

PORTFOLIO / 2025

Daniel D'Alton

Industrial Designer



Profile .

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Education

University of Limerick
BSc Product Design and Technology
Graduated November 2020
Chairperson of the Science Society
Final Year Class Representative

3D Softwar

Solidworks
Blender
Creo
Keyshot
Cura

Adobe Software

Photoshop
Illustrator
InDesign
Premiere Pro

Microsoft

Excel
Word
Powerpoint

Skills

Sketching
Painting
3D Printing
Model making
Automotive maintenance
Welding
Woodwork
Metal fabrication

Contents

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01
Final Year Project



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Freelance Work



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Personal Design & Artwork

Corsaor

Corsaor universal cargo assist

Corsaor is a universal cargo assist attachment for bicycles that offers businesses a low-impact goods transport system designed for urban environments. The name Corsaoor (pronounced Corsair) cleverly combines the Irish words “Carr,” meaning car, and “Saor,” meaning free, symbolizing the product’s aim to liberate cities from traditional, unsustainable transportation systems.

Corsaor enables businesses to transport goods efficiently without the need for additional vehicles, all within a convenient and environmentally friendly package. Acting as both a daily commuter bicycle and a goods transporter, the product simplifies the process. Once attached to any city bicycle, Corsaoor empowers users to transport up to 80 liters of storage and carry up to 30kg of goods across two separate containers.

One significant advantage Corsaoor offers is that cyclists won’t need to exert any more energy than they normally would when cycling without the extra weight. This is achieved by equipping the cyclist with two electrically powered wheels that engage when pedaling begins. When Corsaoor is not utilized for goods transport, users can easily remove the containers, and the wheels retract, allowing the bicycle to be used as usual.



Problem Statement:



“Provide a low impact goods delivery system as an alternative to vans and trucks that have negative impacts on the urban transport network and the environment.”

Background

Cities are growing at such a rate that by the year 2050, over **2/3 of the worlds population** will be living in cities. This will **put pressure on goods transport** systems within these cities due to several factors.

- Goods vehicles tend to be quite large and most of the cities are old and have **narrow road networks**.
- Due to their size goods vehicles contribute a lot to **traffic congestion**.
- Low emission zones are becoming more common to combat **pollution**. These policies restrict goods vehicles to using alternative routes at various times.
- Cities are becoming more **pedestrianized**. These leaves less route options for traditional goods transport such as trucks and vans.

With all these points to consider, its time to **rethink** how people and businesses in urban areas transport goods.

Interviews 01

Fly on the wall 03



For my interview research I chose 5 participants. These participants were chosen because of there varying interactions with goods transport.



Mary D'Alton
Café owner



Michael Donovan
Nightline
delivery driver



Michael Grace
Restaurant
chain owner,
Supply
distribution
owner.

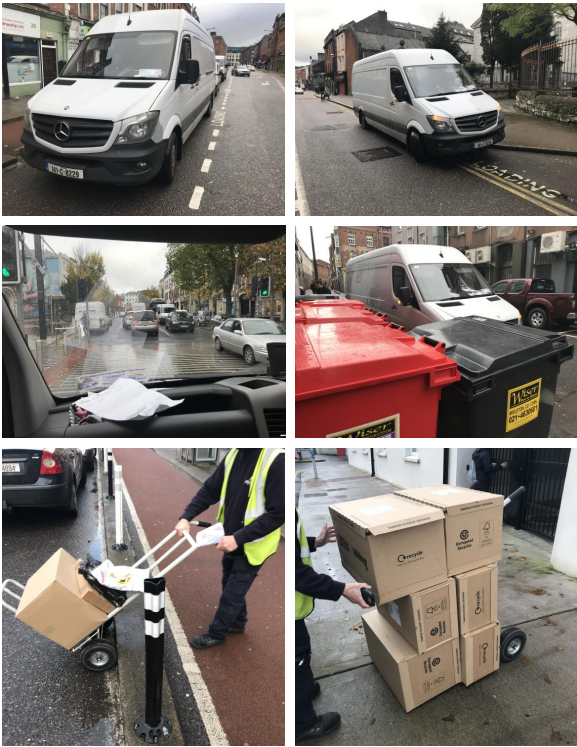


Robert Grace
Bakery Owner



Patrick Doyle
Deliveroo
Delivery
Cyclist

- Some of the biggest pain points of the delivery process included:
- Heavy traffic in the morning.
 - Lack of parking available.
 - Awkward sized packages.
 - obstacles on the road such as the cycle lane dividers, bins, lamp posts, bollards, steps and trees.
 - Checking documents.
 - Lifting items in and out of the van.
- Dollies were brought in the van in case of heavy packages or large loads. Most of the objects inside the boxes occupied less than half the space of the box.



