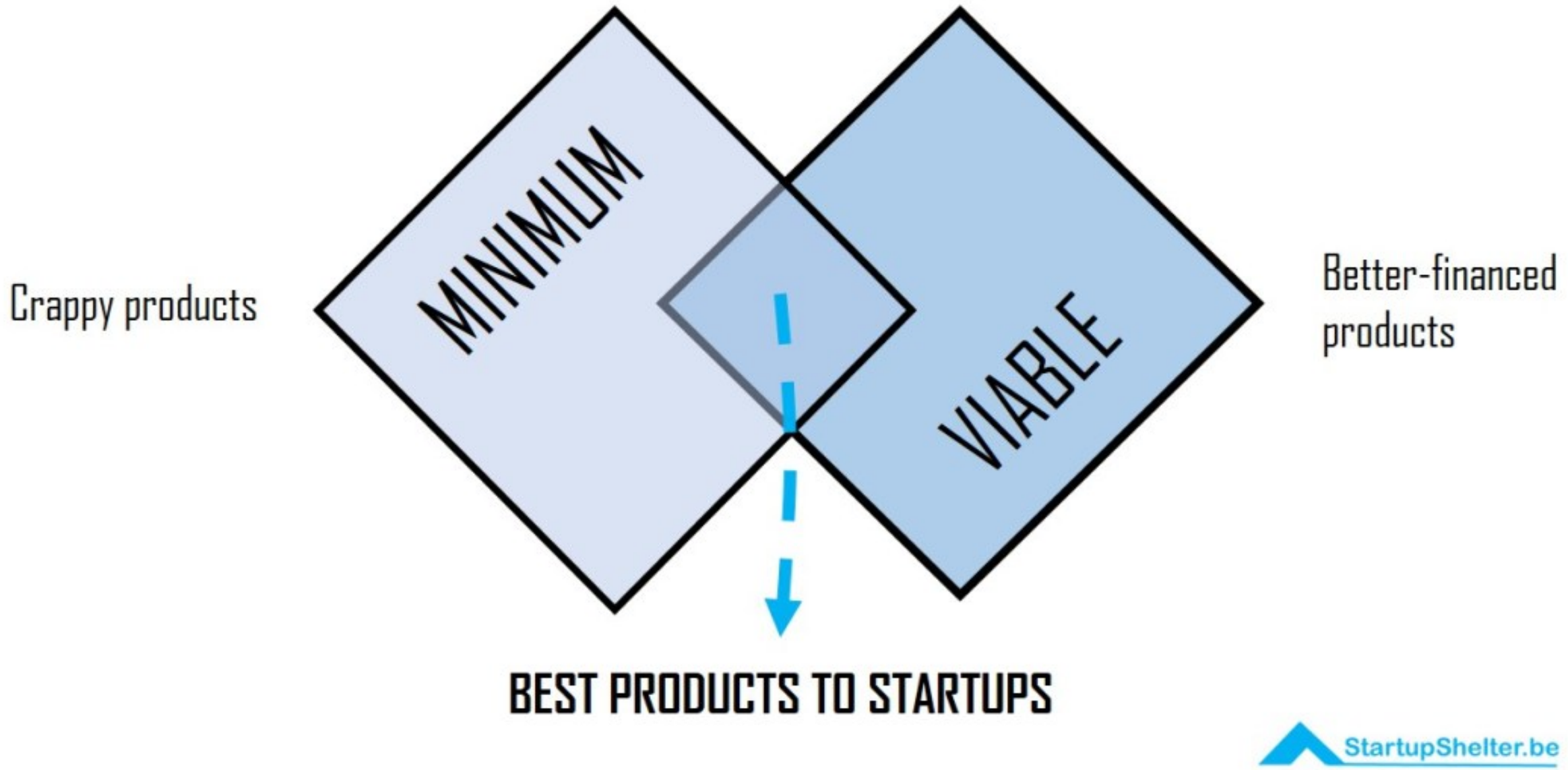
Magnet Switch

Distance IR Sensor

Touch QT Sensor

Ultrasound Sensor

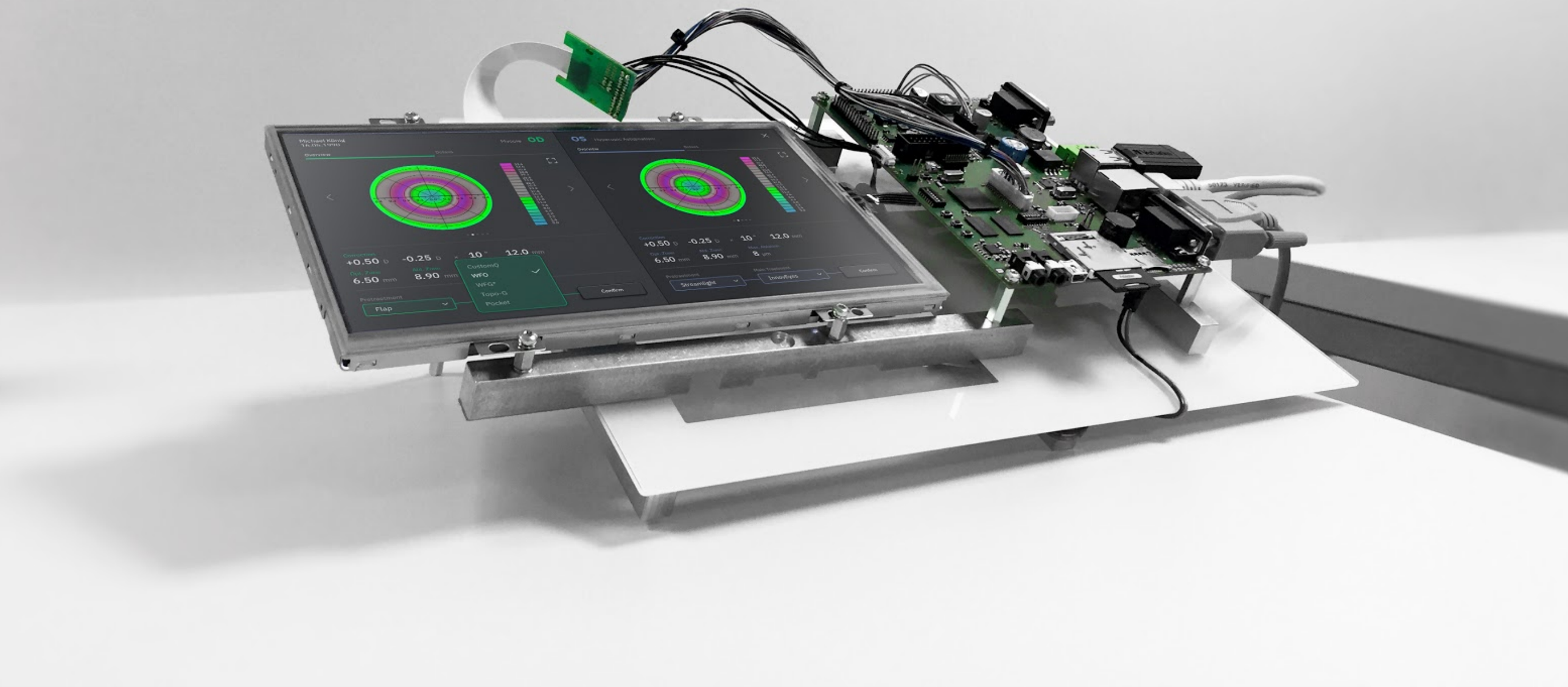
MINIMUM VIABLE PRODUCT



https://i2.wp.com/startupshelter.be/wp-content/uploads/2015/02/MVP-MINIMUM-VIABLE-PRODUCT.jpg?resize=1080%2C682&ssl=1

