

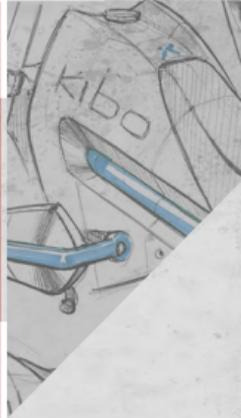
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INTRODUCTION

Audi MO-be is one of my thesis projects and was designed in collaboration with Audi at Scuola Politecnica di Design in Milan, Italy. The Audi MO-be is a team effort where I collaborated with Fernando Pastre. Next to the research we conducted, we extensively went back and forth from sketching to clay-modelling and digital modelling in Alias, to explore the shape of the car.

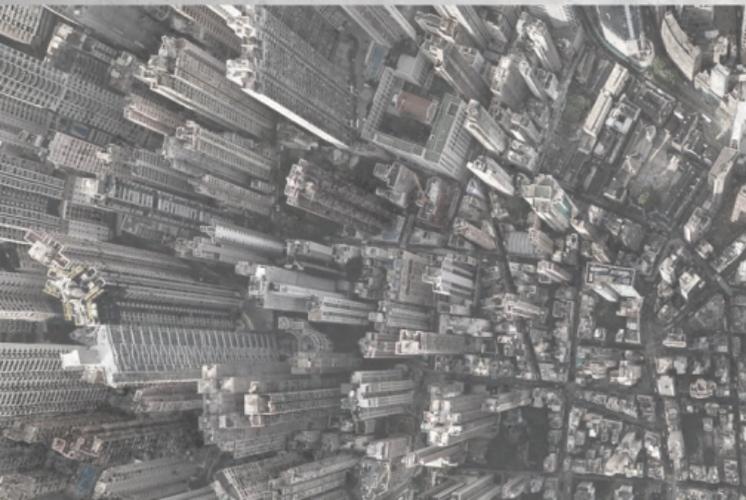


CONTEXT AUDI MO-BE

In our world, **cities are growing** larger every year, creating a **shortage of space** for the inhabitants and their mobility. In those crowded environments there is also not much space for nature.

In the future, we envision that if people have free time after sitting all day in the office, they will want to **escape** those crowded cities and **visit nature**. We expect that cars will be banned from city centres and public transportation is thriving. All personal transportation is parked at the edge of the metropolises. In the city, owning a personal vehicle is considered a luxury.

Our task was to create a future vision for a **2030's** Audi vehicle.



WATCH THE VIDEO ON YOUTUBE

MO-be ESCAPE THE BUSY CITIES

PASSIVE



ACTIVE



CONCEPT

We designed the Audi MO-be as the **ultimate solution** to escape the concrete jungle to enjoy all nature has to give. Next to nature's stunning sights which you can **enjoy passively**, nature offers a lot of opportunities to **enjoy actively**.

The **autonomous driving mode** allows the user to enjoy looking at the scenery without distraction. From wakeboarding to mountain biking, from ski and snowboarding to paragliding, Audi MO-be's **unconventional two seater** layout provides the user to bring all his gear and give him **maximum flexibility**, while the vehicle keeps a modest **footprint**.

Audi MO-be is designed to look **durable** and though but still **refined**. The design is driven by the keywords: **playful, powerful** and **freedom**.