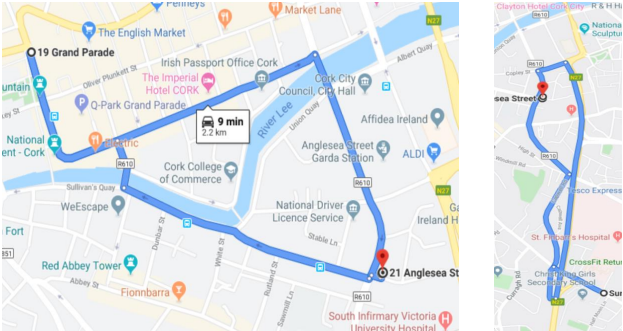
Immersion 02

Journey Map 04

Transport used from 8am-1pm for Twenty Café in Cork.

As part of my immersion research, I decided to lend my services as a driver in order to retrieve supplies. The research consisted of 3 supply runs.

1. Trip to the English market for baguettes. The trip was 4km and took 40 minutes. Mainly due to finding a parking spot and traffic. The items weren't heavy but they were bulky.
2. Another trip, this time to the bank to collect change. This was 3,5 km and took half an hour. Parking was an issue again. The items were small but heavy.
3. The third trip was to get drink. This was a 25 minute trip and was 4km long. The items were heavy, and bulky.



- Arrives at work with supplies.
- Bakes cakes.
- Van is not in use for hours.
- Occupying loading bay which could be used for customers.
- Receives prepares orders for delivery.

.1

- Gets in van.
- Drives to addresses.
- Must get out and leave van unattended.
- Possibly illegally parked depending on the day.
- Can make anywhere up to 3 runs a day.
- Returns with van.

.2

- Finish orders.
- Clean shop.
- Check stock/supplies.
- Make supply run.
- Fill up van with up to 350kg of supplies.

.3

Secondary Research-Articles 05

Can 'nests' and eco bikes reduce the environmental impact of parcel delivery in cities?

In this article, Tracey Lindeman brings up the problems being faced by delivery transport in urban areas. Problems such as trucks having to make almost 100 stops per delivery and each time forcing traffic to bottleneck and causing jams. These trucks are coming into city centres more often due to demand. Victor Char, a consultant with Jalon Montreal said that sometimes the truck leave the warehouse "half empty".



Jalon Montreal is developing a solution to this called 'Colibri'. Colibri is a set of hubs setup within the city to receive packages and deliver them on electric cargo bikes. These bikes are created in order to get rid of big warehouse spaces. Their main focus however was tackling emissions and the idea is catching on with other cities around the world using the system.



Secondary Research-Technology 07

- The StreetScooter(bottom) is a fully electric delivery van that started production in Germany in 2014. In 2016 DHL bought the manufacturer in order to supply them with electric vehicle to replace their 70,000 strong DHL Express fleet.
- Volvo(center) is currently developing autonomous goods vehicles or AGVs.
- Drones(top) are also becoming a large area for development. Amazon, DHL and UPS are all currently developing drone technology for 'Last-Mile' deliveries.

Secondary Research-Reports 06

Urban commercial transport and the future of mobility

In a report by McKensey & Company published in 2017 there are vast amounts of data given on commercial transport in urban areas. Some of the most interesting points are that:

- Trucks cause \$28 billion worth of congestion every year and that figure is expected to rise to \$34 by 2020.
- There are 330 million commercial vehicles in use worldwide. Up 32% in ten years.
- Traffic can cost 2-4% of a countries GDP

This report also discusses 20 solutions to these problems we will be facing such as:

- Load pooling
- Autonomous ground vehicles
- Electric vehicles
- Combining passenger and parcel delivery

