PORTFOLIO

SO FAR...

KARLO BOCKAJ

Hand sketching
Digital sketching and rendering in Photoshop
Surface modelling, animation and rendering in Blender

Eindhoven University of Technology
Industrial design (2021-2024)

ENGLISH

CROATIAN

GERMAN A2

Lead Designer - Tu/ecomotive

Leading a team of designers and coordinating with other engineering modules, concept development owner, styling, surface modelling, rendering and animation, concept development, project management and a ton of other things.

Transportation design intern - MODYN

Designing lots of things with wheels and a whole lot of learning

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ME AT 3 YEARS OLD

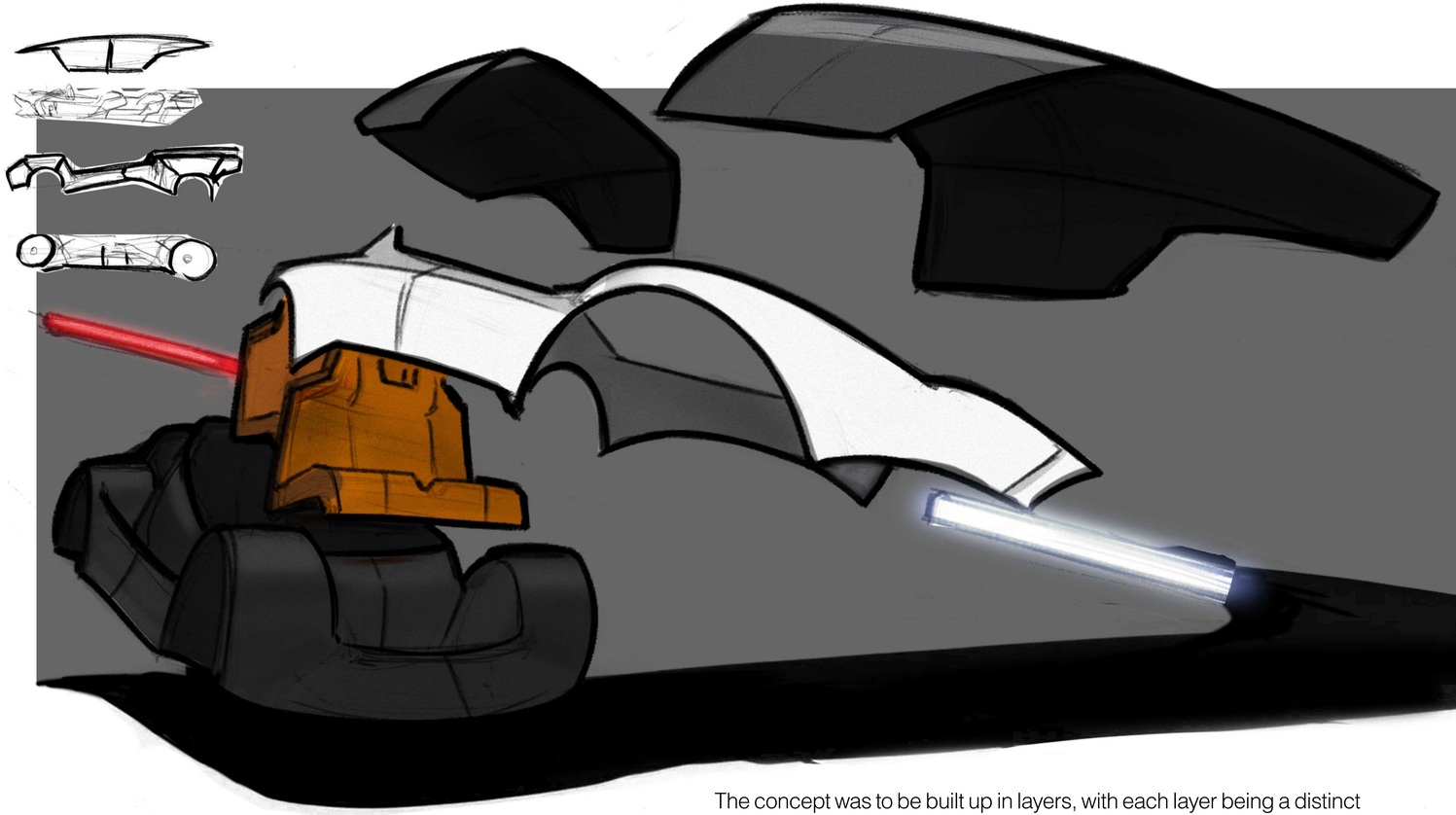
ME AT 21 YEARS OLD

01. PHOENIX

Overall design team leadership of TU/ecomotive, a multidisciplinary student team. We had 10 Months to imagine, design and build a sustainable concept car to inspire the automotive industry, following the guiding principles of a mono material approach and design for disassembly.

