Portfolio

Tobias Härdtlein

B.A. industrial design

2022

Tobias Härdtlein

Education

HTW Berlin university of applied science
Berlin | 09/2015 - 05/2021
Industrial design B.A.
grade 1.5

University of Cincinnati
Cincinnati | Fall 2018
Student exchange program

LMU Ludwig-Maximilians-University
Munich | 09/2013 - 08/2015
Media-computer-science B.Sc.
2.5 years of study

Highshool Kempfenhausen
Starnberg / Munich | 09/1996- 07/2011
Abitur (high school degree)

Experience

Costaboard
Berlin | 05/2021 - 01/2022 | Head of Product Design
Research and product development. Concept and design of new products. Support of manufacturing up to series production. Project management of new product developments.

Infrar3d
Berlin | 06/2021 - 11/2021 | Industrial Designer
Planning, design, programming and engineering of prototypes to market maturity. Includes team organization and collaboration.

Blackjack lighting
Chicago | 1/ 2019 - 5/2019 | Internship / Junior Designer
Design and engineering of lighting track systems. Environmental rendering, assist the development of marketing material. Layout of custom fixtures for commercial applications.

Town Hall of Starnberg
Starnberg | 11/ 2013 - 10/2015 | Event Technician
Planning, preparation and execution of light, sound engineering and safety regulations for concerts, fairs and congresses. Finally the supervision of the events.

UNIKAT#shirts
Munich | 2006 - 2015 | Entrepreneurship
Established of my own clothes label „#UNIKAT„ in Munich. Design-development, screen printing, E-Commerce, Workshops and commissioned work.

Skills

Analog
Prototyping | Sketching | Model Making
Wood- Plastic- Metal Shop working |
3D printing | Screenprinting | Photography | Problem-solving | Coding

Programs
SolidWorks | Rhino 3D | Grasshopper
Cinema4D | Keyshot | InDesign | Photoshop | Illustrator | Lightroom |
Word | Excel

Languages
German native
English business fluent

Programming language
C ++ | Python | Java Script | HTML | CSS

Interests

Snowboarding | Sailing | Coding |
Construction work | Mechanics |
Traveling | Politics

Honor

Awards
European Product Design Award *2019*
Bronze
Category Packaging Design/Food

World Star Student Award *2018*
Certificate of Recognition
World packaging organization (WPO)

German Packaging Award *2017*
young talent
German packaging institute (DVI)

1st Prize in the category UX *2017*
PACKPLAY2
Université du Québec à Montréal

Exhibitions

Fachpack *2018*
At the stand of Bayerndesign

Interpack *2017*
At stand of WIPAK

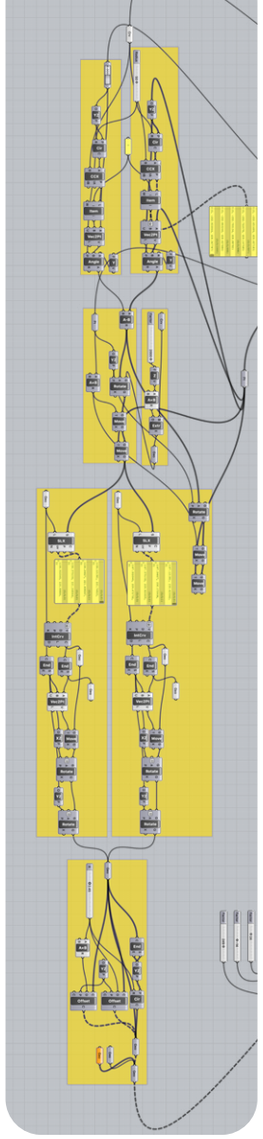
Unterstrom *2017*
Berlin design show

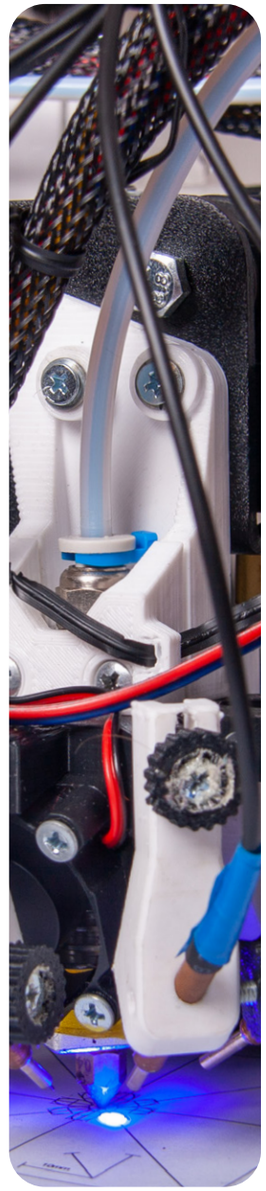
Permanent Address: Sonnenweg 9
82335 Berg
Germany

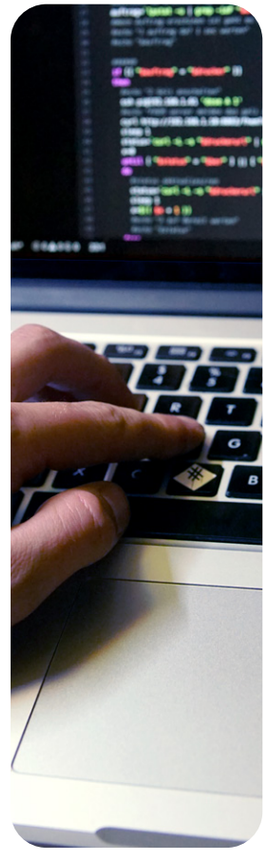
Cell: +49 178 1486240

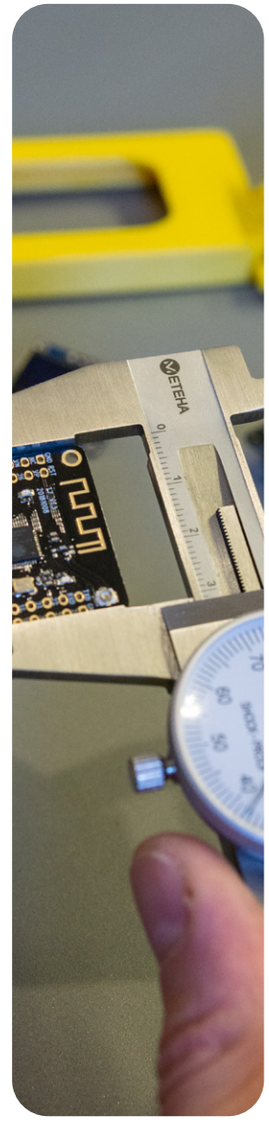
e-mail: tobi@haerdtlein.team

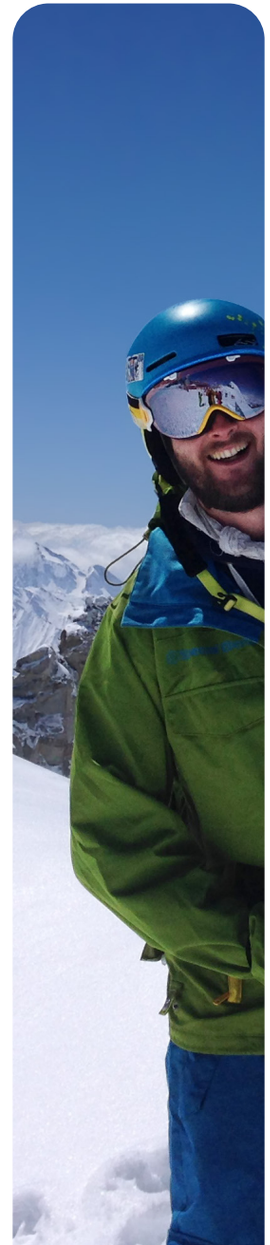
Web: haerdtlein.team











About me

I grew up in a family where everything was constantly renovated, rebuilt and improved:
The house, the terrace, the boat... from an early age I knew how to use all kinds of tools.
There was virtually nothing I couldn't fix.

That's why I'm an industrial designer:
I want to make people's everyday lives better, easier, more intuitive. I am a problem solver.

This very everyday life is permeated by technologies - and I am a bit of a technology nerd (5 semesters of Media-computer-science studies). The core of my products is therefore often a combination of technology and elaborate mechanics.

Technology meets function meets aesthetics. My goal is complex design without being complicated.

When I design a new product, it leaves my head very quickly. I am someone who acts, builds, discards, tries new materials, codes, 3D prints, assembles, all over again... until it works.

Nothing goes without prototyping for me.
I want to understand my product, down to the smallest detail.

That's me. All or nothing.

"We humans are lazy,
especially when it comes to
carrying groceries
home from the store"

Carey

Autonomous transport assistance
for private use

Constructed with: Rhino3D | Grasshopper
Rendered with: Cinema4d
model: 3D Print

54% of metropolitans go shopping on foot
48.7% buy groceries online, because
their purchases are too heavy for them.

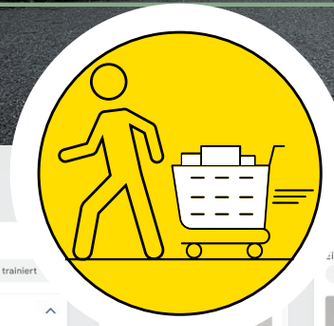
What if the purchase...

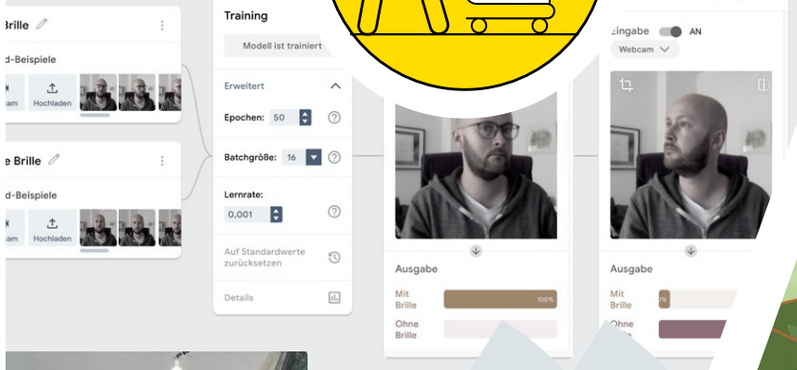
follows you,...

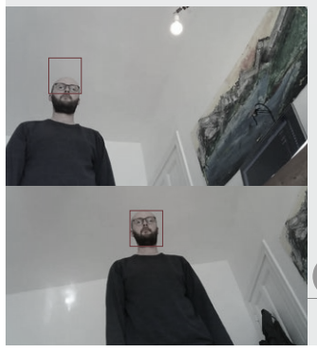
integrates with the human environment...

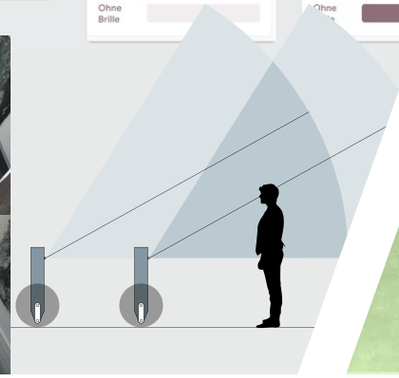
and is able to climb stairs and other obstacles?