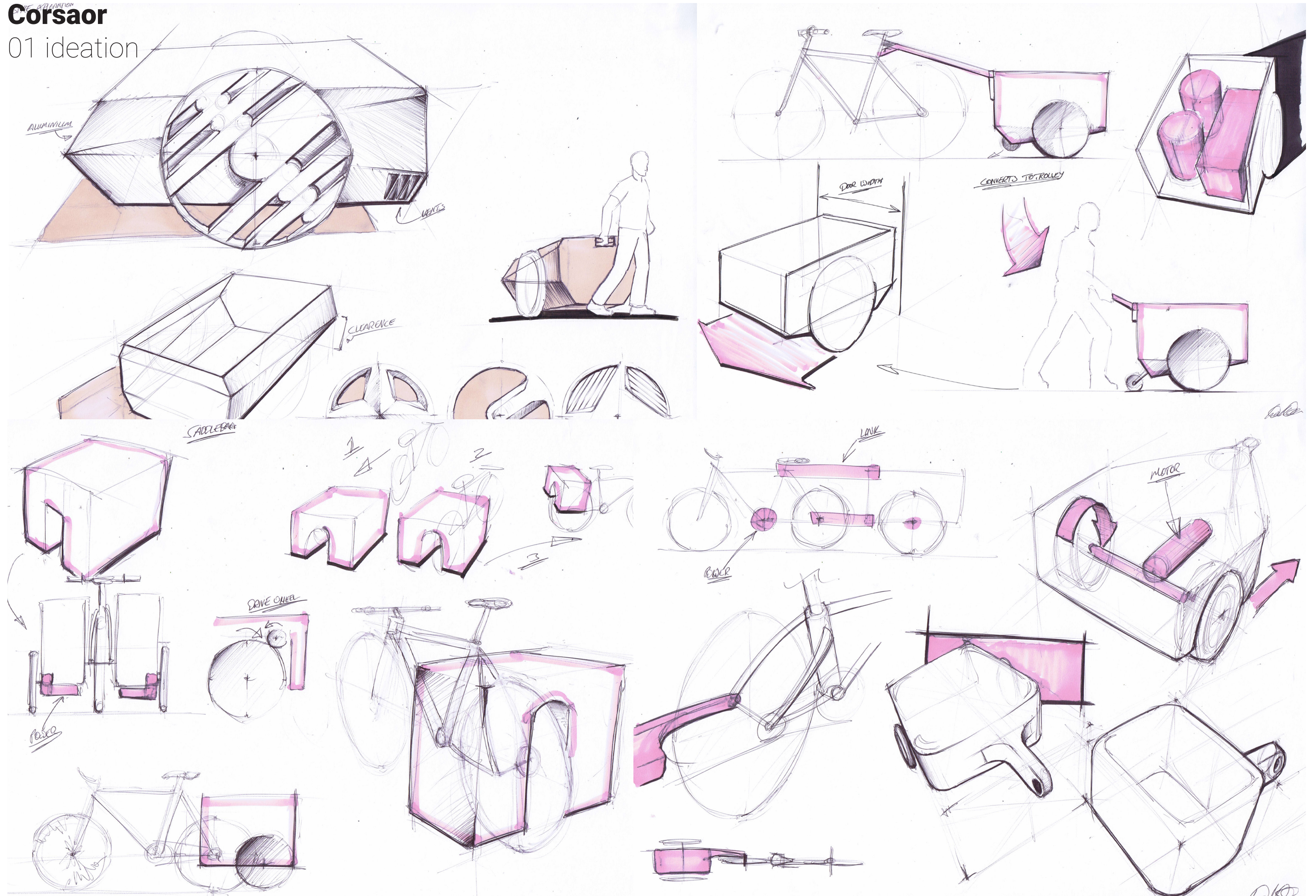


Findings

- Businesses rarely if ever use the maximum capacity that their commercial vehicles can store.
- Food supply runs take up very little space compared to other goods.
- Aside from delivery services, the vans owned by these companies see little use throughout the day.
- When they are used, these vehicles spend most of their time in traffic on relatively short journeys in a small area.
- Every van had equipment to accompany it on deliveries such as a dolly.
- Most items transported were no bigger than a meter cubed and 10 kg in weight.
- Last-mile delivery is the most costly and unreliable part of the entire delivery process.