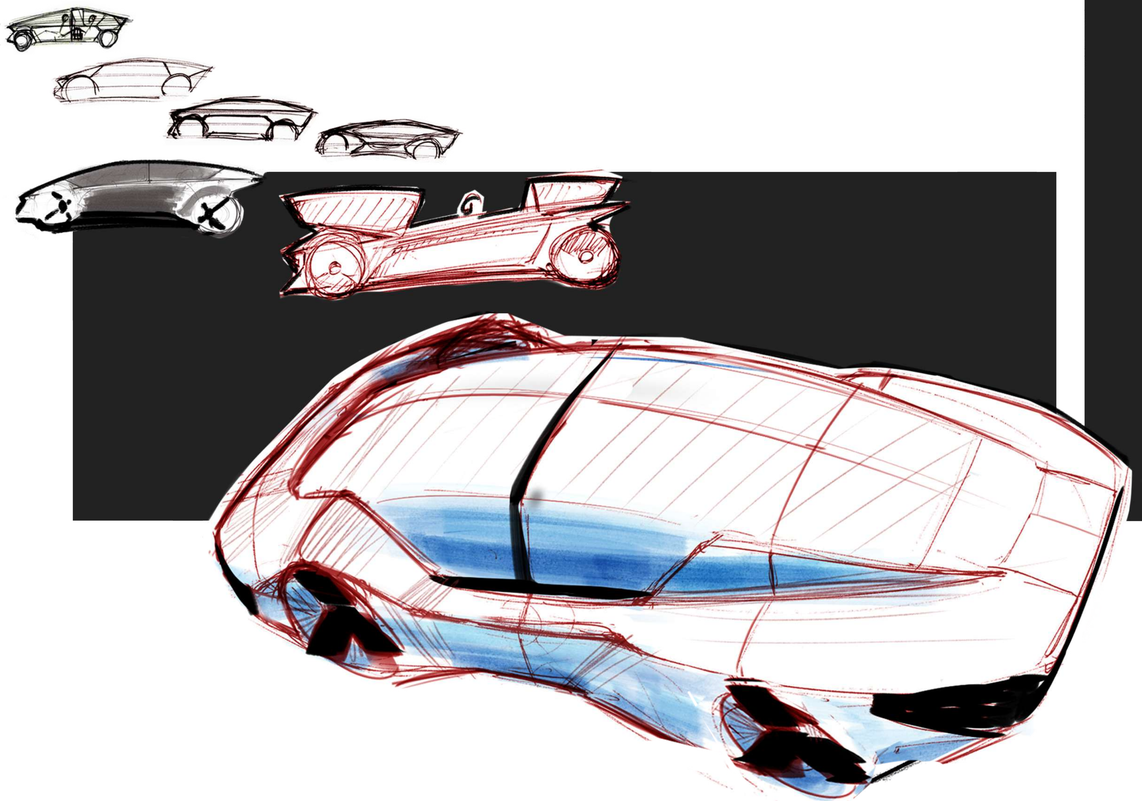
CONCEPT

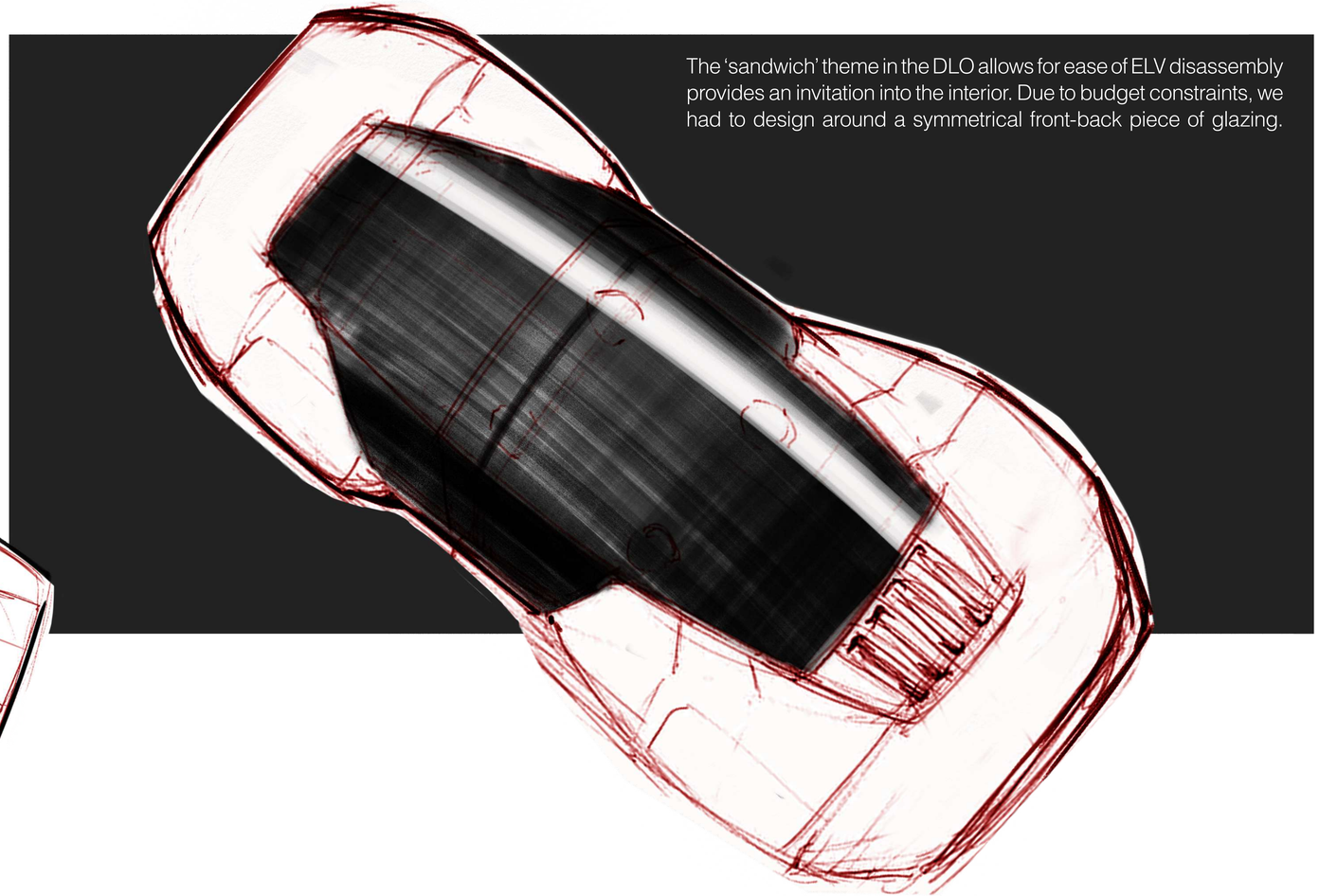
The theme we focused on was a clear seperation of materials and expressiohns, using minimal resources and closing the loop on recycling.



The concept was to be built up in layers, with each layer being a distinct material and a recycling method, and allowing for ELV disassembly.