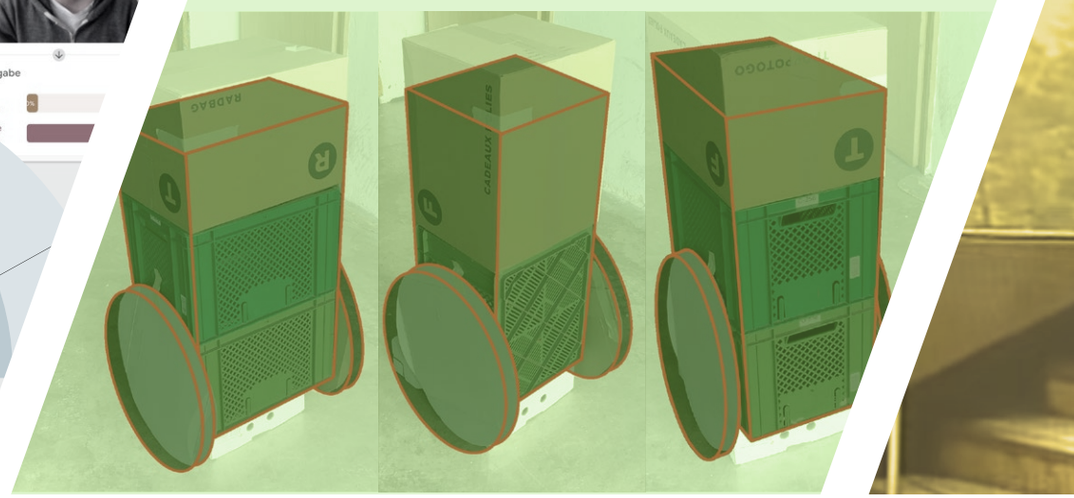

Person Target
Object
Person
Object
Stairs

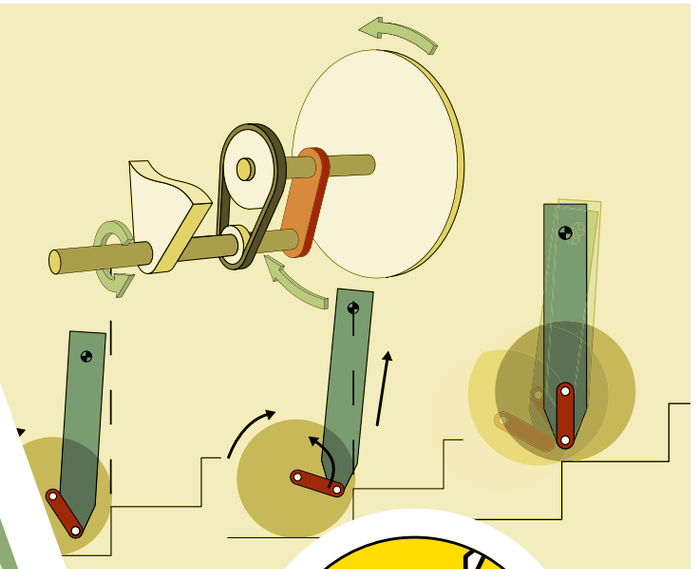


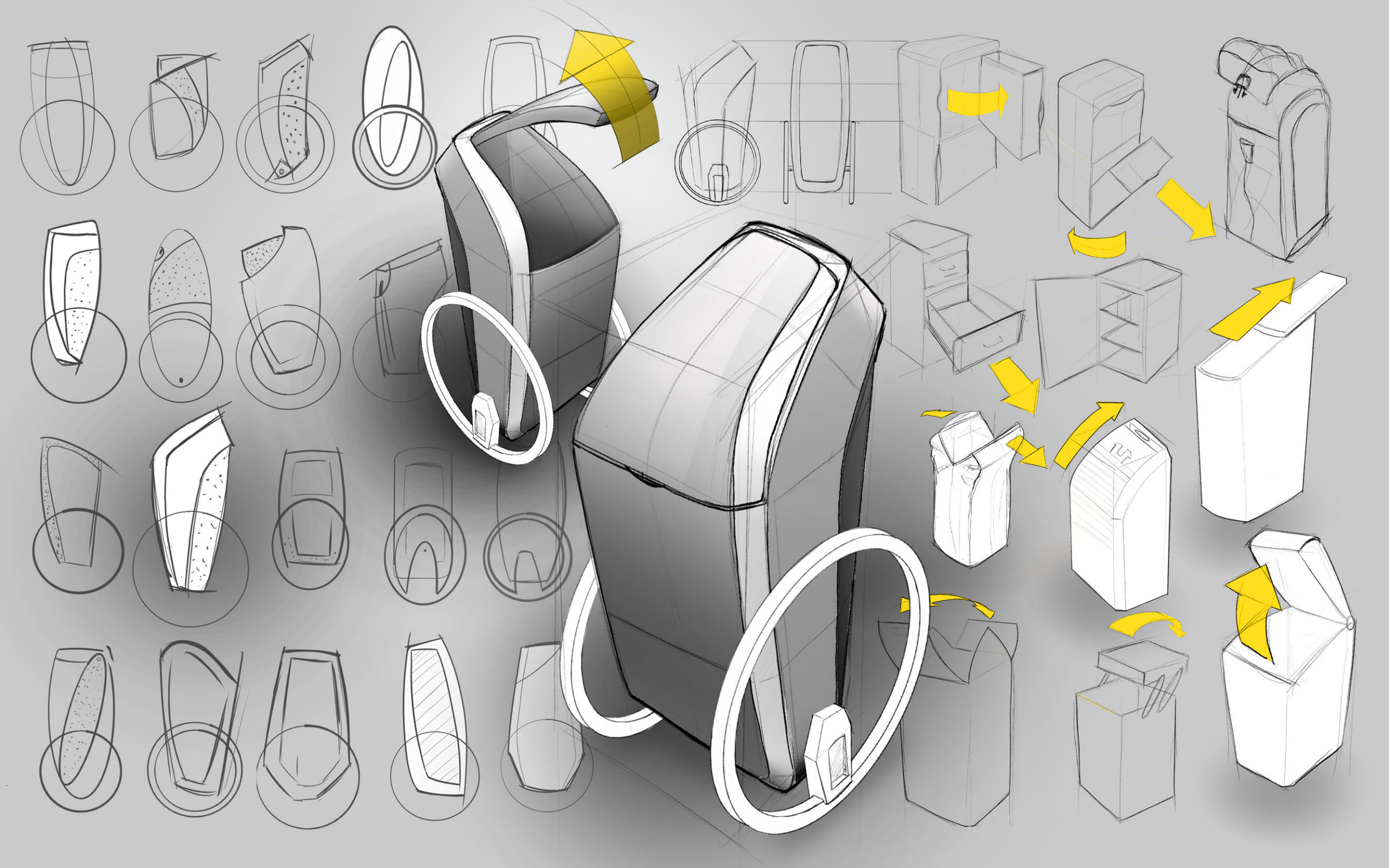

Training
Modell ist trainiert
Erweitert
Epochen: 50
Batchgröße: 16
Lernrate:
0.001
Auf Standardwerte zurücksetzen
Details
Modell exportieren
Webcam
AN
Ausgabe
Mit Brille
Ohne Brille
Hochladen





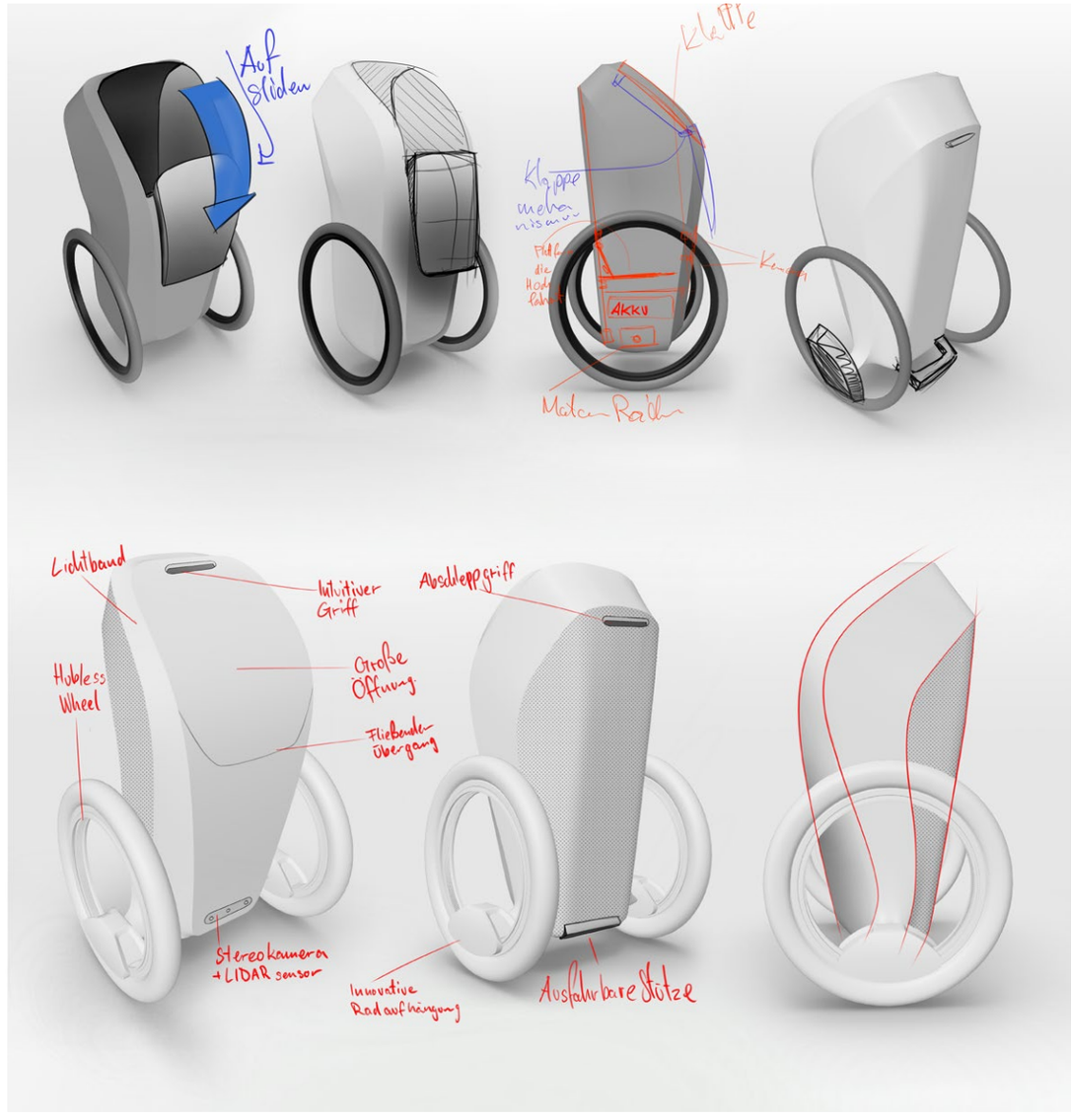






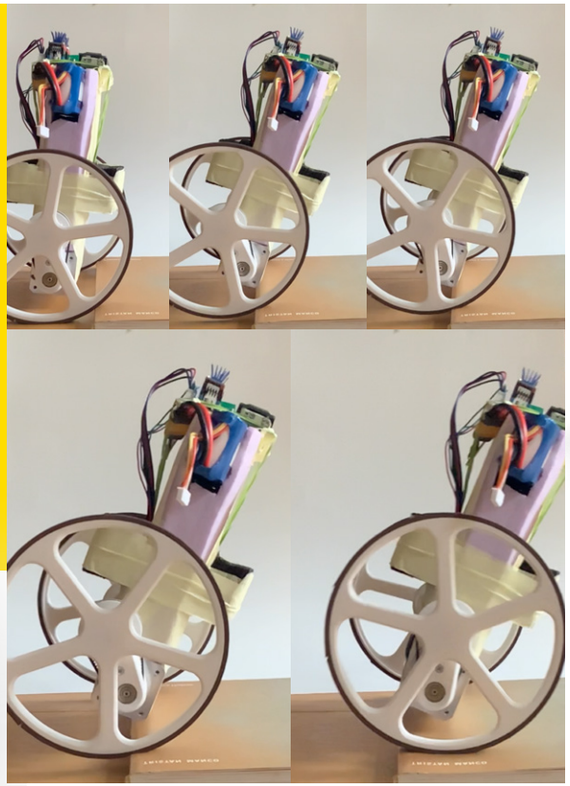
Shape development

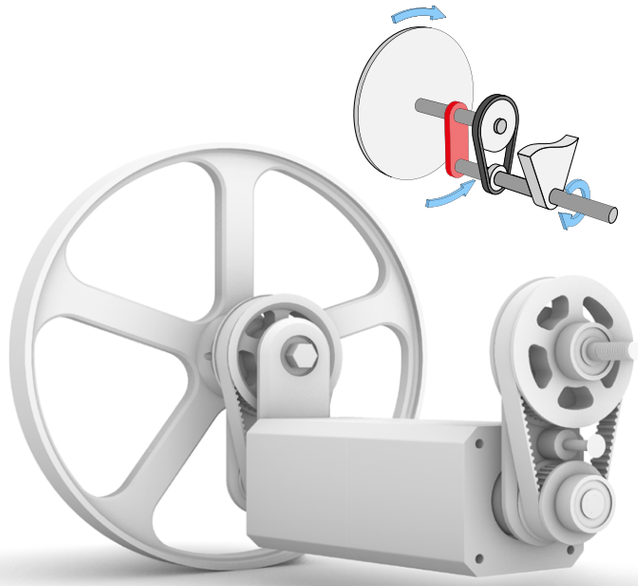
Using augmented reality sketching to define shape and appearance.

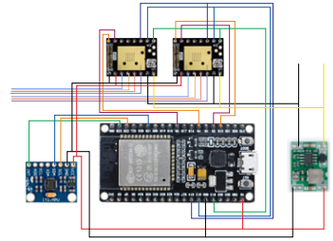


Prototype

Developing and testing the stair climbing function using a real self balancing robot.



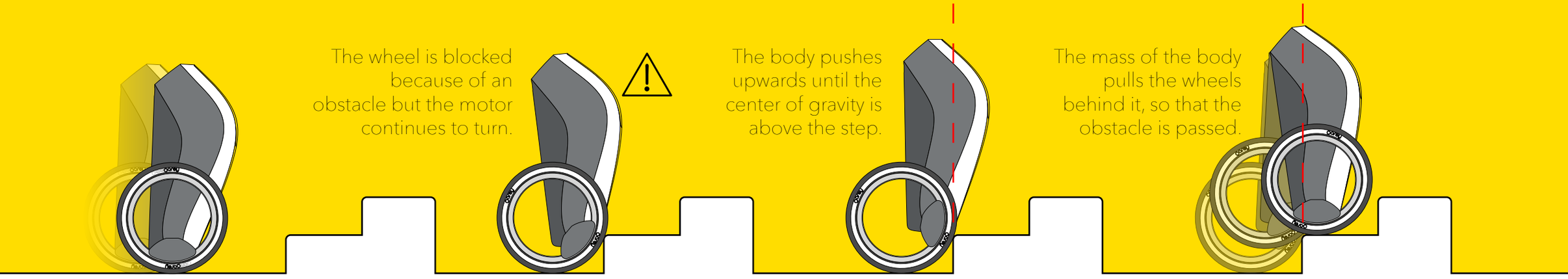


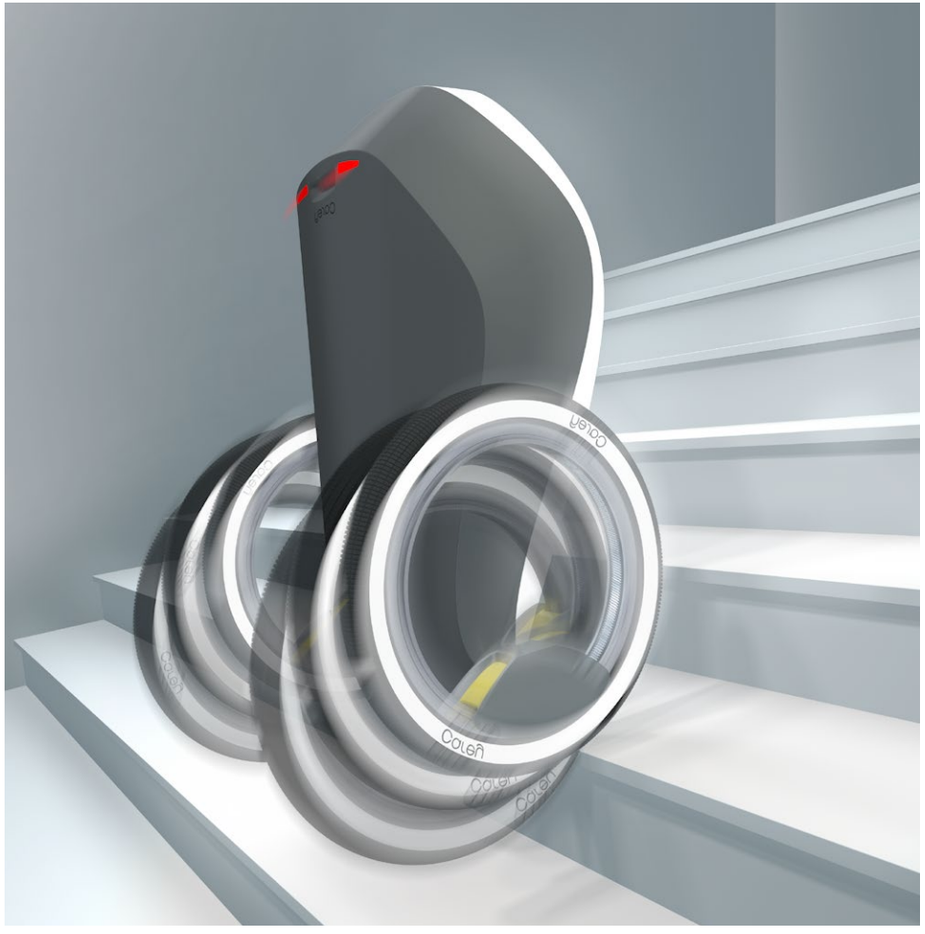


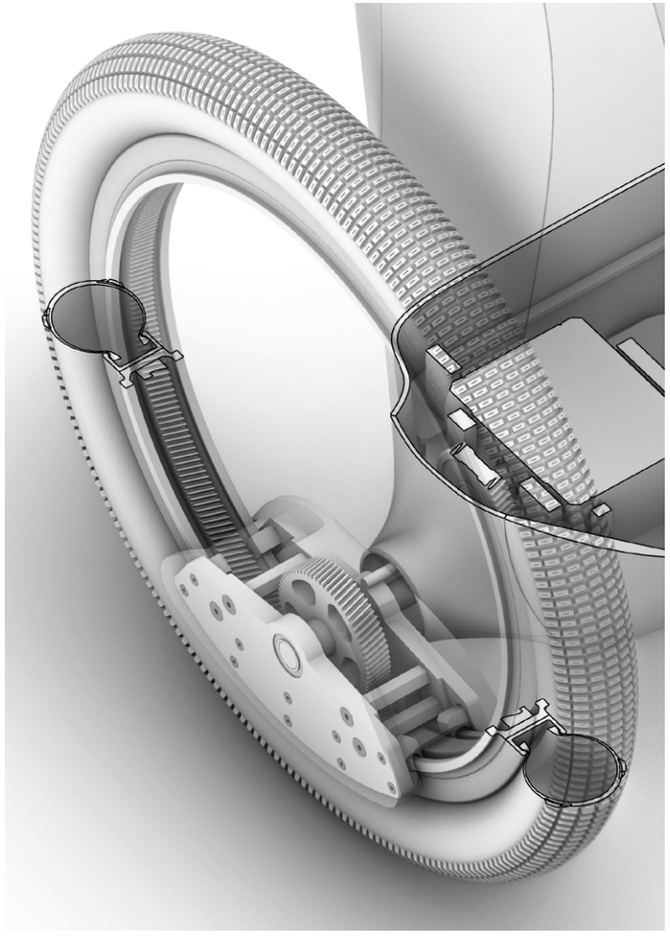
Self-built and coded control unit:

- Balancing on two wheels
- Controllable driving
- Stair climbing

vimeo.com/
515034525

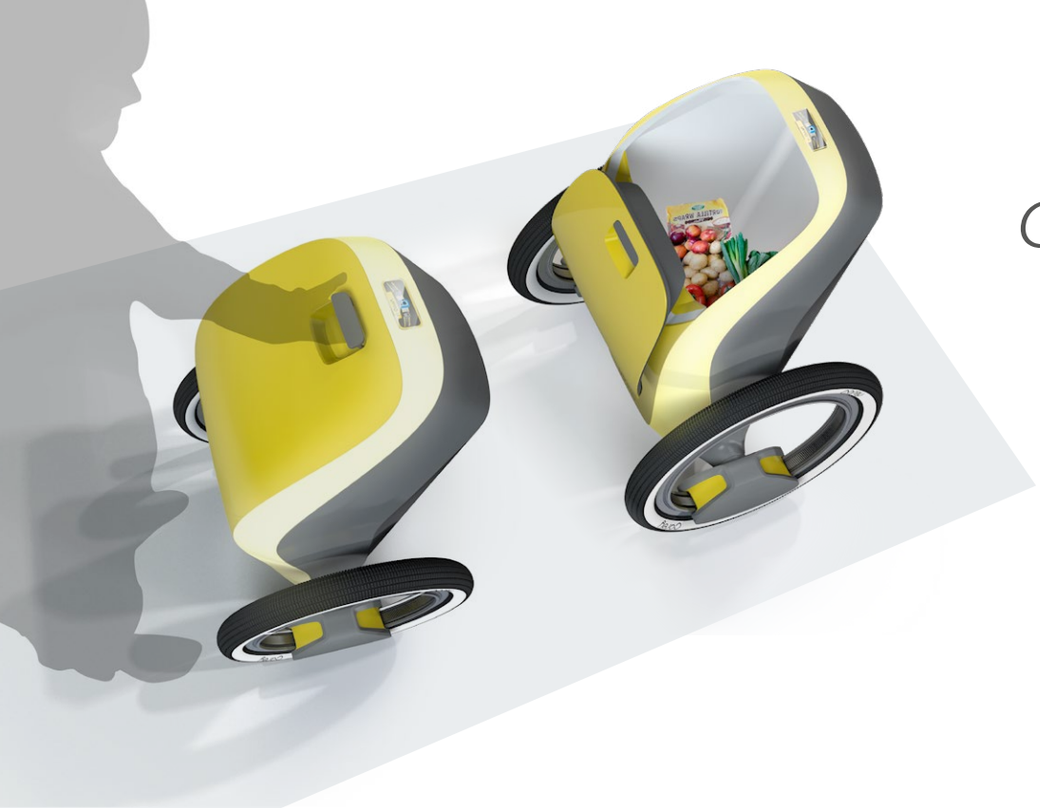






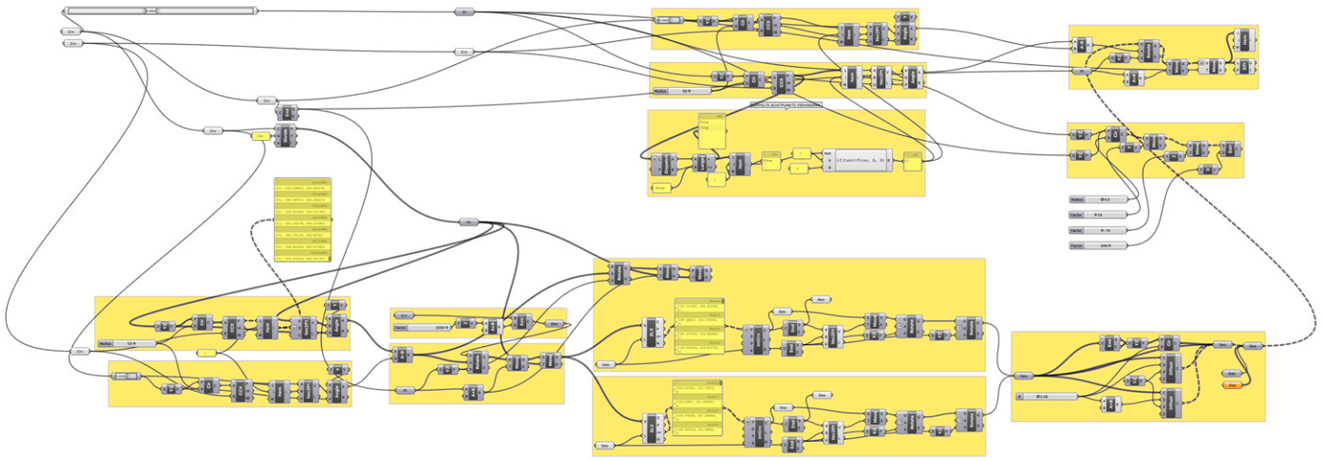
Stair climbing

The hubless wheel is not attached to a center. This allows it to move more freely and enables the body to overcome obstacles.



Grasshopper

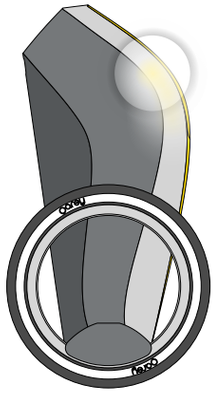
With Grasshopper, a two-rail door suspension was designed / simulated that opens as flat as possible so that it does not intrude during use.



User Experience

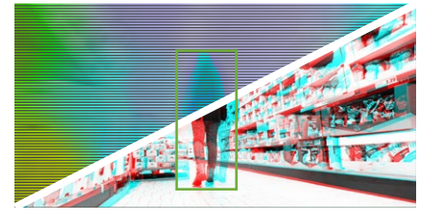
Interface

Modes such as follow-me or parking can be selected via touchpad.



Interaction

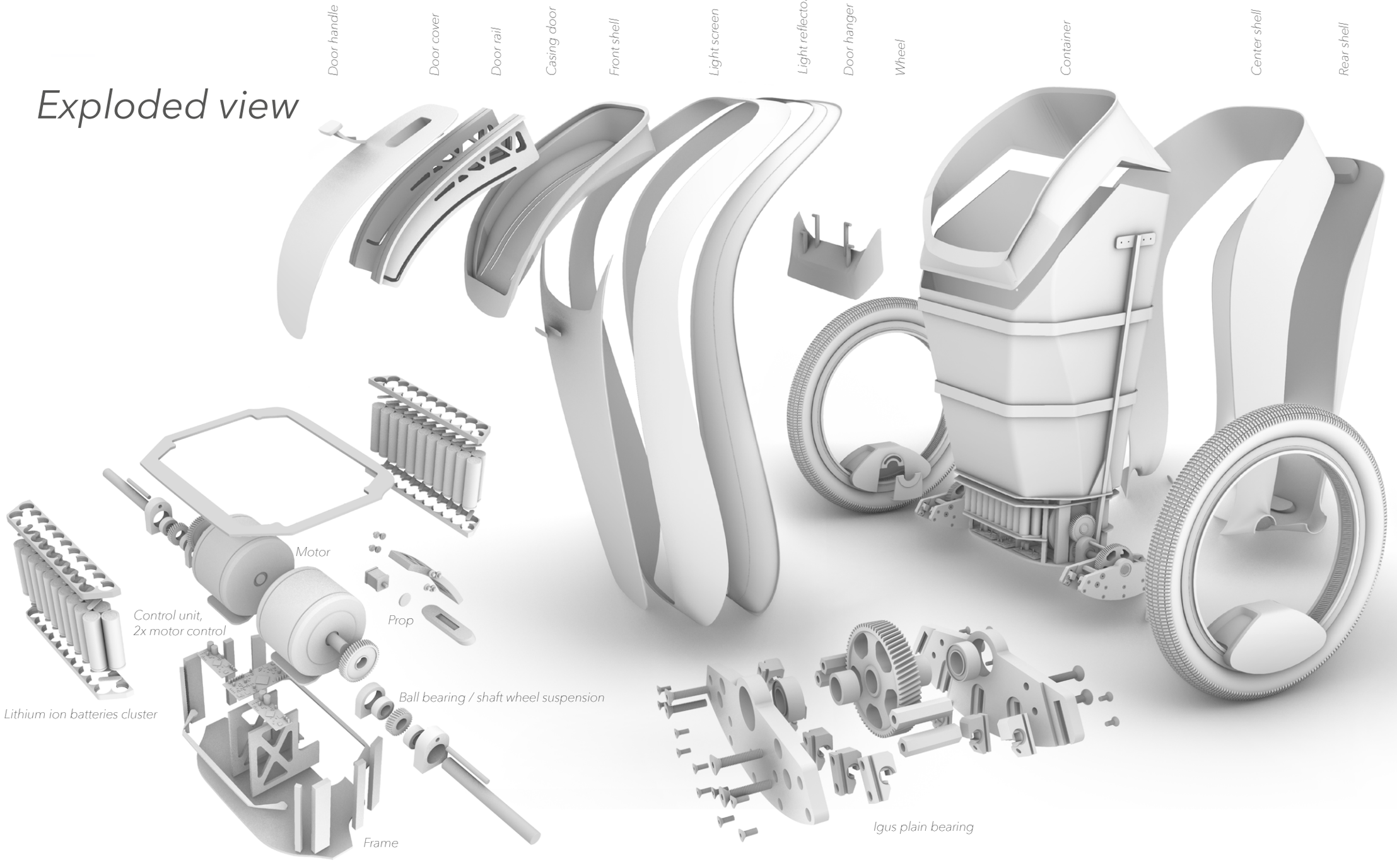
The strip light interacts with the user. When he or she approaches, a light spot moves upward toward the touchpad.



Recognition

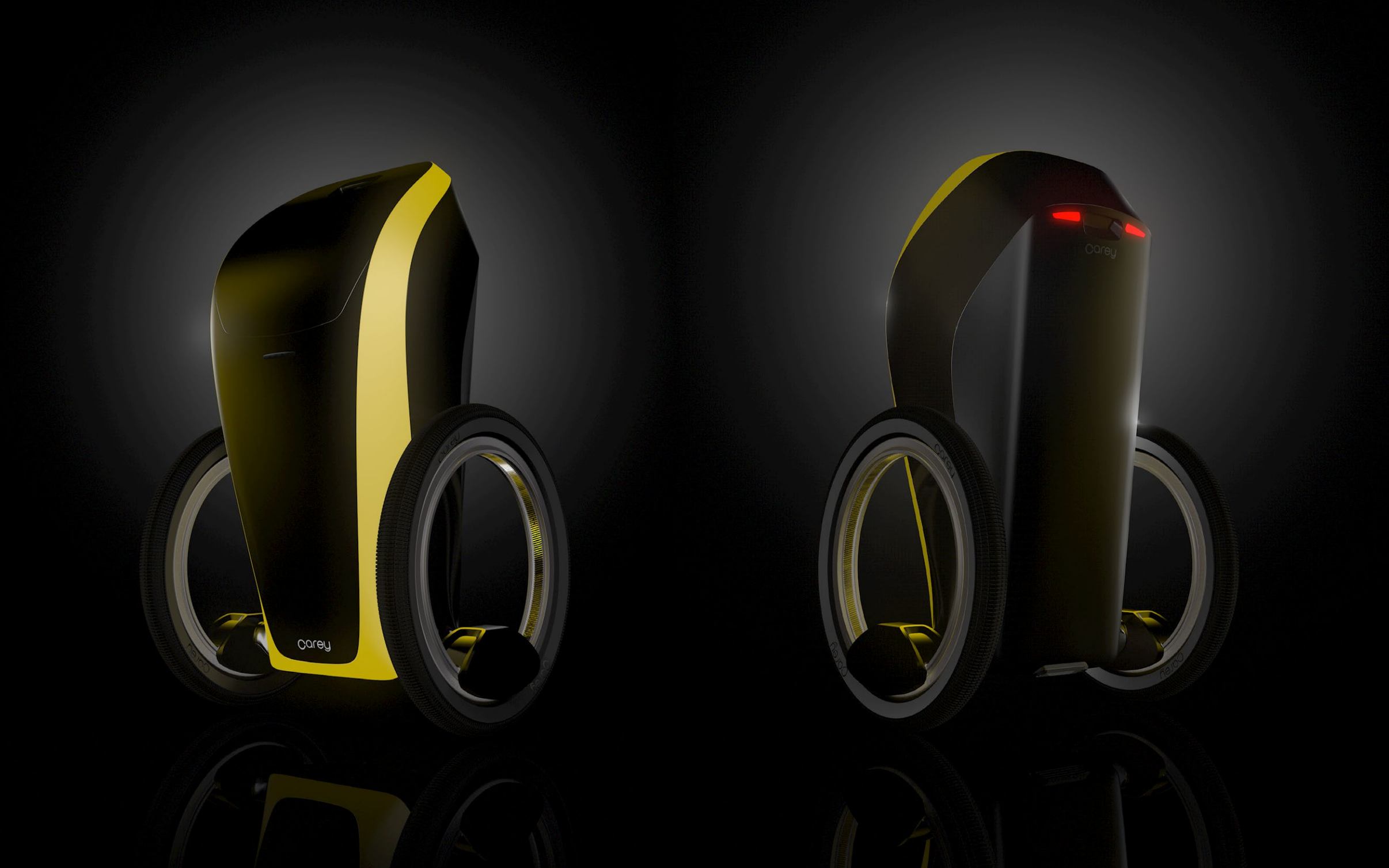
Follow-me feature: Stereo cameras and LIDAR sensors provide spatial recognition and environmental perception.

