Prototyping UX

From Sketch to Prototype

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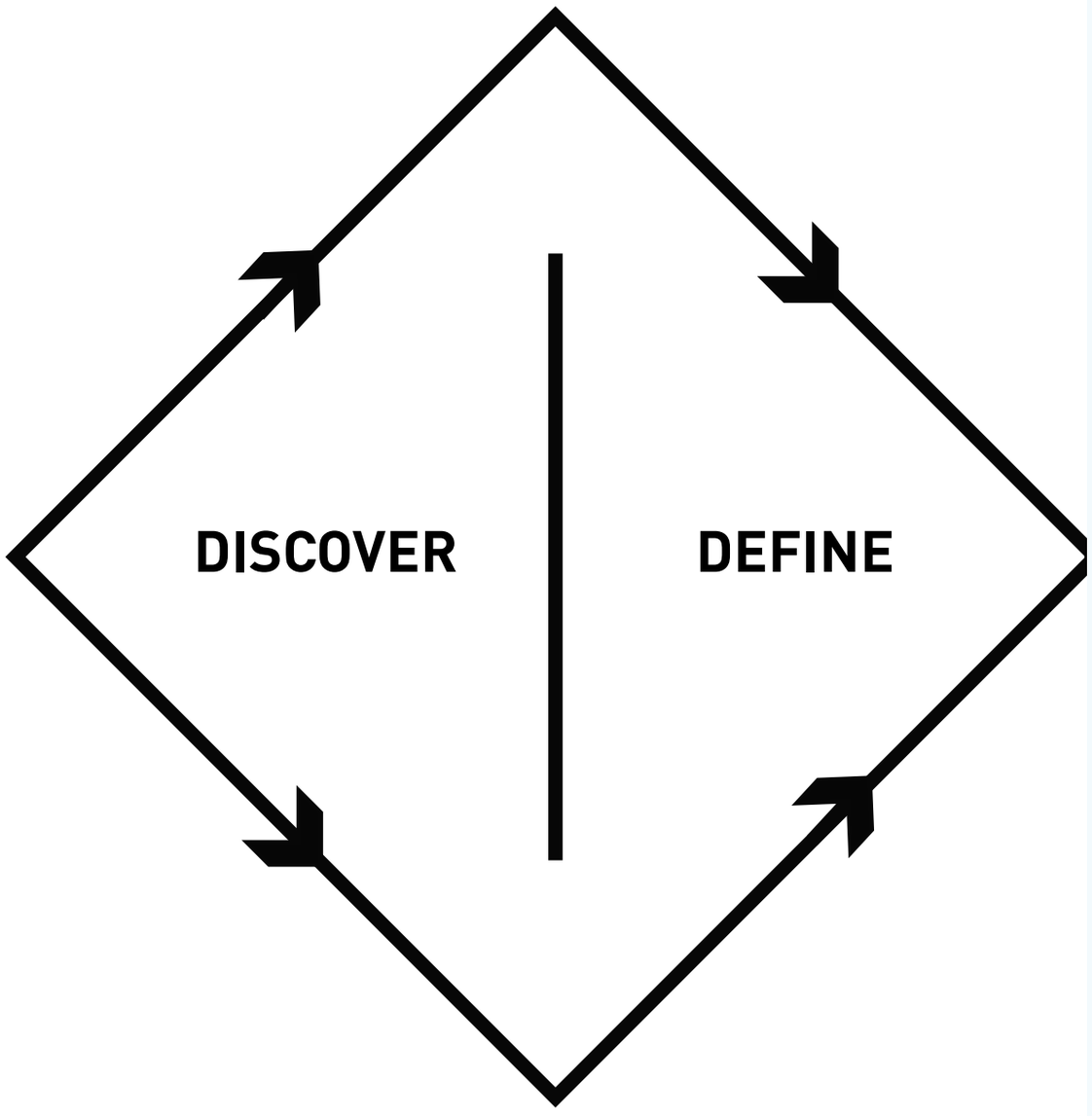
Double Diamond



DEFINE STAGE

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

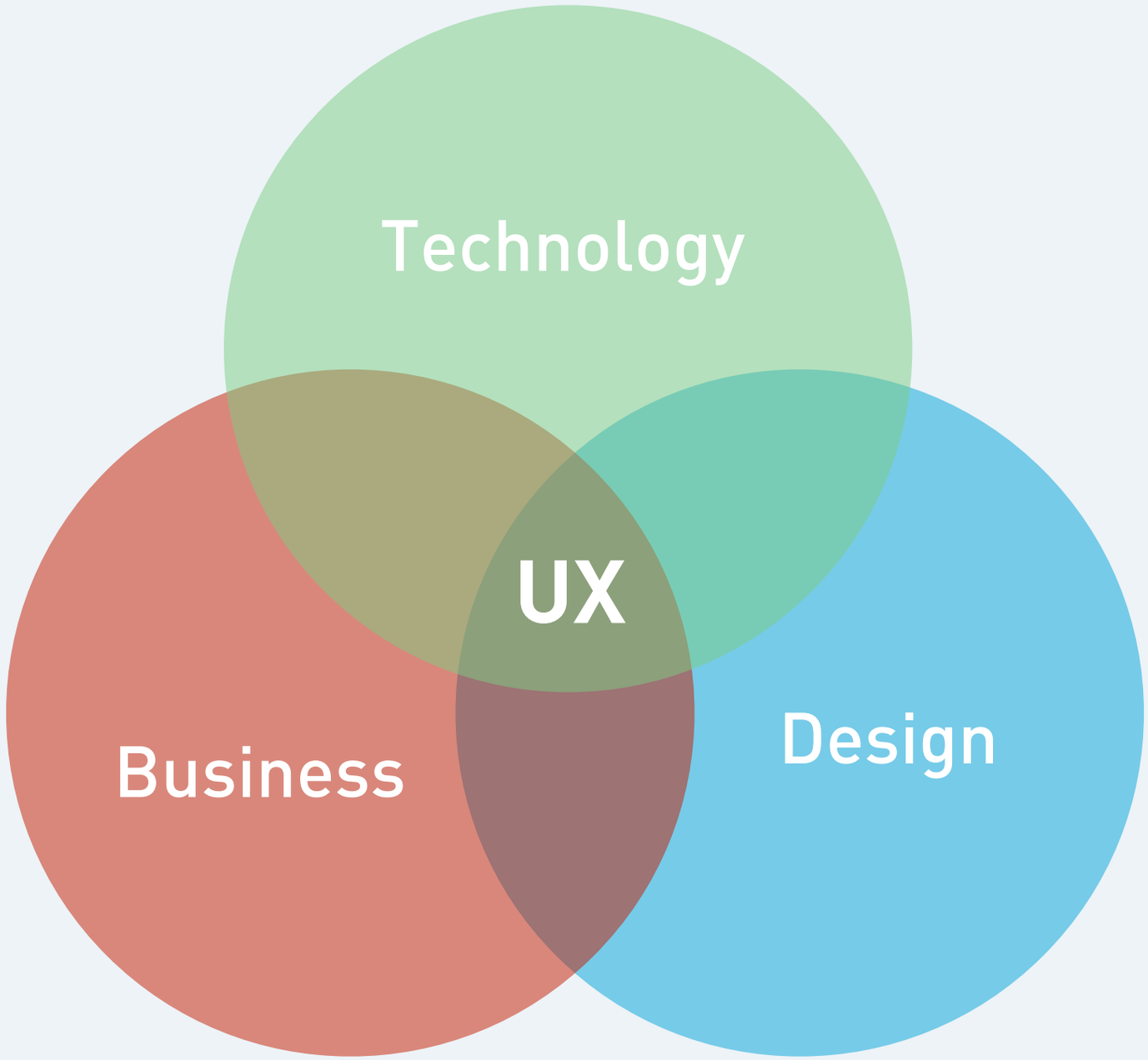
source: [8]