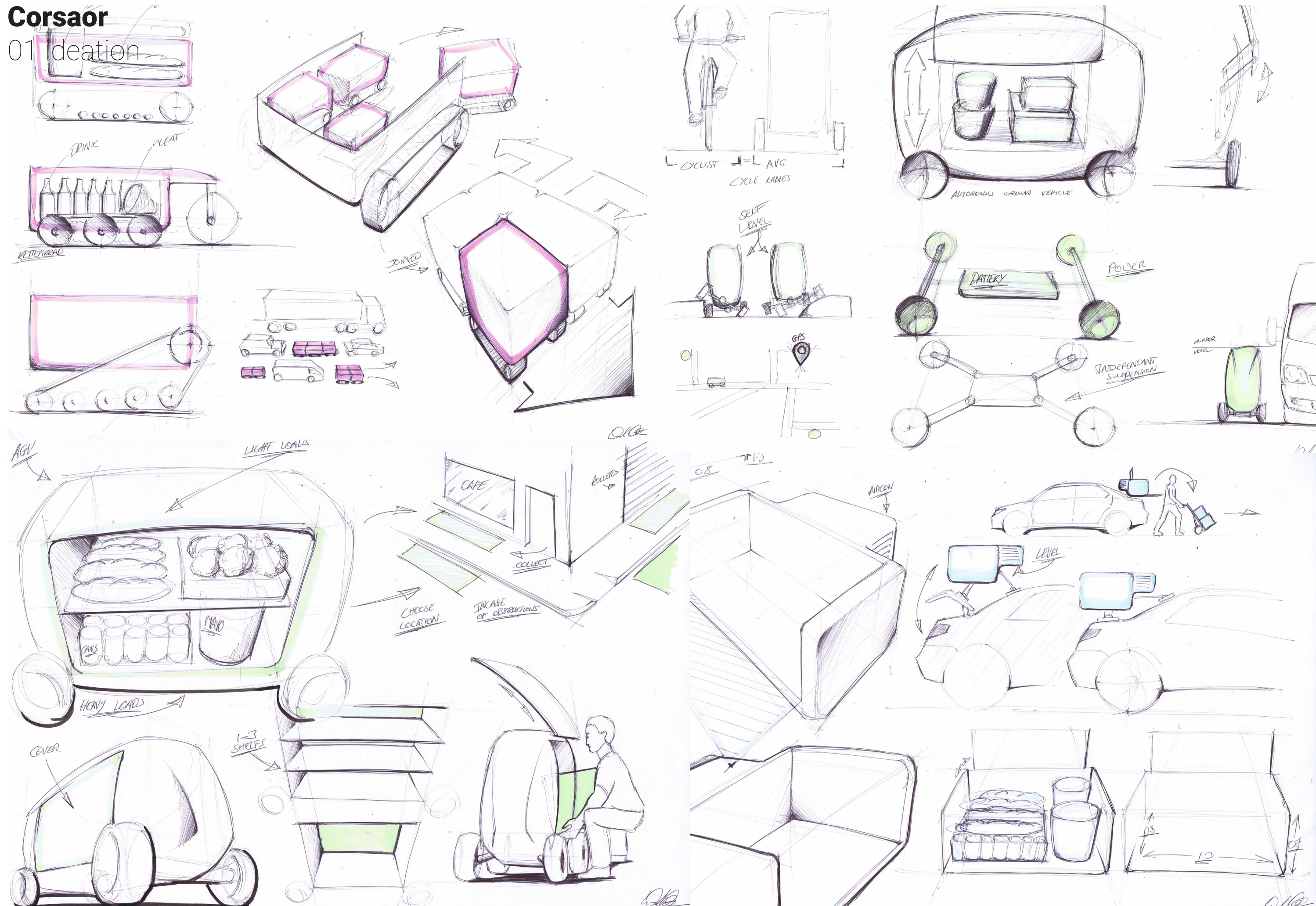
Corsaor