FREEDOM



PLAYFUL



POWERFUL



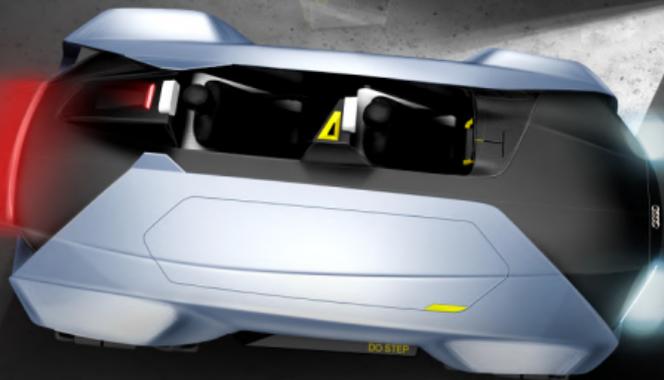


EXTERIOR MOODBOARD

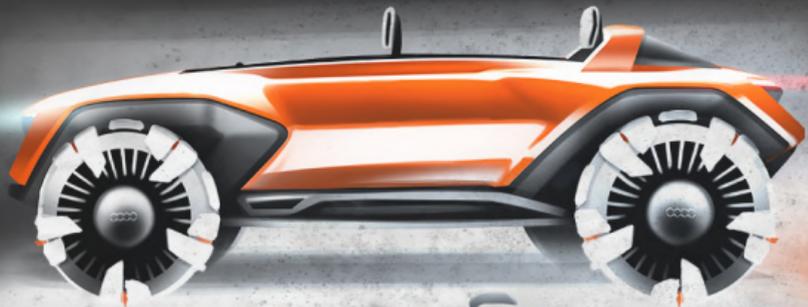
EXTERIOR IDEATION



PHOTOSHOP DEVELOPMENT



MUSCULAR AND SEXY
WHEELARCHES



MOOBE

TWO-SEATER WITH A LARGE
LUGGAGE AREA ON THE SIDE



NEW INTERPRETATION OF
THE SINGLE-FRAME GRILL

MOBE



ESCAPE THE CITY

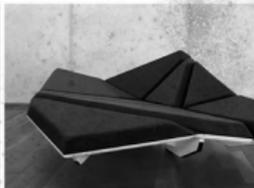




Audi

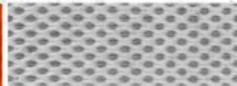
MObe



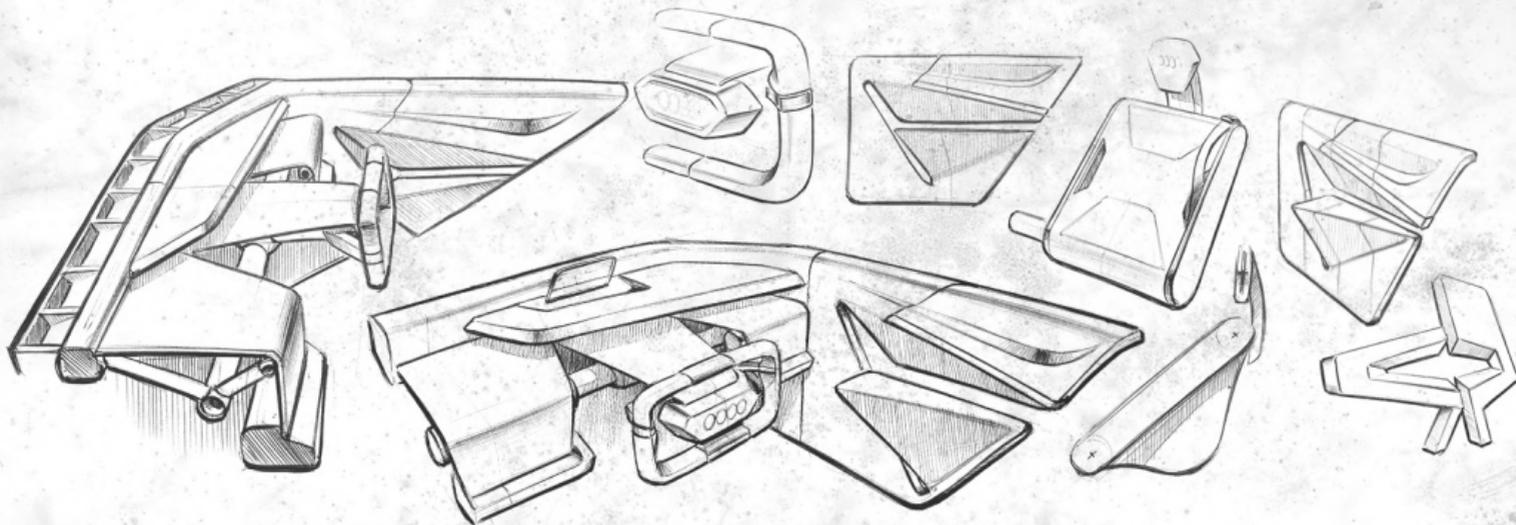


Active Minimalism

Stretchy - Sporty - Contrasts

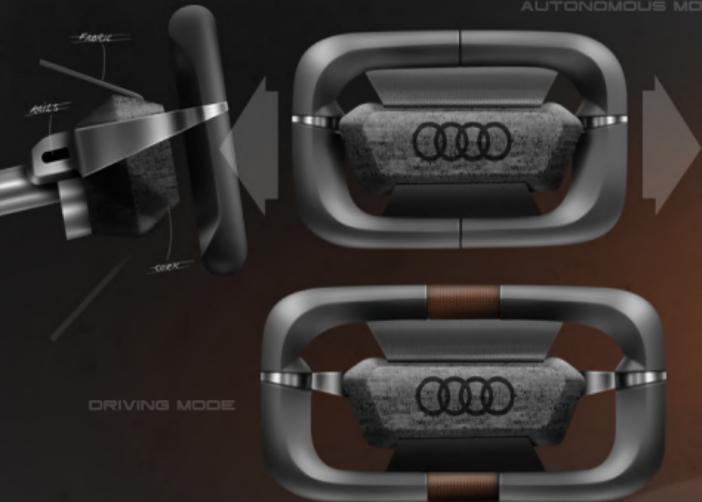


INTERIOR IDEATION



AUTONOMOUS MODE

MULTI-ZONE FLEXIBLE FABRIC SUPPORTS THE USER



HYDROPHOBIC FABRIC REPELS WATER

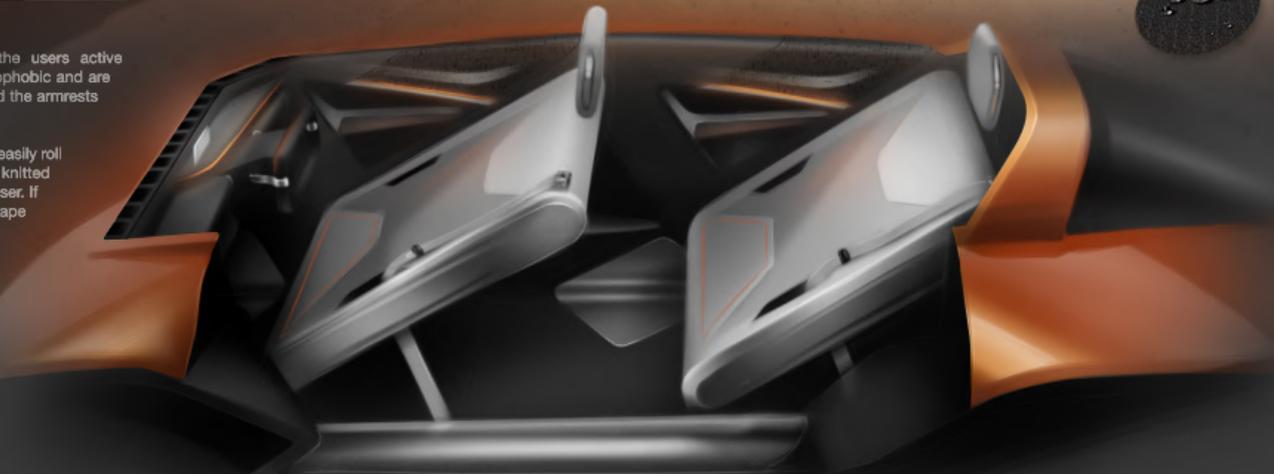


The interior is designed to support the users active lifestyle. All fabrics in the interior are hydrophobic and are therefore weather proof. If the car is not used the armrests in the side panel will close.

The seats are placed under an angle so water can easily roll off the surface. The seats are made of a multi-zone knitted flexible fabric allowing support where needed for the user. If the user is sitting in the chair the fabric will shape ergonomically to the users body.

The steeringwheel is visually attached to the dashboard with flexible fabric. If the car is not in use or driving autonomously, the steeringwheel is part of the dashboard. When actively driving the MO-be, the steeringwheel will widen and move forward out of the dashboard, towards the user stretching the fabric.

Audi MO-be has one graphical interface, providing only the necessary information, like speed and destination. It is completely voice controlled, asking no further physical interaction, apart from driving manually.



10/11



CORK PANEL

SPANNED FABRIC

FOLDING ARMREST

HANDLE



HYDROPHOBIC FABRIC

FLEX-TECH

FLEX-TECH

SUSPENDED FLEX-TECH SEAT

STORAGE COMPARTMENT

The Audi MO-be features a large luggage compartment stretching all the way from the front to the rear of the vehicle. The luggage area contains among other things metal strips in the floor where you can attach a net to hold the luggage and an easily accessible first aid kit.

The luggage compartment can be closed with a soft- or a hard-top lid. The soft-top provides extra flexibility making it possible to bring even larger equipment, for example a bicycle.

HARD SHELL LID

SOFT SHELL LID



EASY ACCESSIBLE LUGGAGE AREA



LASER LIGHTING

MObe



MAG-LEV SUSPENSION



AIR-BUMP WINDSCREEN



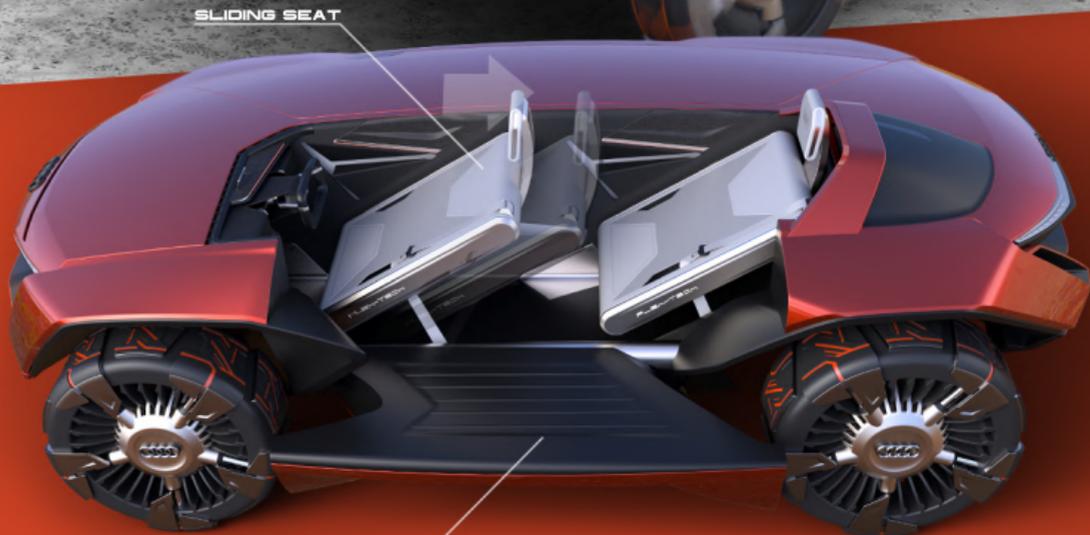
IN-HUB ELECTRIC MOTOR

REPLACEABLE TIRE TREAD

The suspension of the Audi MO-be is a cooperation between the Mag-lev frame and the airless tires. The stiffness of the tire can be controlled by 5 hydraulic rods in every wheel and can also create energy for the in-hub electric motor on a bumpy road. The body of the car is levitated above the Mag-lev frame by the use of magnets. The frame is attached to the body of the car with a strong but flexible material that is able to damp any oscillation while driving.

The airless tire can never run flat. All wheels contain an in-hub motor making the Audi MO-be a real 4x4 Quattro. The tire tread patches can be replaced individually making the wheels on the Audi MO-be as tough and environmental friendly as possible.