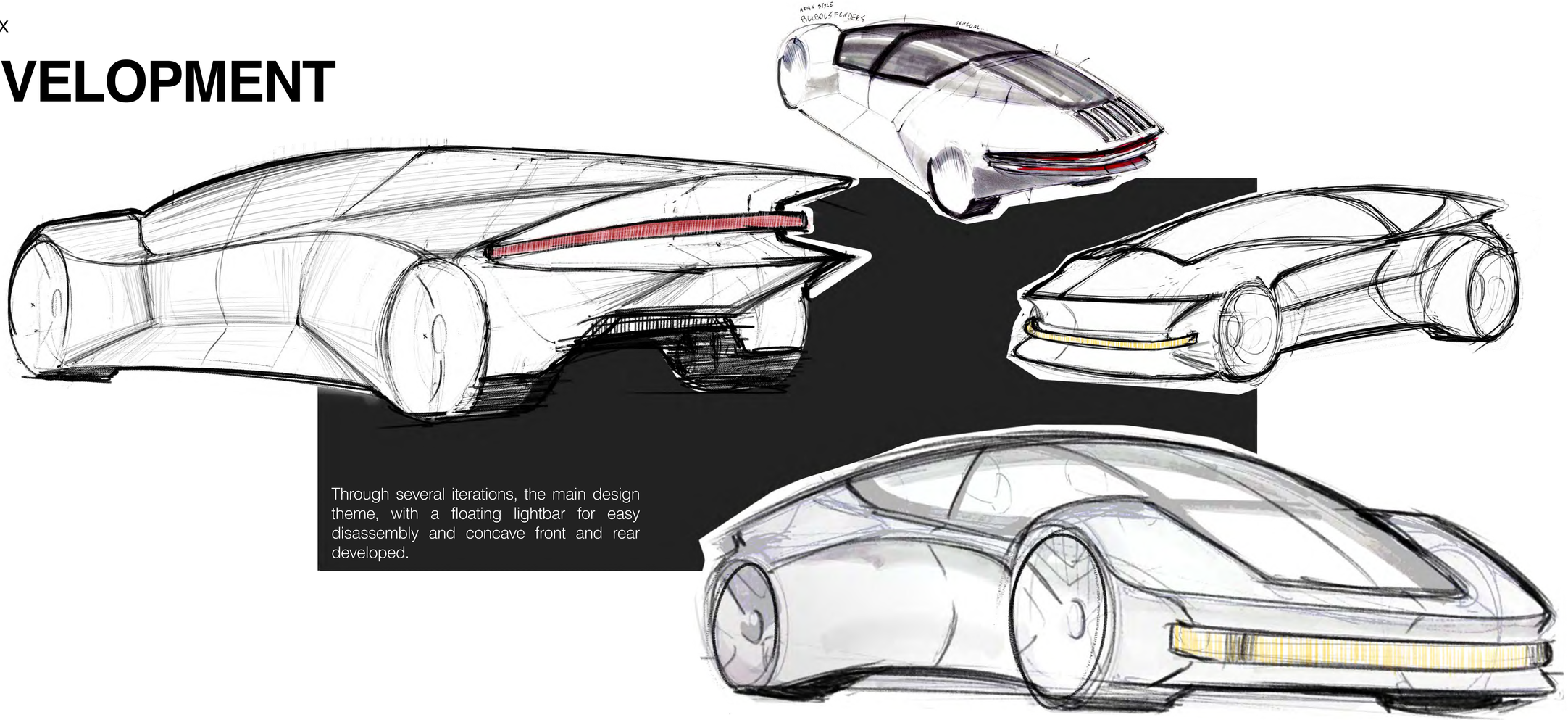
IDEATION





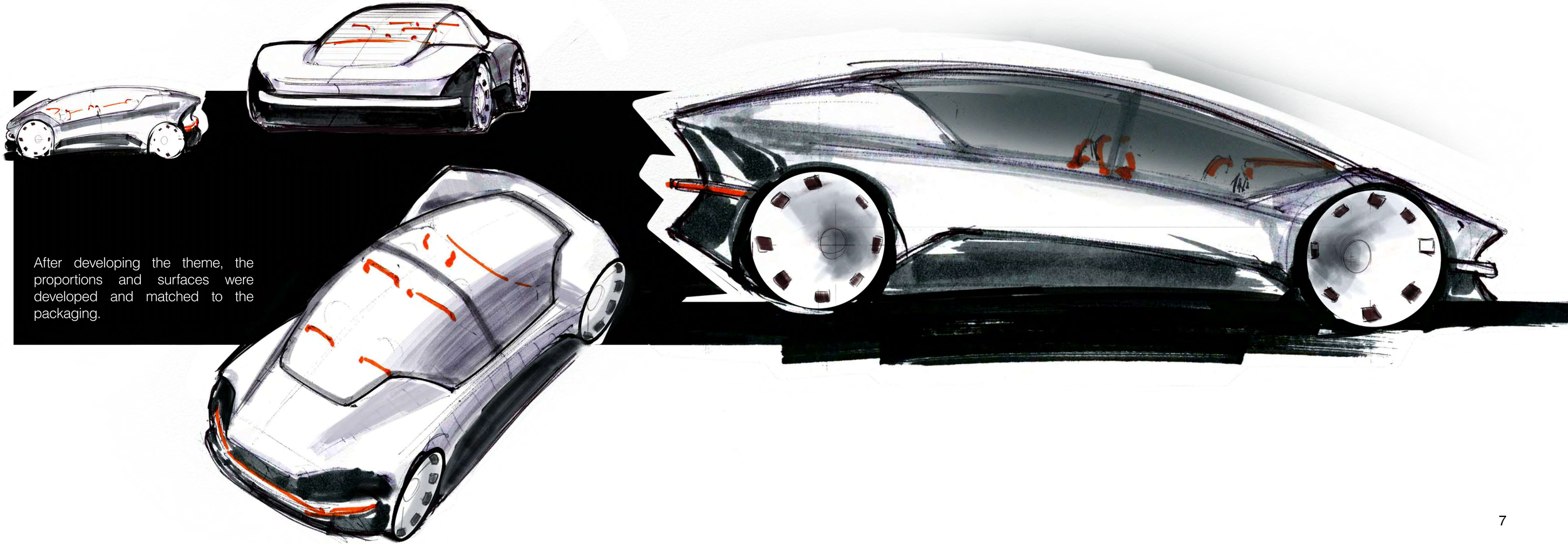
The 'sandwich' theme in the DLO allows for ease of ELV disassembly provides an invitation into the interior. Due to budget constraints, we had to design around a symmetrical front-back piece of glazing.

DEVELOPMENT



Through several iterations, the main design theme, with a floating lightbar for easy disassembly and concave front and rear developed.

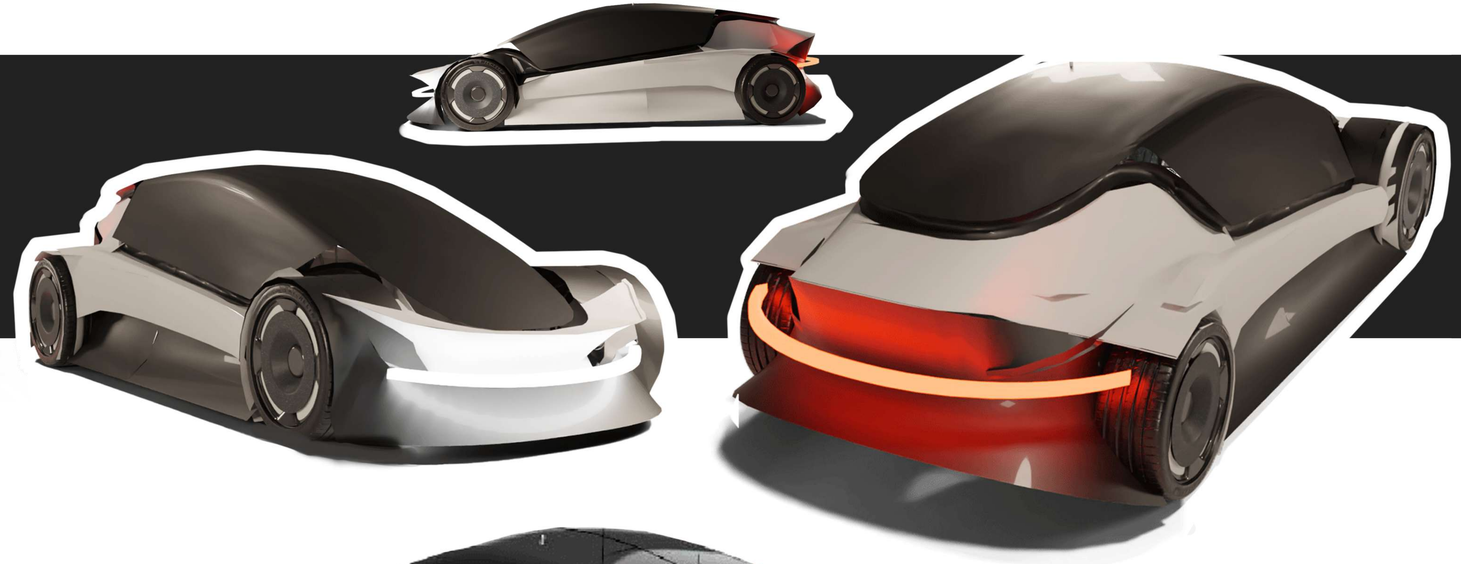
FINAL DESIGN

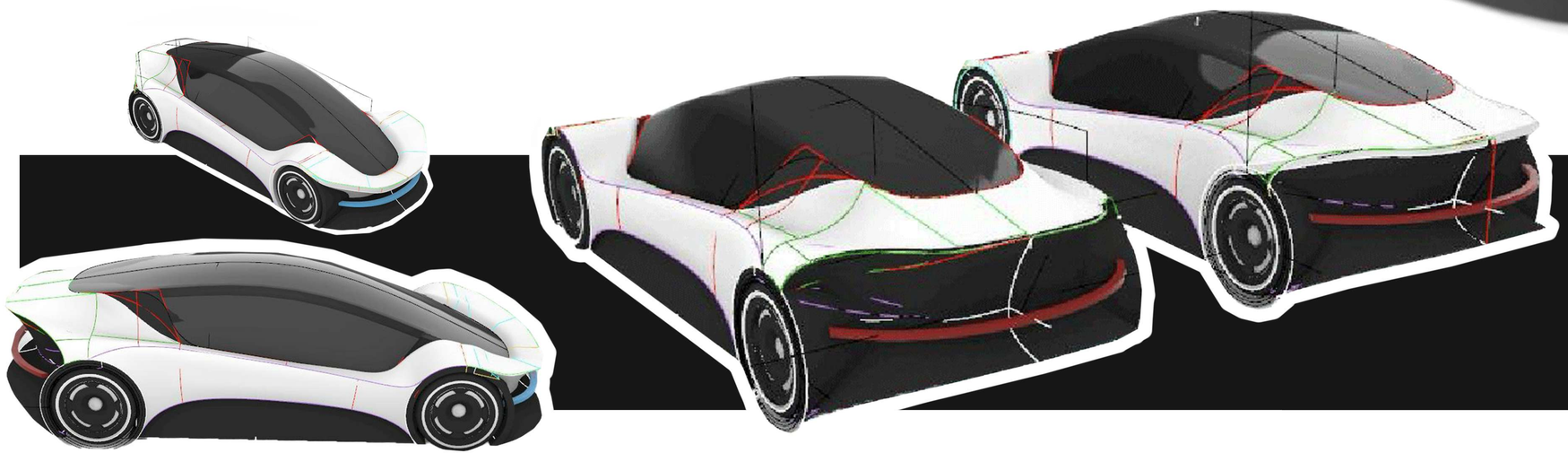


After developing the theme, the proportions and surfaces were developed and matched to the packaging.

EXPLORATION

We developed the surfaces and proportions in part in 3D, using Blender, to combine the packaging of mechanical components and the body.