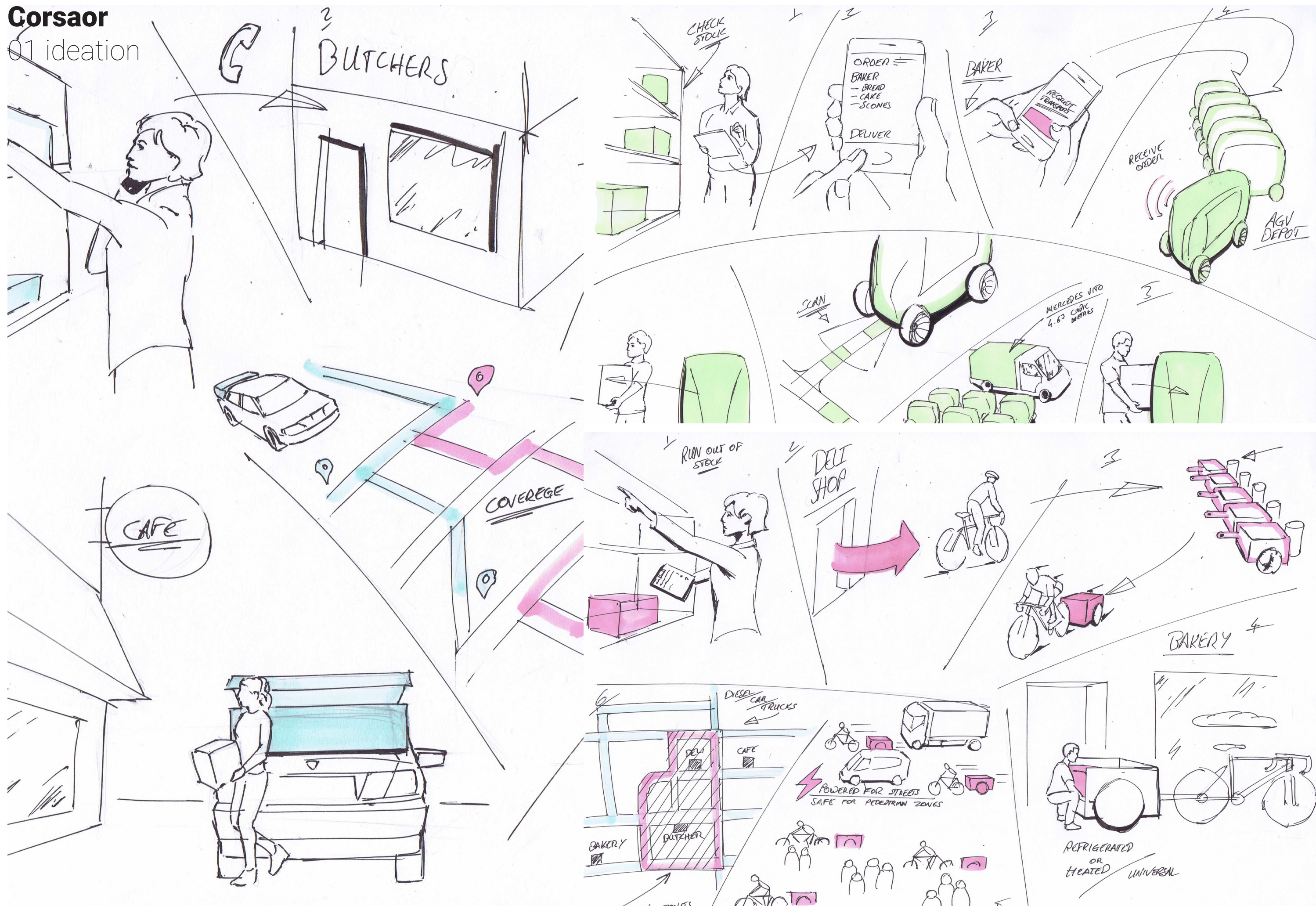
01 ideation



Corsaor