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

American Heritage Dictionary

source: [1]

User Experience Design



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http://semanticstudios.com

User Experience Design

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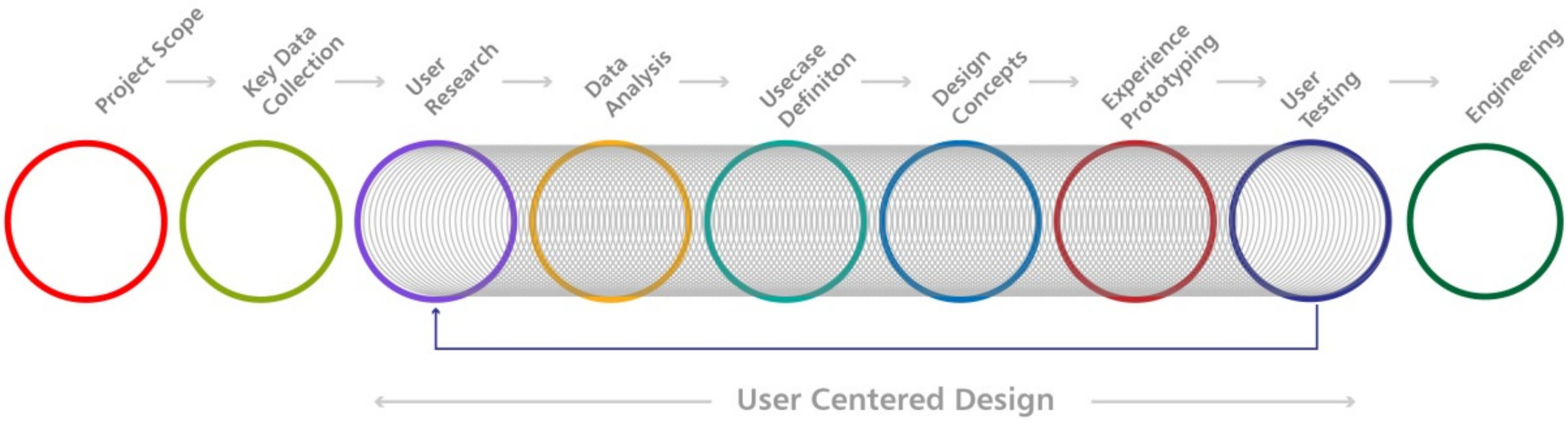
User Centered Design Process



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.

Three main goals

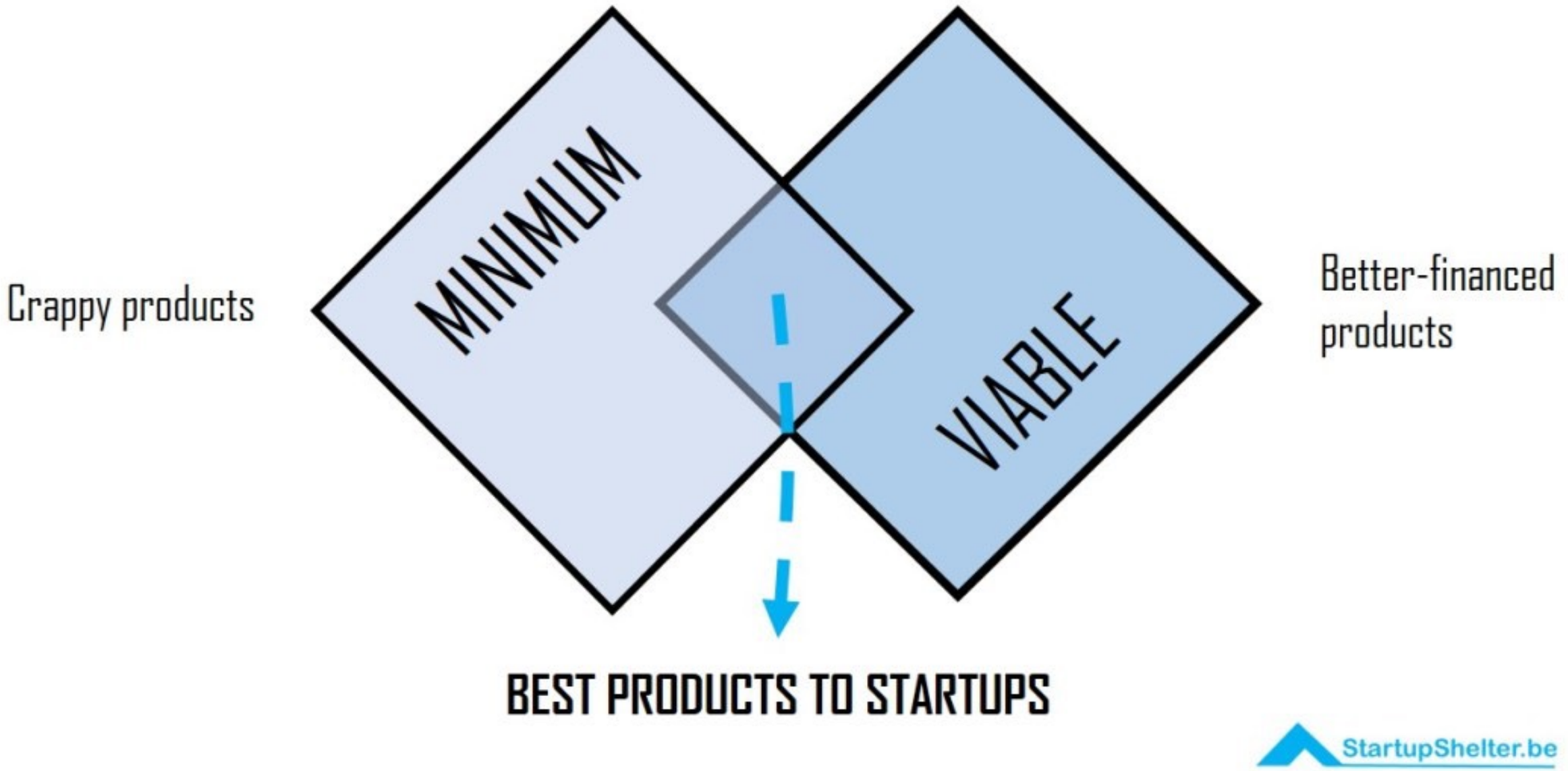
1.) Understanding a design context

2.) Exploring and evaluating ideas

3.) Communicating ideas

source: [1]

MINIMUM VIABLE PRODUCT



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

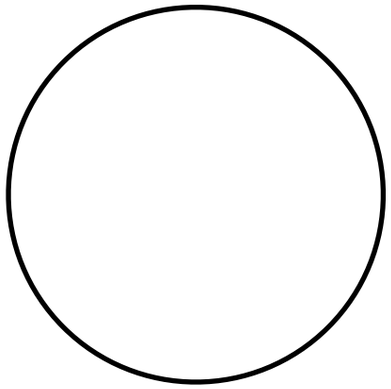
For the Designer:	Exploration Visualisation Feasibly Inspiration Collaboration
For the End User:	Effectiveness / Usefulness A change of viewpoint Usability Desirability
For the Producer:	Conviction Specification Benchmarking

source: [5]

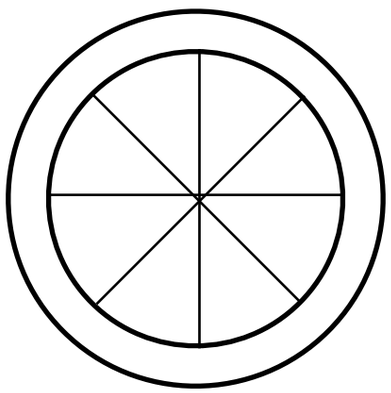
It’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them.