Prototyping User Experiences for products using

- Embedded Platforms
- Off-the-shelf-components
- Customised hardware



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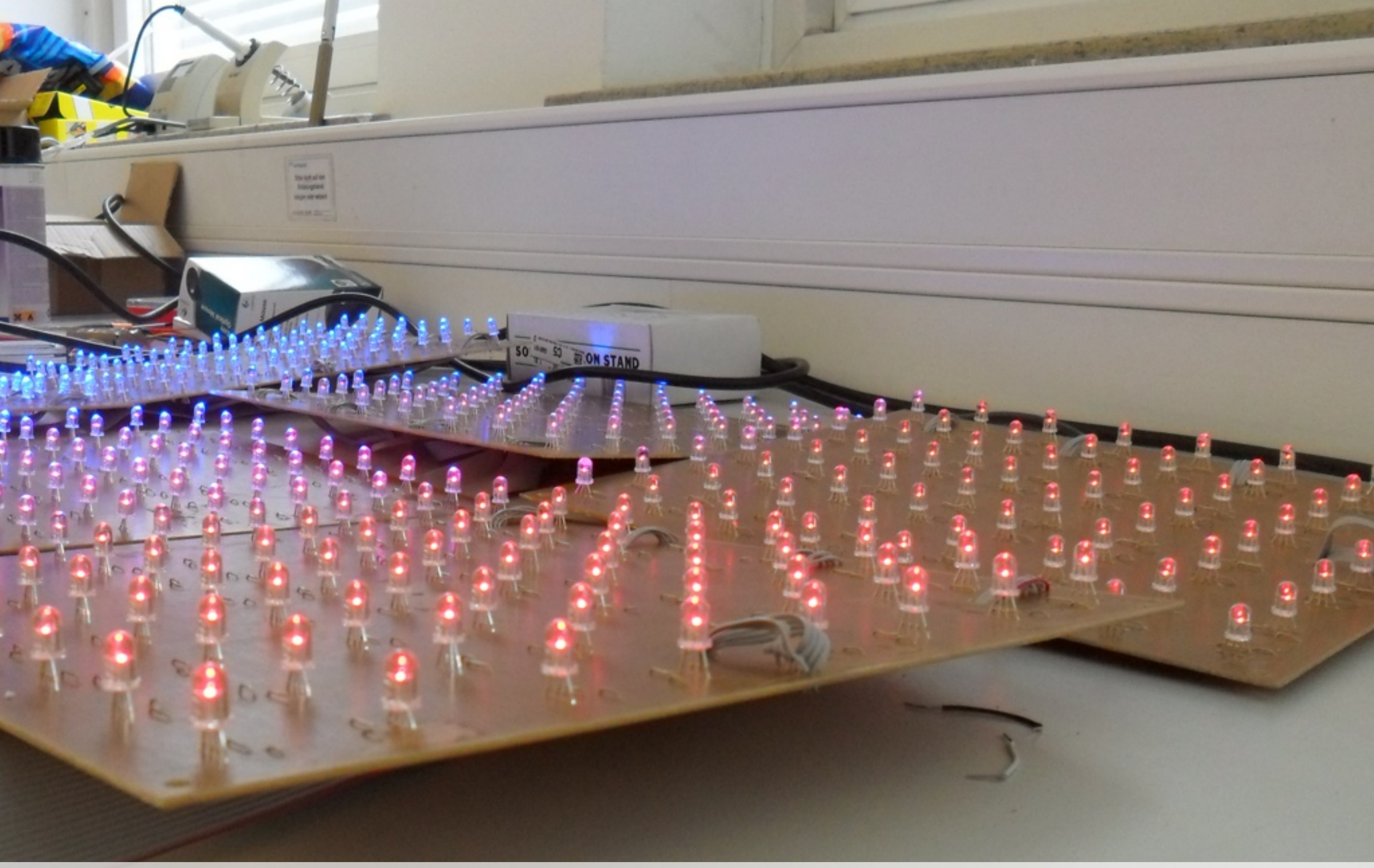
Design Workshop II