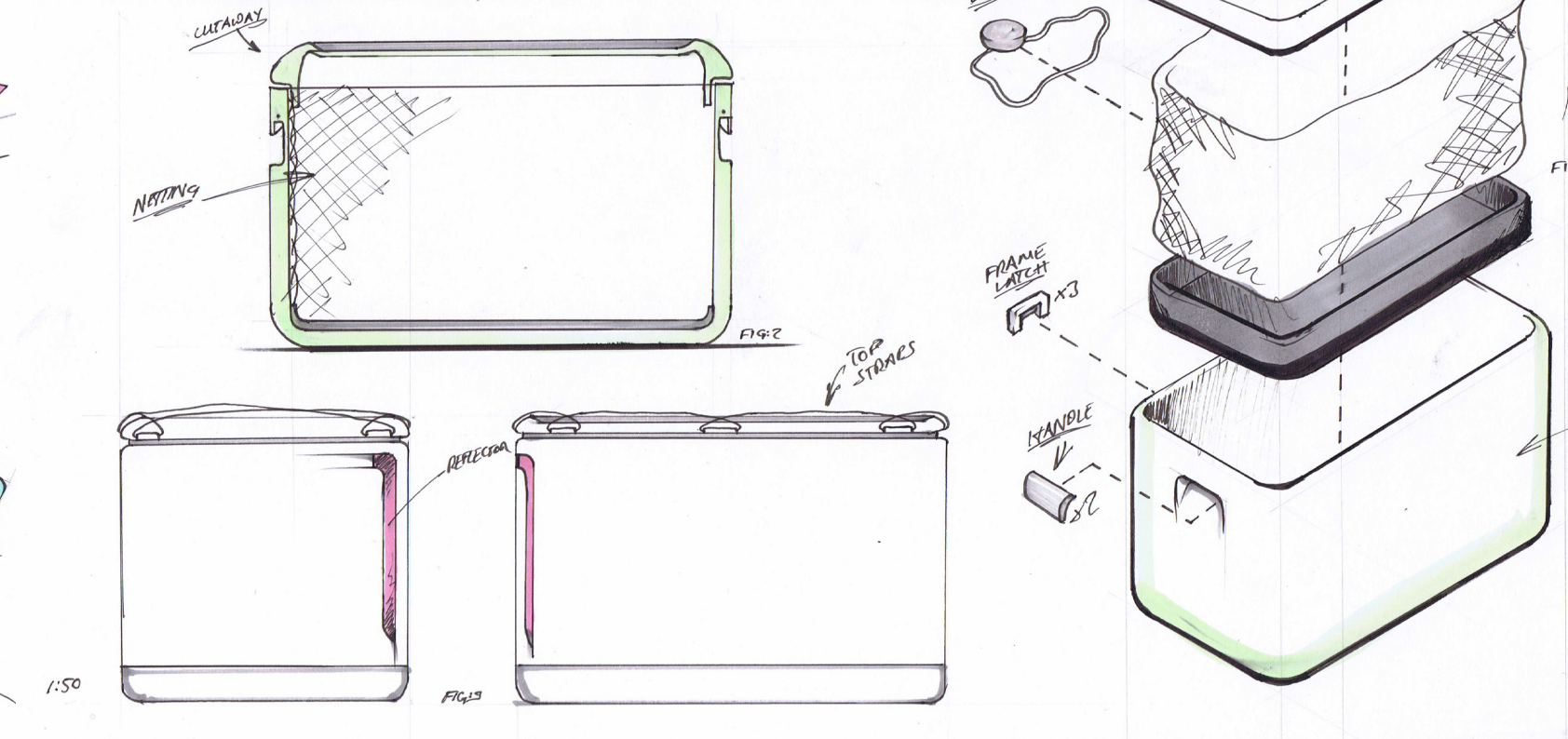
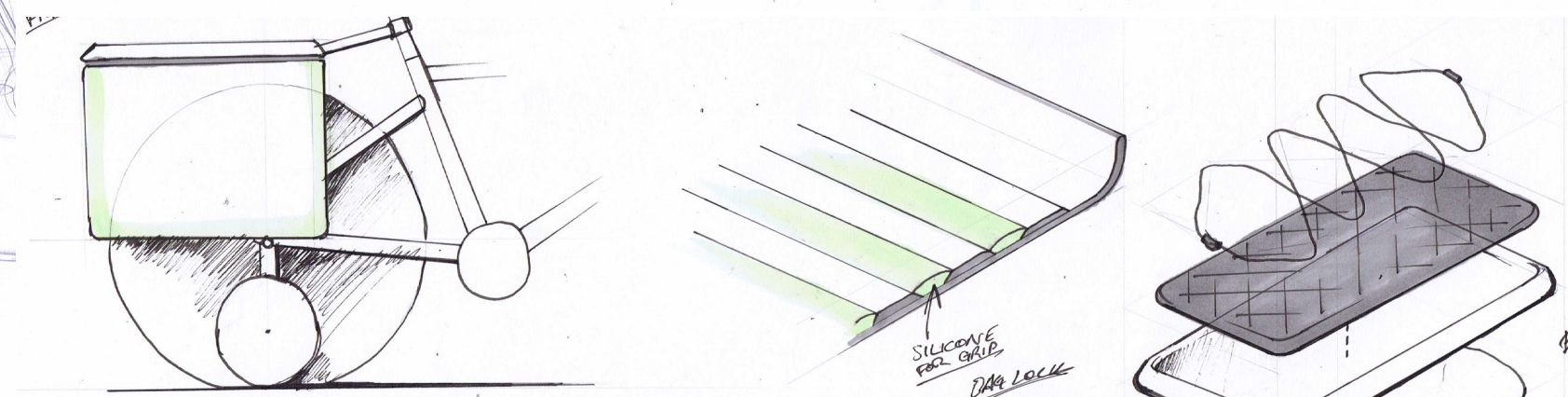