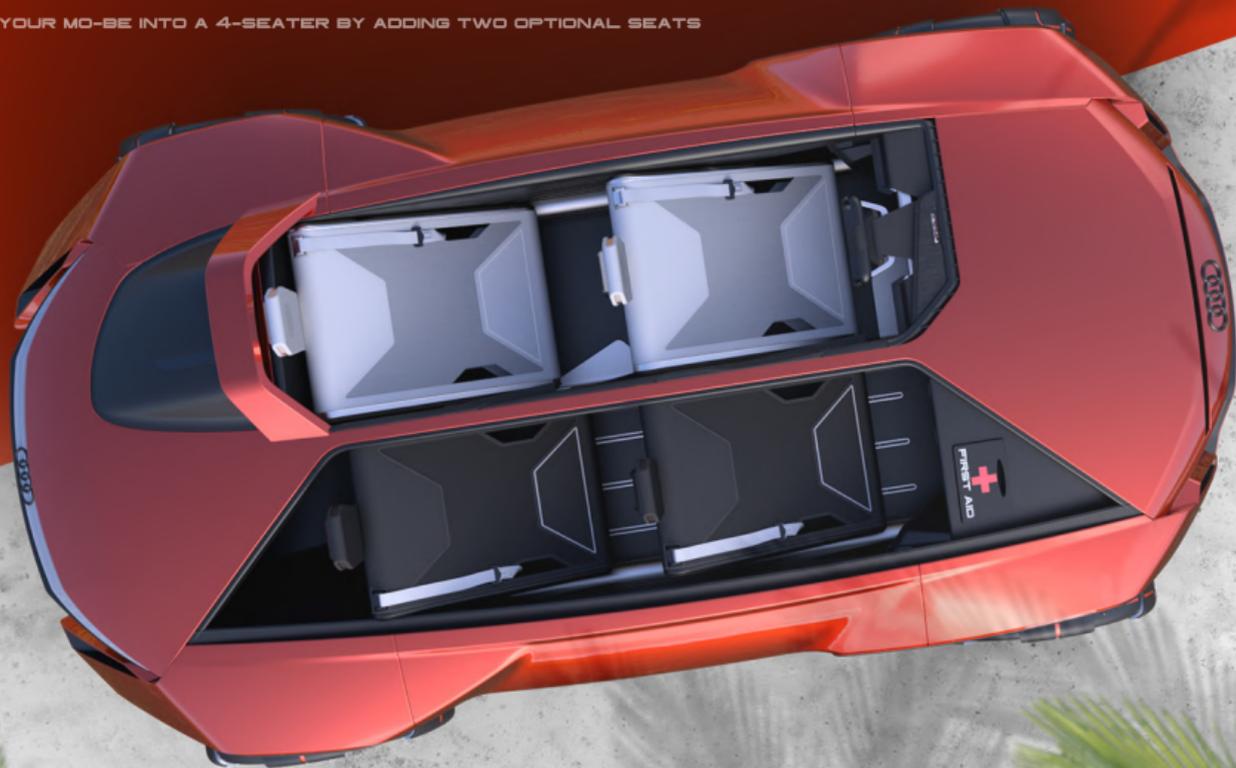
The interior is easily accessible due to the large tilting door. The front chair can slide back to make entering the car more convenient.



SLIDING SEAT

TILTING DOOR

CONVERT YOUR MO-BE INTO A 4-SEATER BY ADDING TWO OPTIONAL SEATS



MOBE

CLAYMODELLING





Audi

MObe

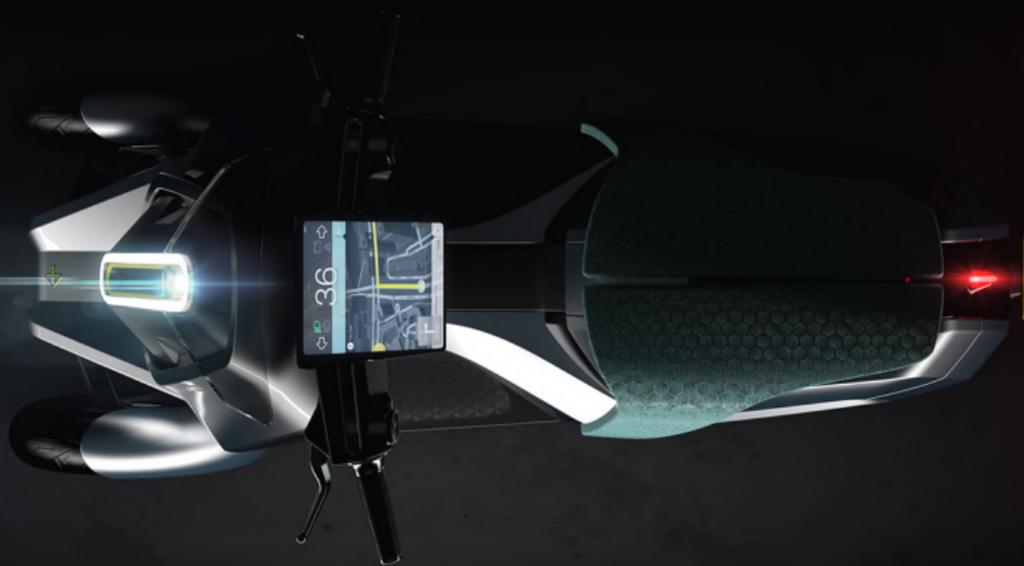
FREE
ACTIVE
STRONG
ADVENTUROUS
PLAYFUL
...
ALIVE



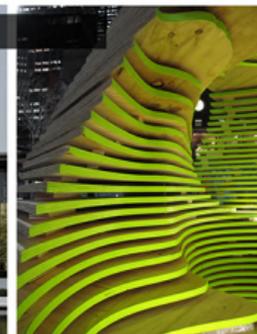
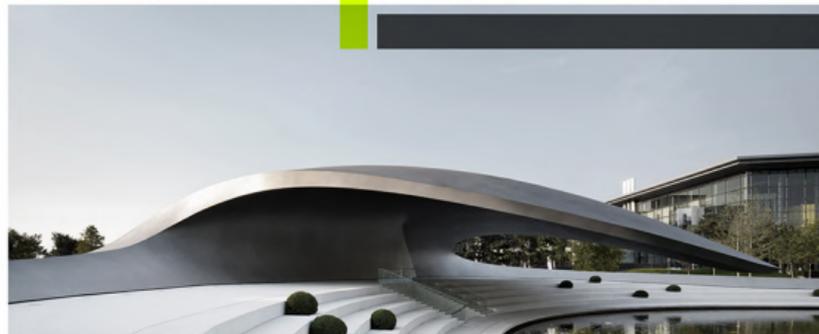
QESTO Motors

In 2017 I developed a concept for an electric scooter for Qesto Motors; The Delta 1. After a short market research I started the project from moodboards to sketch research, rendering and 3D modelling to the final visualizations.

The Scooter is not only designed with consumers in mind but also for business and service use. Main features of the Delta 1 are the double wheels in the front for extra stability, the large luggage space that can fit for example two helmets and a 10 inch interface that can be customized according to the needs and purpose of use. Optional would be a fleet management system so the scooters can be managed from a central location by a build-in monitor system inside the scooters.



Delta 1
Styling Moodboard



LAYERED - POWERFUL - ELEGANT - LIGHT

KEYSKETCHES

Main features of the design are the floating saddle that is inspired by a horse saddle, the seethrough part in the center of the scooter to make the design look lighter, the large windscreen giving the scooter a modern look and ofcourse that it is a three wheeler.

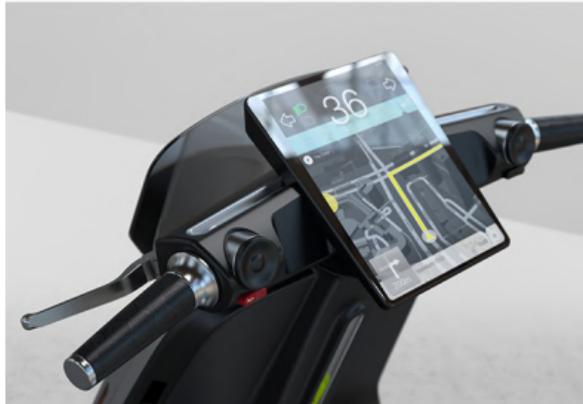
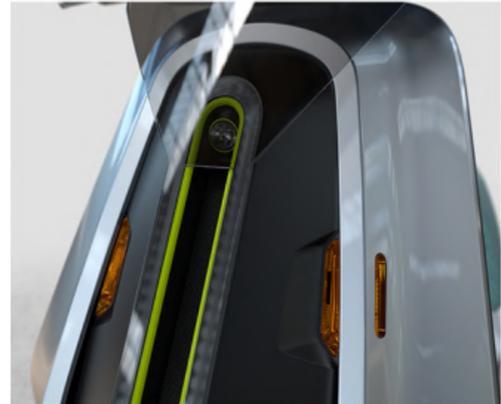




FINAL PROPOSAL

Qesto Motors - Delta 1

DETAILS



The electric Delta 1 with its three wheels is stable and agile. With the on-board monitoring system the Delta is extremely suited for service use like for example the Police. The Delta can be managed from a central location and can sent realtime information about vehicle status, location and speed.





i1



The BMW i1 Concept is a small, three door full electric hatchback, designed for the urban environment. The key feature is the glass top that spreads all the way from the front to the rear. Through hood you can see the push-rod suspension in the interior and on the roof there are transparent solar panels to extend the range. The push-rod suspension is located above the low placed battery pack, making a lower center of gravity and a shorter turning circle possible because there is more space between the front wheels. Efficient Dynamics is also a main feature of the i1. In the design the air flows underneath and through the body panels from the front all the way to the rear, reducing drag. Also the rear spoiler has side blades to stabilize the airflow. This side blade also contains sensors that are meant to scan the environment more effectively, for the crash preventing system and autonomous driving capabilities.