Steve Jobs

Fidelity v. Resolution



low resolution
low fidelity



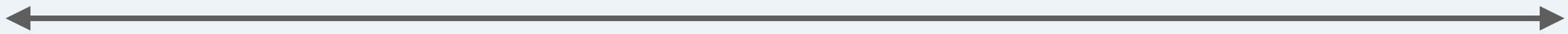
high resolution
low fidelity

high resolution
high fidelity

source: [5]

Low Fidelity

High Fidelity

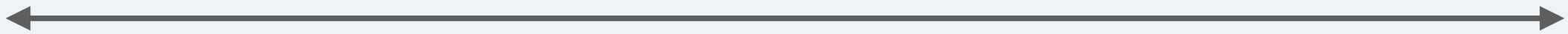


Open Discussion	Sharp Opinions
Prompting Required	Self Explanatory
Quick and Dirty	Deliberate and Refined
Early Validation	Concrete Ideas

source: [5]

Low Resolution

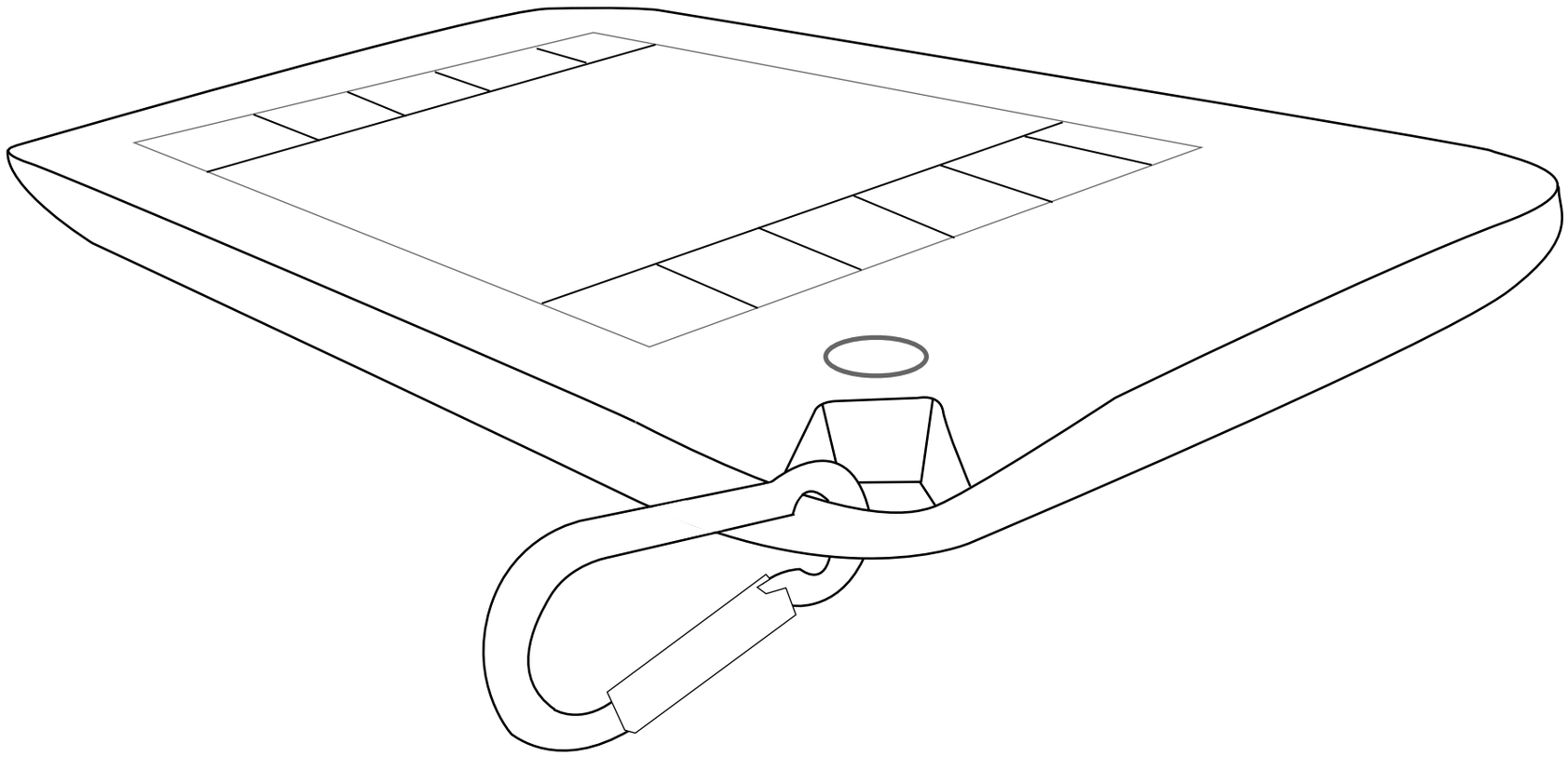
High Resolution



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

source: [5]