Exploded view

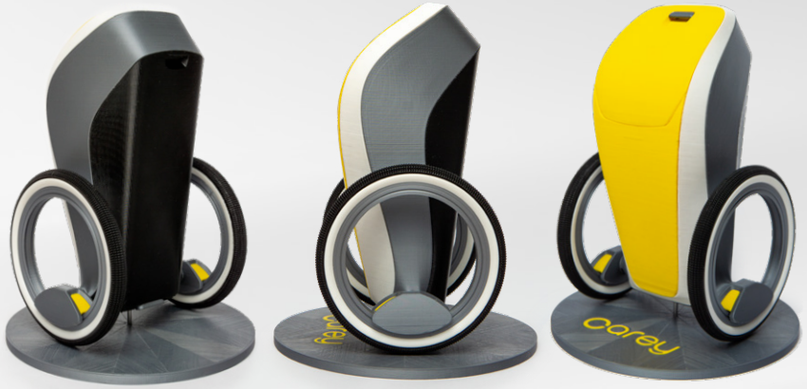



carey

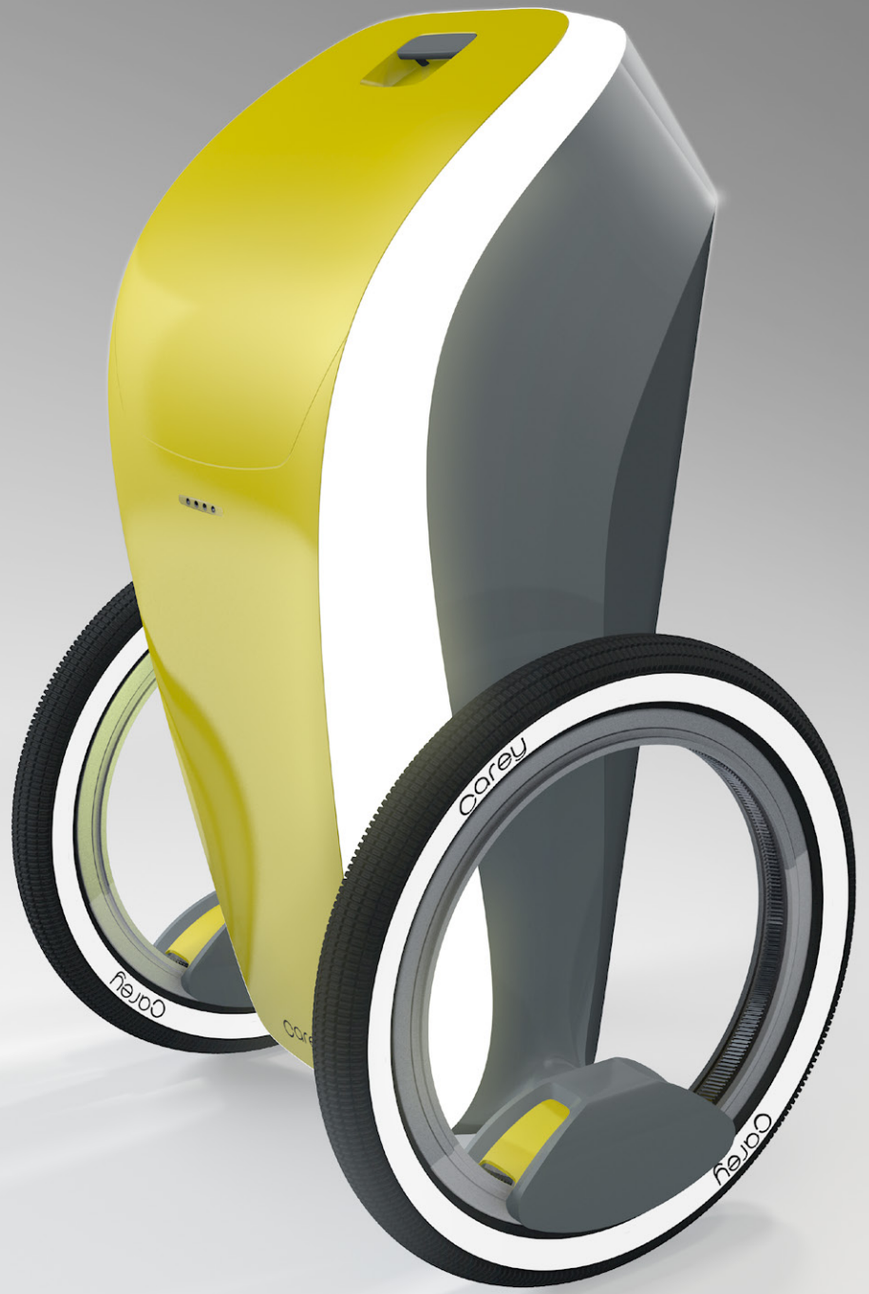

ein bisschen
knackiger.
Täglich
frisch und
discount
günstig!


carey
carey
carey
carey

carey



3D printed model 1:20

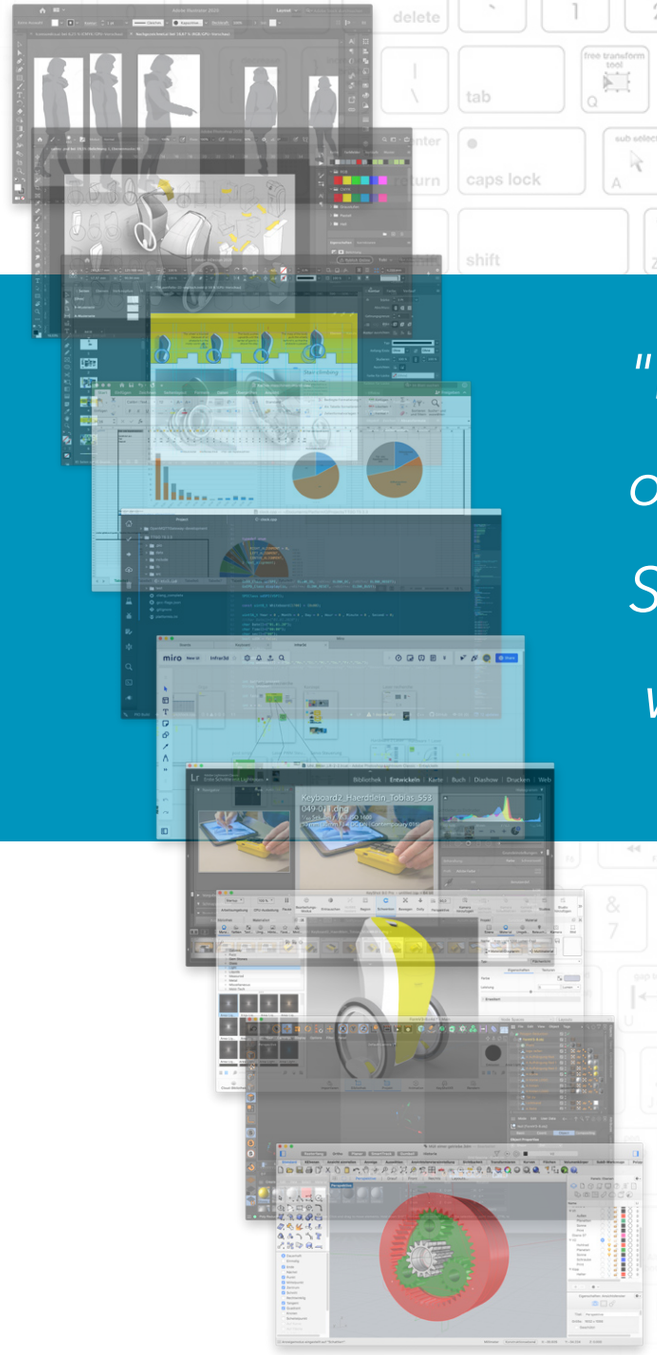


View in AR

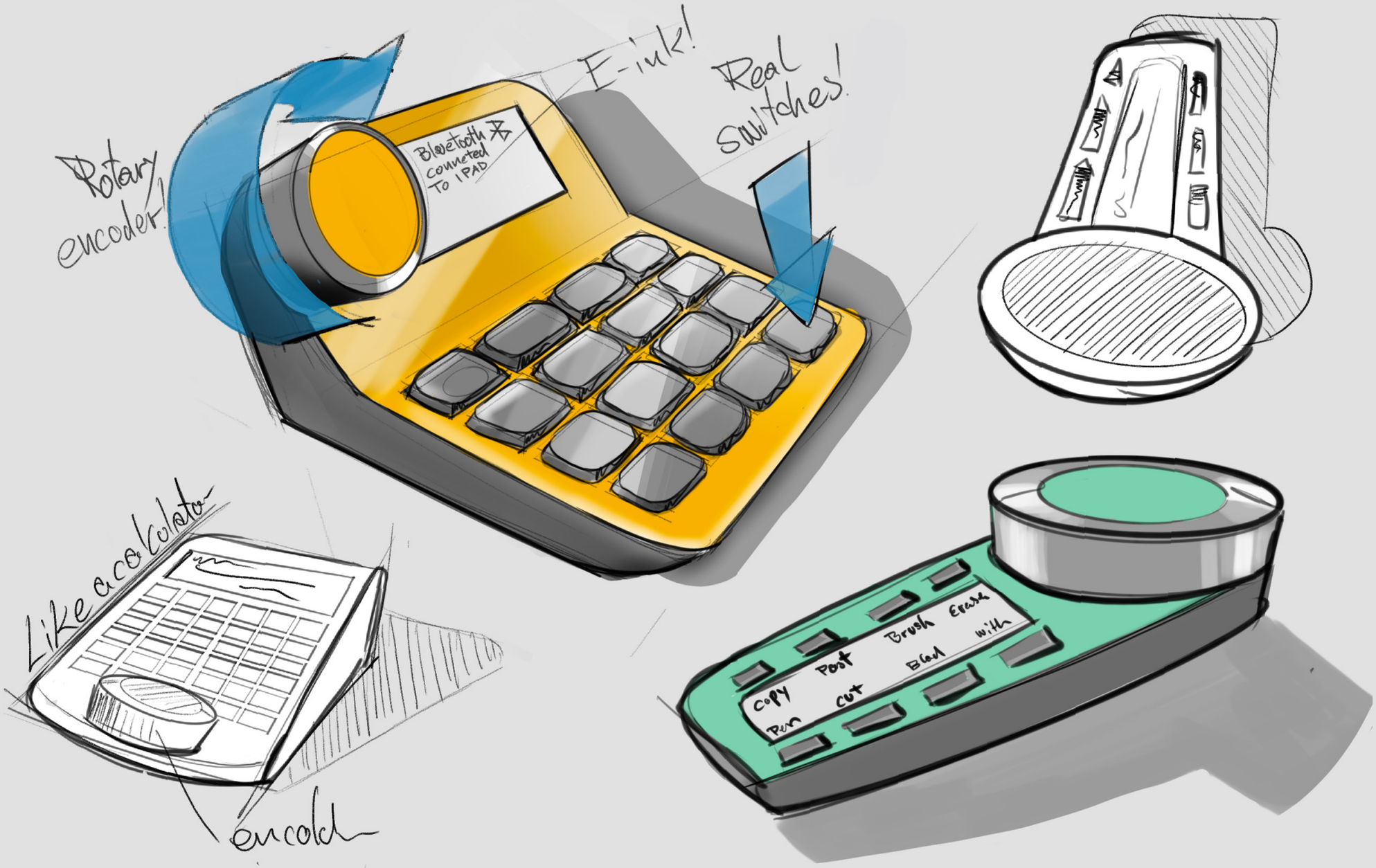
kībōdo

Macro keyboard for every device.

Constructed with: Rhino3D
Rendered with: Cinema4D
Model: 3D Print



"I use at least 10 programs on different devices every day. Shortcuts are indispensable, but who can memorize them all?"

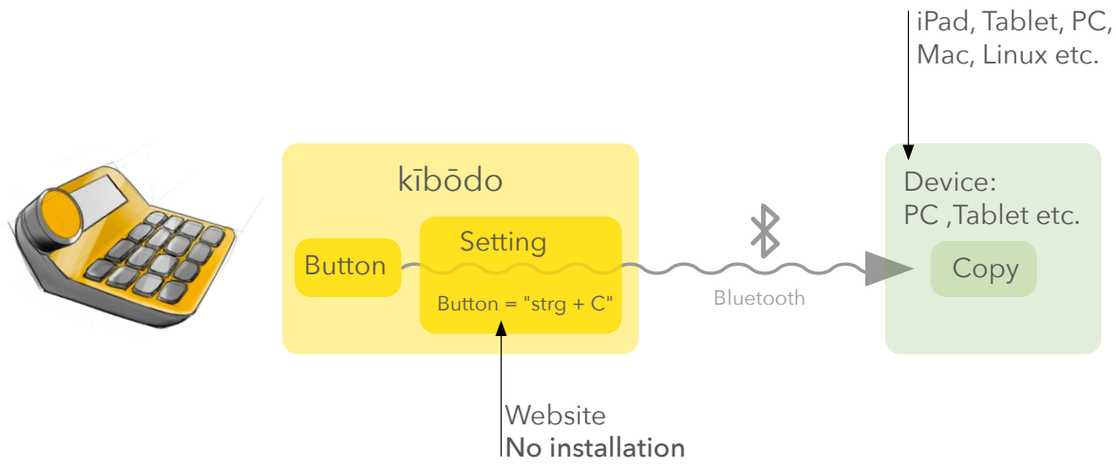

Rotary encoder!
Bluetooth connected To IPAD
E-ink!
Real switches!
Like a calculator
encoder
Brush
Erase
Paint
Blend
with
copy
cut
Pen