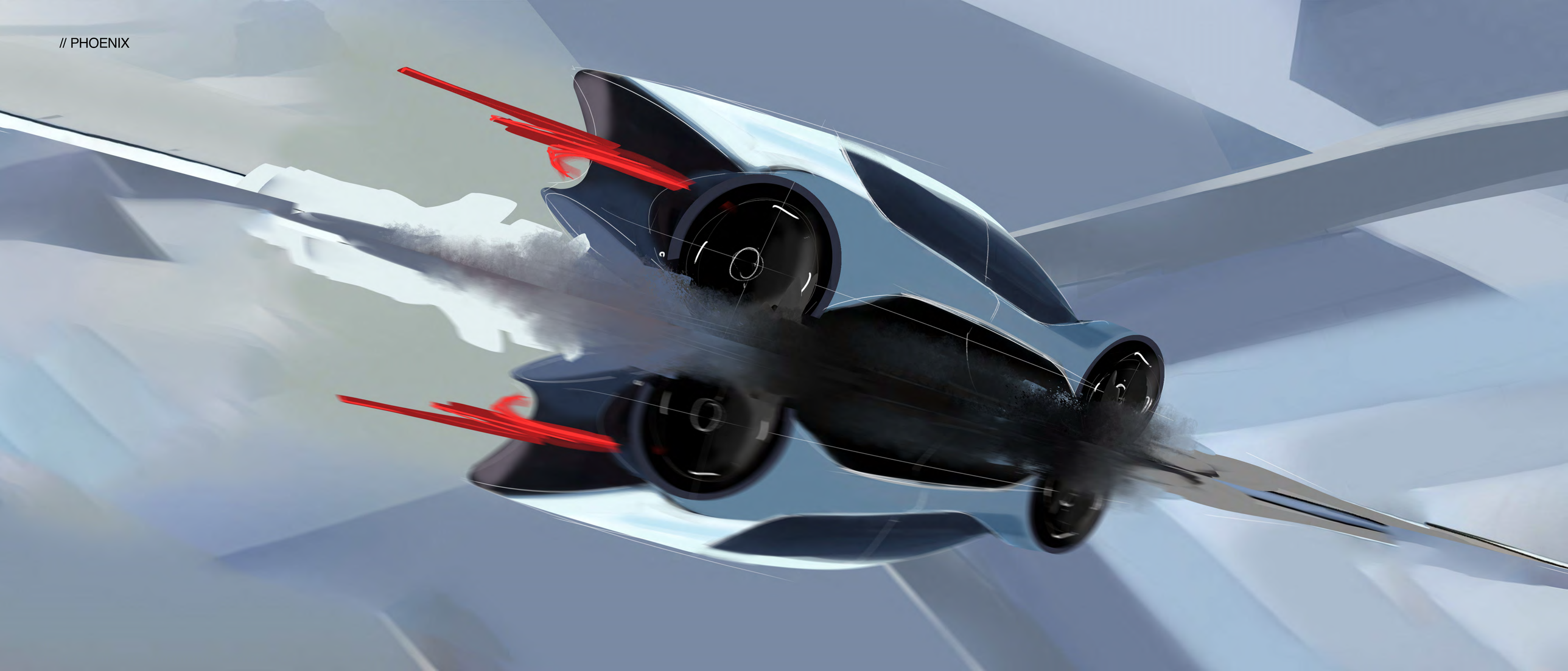




REFINING

With the proportions and theme finalized and checked, we developed the surfaces in 3D over several iterations.

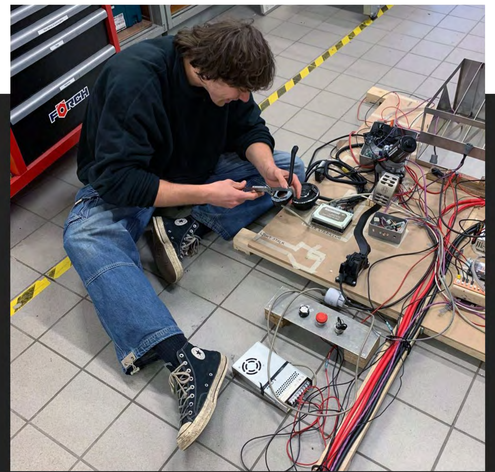
// PHOENIX



PRODUCTION

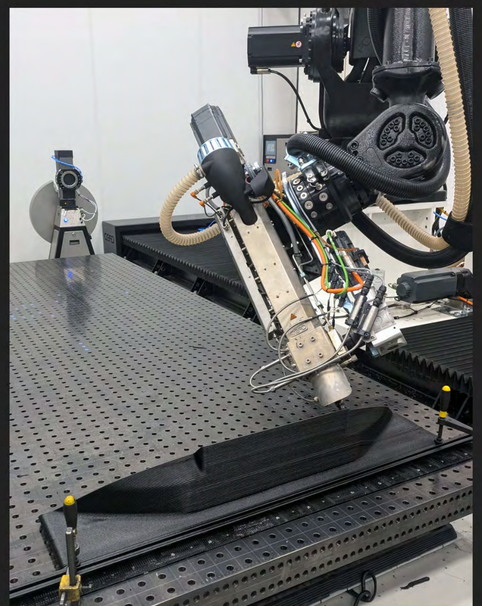
Of course we had to build the thing!

Testing the packaging, ingress and egress.



Interior trim components.

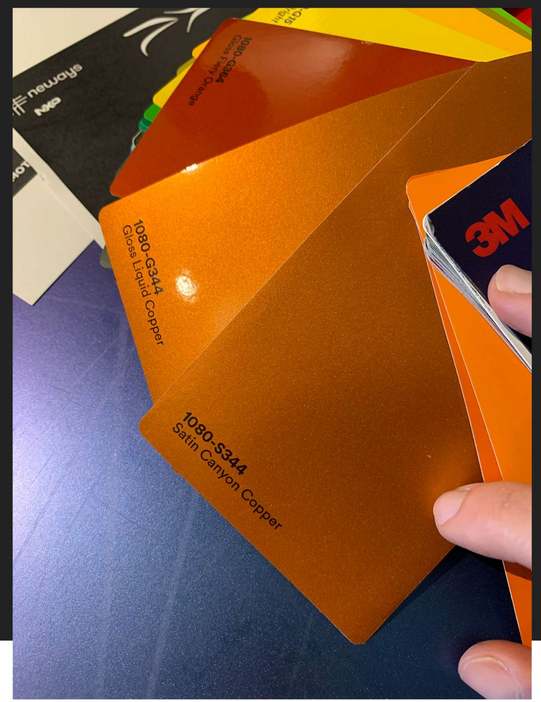
Large scale 3D Printing.



And mechanical assembly...

Processing the 3D printed and vacuumformed panels , fitting and fixing.

Color, Material and Finish



Wrapping in a time crunch

PRESENTATION

See the reveal teaser I made

The power of design

Many thanks, TU/ecomotive and my mentor, Geert Jan Schellekens.

TOUR

During our European grand tour, we visited shows, universities, events and vehicle manufacturers, with highlights at the Dutch Design Week and Volvo.

This makes it all worth it.

The next adventure awaits...

02. MOTOSCOPE

Internship project done at **MODYN**, a dutch mobility design agency. Imagining a new breed of highway commuting with increased protection and convenience.

CONCEPTING

To structure my process, I chose to follow the Vision in Product design (VIP) process. I went on to analyze the design space, structure the context and define the interaction values I want the final product to represent,and give meaning to the project beyond just another motorcycle a sort of ‘raison d’être’.