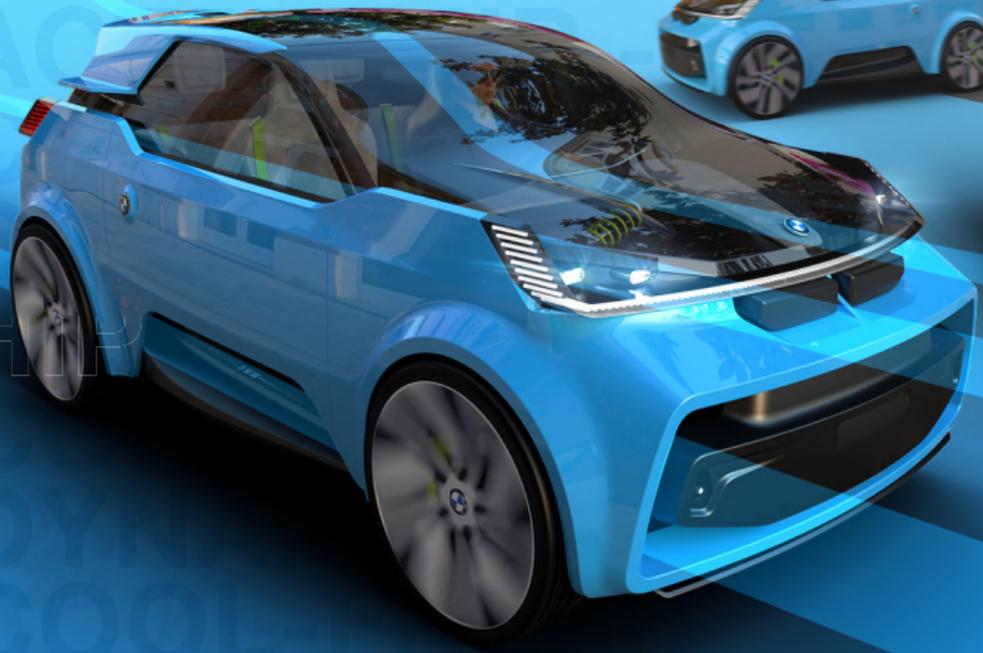




BMW *i1*

The BMW i1 is the outcome of a short two week project. The Idea started from the side-view sketch shown on this page.

YOUNG-COO
FRESH-ACTIV
SPORTY-ELEC



HR

DY
COOL
HIP





Both in the front and the rear of the i1 the lower part of the seats are connected, giving the users the feeling that they are sitting on a sofa in their living room. All elements in the i1 seem to float, making the interior look more spacious and modern. The semi-transparent solar-cells in the roof provide natural shadow like the leaves of a tree.

MATERIALS

Ebony Wood

Brushed Aluminum

Alcantara

Natural Fiber Composite

ACCENT COLOR

DUCATI ZERO

INTRODUCTION

The Ducati Zero is one of my Master thesis projects developed in collaboration with Ducati S.P.A. at Scuola Politecnica di Design. The Ducati Zero was developed alongside the Audi MO-be project. In this project I worked together with Fernando Pastre. We worked extensively on sketching, sketchrendering in Photoshop and Alias modelling and Vred rendering during this project.

SPD
Scuola Politecnica di Design



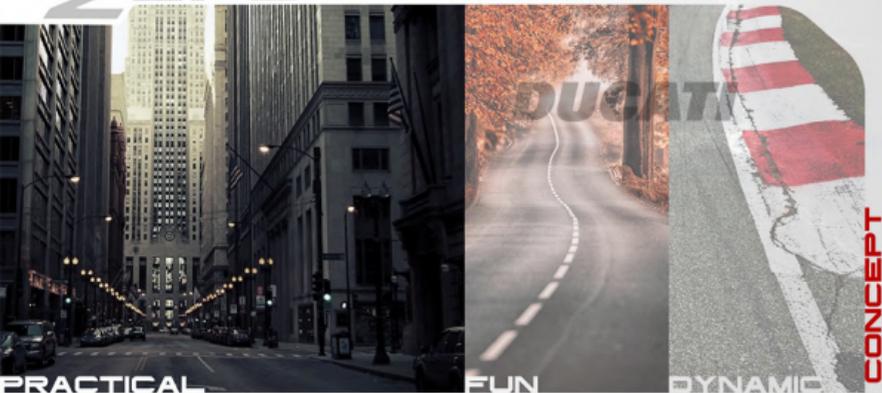
BRIEF

The task was to develop an electric Ducati for the year 2020. An electric motorbike has a drivetrain with less components than a conventional gasoline powered bike. A lot of elements such as the gasoline motor, exhausts and gearbox, are dismissed on an electric bike. Those elements contribute, apart from their function, also in the styling of the motorbike. Our aim was to develop a new form language that both respects Ducati's DNA and core values and the new electric drivetrain.

WATCH THE VIDEO ON YOUTUBE



zero



PRACTICAL

FUN

DYNAMIC

CONCEPT

The Ducati Zero is a small, light, full electric superbike. It is positioned below the Ducati 959 Panigale. Because of its small footprint and low weight the Ducati Zero fits in an urban environment. Also outside the city the Ducati Zero is in its element. The Ducati Zero has multiple driving modes, Eco, Strada and Corsa, giving the user the feeling he owns three different bikes.

Taking into account the design of the contemporary combustion powered Ducati motorbikes, we explored a new design direction, focused on the possibilities created by the components of the electric drivetrain. The result is a more minimalistic and **fluent** approach, with a contrastful two-toned body dividing the sculptural- from the **technical** parts. The design of the motorbike is inspired by the attack of a snake resulting into an **intimidating** and forward moving stance.

STYLING MOODBOARD



SKETCH SALAD

DUCATI ZERO DEVELOPMENT

COVERED STEERING BASE



SUSPENDED SEAT



TWO-TONE BODY



PROJECTED HUD

STEERING VERIFICATION

25°



MINIMALISTIC SIDE



MULTILINK SUSPENSION



BATTERY COOLING VENTS





"THE SHAPE OF THE DUCATI ZERO IS
INSPIRED BY THE ATTACK OF A SNAKE,
GIVING THE BIKE A FORWARD MOVING
AGGRESSIVE STANCE."