Products on the market

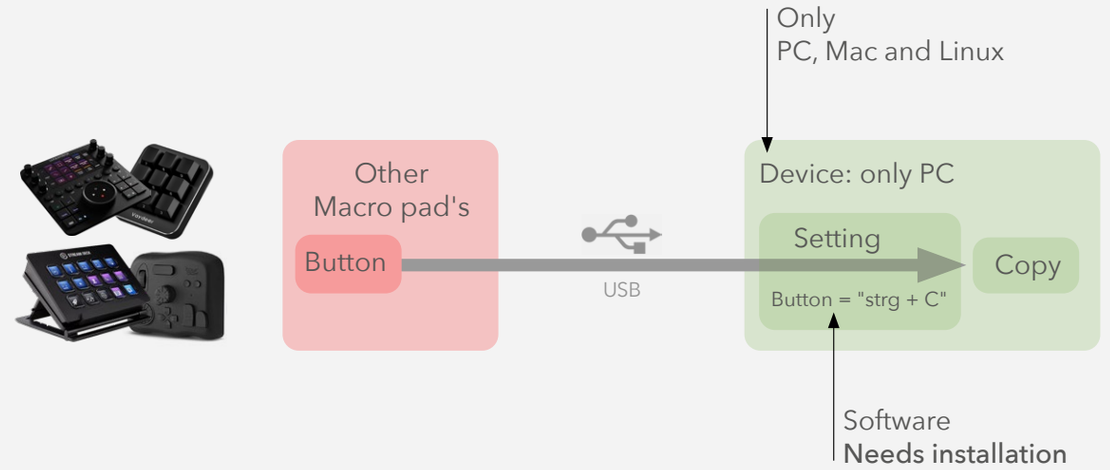
All are for PC/Mac only and need a software to been installed

Name:	TourBox Elite	Elago Stream Deck	LOUPEDECK CT	Vaydeer Onehand Keyboard
Price:	190€	149€	499€	35€
Target group:	Creative	Streaming	Video editing	Generel
Buttons: Rotery Wheel:	14 3	15 0	38 6	9 0
Pro's:	+Bluetooth +multifunctional keys	+Display / Keys	+Display / Touch	+Small
Con's:	- only PC/Mac - Software is needed - No Display	- only PC/Mac - Software is needed - Cable	- only PC/Mac - Software is needed - Cable	- only PC/Mac - Software is needed - Cable

Software concept

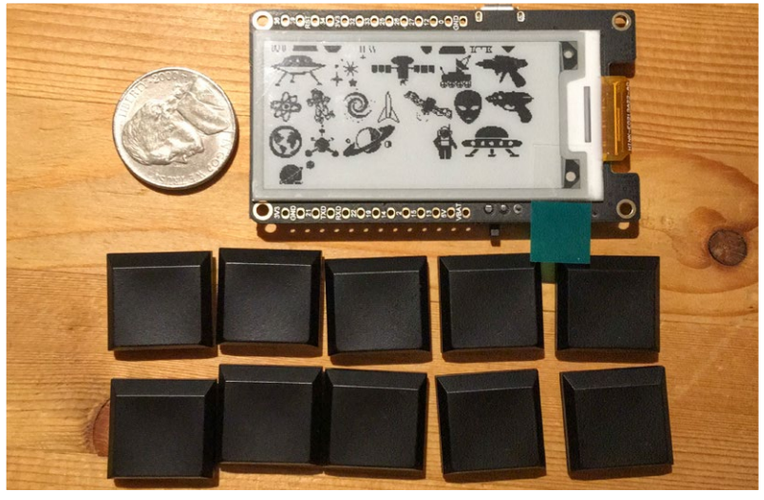


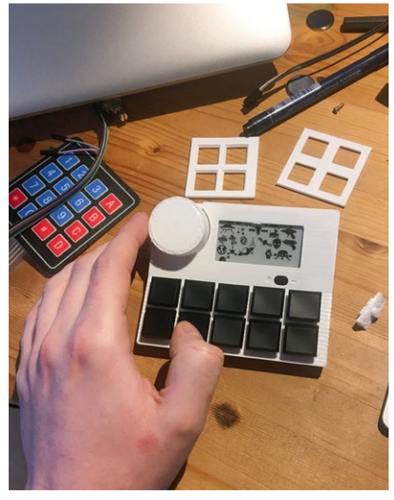
The buttons are assigned on the device, so it also works with an iPad. Each button can be used to simulate a keyboard and mouse input, as well as open files and URLs.



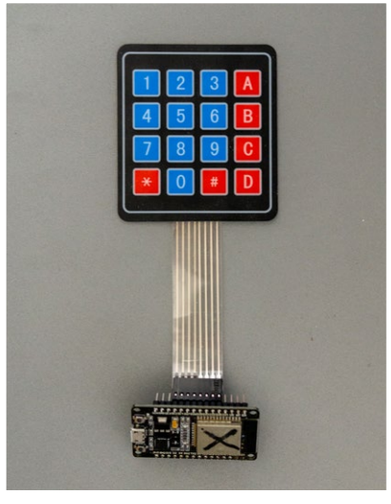
The keys are assigned on the customer's device, which is why it is not compatible with iPads.

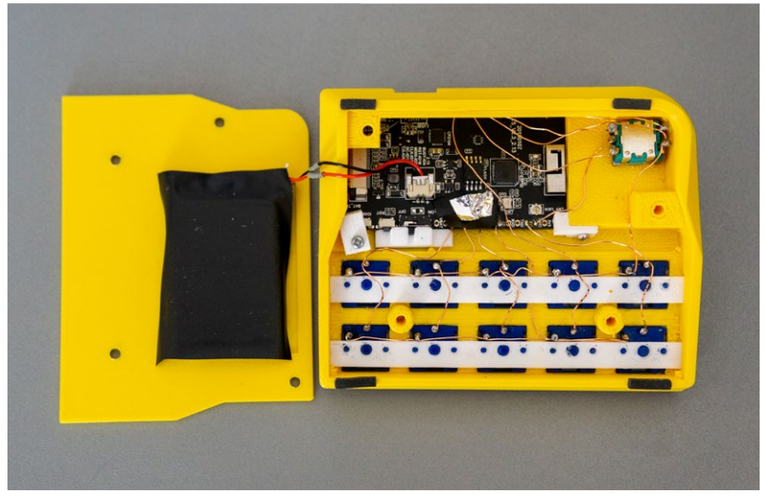
Prototyping



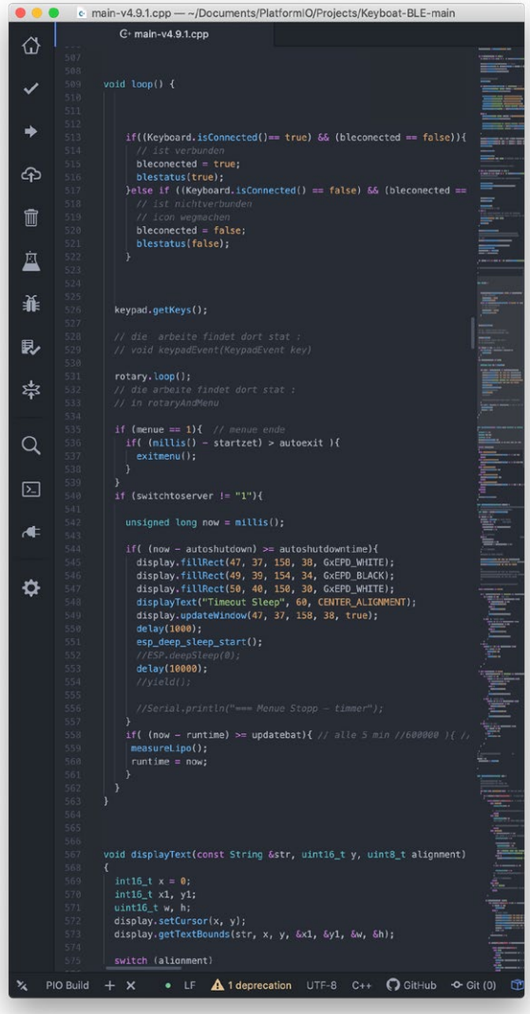


Self built:
including encoder, original key switch, E-ink display and battery in a 3D-printed case





Self coded:
2000 lines of code, including web server and bluetooth HID keyboard and mouse driver.

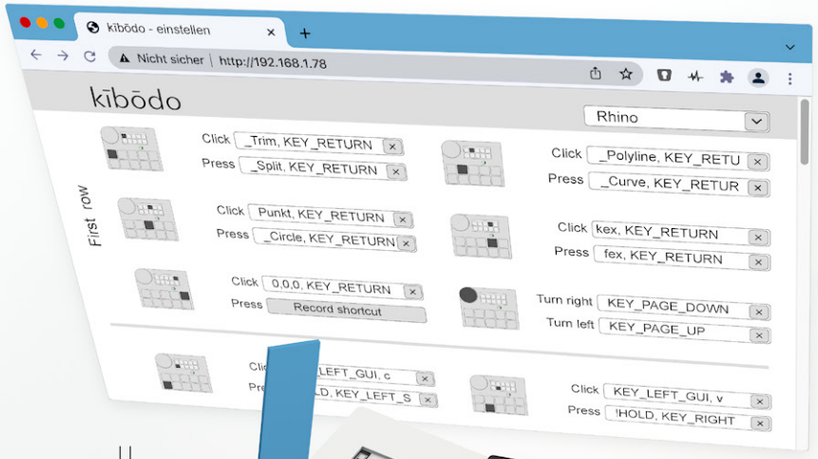


kībōdo

Features:

- Bluetooth keyboard and mouse
- 10 switches: click | long press | hold
- Each button freely assignable
- Rotary wheel with 24 steps per rotation
- 10 programs, settable via web page
- Eye friendly E-ink display
- Custom icons adjustable
- Compatible with PC and mobile
- Auto time out
- >15 days battery life

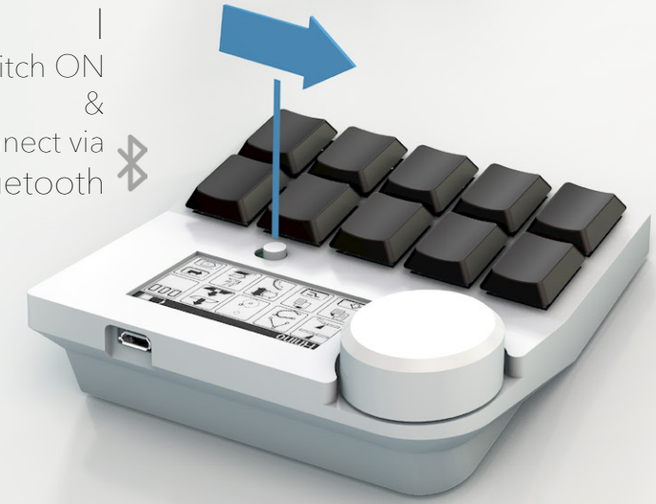
kībōdo



II
Press and hold

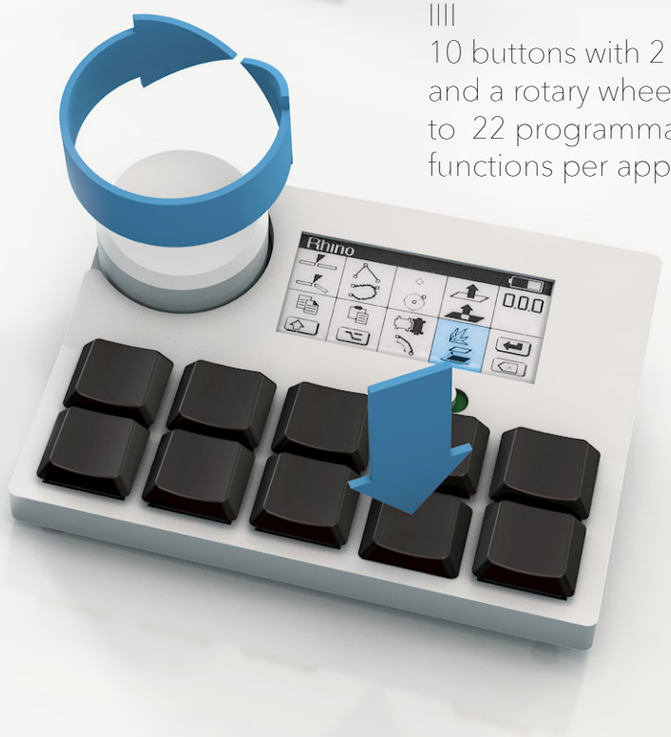
Starts the setting mode.
10 applications are
adjustable in the
website

I
Switch ON
&
Connect via
Bluetooth



III
Press & Turn
to cycle through
the application

IIII
10 buttons with 2 click types
and a rotary wheel allow up
to 22 programmable
functions per application



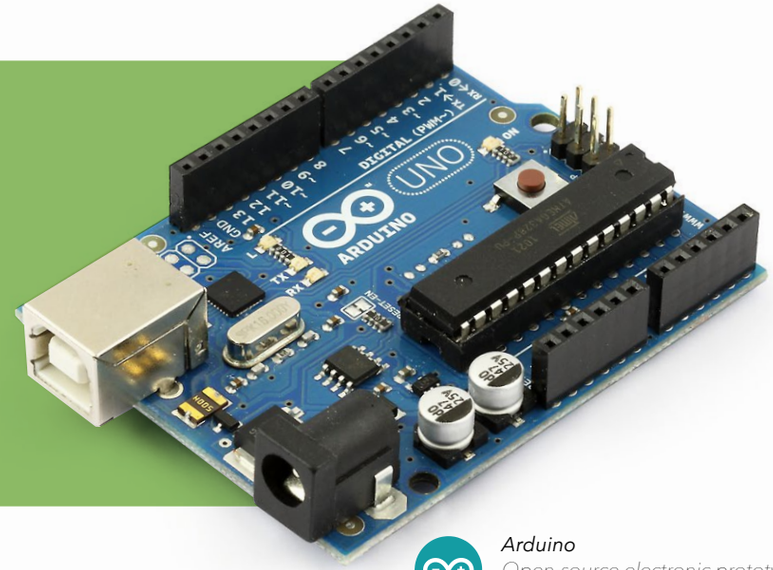
The E-ink display shows
the assignment
of the individual keys


InDesign


InDesign


InDesign

„Lets Make it! - Develop a product of your choice. It should deal with the topic Arduino. A functional prototype is expected"



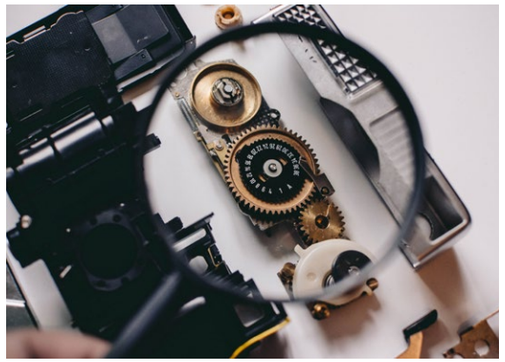
Pingju

Drawing on everything with everything

Constructed with: Rhino3D
Rendered with: Cinema4d
Model: 3D Print
Size folded: 14x55x14 cm, unfolded : 55x55x14 cm
Work area: 30x30 cm

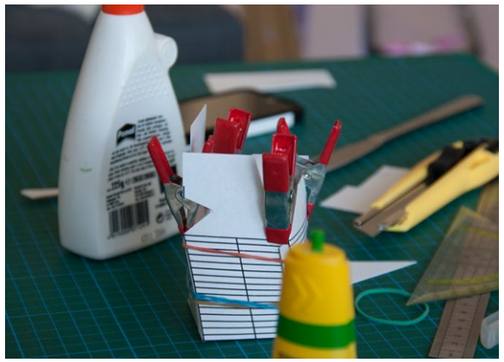
Arduino
Open-source electronic prototyping platform enabling users to create interactive electronic objects

I would like to make something with...