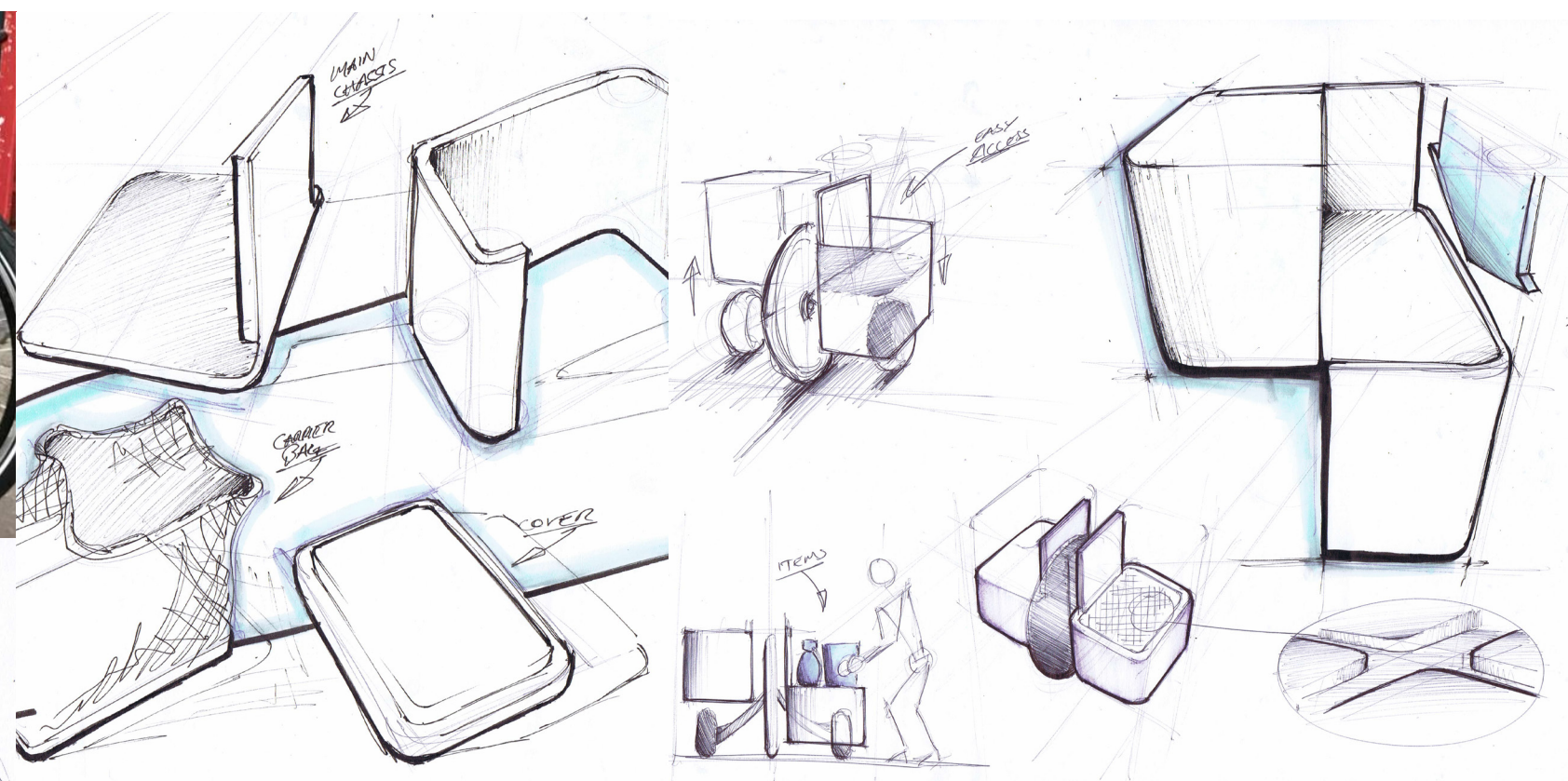