DUCATI ZERO



FINAL DESIGN

DUCATI ZERO



FINAL DESIGN

DUCATI Zero

DRIVING MODES



FULL LED ARRAY LIGHTING

SUSPENDED SEAT



DRIVING MODES INDICATOR

AIR COOLED BATTERIES



TECHNICAL DETAILS

FLYING MULTILINK SUSPENSION

LIGHT AERODYNAMIC REAR

AIR DEFLECTOR

TRANSPARENT MOTOR COVER WITH BATTERY INDICATOR

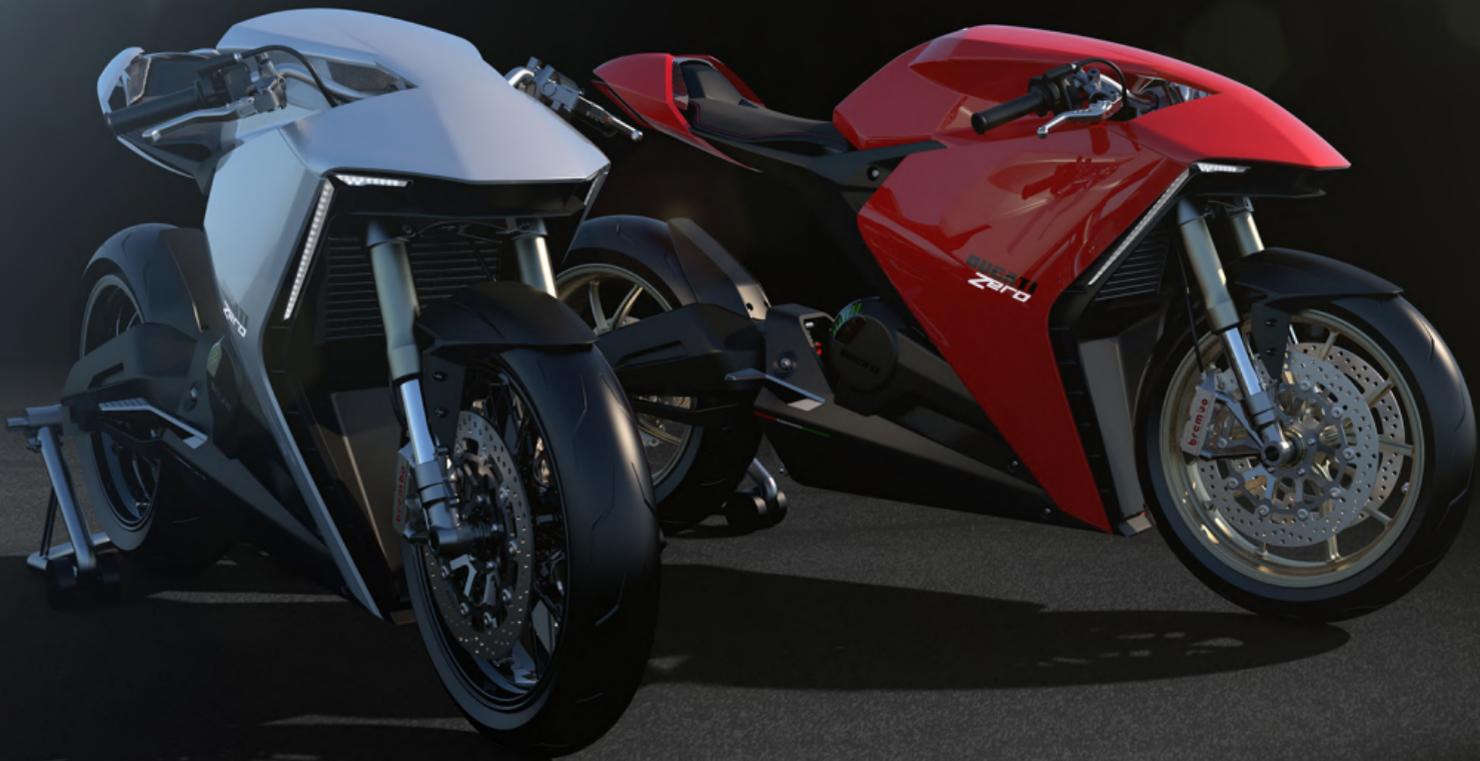
WIRELESS CHARGING

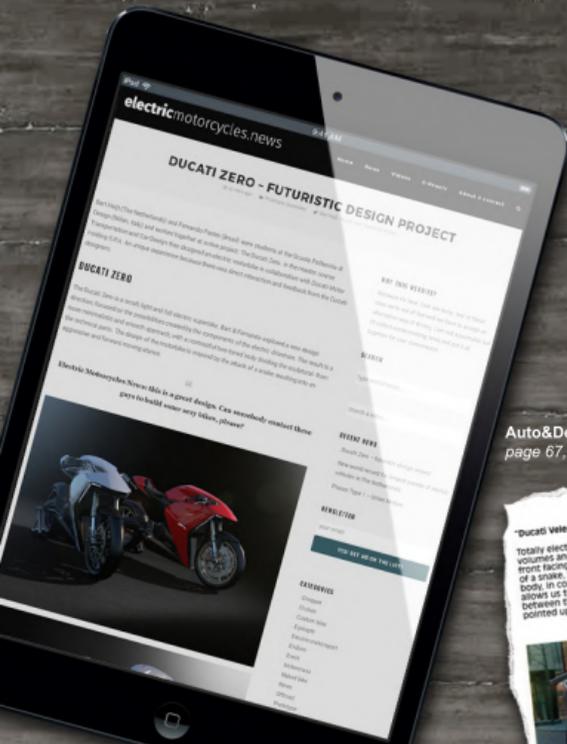
DUCATI
Zero

TECHNICAL DETAILS



DUCATI
Zero





Electric Motorcycles.news, March 2017

Auto&Design magazine 222, Towards an electric future, page 67, Jan 2017

"Ducati Veleno concept" by Bart Heijt, Fernando Pastre
 Totally electric superbike with sculpted volumes and pure minimalist design. The front facing forward is inspired by the head of a snake, while the transparent part of the body, in correspondence with the engine, allows us to see its functioning. The contrast between the body and the technical parts is pointed up by the two-tone solution.

Superbike totalmente elettrica dai volumi scultorei e dal design puro e minimalista. Il frontale proteso in avanti si ispira alla testa di un serpente mentre la parte trasparente del corpo, in corrispondenza del motore, ci permette di vedere il funzionamento. Il contrasto tra la scocca e le parti tecniche è enfatizzato dalla soluzione bicolor.



NACHRICHTEN

Ein Teamwork-Produkt mit dem Segen von Ducati - ob's die Italiener je nutzen werden?



Wo Ducati draufsteht...

... ist nicht unbedingt Ducati drin. So bei der Ducati „Zero“. Der Entwurf eines elektrisch angetriebenen Racebikes stammt von zwei Studenten aus Mailand. Ihre Master-Arbeit wird aber auch von Bologna aus beobachtet.

Wir wären dämlich, wenn wir das Thema Elektromotorräder nicht auf der Agenda hätten. Alle Hersteller haben das.“ So äußerte sich Ducati-Chef Claudio Domenicali im Interview mit MOTORRAD (14/2015). Rund eineinhalb Jahre später ist jetzt der Entwurf Ducati „Zero“ im Internet aufgetaucht. Er stammt allerdings nicht von Ducati direkt, sondern von zwei Studenten. Der Niederländer Bart Heijt und sein brasilianischer Kommilitone Fernando Pastre haben die Ducati Zero als Master-Arbeit ihres

Studiums von „Transportation and Car-Design“ an der polytechnischen Design-Schule von Mailand entworfen. Mit grünem Licht aus Bologna, denn sie dürfen dafür den Herstellernamen Ducati nutzen. Und das Design macht dem großen Namen Ehre. Selbst der äußerlich an sich eher dröge Elektromotor wird geschickt in Szene gesetzt und ist durch ein transparentes Verkleidungsteil sichtbar. Je nach Fahrmodus Eco, Strada oder Corsa (Rennstrecke) wechselt das Zero-Logo die Farbe: Grün, Weiß oder (Ducati-)Rot.