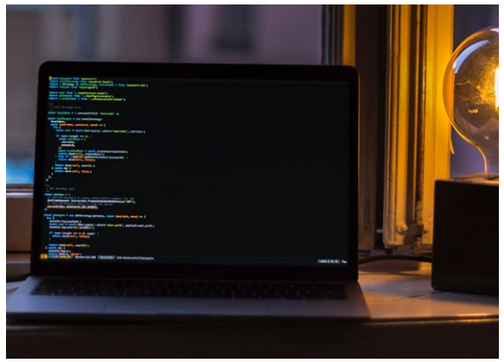


Mechanics

CNC Axis Technology



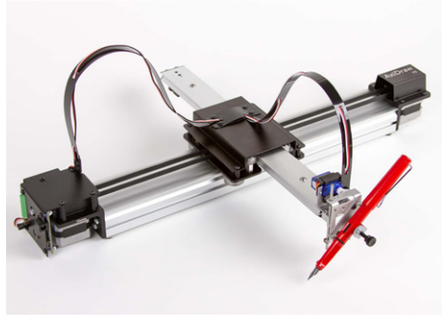
Model Making



Coding

... that supports me on my daily work. ... *that draws with everything on everything.*

Axidraw

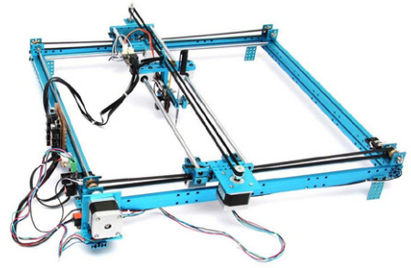


- ✔ Cool axes construction
- ✖ Big
- ✖ Software not userfriendly
- ✔ Every material
- ✖ Looks so technical

Hobby Plotter

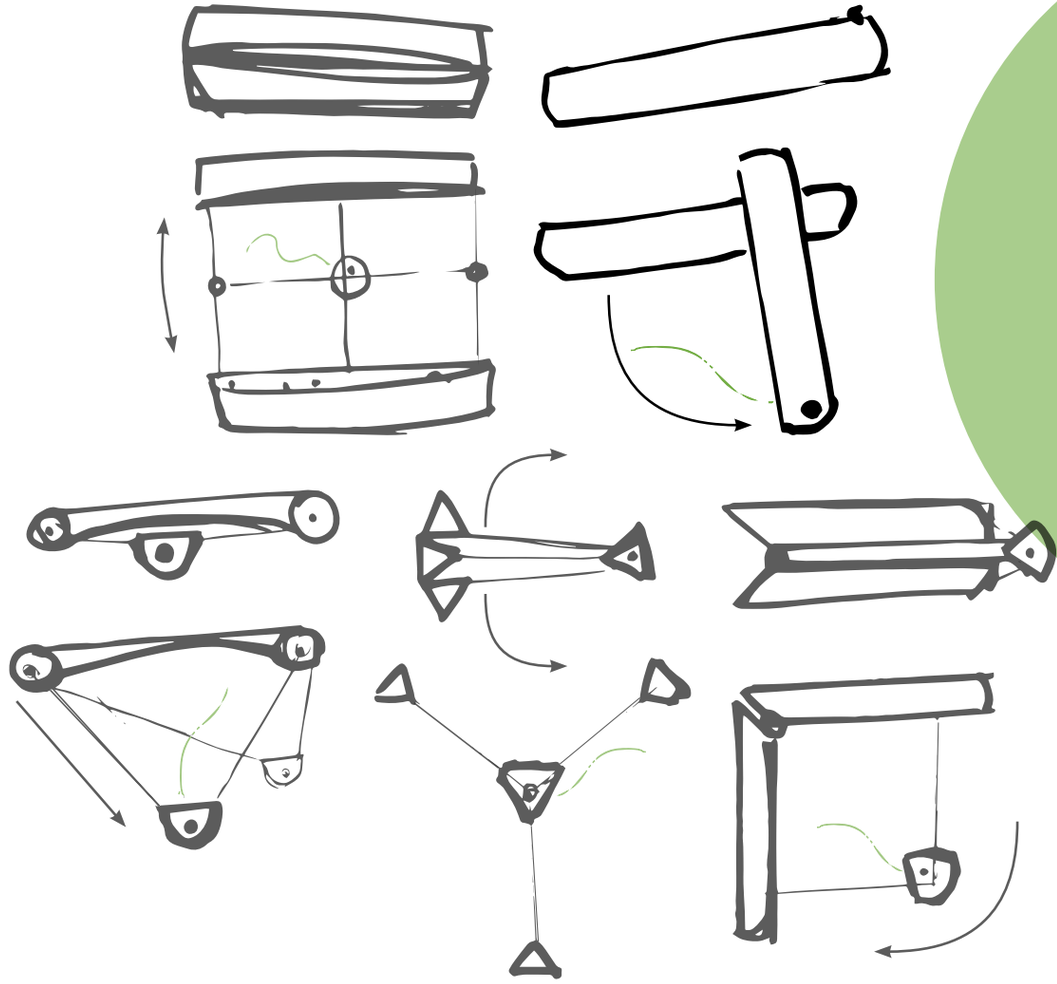
- ✖ Special software
- ✖ Special materials
- ✖ Just cuts

Penplotter



- ✖ Big
- ✖ Software not userfriendly
- ✖ Looks so technical
- ✔ Every material

- Reduce size
- Design
- Multiple tool holder
- Controlled via webinterface

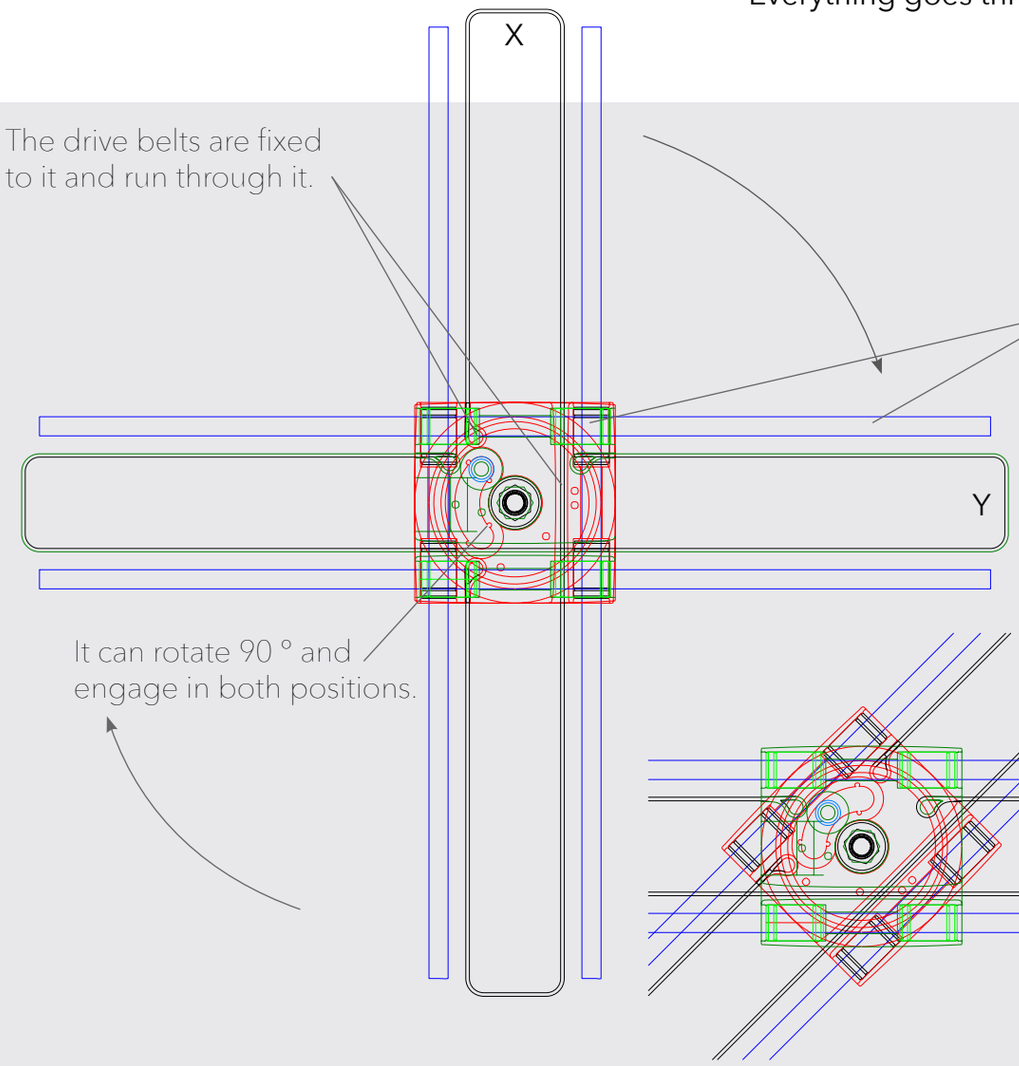


Reduce size

Design

The center of the machine is the heart.

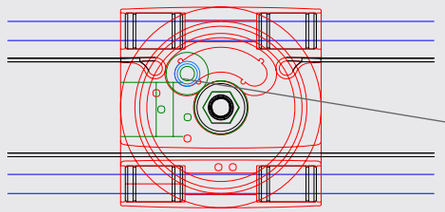
Everything goes through it.

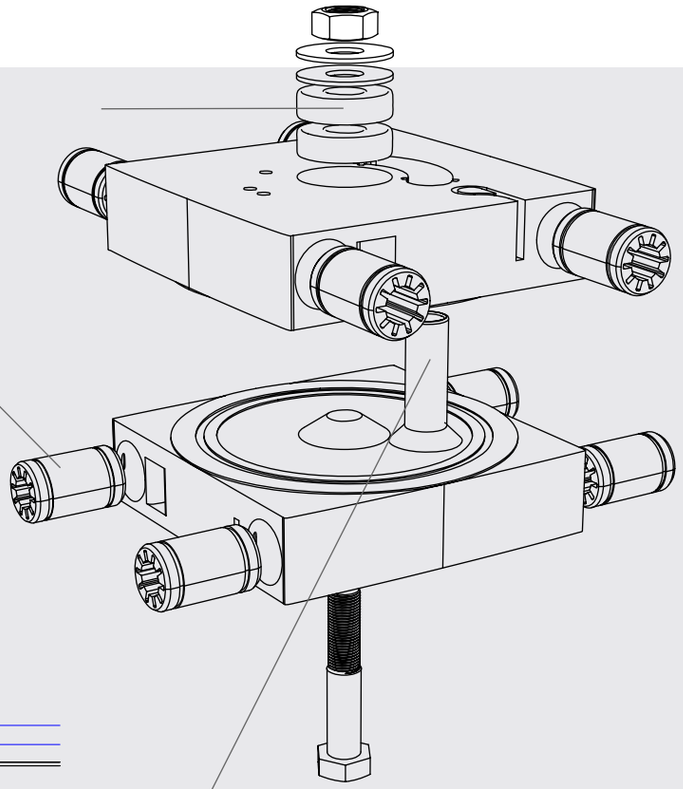


The drive belts are fixed to it and run through it.

It is the connection between the two axes (X,Y). It also slides on them.

It can rotate 90 ° and engage in both positions.

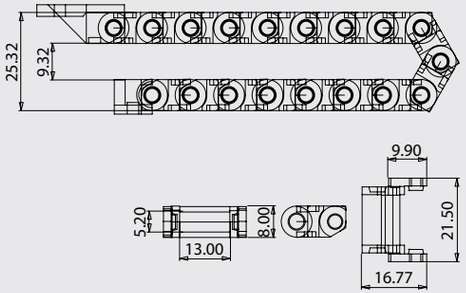




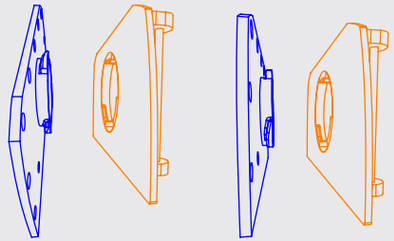
It is stored by ball bearings.

Eight cables run through it.

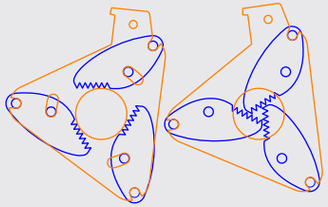
Parts that were made
To enable working design



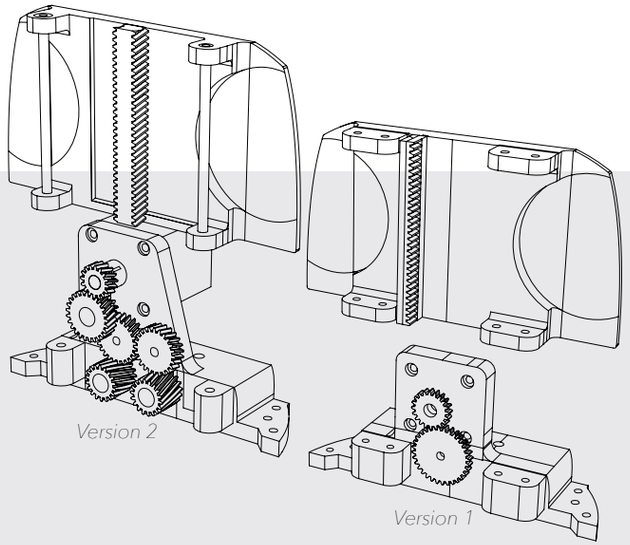
A completely new energy chain has been designed that only bends over 3 limbs and exactly meets the conditions. 4 versions were tested.