1. FUTURE CONTEXT

Establishing the domain

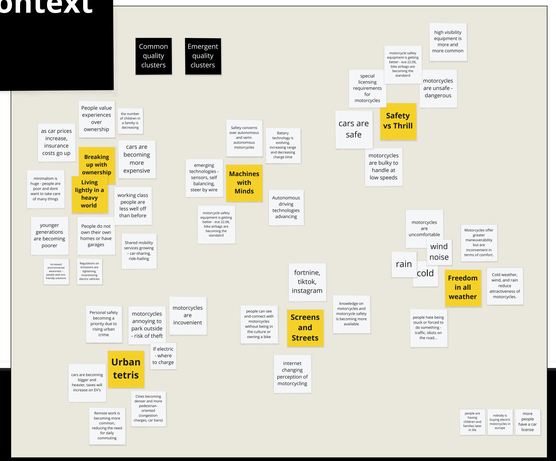
Context

we're not necessarily making a motorcycle, it's more like a compact commuting vehicle

Generation of context factors

	cultural	psychological	demographic	sociological	economic	biological	technological
Developments	knowledge on motorcycles and motorcycle safety is becoming more available				Regulations on emissions are getting incentivising electric vehicles		emerging technologies - sensors, self balancing, steer by wire; motorcycle safety equipment is getting better - eca 22.06, bike airbags are becoming the standard
Trends	internet changing perception of motorcycling; fortnine, tiktok, instagram; people can see and connect with motorcycles without being in the culture or owning a bike; high visibility equipment is more and more common; increased environmental awareness - people seek eco-friendly solutions	minimalism is huge - people are poor and dont want to take care of many things; People value experiences over ownership	Public attitudes toward air quality and urban congestion; people having children and families later in life; number of children in a family is decreasing	working class people are less well off than before; Personal safety becoming a priority due to rising urban crime; Cities becoming denser and more car-free oriented (congestion charges, car bans); Remote work is becoming more common, reducing the need for daily commuting	as car prices increase, insurance costs go up; younger generations are becoming poorer; nobody is buying electric motorcycles in europe; cars are becoming more expensive; People do not own their own homes or have garages; if electric - where to charge	Cold weather, wind, and rain reduce attractiveness of motorcycles; motorcycles are uncomfortable; rain; wind; noise	Battery technology is evolving, increasing range and decreasing charge time; Autonomous driving technologies advancing; cars are becoming bigger and heavier, fuel will increase on EV's; Safety concerns over autonomous and semi-autonomous motorcycles
States	motorcycles are inconvenient; Motorcycles offer greater maneuverability but are inconvenient in terms of comfort	motorcycles annoying to park outside - risk of theft	more people have a car license				bulky to handle at low speeds
Principles		cars are safe; people hate being stuck or forced to do something - traffic, idiots on the road ...		motorcycles are unsafe - dangerous			special licensing requirements for motorcycles

Structuring the context



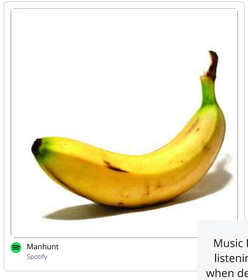
Statement definition

Motoscope - to **enable private highway commuting without the downsides of the motorcycle and the car**

2. INTERACTION

Establishing a relationship: human - product interaction

Like snowboarding through traffic



Music I was listening to when defining the interaction

Defining product qualities

smooth

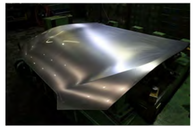
strapped in

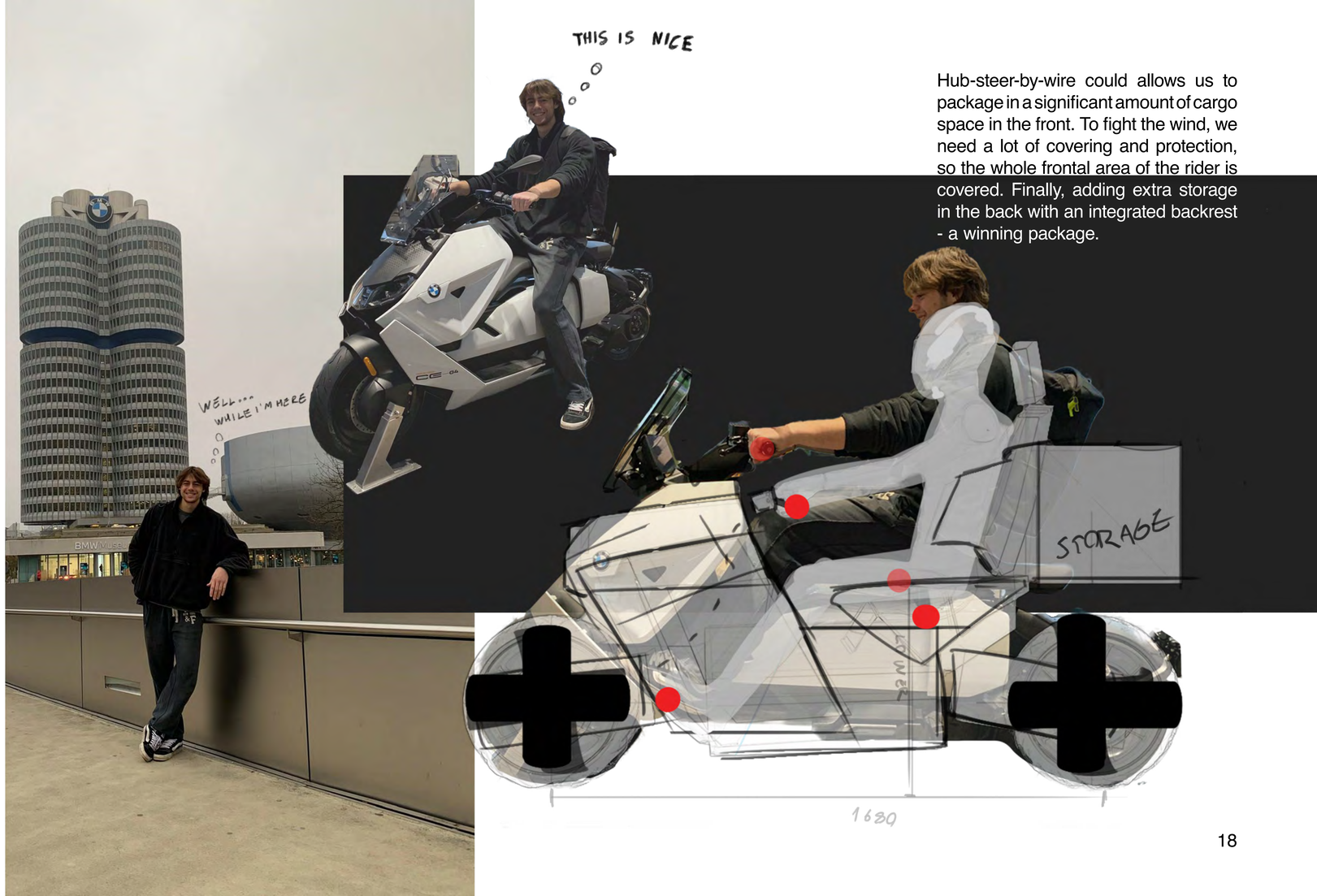
light

rewarding

PACKAGING

Sometimes, reinventing the wheel is neccesary. Cargo capacity, wind protection and comfort are important downsides to riding a motorcycle, so they were the main challanges of the motoscope project.