1st Iteration
low-res/low-fi

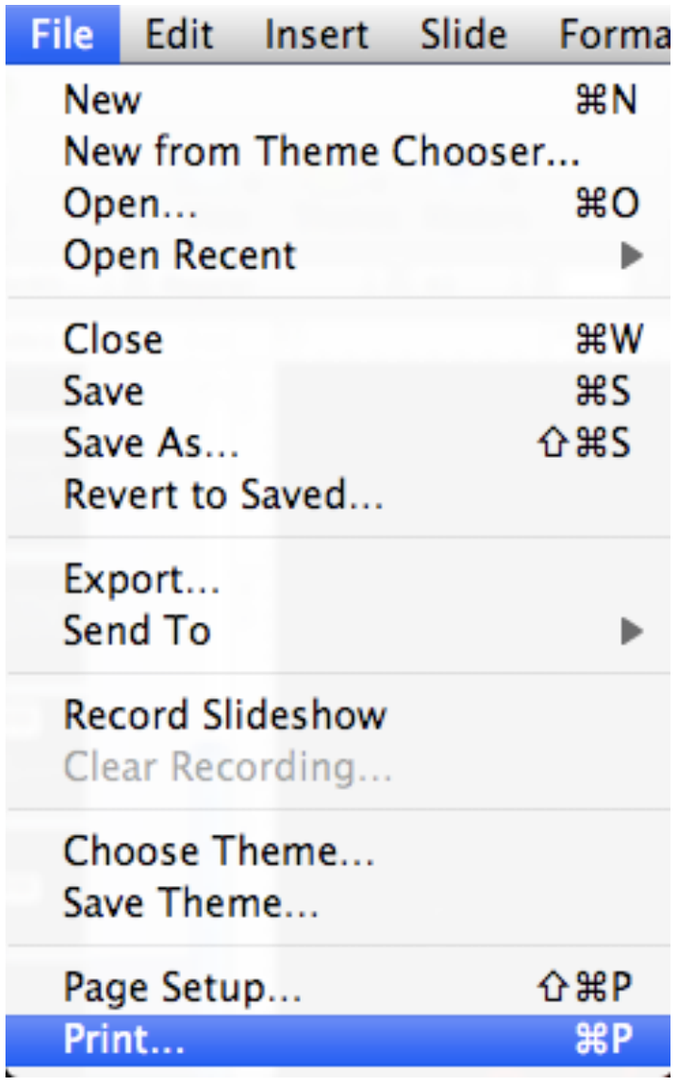


4th Iteration
high-res/high-fi

80/20 rule

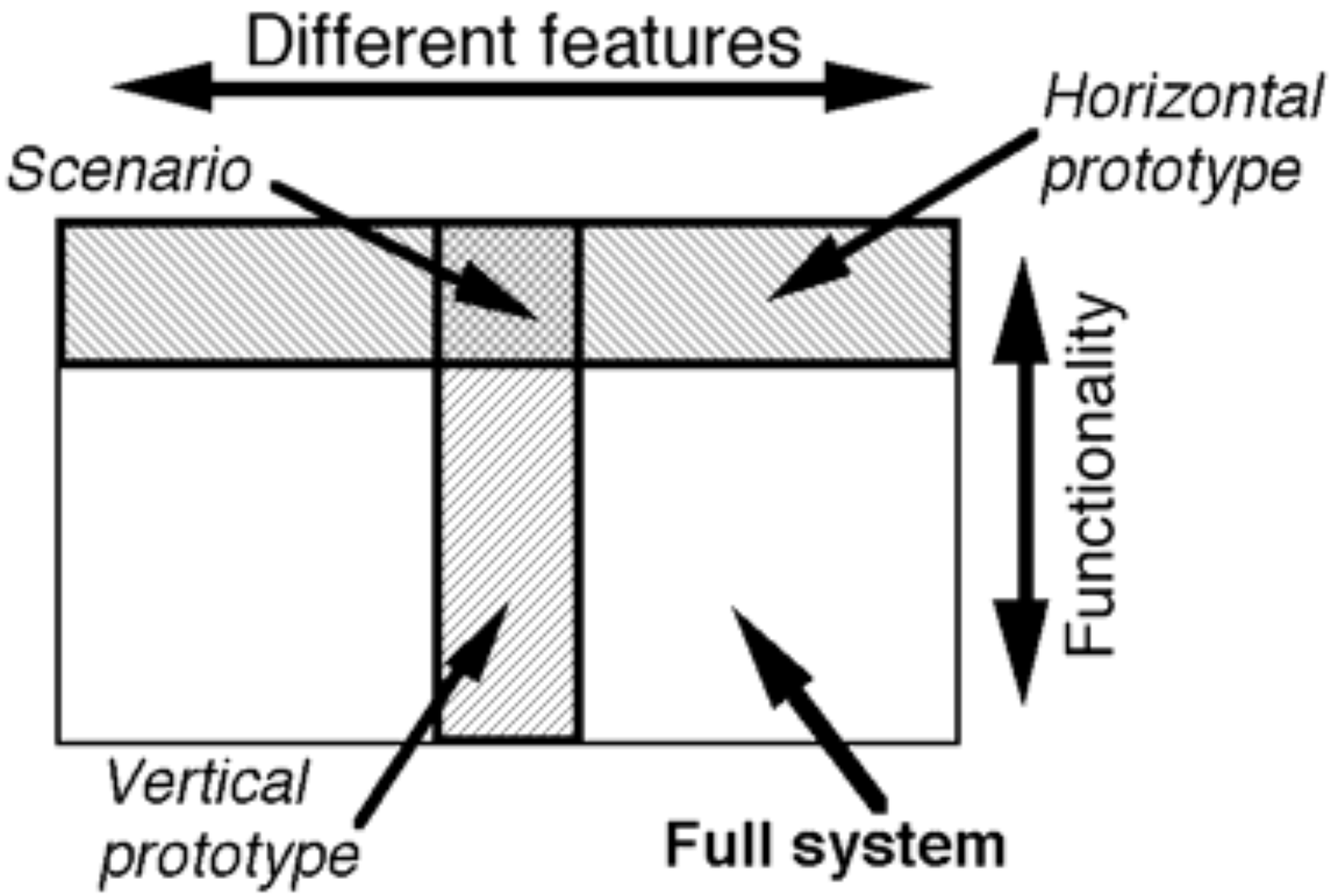
http://www.swissknifeshop.com/media/catalog/product/cache/1/image/5e06319eda06f020e43594a9c230972d/v/m/vm_53831--91_sol_front_ax1000.jpg

source: [7]



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.

source: [7]



Horizontal vs. Vertical Prototype

source: [7]

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

Paper-prototyping

Main goal:

1.) Understanding a design context

2.) Exploring and evaluating ideas

3.) Communicating ideas

source: [1]

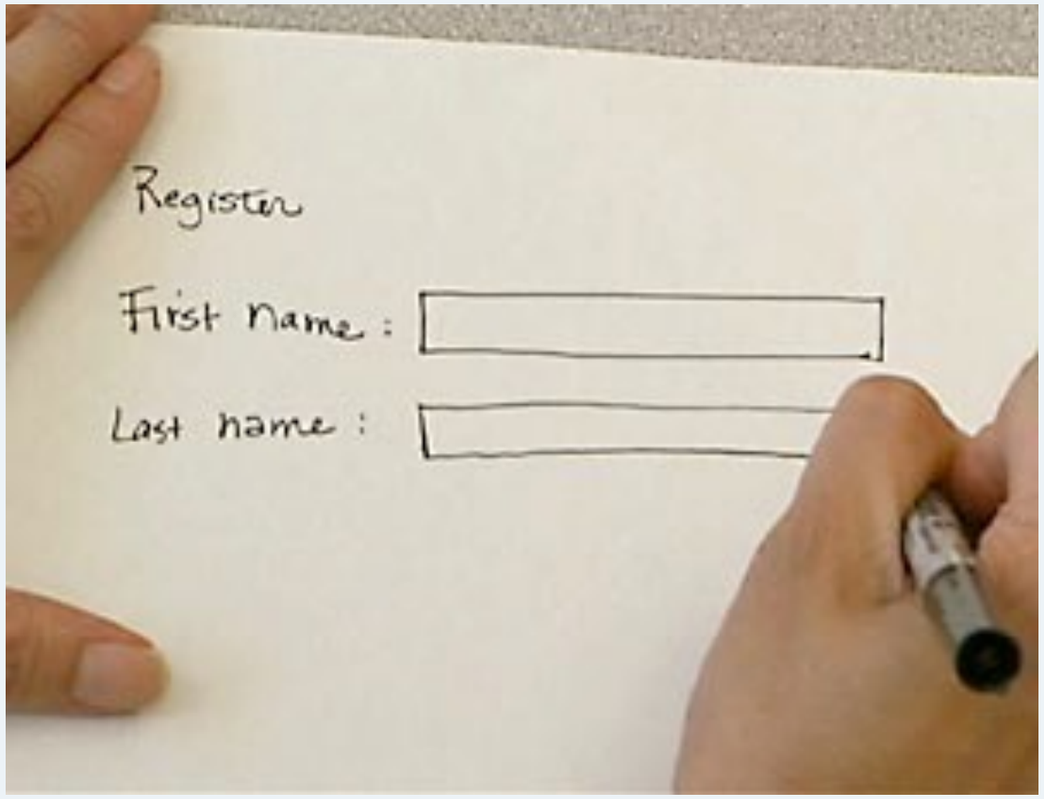
What is it?

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.