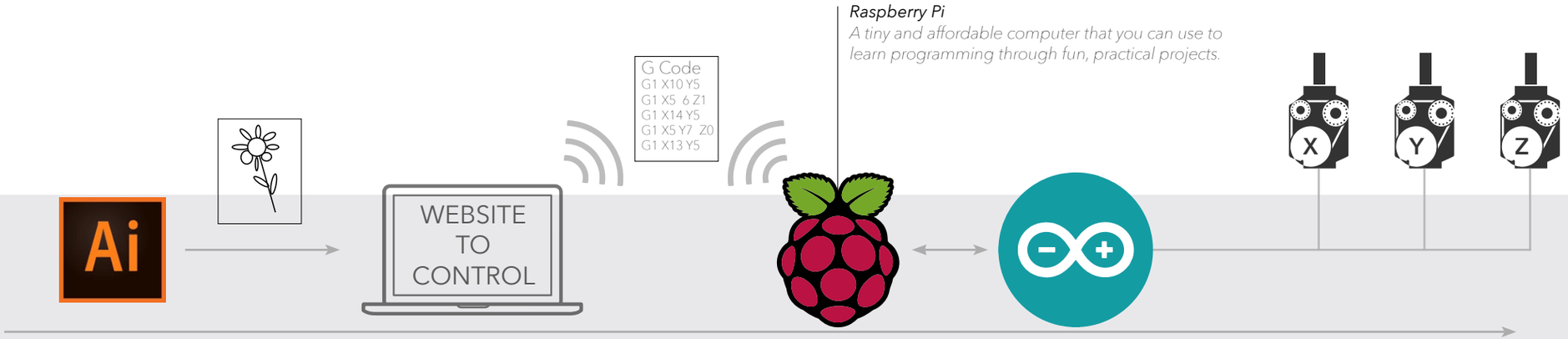
A bayonet catch that allows not only the current head to use. 3D printing exdruder cutting or milling heads are conceivable and in planning.

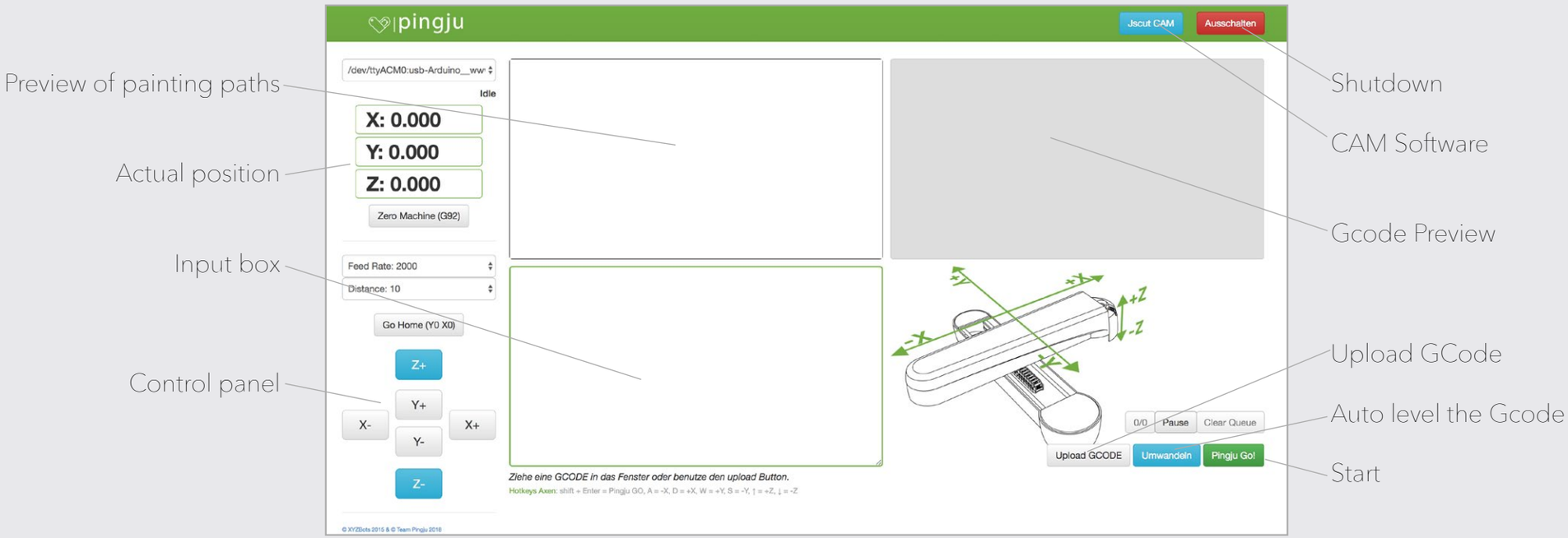


The current head has a rosette closure which ensures that the tool is always centered.



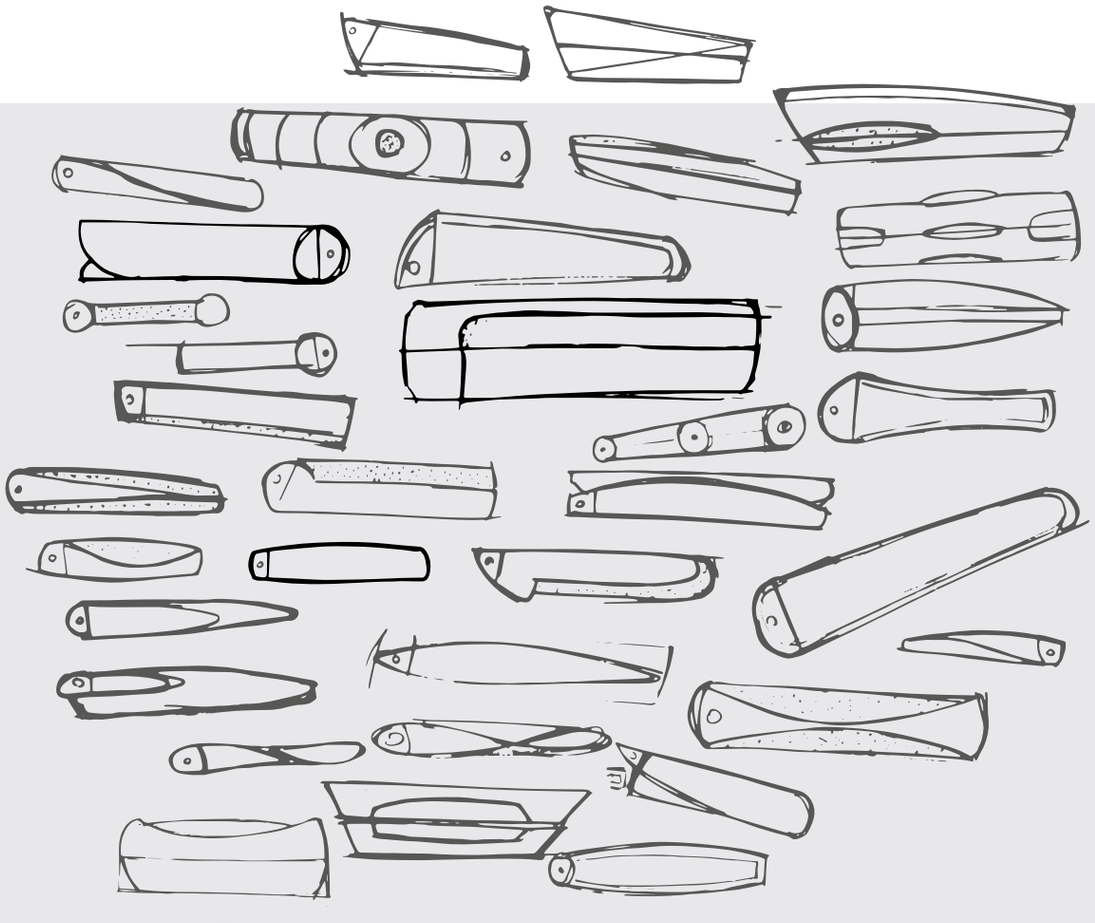
The Z axis was completely reworked 2 times. The version 1 was not functional. Version 2 has helical gear and is lifted by doppet rack gears to make it quieter. A 2: 1 transmission was developed.