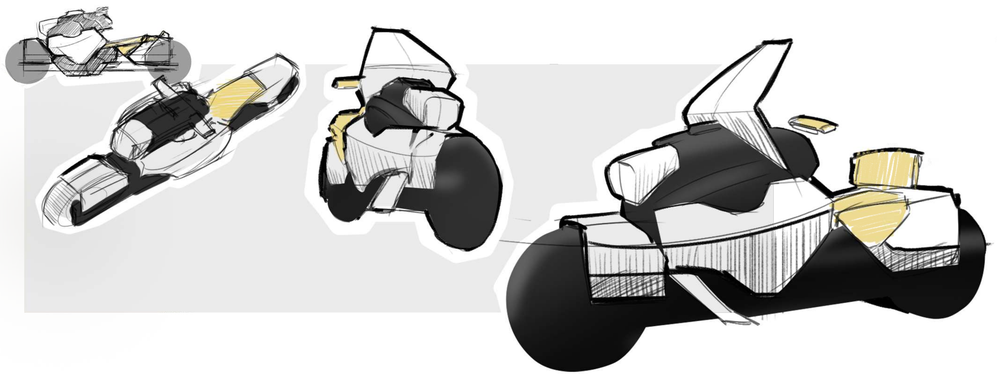


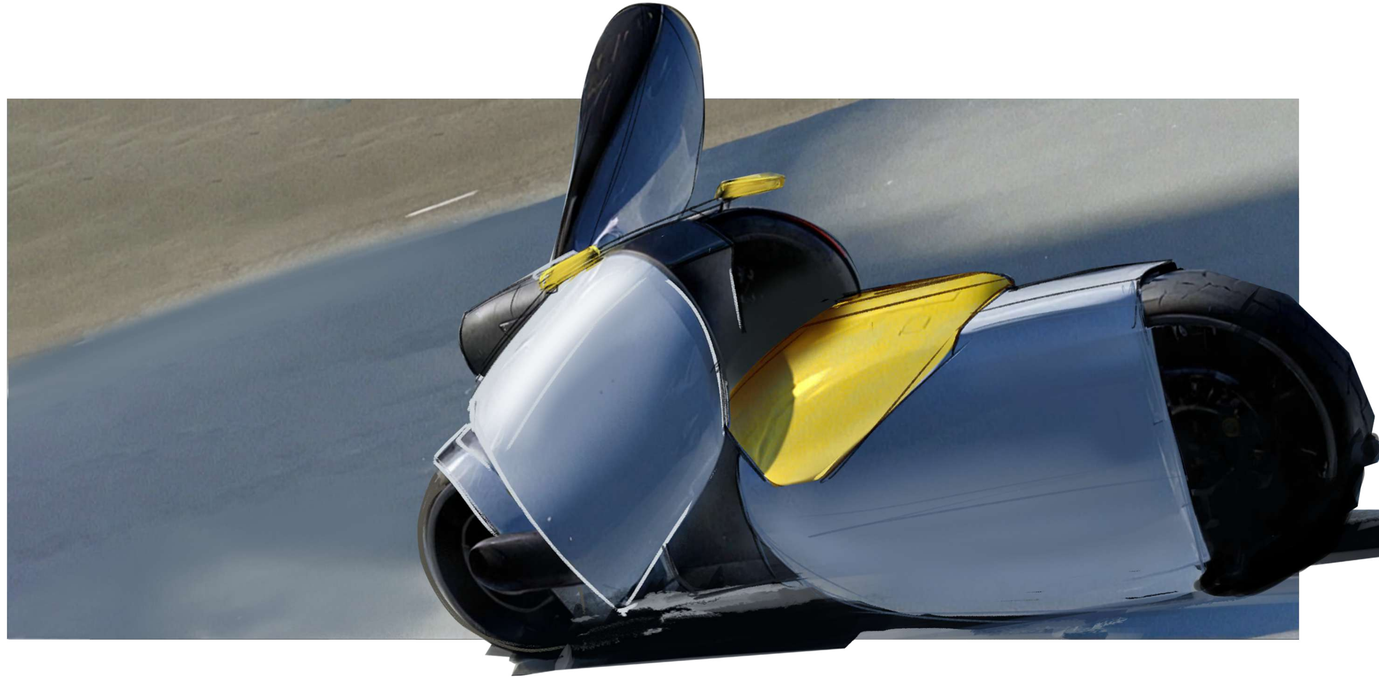


Hub-steer-by-wire could allows us to package in a significant amount of cargo space in the front. To fight the wind, we need a lot of covering and protection, so the whole frontal area of the rider is covered. Finally, adding extra storage in the back with an integrated backrest - a winning package.

DEVELOPMENT

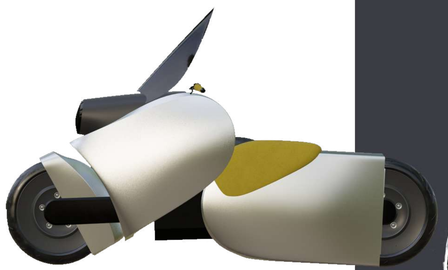
Ideation on the package, here are my two main design directions.