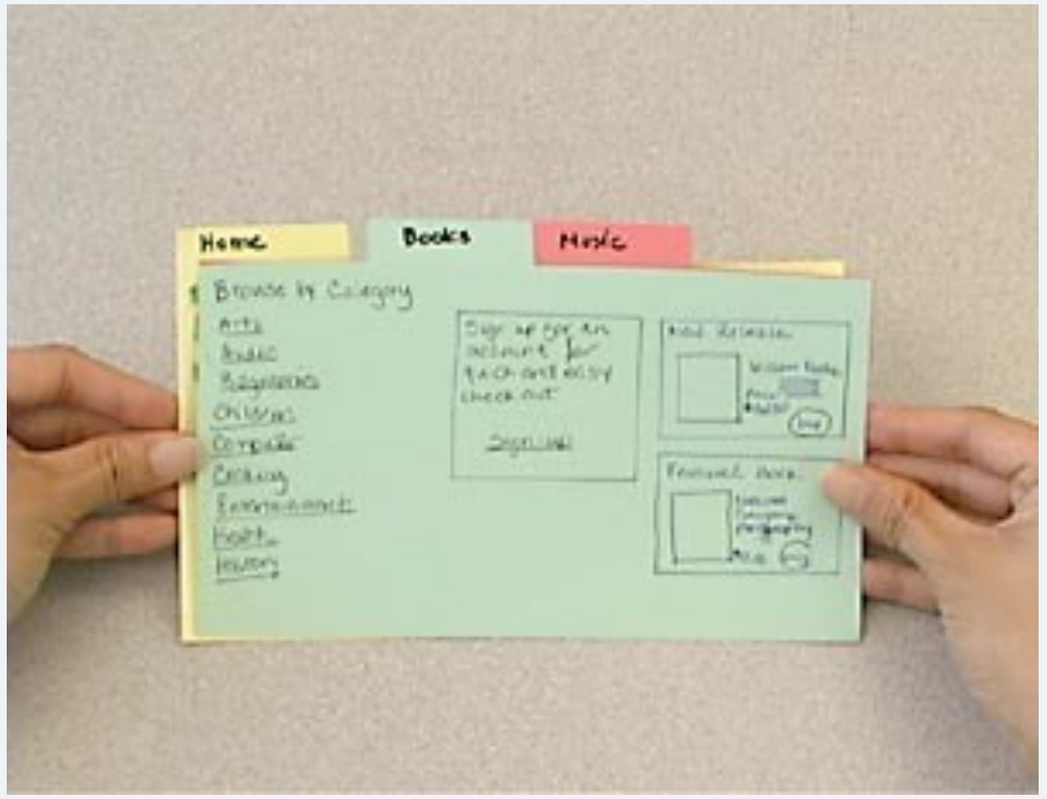
It is **throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.

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

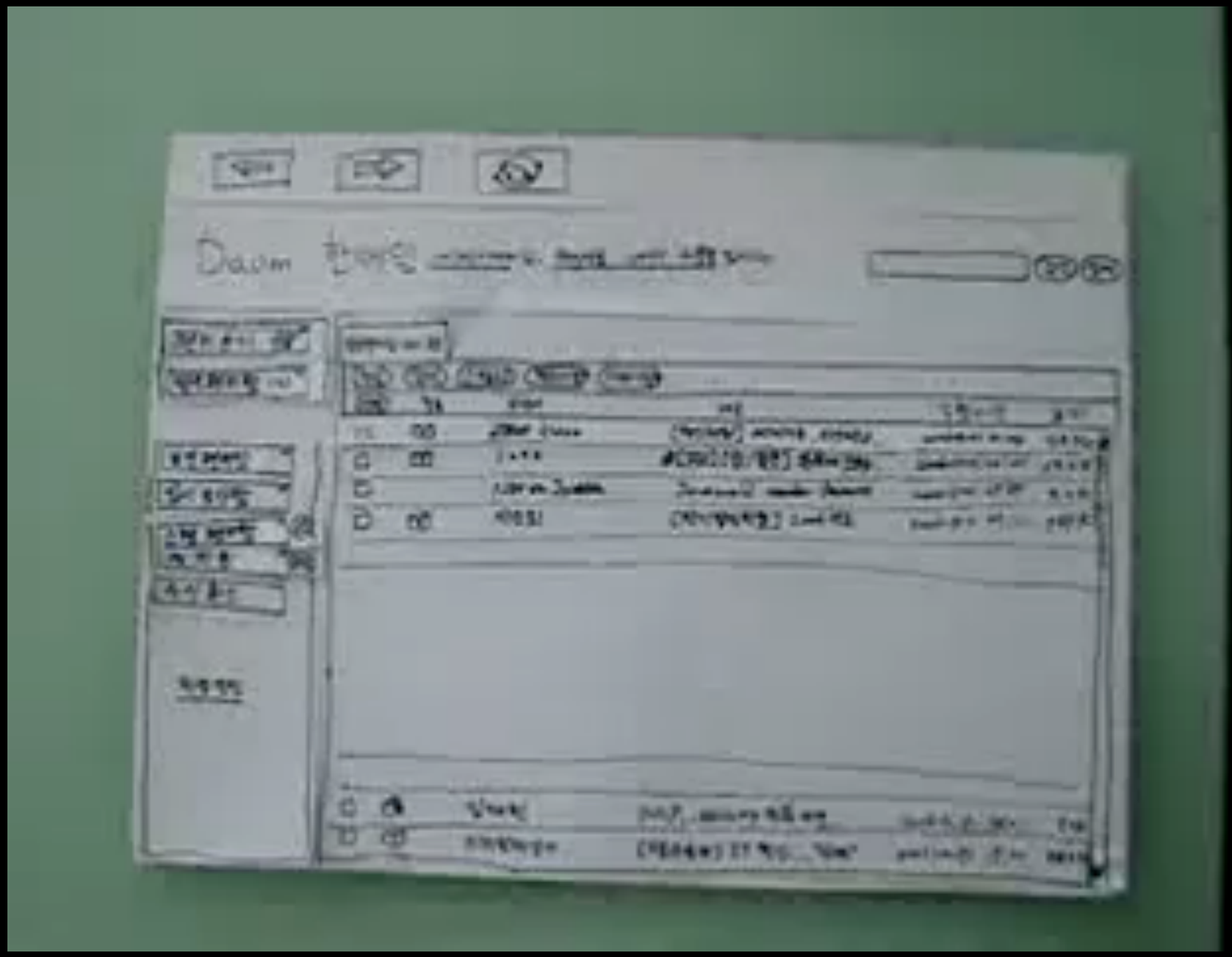
photo credits © NN Group

User test of a device-based interaction

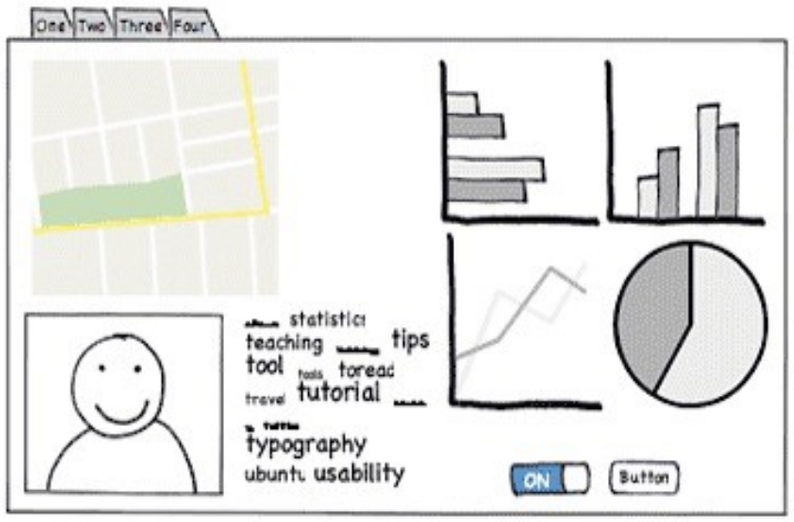
User test of a high-fidelity paper prototype of a homepage.