Motorrad Magazine 04, Nachrichten, page 78, Feb 2017



DUCATI
ZERO





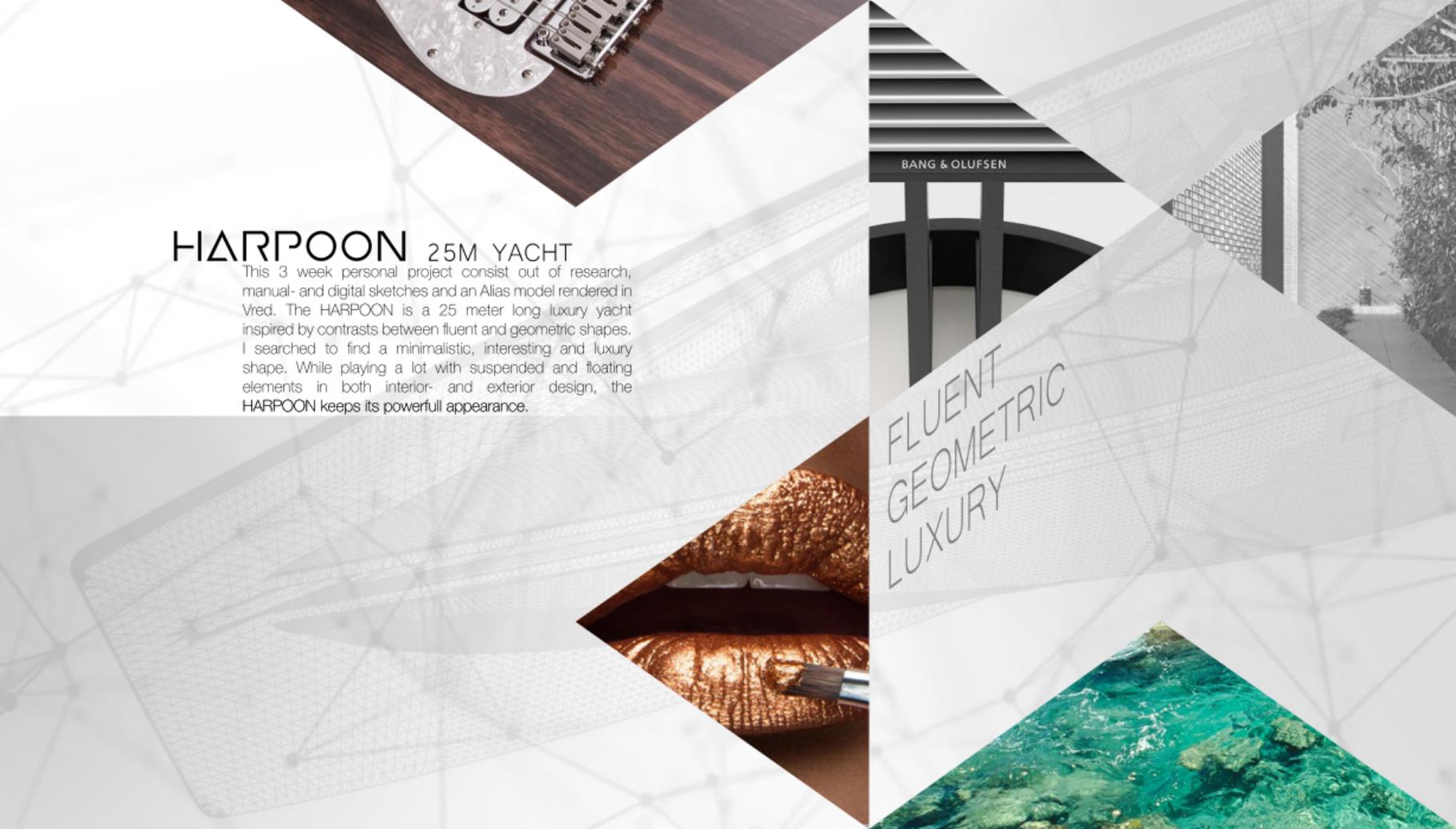
NEW HOLLAND

AGRICULTURE



During my internship at CNH Industrial I was involved on several projects for brands like New Holland, Case, Steyr and FPT. The New Holland BigBaler 1290 High Density is one of the projects I worked on. The production model was introduced at Agritechnica 2019 and is New Holland's most advanced baler to date.





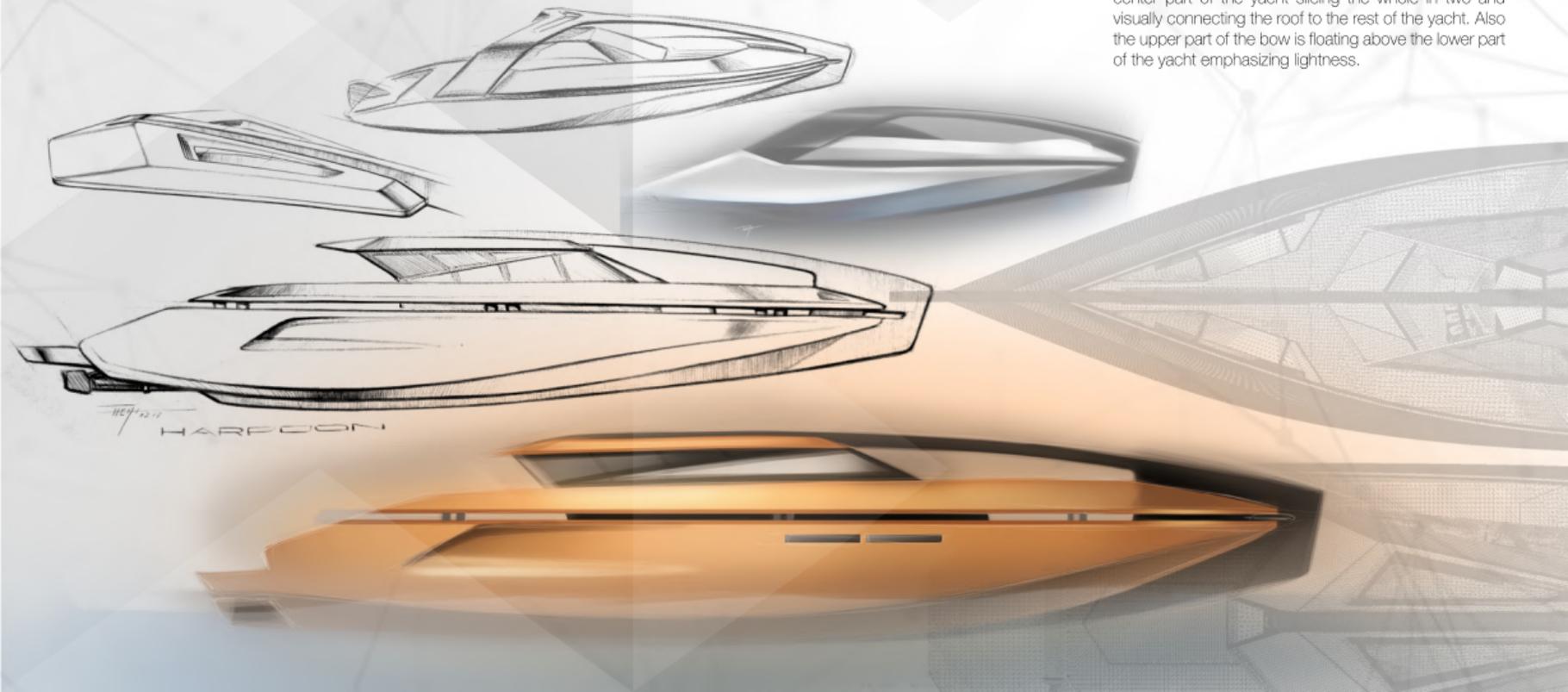
HARPOON 25M YACHT

This 3 week personal project consist out of research, manual- and digital sketches and an Alias model rendered in Vred. The HARPOON is a 25 meter long luxury yacht inspired by contrasts between fluent and geometric shapes. I searched to find a minimalistic, interesting and luxury shape. While playing a lot with suspended and floating elements in both interior- and exterior design, the HARPOON keeps its powerfull appearance.

FLUENT
GEOMETRIC
LUXURY

DEVELOPMENT

One of the main features of the exterior is the contrasting center part of the yacht slicing the whole in two and visually connecting the roof to the rest of the yacht. Also the upper part of the bow is floating above the lower part of the yacht emphasizing lightness.



104/12/11
HARPOON

PHOTOSHOP RENDERS

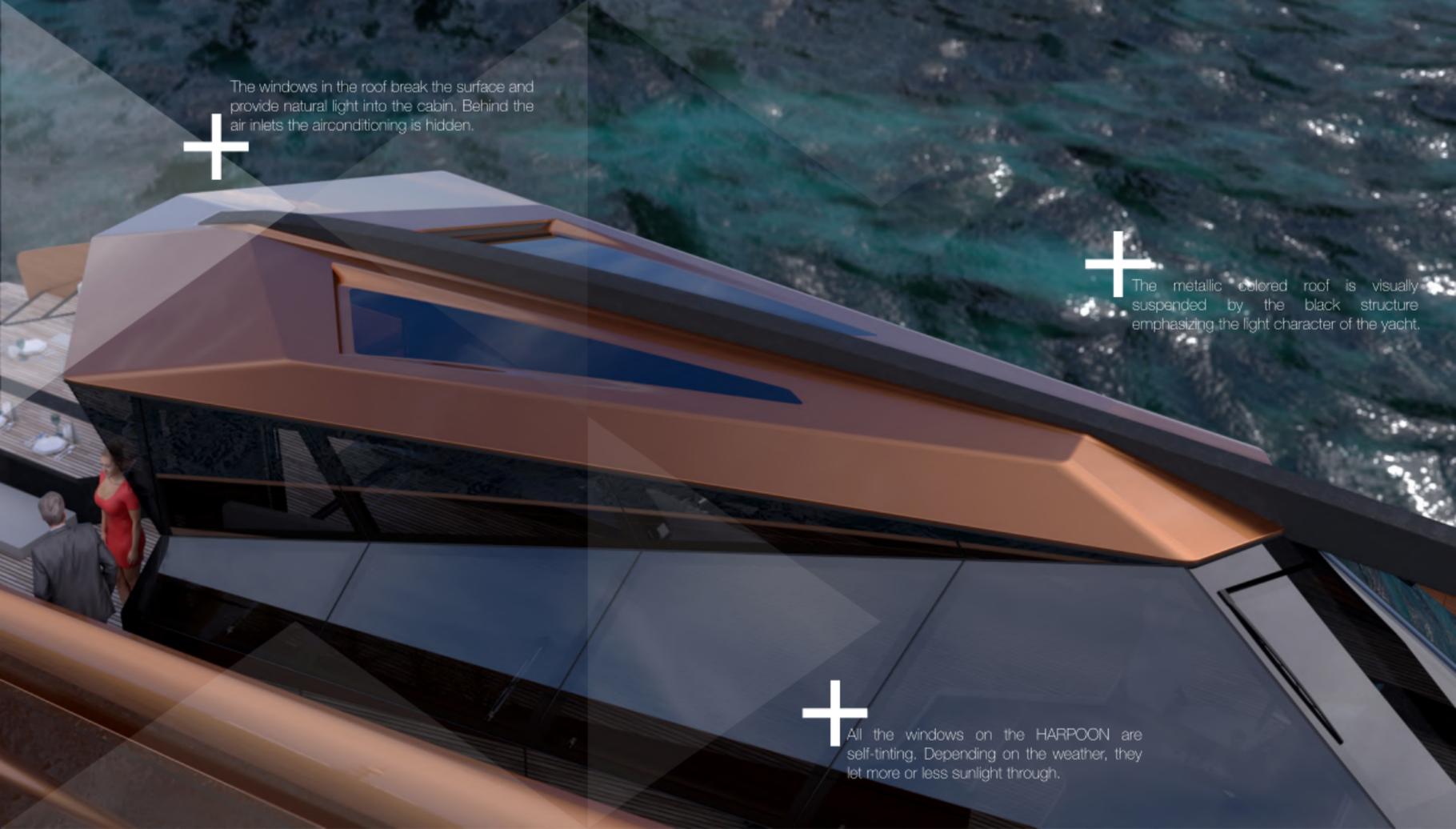
Forged carbon fiber gives strenght and lightness to the structural parts and provides an interesting pattern in the styling of the yacht.