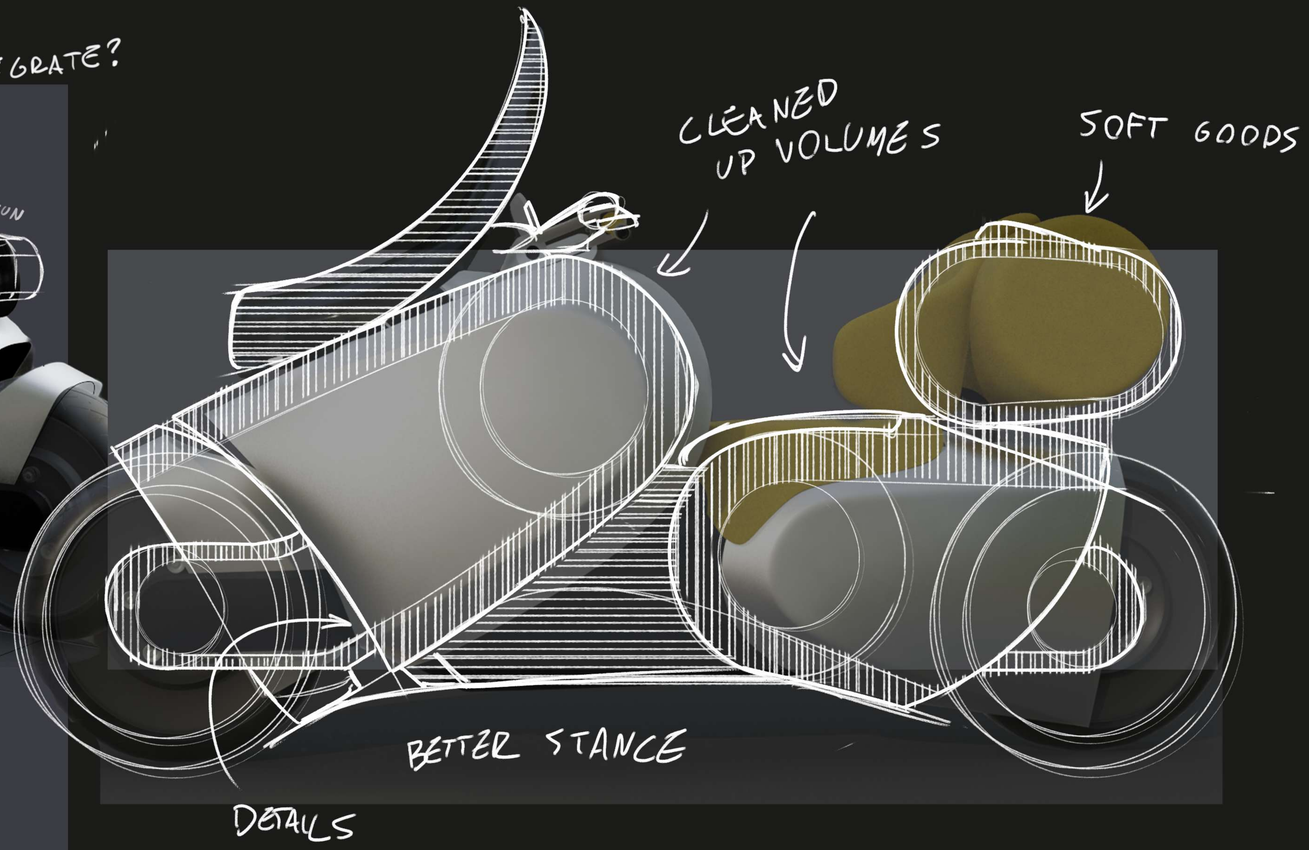


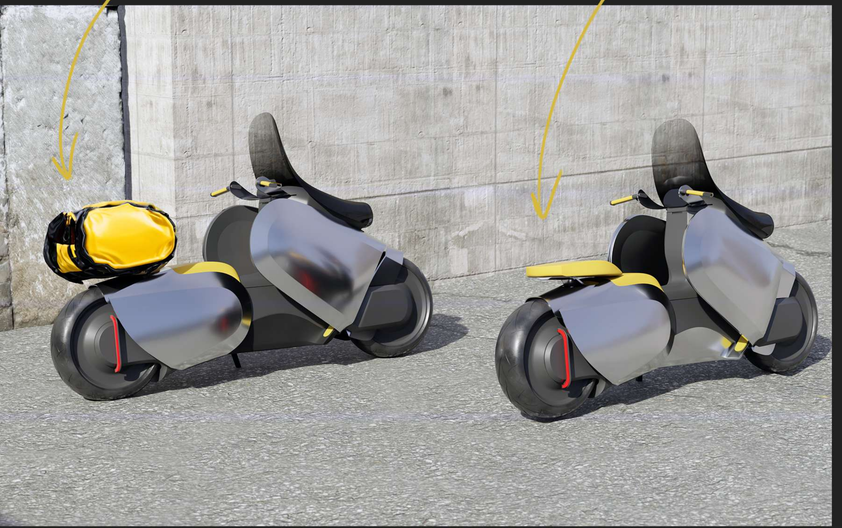


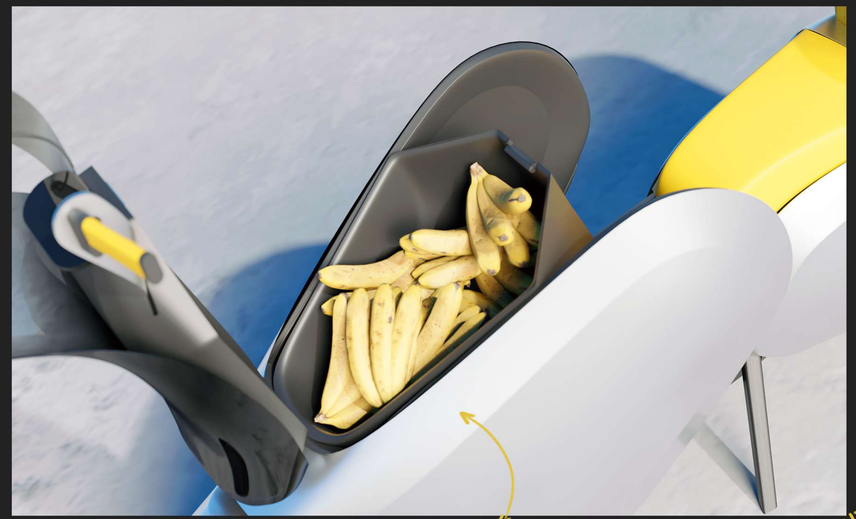
REFINEMENT

A workflow combining quick modelling, sketching and lots of feedback and checks in VR resulted in many iterations and gradual improvements.



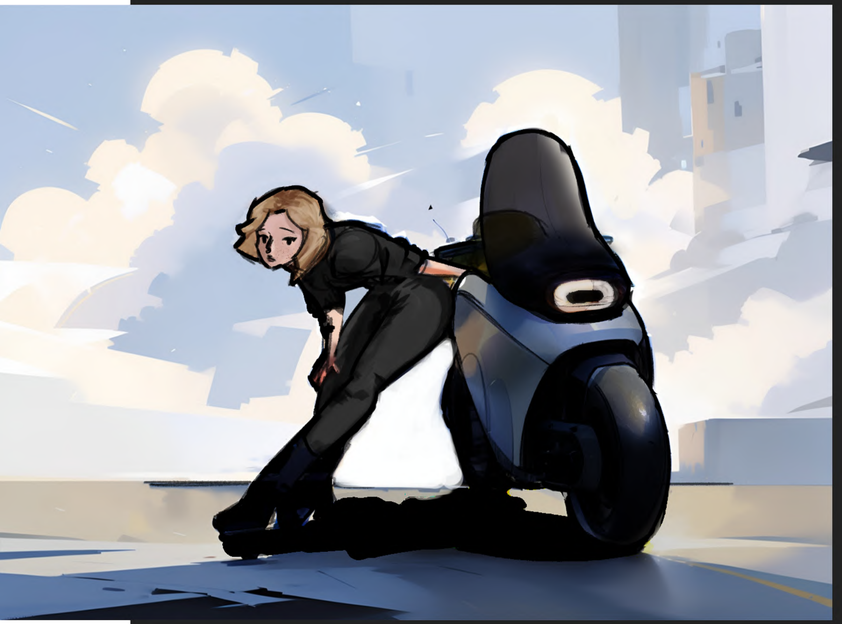



BAG?
OR BUDDY?


FITS >50 BANANAS!
OR 2 HELMETS...