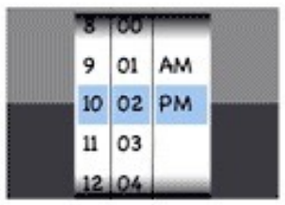
Testing hardware user interfaces: mockup of a kiosk.

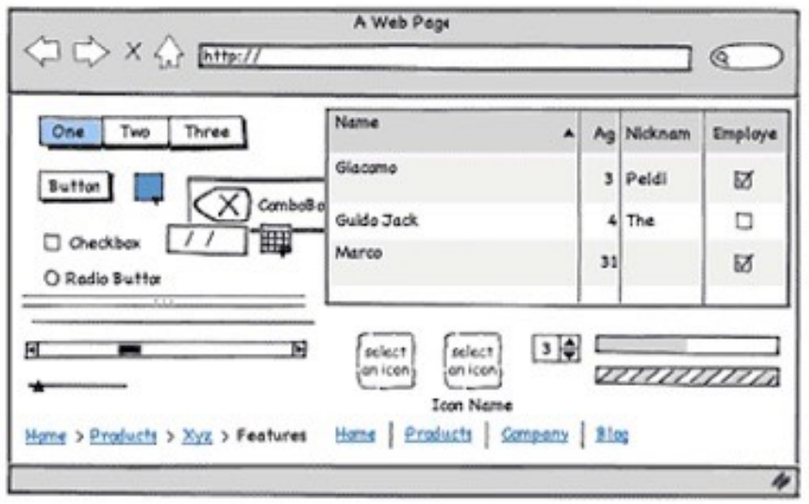
photo credits © NN Group



Source: YouTube







http://www.balsamiq.com/products/mockups

Video-Prototyping

https://icdn8.digitaltrends.com/image/gopro-karma-grip-review-2-2-1500x1000.jpg

Main goal:

1.) Understanding a design context

2.) Exploring and evaluating ideas

3.) Communicating ideas

source: [1]

Camera:
For most prototypes a smartphone will do the job brilliantly

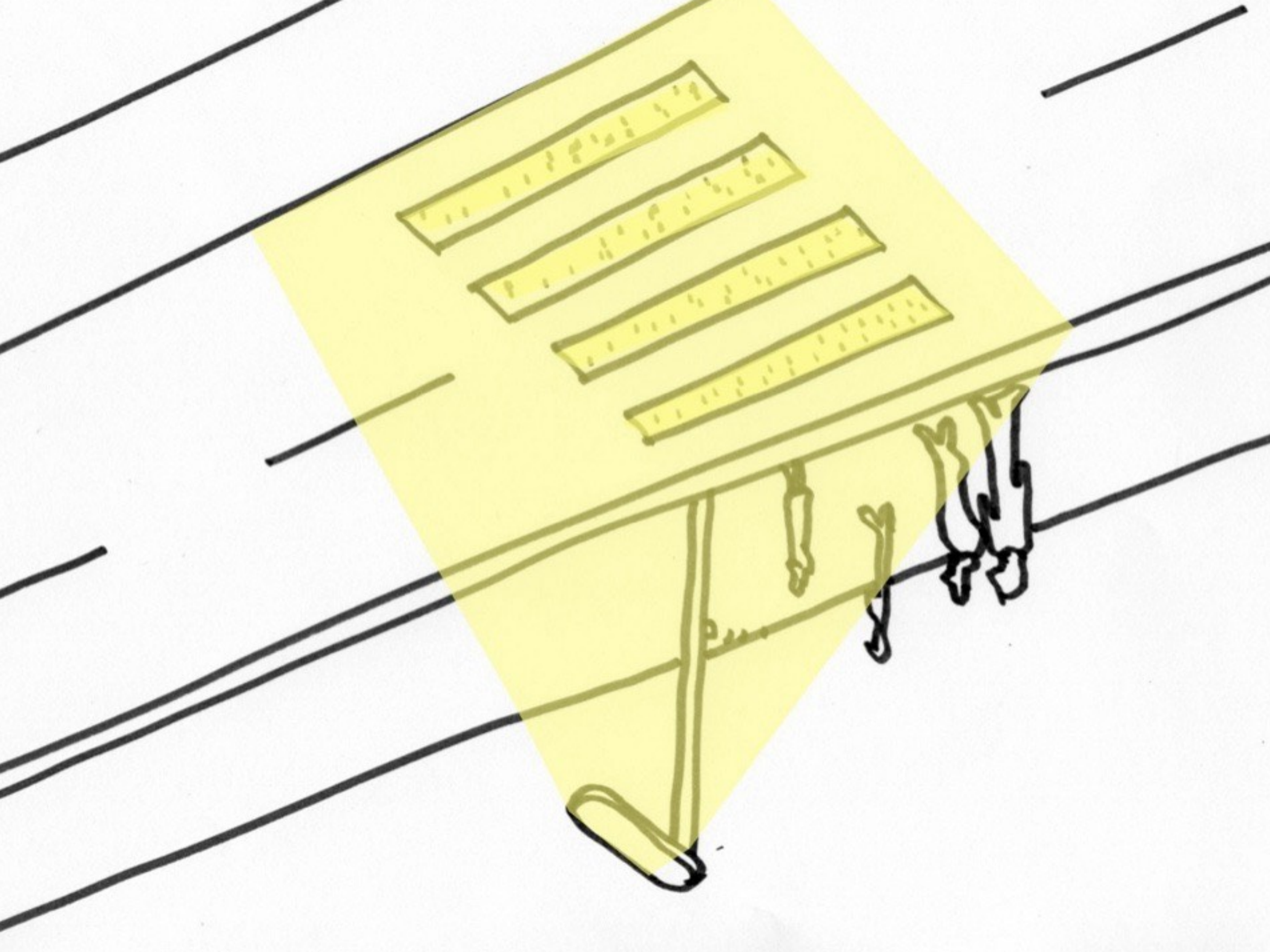
https://cdn.provideocoalition.com/app/uploads/samsunggalaxis9_002.jpg

Part III: Different Video-Prototyping Examples

low resolution
low fidelity
(a whole new world)

A whole new world

low resolution
high fidelity
(crossing on demand)