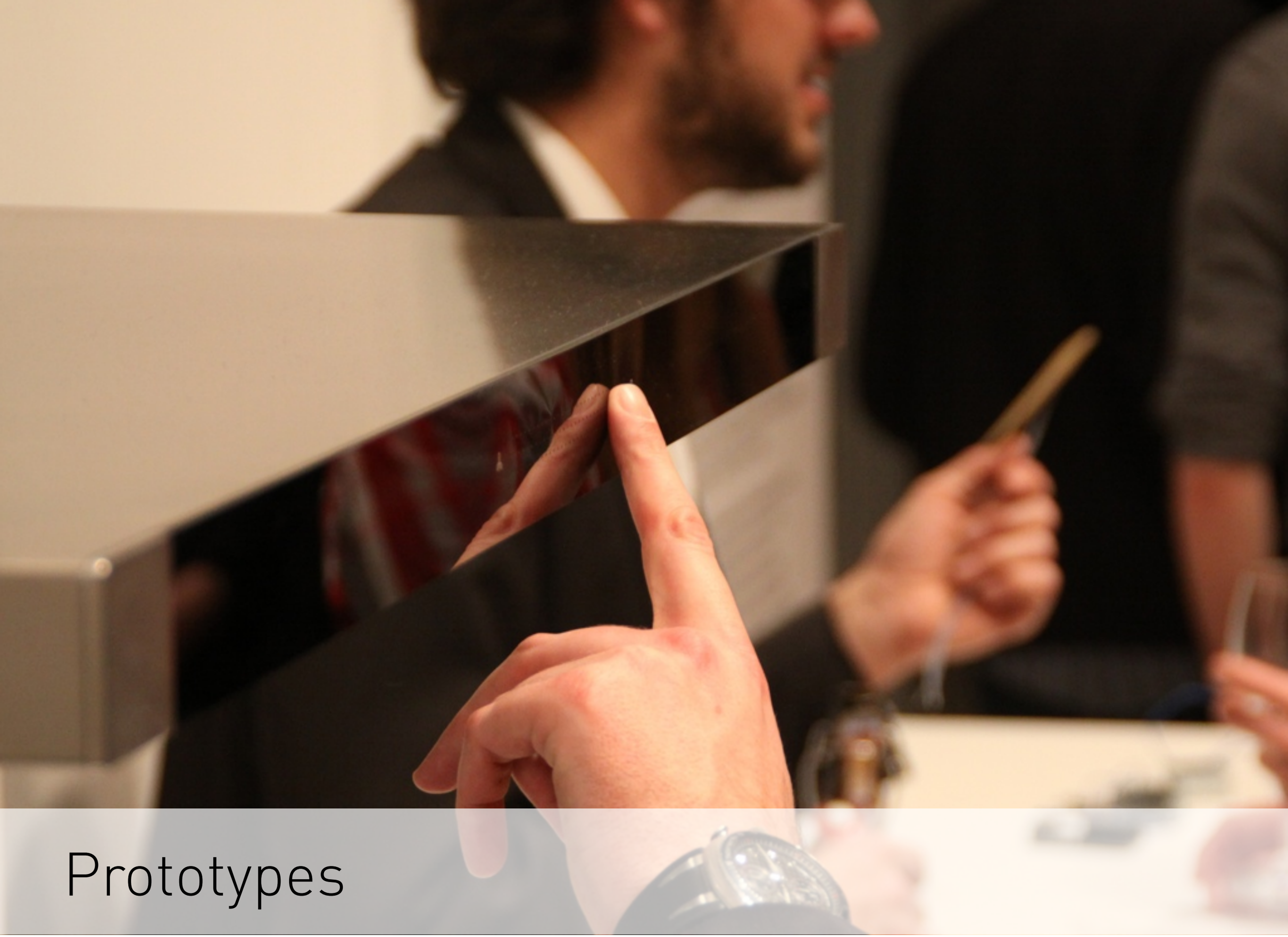
Design Workshop II

...to Prototype!