GRADIENT
SIGNATURE-LIGHT

MODYN



Like snowboarding through traffic

smooth

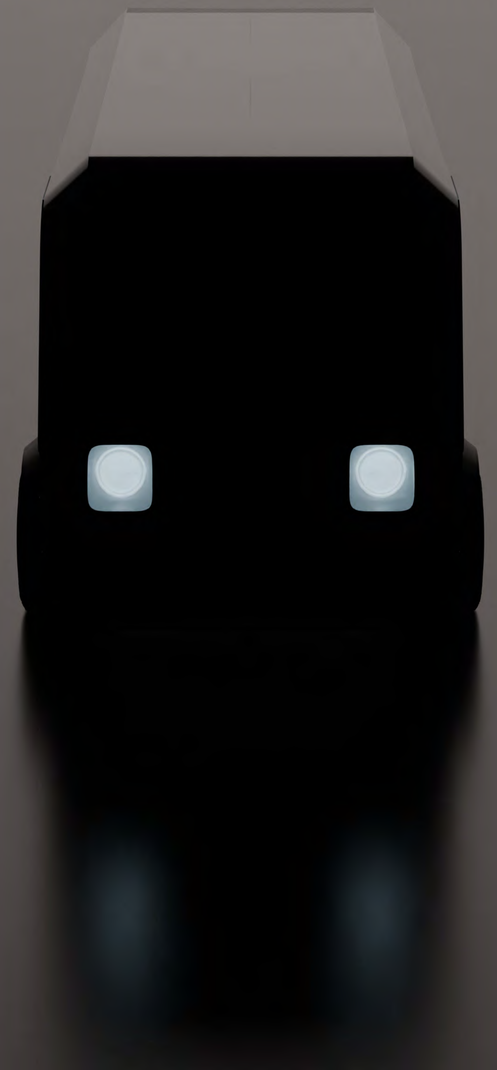
light

strapped in

rewarding

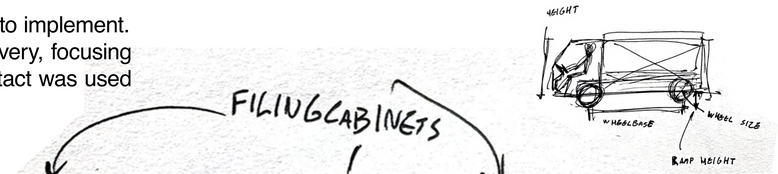
02. LAST MILE

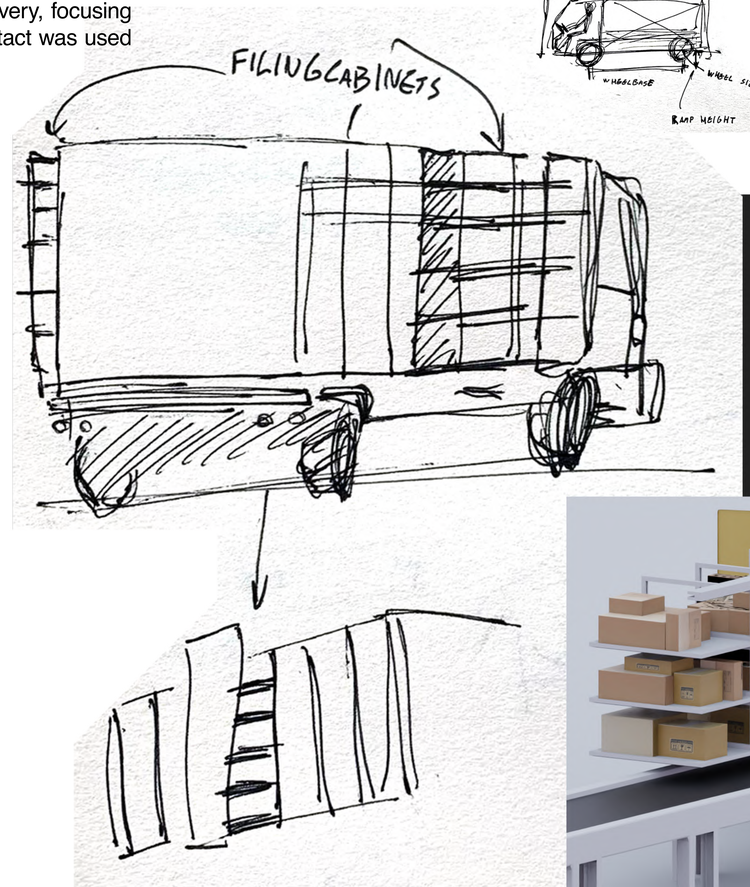
My **first university project**; Redefining parcel delivery within a conceptual smart city, a team project in collaboration with PostNL. In this project I was the concept owner, and also in charge of the van's design, including sketching, prototyping, 3D modelling and animation.

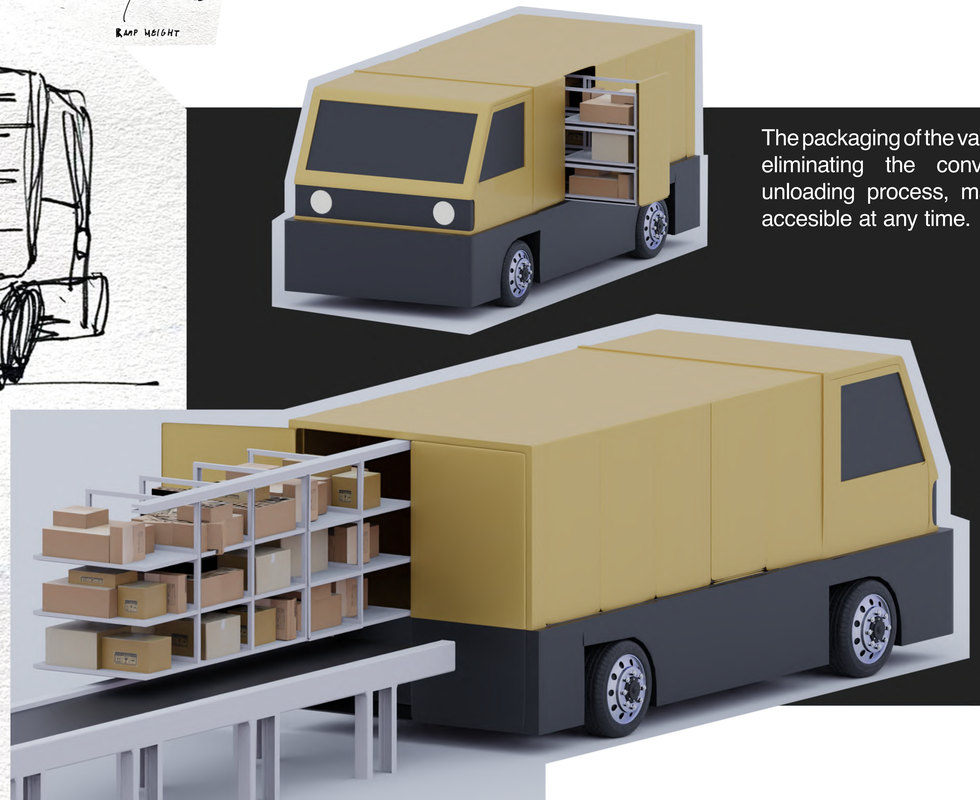


CONCEPT

An extremely stressful line of work, where changes are difficult to implement. Last Mile was a project to reimagine the process of parcel delivery, focusing on the courier. User centered design, interviews and client contact was used to inform the design process.





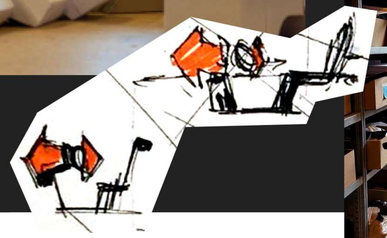


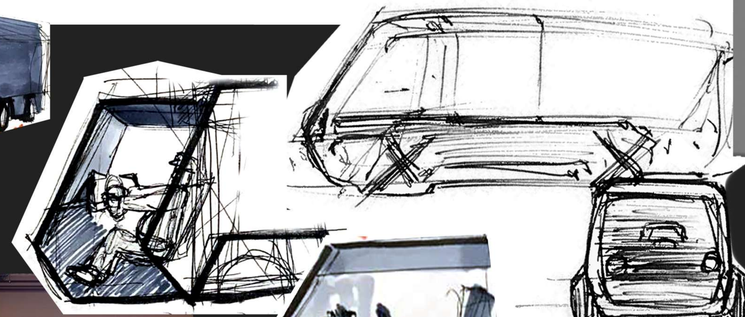
The packaging of the van was to be reinvented, eliminating the convoluted loading and unloading process, making every package accesible at any time.

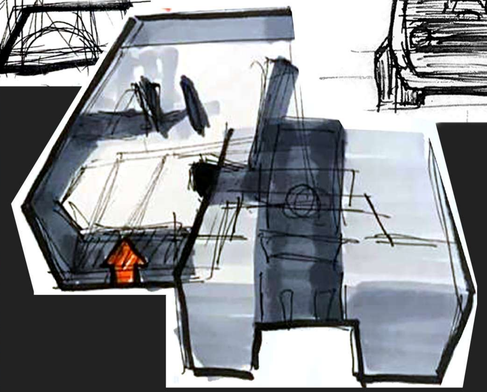
DESIGN

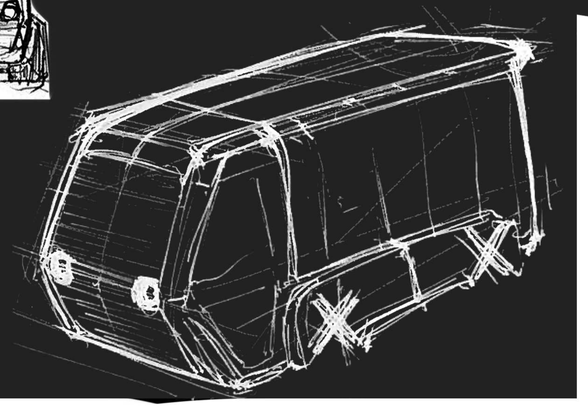
This project was messybut as my first real design project in the context of university, I didnt really have a defined process. We started with looking at other delivery vans a lot, figured that was boring, and started again from zero - packaging!

The first university project solidifed my intrest in transportation and system design, while I learned the very basics of packaging, form and Blender









// LAST MILE

PRESENTATION

A workflow combining quick modelling, sketching and lots feedback and checks in VR resulted in many iterations and gradual improvements.

As part of the final deliverable, I created an animation explaining the process of using Last Mile.

Working in a team for the first time, we focused on different areas of expertise, rapid prototyping, IOT, client communication, visualizations and animation.

04. EVOLUTA

A collection of miscellaneous renders and product designs I've done as a freelance designer working with Evoluta, a premium supplier of outdoor concrete furniture in Croatia.

CATALOGUE RENDERS // JAZZ, POP AND ROCK SERIES - High end outdoor kitchen sets for holiday homes

ELEMENTO SERIES -
Modular outdoor kitchen
system

// EVOLUTA
OUTHOUSE

Thank you for your time!

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