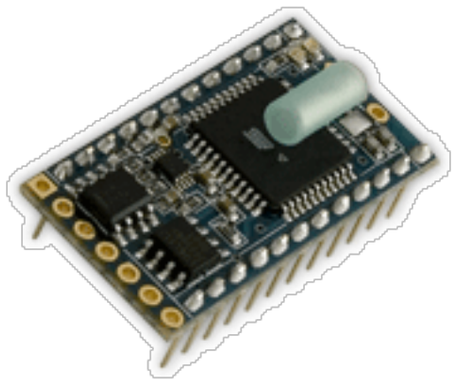
The Smoke & Mirror Approach

image© CIID

Sketching with Hardware

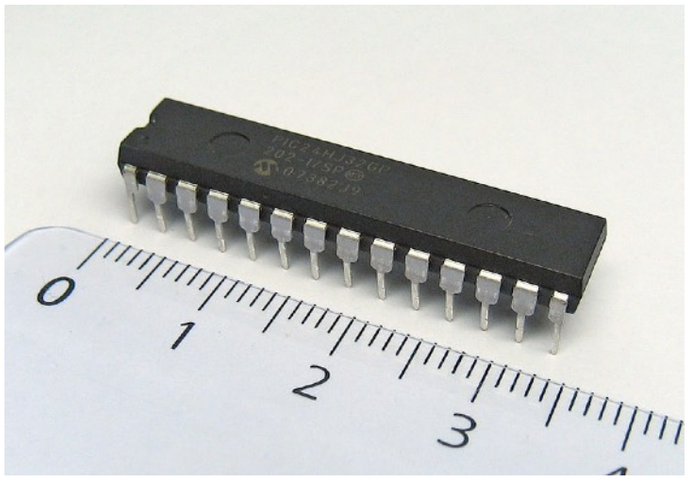
photo credits © alexander wiethoff

basic stamp



bx 24

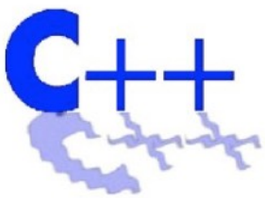
basic atom



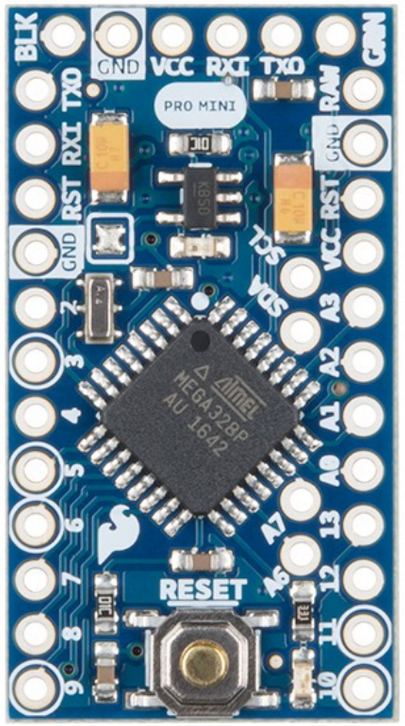
pic

higher level

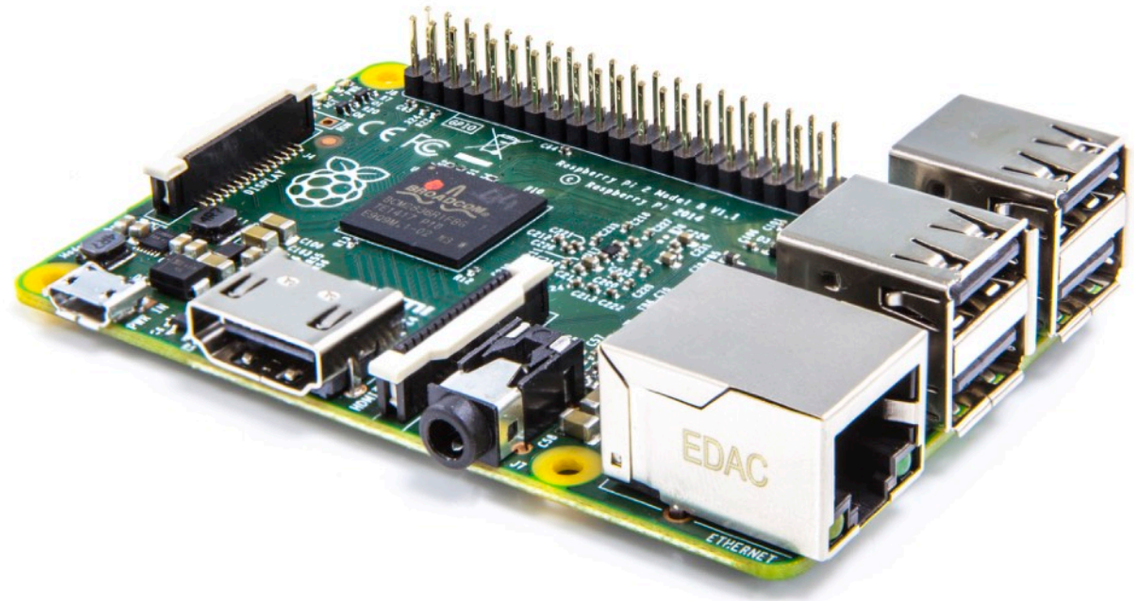
lower level



Assembly



Atmel AT Mega 328

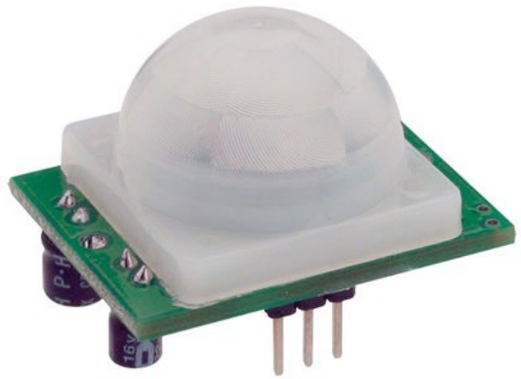


Raspberry PI

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

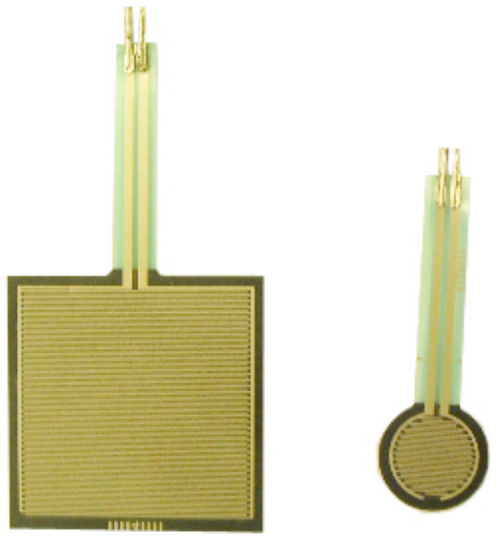
Thermistor

Bend Sensor



PIR Sensor

photo credits © wikimedia



Force Sensor

Potentiometer

Magnet Switch

photo credits © wikimedia

Distance IR Sensor

Touch QT Sensor

Ultrasound Sensor

photo credits © wikimedia

MINIMUM VIABLE PRODUCT

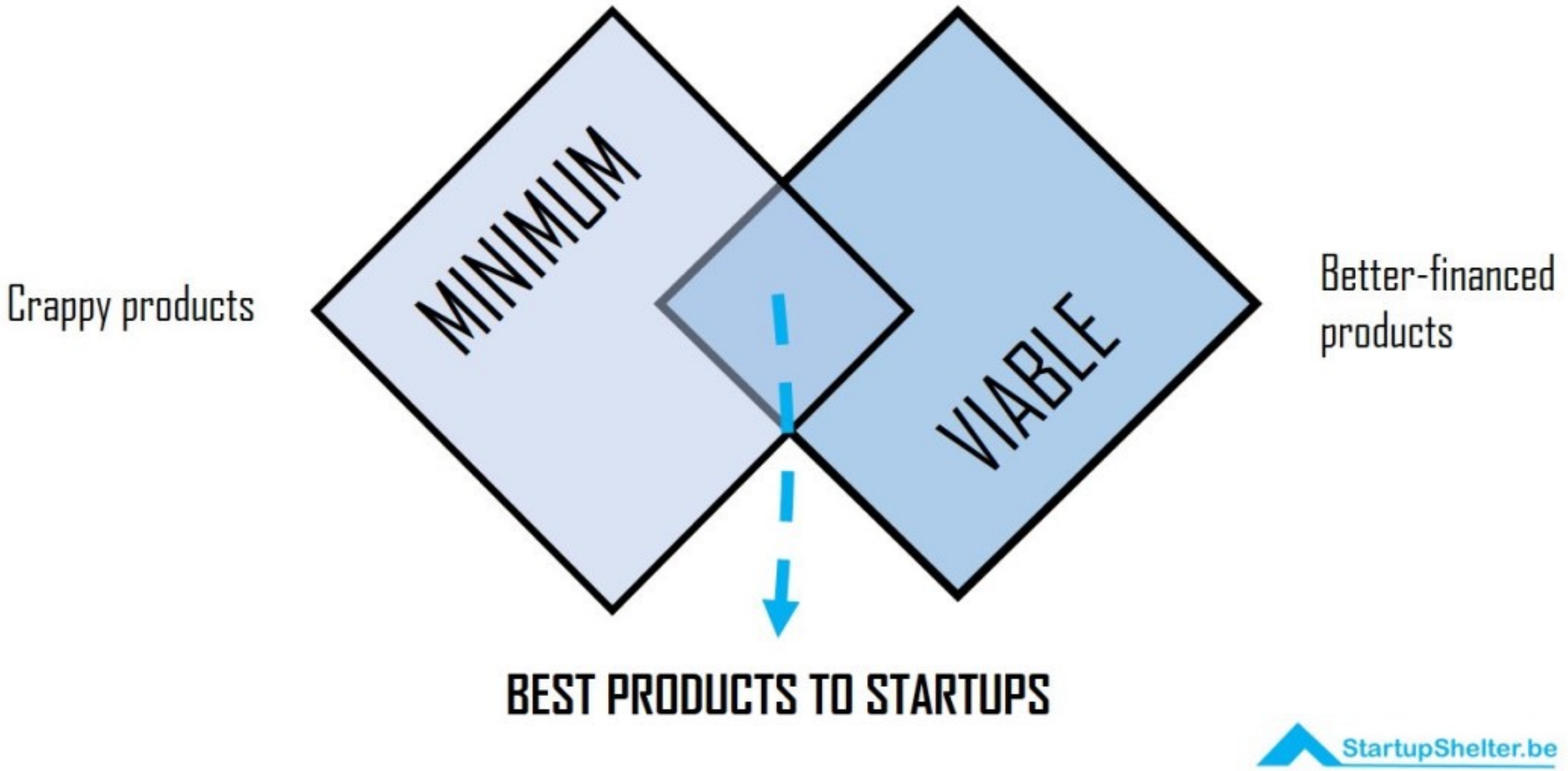


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photo credits © alexander wiethoff

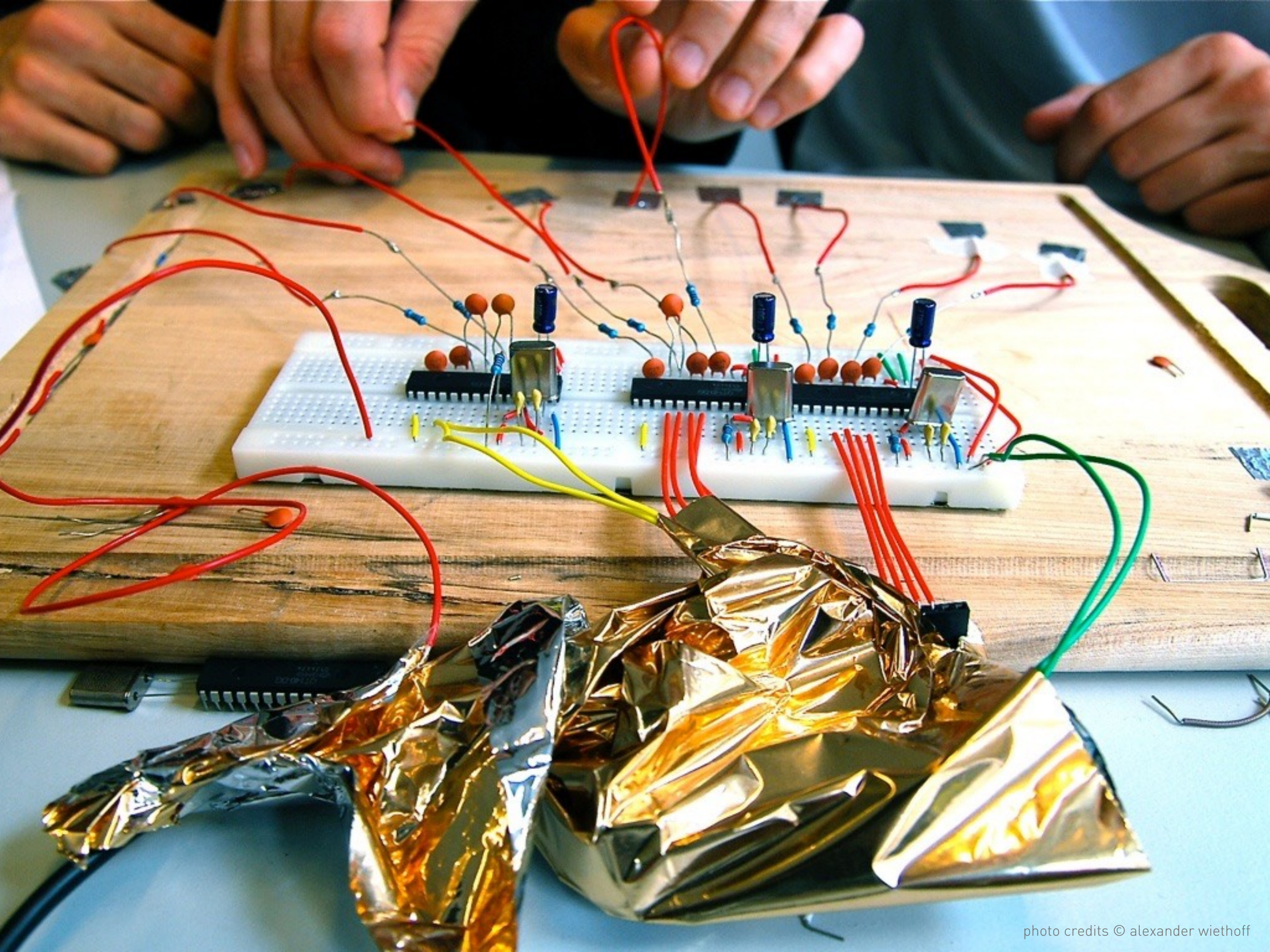

photo credits © alexander wiethoff

Quick video overview

photo credits © alexander waethoff

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or awiethoff@imago-design.de

Web: http://www.medien.ifi.lmu.de/team/alexander.wiethoff/
or: http://www.imago-design.de/

Tutorials

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/

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

References (books)

[1] **Bill moggridge: designing interactions**
Publisher: The MIT Press; 1 edition (October 1, 2007)
ISBN-10: 0262134748

[2] **Bill buxton: sketching the user experience**
Publisher: Morgan Kaufmann (March 30, 2007)
ISBN-10: 0123740371

[3] **Don norman: the design of everyday things**
Publisher: Basic Books (September 17, 2002)
ISBN-10: 0465067107

[4] **Kevin mullet: designing visual interfaces**
Publisher: Prentice Hall PTR (December 15, 1994)
ISBN-10: 0133033899

links: www.dkds.ciid.dk
www.medien.ifi.lmu.de
www.arduino.cc
http://www.useit.com/papers/guerrilla_hci.html