Design Workshop II
In conjunction with B/S/H (Neff) Home Appliances

- 12 MA Media Informatics Students
- Duration: One semester
- Topic: Tactile Feedback

Prototypes



Prototypes

Prototypes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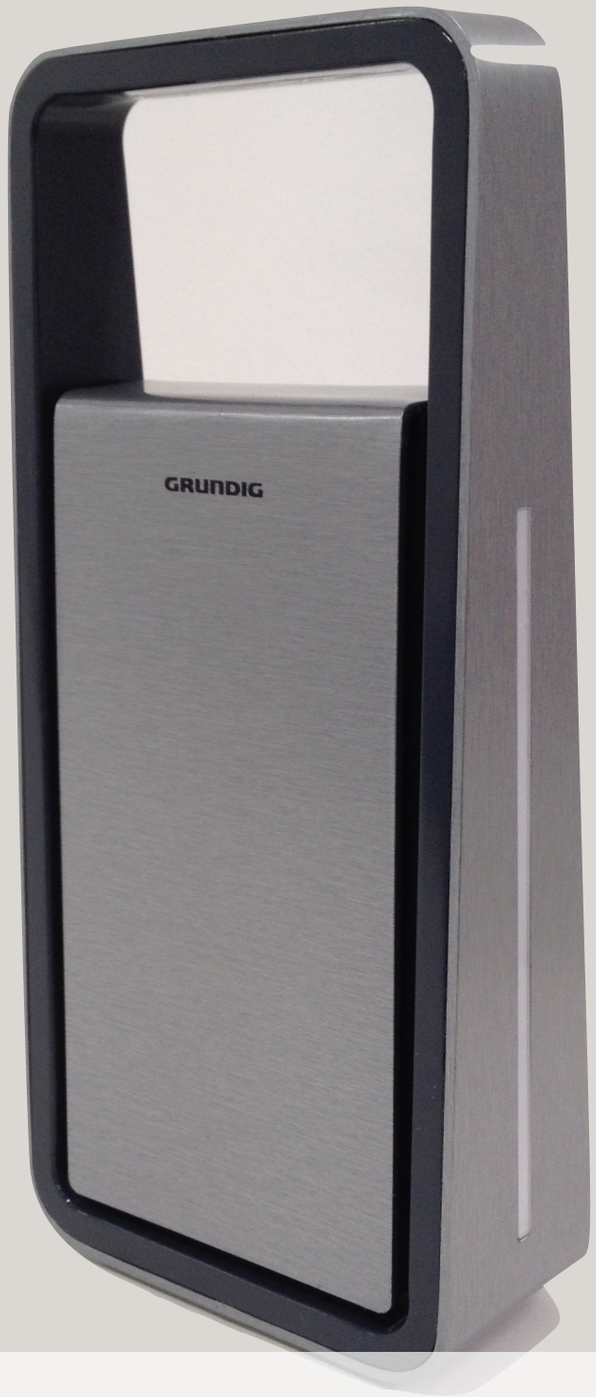
Design Workshop II
In conjunction with Acelik Home Appliances

- 16 MA Industrial Design Students
- 14 MA Human-Computer Interaction Students
- Duration: One semester

Reminding Water Dispenser



Pure Air

Dirt Buster

Recipe Printer

HoverMeasure

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“Why prototype with video?”