The teak wooden deck is a natural material that is in contrast with the glossy metallic paint.

The deep copper-orange metallic paint has bright golden flakes.



HARPOON

An aerial, high-angle photograph of the HARPOON yacht's deck and cabin. The yacht is positioned on a body of water with a dark, rippling surface. The cabin's roof is a prominent feature, featuring a metallic, copper-colored finish with sharp, angular lines. A large, dark window is visible on the side of the cabin. The deck area below the cabin is partially visible, showing a man in a grey suit and a woman in a red dress. The overall aesthetic is modern and sophisticated.

The windows in the roof break the surface and provide natural light into the cabin. Behind the air inlets the airconditioning is hidden.



The metallic colored roof is visually suspended by the black structure emphasizing the light character of the yacht.



All the windows on the HARPOON are self-tinting. Depending on the weather, they let more or less sunlight through.

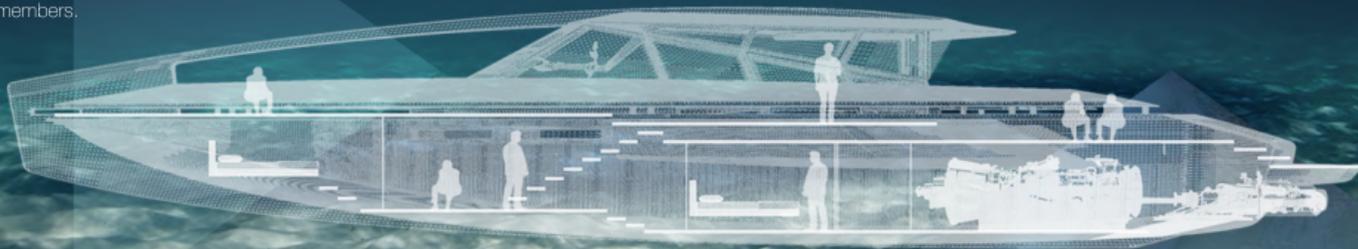


The deep copper-orange colored metallic finish has golden flakes that give a bright gloss effect.



The Harpoon is powered by two large gas turbine engines. Therefore it needs large air intakes on its sides.

The yacht can accommodate six guests and two crew members.



An aerial, top-down view of a modern yacht named 'HARPOON' on the water at night. The yacht is illuminated from within, showing a cabin and a deck with a dining table and chairs. Several spotlights are directed at the water around the yacht. Three callout boxes with plus signs point to specific features: the arch structure, the rear deck table, and the overall lighting scheme.

The arch structure contains lights to lit the front deck.

On the rear deck a table can be elevated out of the floor to change the sundeck into a dinner space.

The indirect lightning gives the HARPOON a distinctive luxury appearance.

INTERIOR

The upper interior is floating above the main deck allowing more natural light to get into the lower cabin. All furniture in the main cabin is suspended and can be moved to the needs of the user. The plants provide a natural touch in the interior but also provide better air quality and attenuate background noise. The cockpit of the captain is suspended above the staircase and is stabilized on multiple axis giving the captain a smooth ride even in storm conditions.

SPACIOUS
LUXURY
LIGHT



DEVELOPMENT

I focussed on giving the interior a spacious appearance. The way I accomplished this is to suspend all elements, such as the couch, cabinet and even the cockpit of the captain. Next to that I wanted the interior to be smart. For example, the cockpit of the captain is suspended and stabilized and the dinnertable can be retracted into the ceiling and transforms into a light.





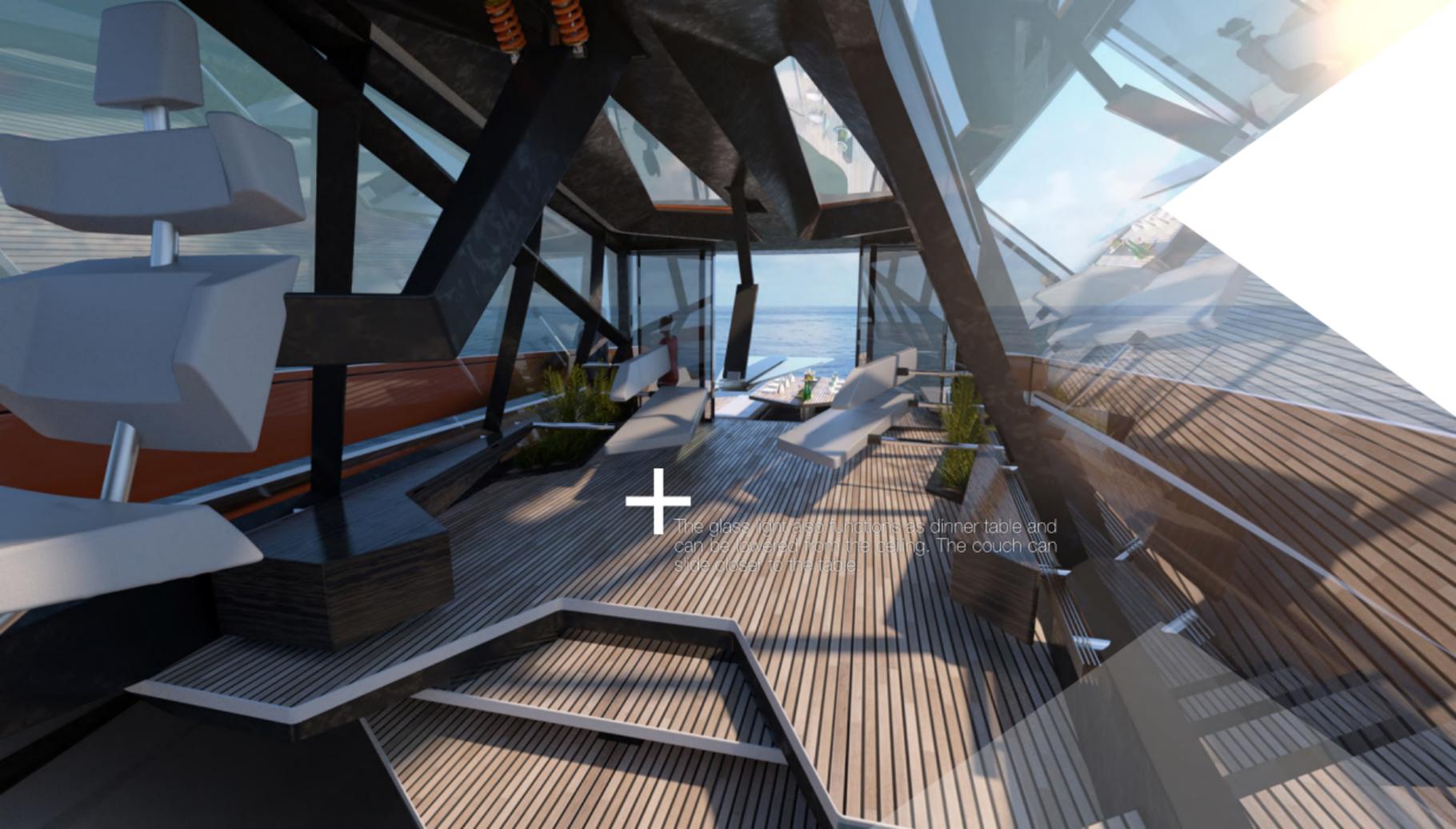
The whole cockpit of the captain is suspended from the ceiling, giving the interior a spacious appearance.