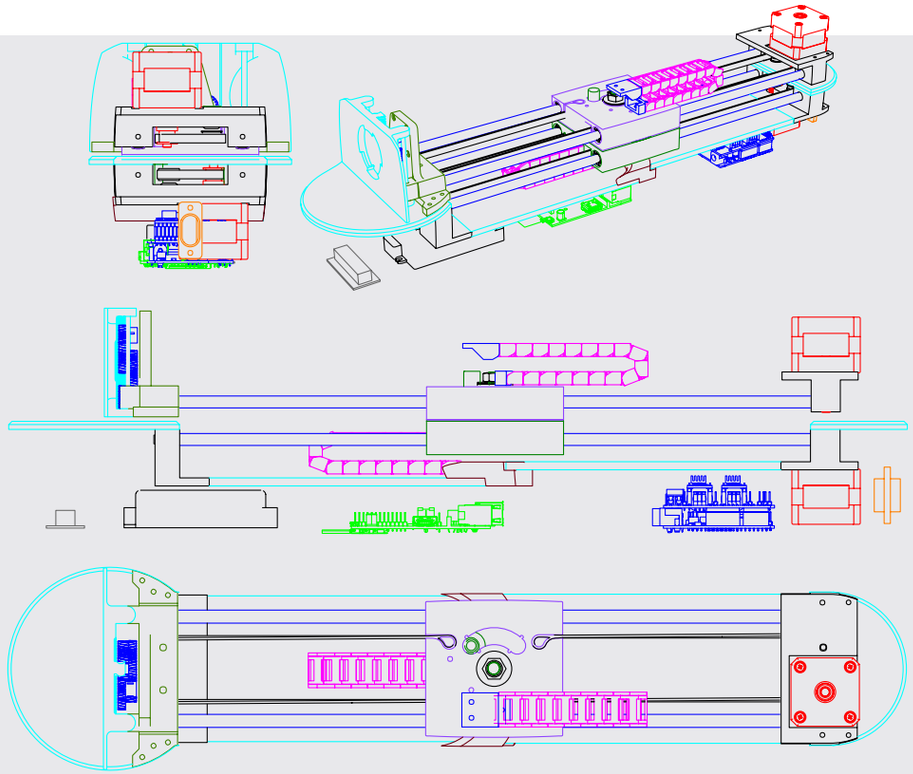


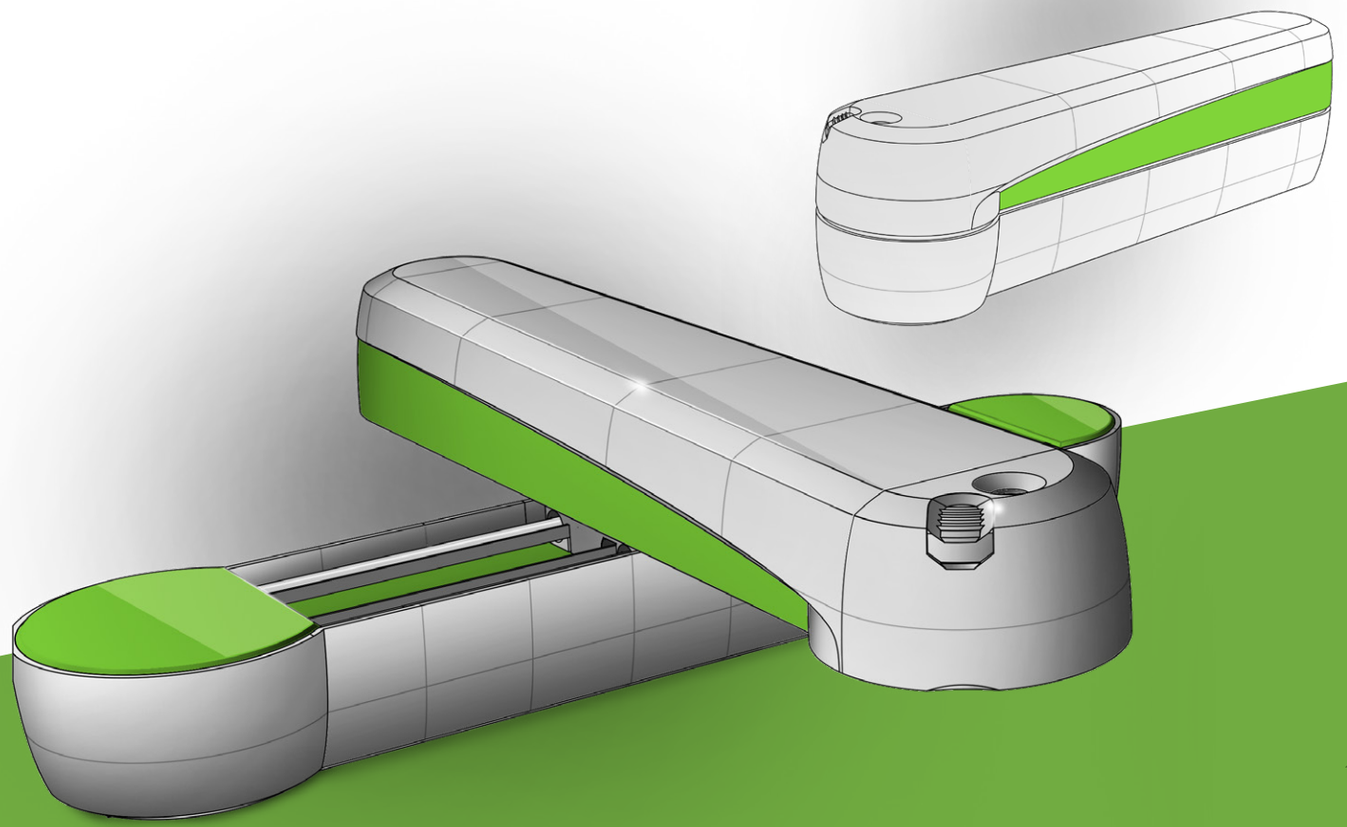


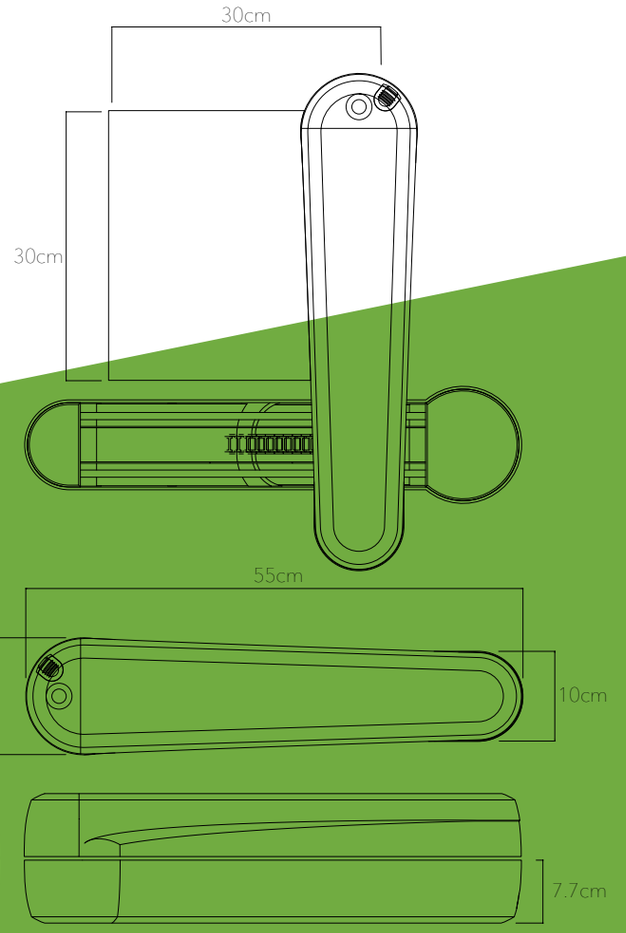
Software

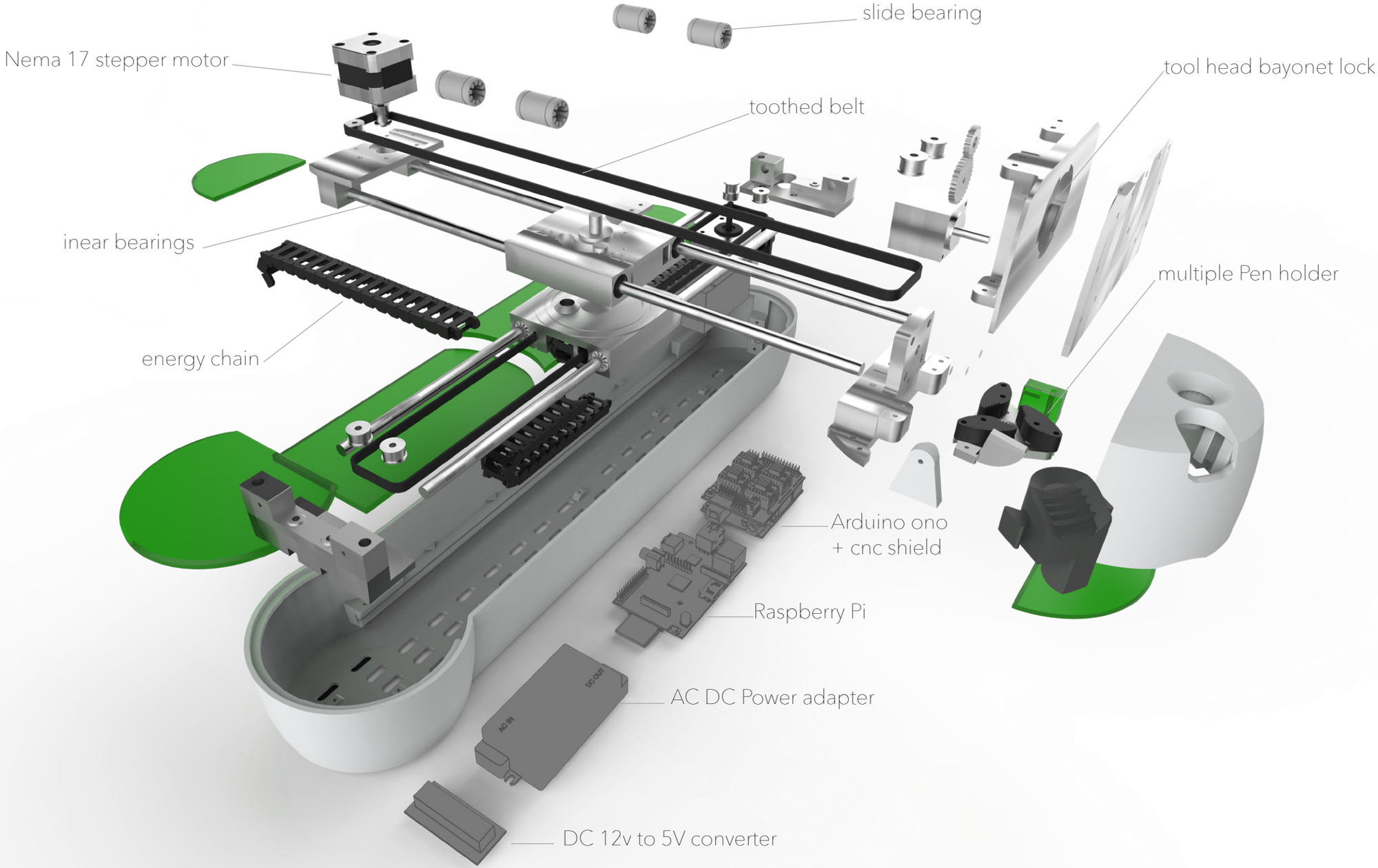
The control of the machine is based on GRBL.
The web interface is based on web-Grbl.
The autolevel function has been completed and implemented.

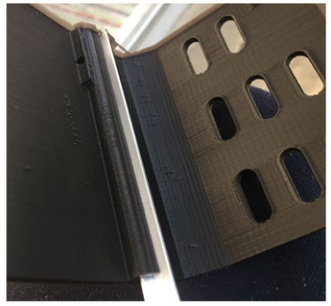
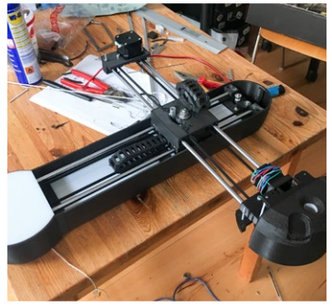






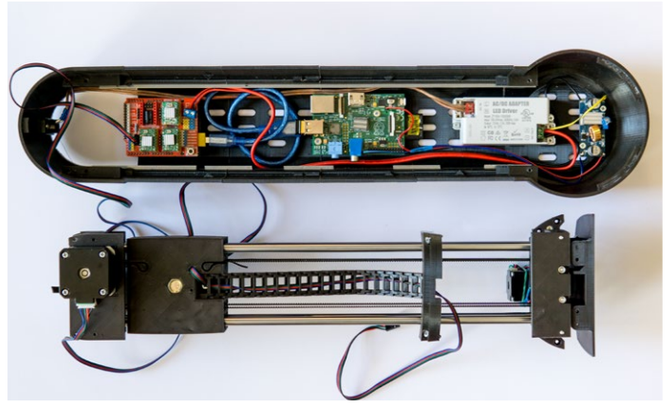

30cm
30cm
55cm
13cm
10cm
14.4cm
7.7cm

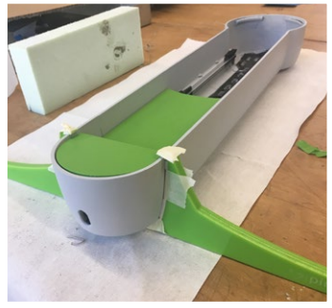

slide bearing
Nema 17 stepper motor
toothed belt
tool head bayonet lock
inear bearings
multiple Pen holder
energy chain
Arduino ono
+ cnc shield
Raspberry Pi
AC DC Power adapter
DC 12v to 5V converter

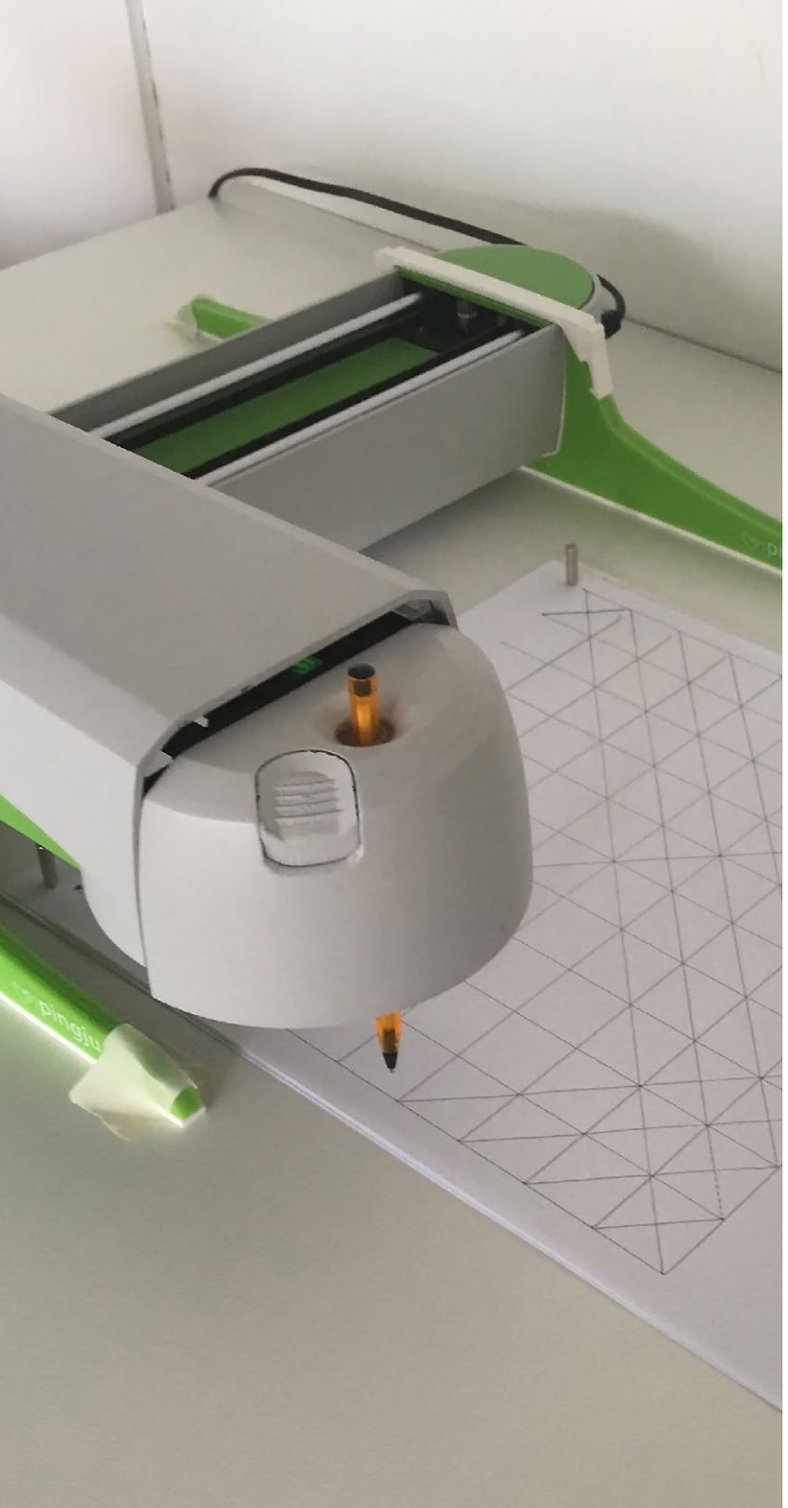




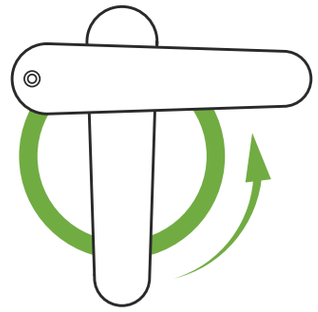


Unicraft



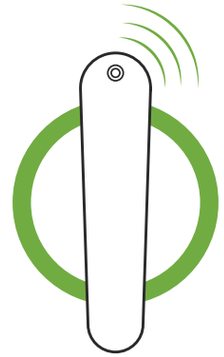






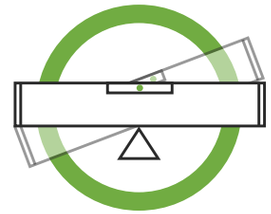
foldable

Pingju is foldable due to an ingenious hinge. This makes it transportable and at the same time it achieves a very large radius of action of 30x30 cm.



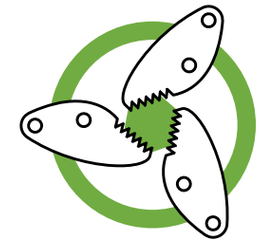
wireless controlling

Pingju is controlled via a web interface. One connects to the "Pingju WIFI" and can then control it conveniently. This gives the user maximum flexibility.



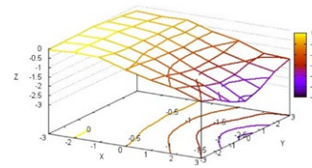
autoleveling function

Since Pingju behaves like a seesaw, the most elegant thing to do was to implement an auto level function. Now it interpolates the Gcode on the basis of a previously measured matrix.

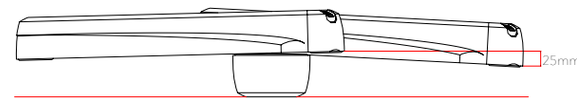


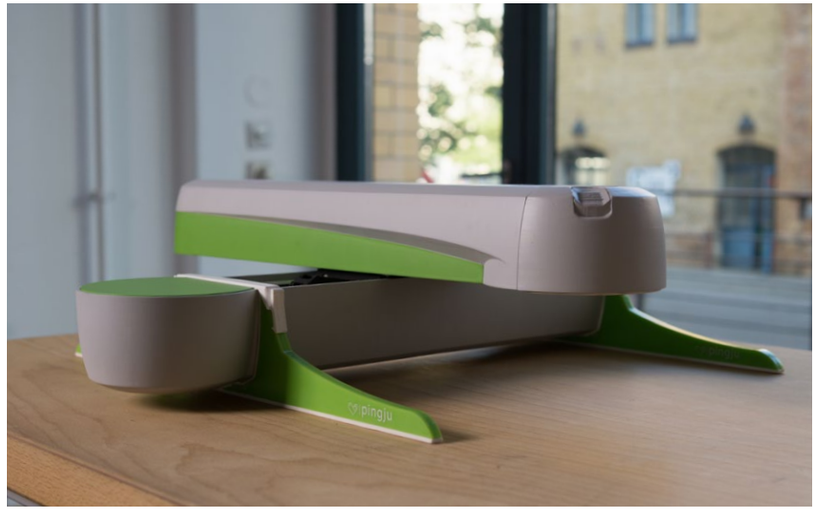
multitool

Whether with a ballpoint pen or sharpie, whether on paper or glass. Pingju draws, paints or writes on anything. This is achieved through sophisticated mechanics and precise construction.



Describes how far the head lowers to the work surface.





pingju

A foldable plotter that can hold a variety of tools. Pens, cutting and 3D printing heads can be attached. This creates a mobile all-in-one office device. It is controlled via an intuitive web interface, so that the workflow is easy and no prior knowledge is required. Operation as easy as with a printer, only that everything can be "printed".

Constructed with: Rhino3D

Rendered with: Cinema4d

Model: 3D Print

Size folded: 14x55x14 cm, unfolded : 55x55x14cm

Work area: 30x30 cm

vimeo.com/ 292603947

Each of my projects
has a story that
I like to tell!

tobi@haerdtlein.team
+49 178 14 8624 0
haerdtlein.team