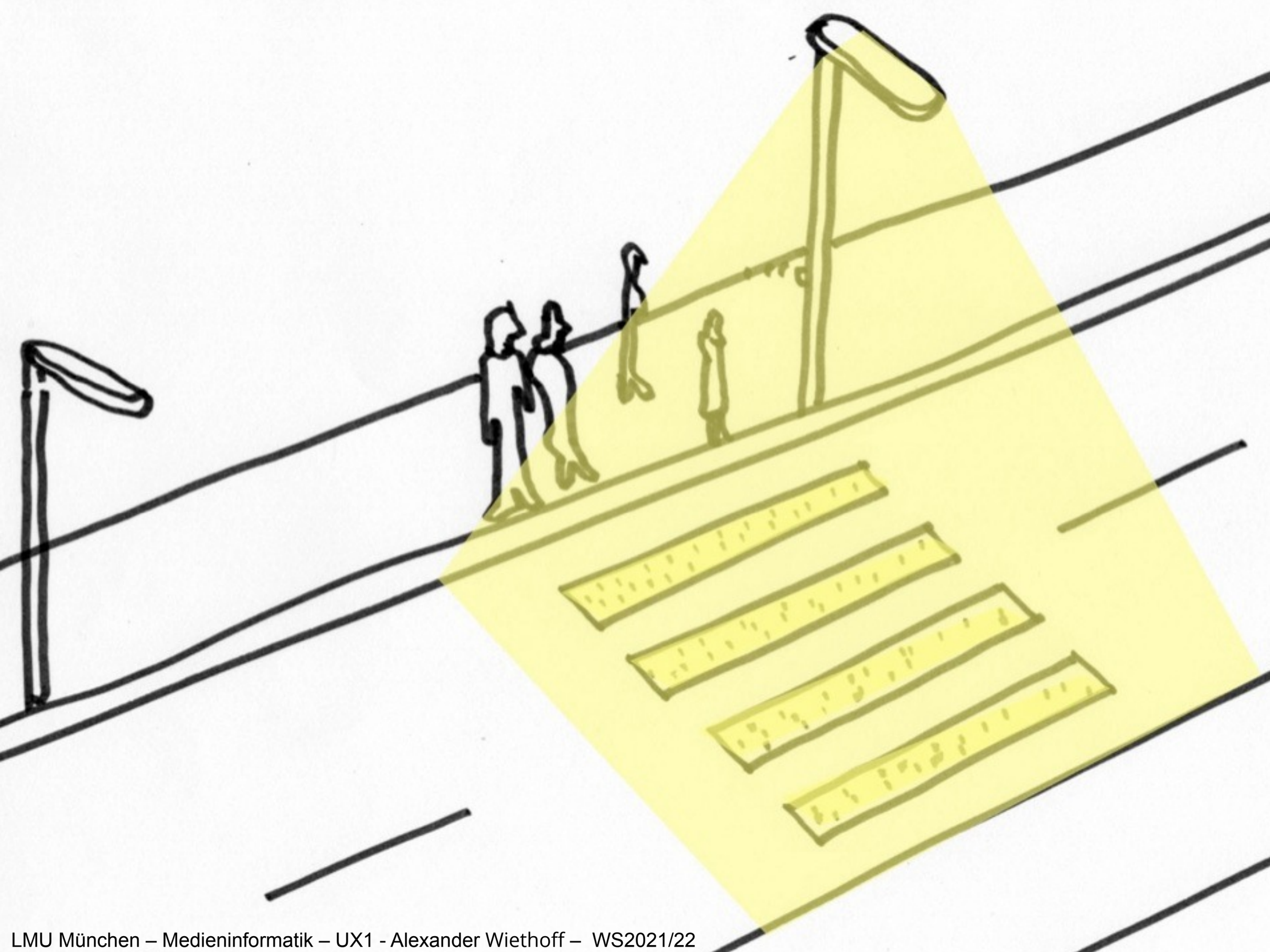
Representing complex relationships, new behaviours and attitudes are an integral part of UX design. These can be represented through many means including sketching and making physical prototypes. However, capturing a journey **over time** requires a linear medium like video.

“Just enough Prototyping”

Understand your audience and choose the right level of resolution and fidelity. Judge the time and resources available. Go for the easiest and **simplest track,** don’t overdo you prototype for a given context.