The cockpit is stabilized and will keep the captain leveled.



All elements in the interior such as the couch and cabinets are suspended from the walls.



The glass light also functions as dinner table and can be lowered from the ceiling. The couch can slide closer to the table.





The whole cabin is elevated.



The dinner table can be lowered into the floor, creating a spacious sundeck.

HARPOON
BOATWORKS



THE BRIEF WAS TO DESIGN A LARGER GASOLINE TANK AND FAIRING ELEMENTS FOR THE NEW FLAGSHIP MODEL THE **K250**. I WORKED CLOSELY WITH KIBO'S ENGINEERING TEAM AND USED TOOLS LIKE: MOODBOARDS, HAND SKETCHES, PHOTOSHOP RENDERING AND 3D MODELING TO COME TO THE FINAL RESULT. A NEW STYLING DIRECTION TO DIFFERENTIATE THE NEW, MORE POWERFUL **K250** FROM THEIR CURRENT K150 MODEL.

IN JULY 2017 I WAS HIRED FOR A SHORT PROJECT AT KONEKSIE FOR THEIR BRAND KIBO MOTORCYCLES. KIBO IS AN INNOVATIVE KENYAN MOTORCYCLE BRAND THAT SEEKS TO PROVIDE SAFE AND RELIABLE MOBILITY FOR ALL.



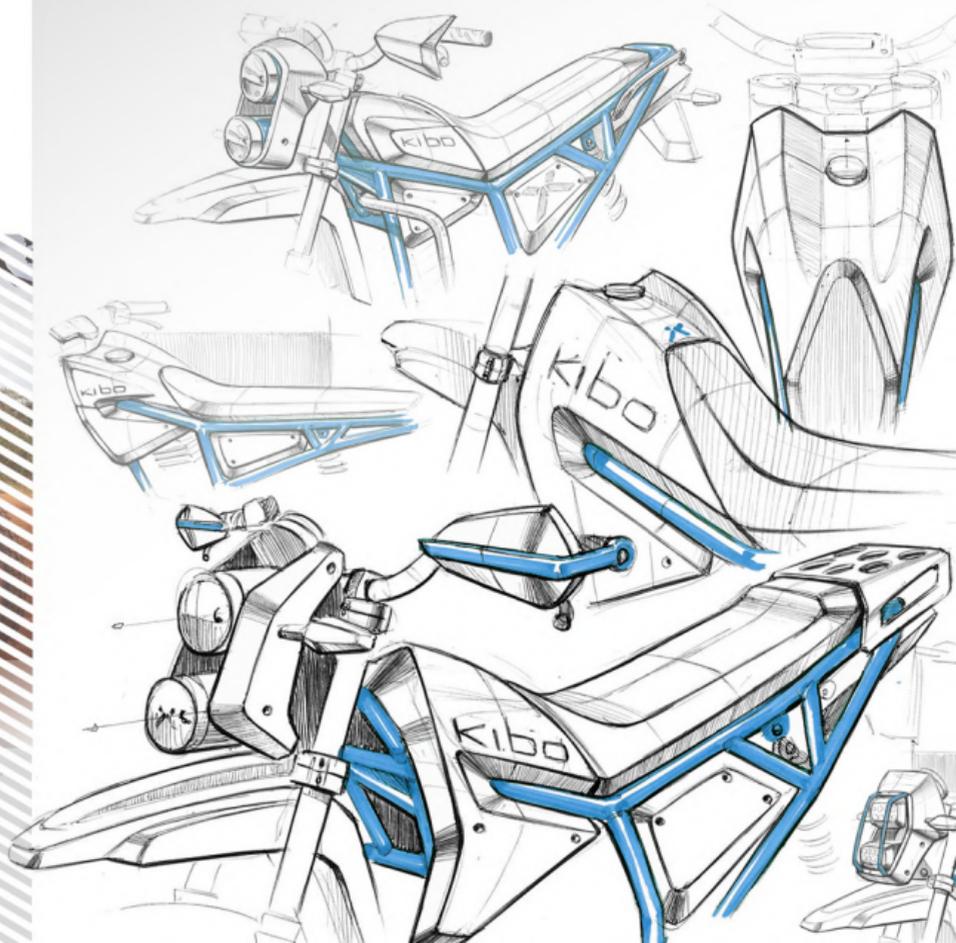
K250

IDEATION

STYLING MOODBOARD



Keywords: Strong - Functional - Productdesign - Contrast





THE TANK WITH LARGER CAPACITY AND FAIRING ELEMENT ARE DESIGNED TO LOOK ONE UNITY. THEY BOTH EMBRACE THE FRAME CREATING AN INTEGRATED, STRONG AND PURPOSEFUL APPEARANCE.

THE FAIRING ELEMENT HAS TWO AIR INTAKES ON EITHER SIDE THAT ARE DESIGNED TO NOT BLOCK THE AIRFLOW TO THE AIRCOOLED ENGINE BUT ALSO TO EMPHASIZE THAT THE **K250** IS MORE POWERFULL THAN ITS SMALLER BROTHER THE K150 THAT SHARES THE SAME FRAME.

THE LARGER GASOLINE TANK CAN ALSO BE USED WITHOUT THE FAIRING ELEMENTS ON THE NEW VERSION OF THE K150. MAKING IT A SMART, MODULAR SOLUTION.





THE KIBO K250



MORE INFO
WWW.KIBO.BIKE



IMAGES BY KIBO MOTORCYCLES

Yepp®



BOLDER

TU Delft

The Yepp Bolder is a children's wagon designed in the final bachelor course at the Delft University of Technology at the faculty Industrial Design Engineering. This project is a cooperation between the University and the company GMG. GMG's main business is selling bicycle seats for children under a brand called Yepp. During this project I investigated market opportunities for the company. Although the children's wagon market is quite small worldwide, in the Netherlands and Germany children's wagons are quite common. During my investigation I found some interesting facts about the children's wagon and took this as an opportunity to design an innovative children's wagon for GMG. Ending up finishing my bachelor final project with a grade of 10 out of 10.



DEVELOPMENT SKETCHES

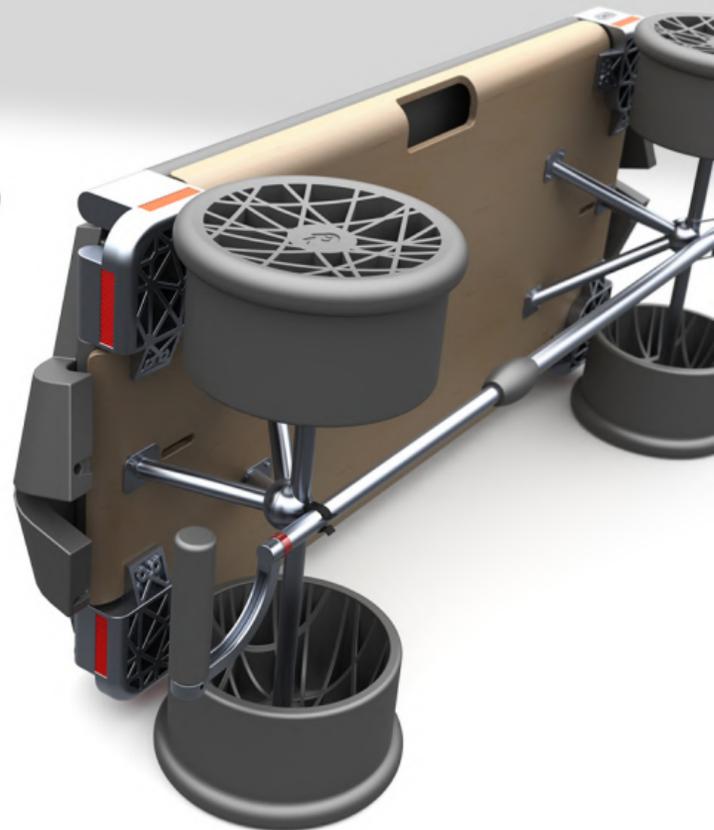


FOLDABLE DESIGN



Easier to get in

Smaller to store





THANK YOU FOR YOUR TIME!



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