Example

low resolution
high fidelity
(crossing on demand)

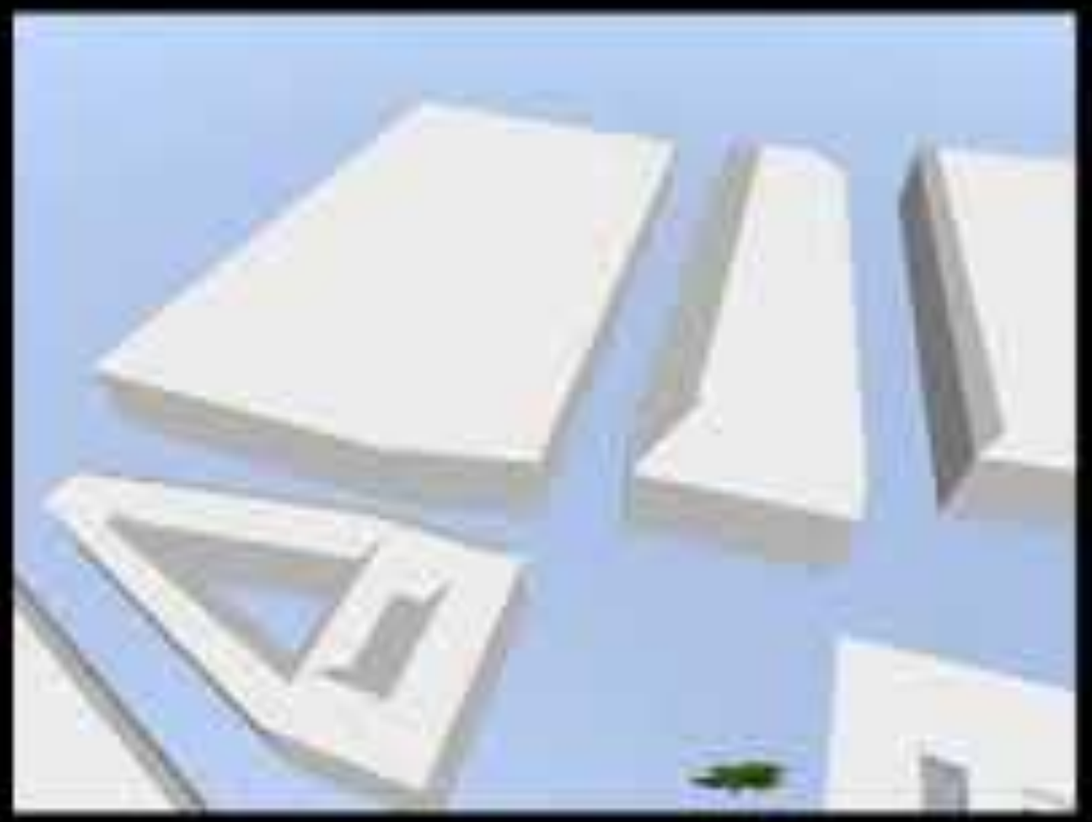


video© CIID

The Smoke & Mirror Approach

image© CIID

StreetView Game



StreetView Game

Tutorials

Keyboard Hacking Tutorials
http://www.instructables.com/id/Hacking-a-USB-Keyboard/

Physical Computing Intro
https://itp.nyu.edu/physcomp/

Arduino Tutorials
https://www.arduino.cc/en/Tutorial/HomePage

Physical Computing w. Raspberry PI
https://www.raspberrypi.org/learning/physical-computing-with-python/

Adafruit Hacking Tutorials
https://learn.adafruit.com/

References:

[1] Moggridge B: Designing interactions. *The MIT Press 2005*
[2] Buxton, W.: Sketching the user experience. *Morgan Kaufmann 2007*
[3] Norman, D.: The design of everyday things. *Basic Books 2002*
[4] Mullet, K. Designing visual interfaces. *Prentice Hall PTR 1994*
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