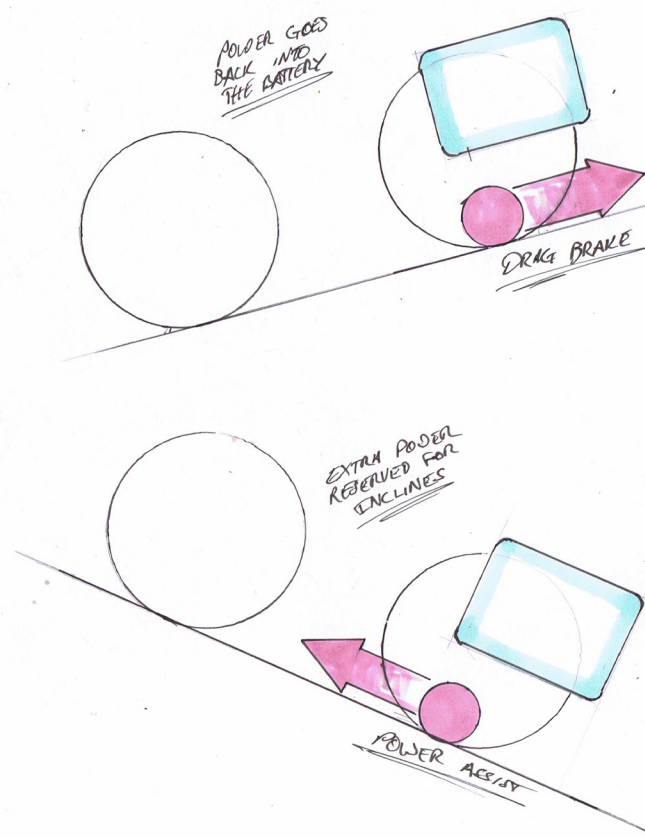
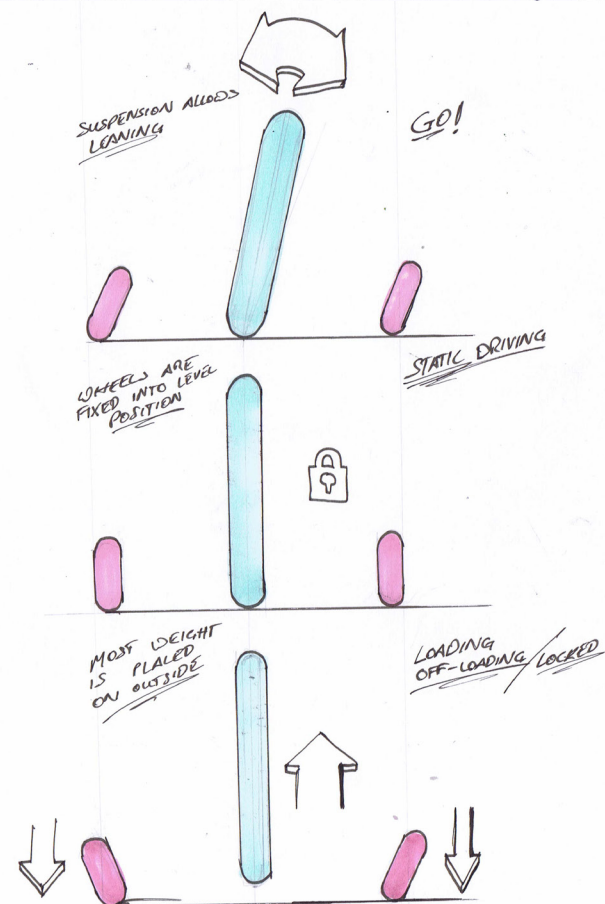
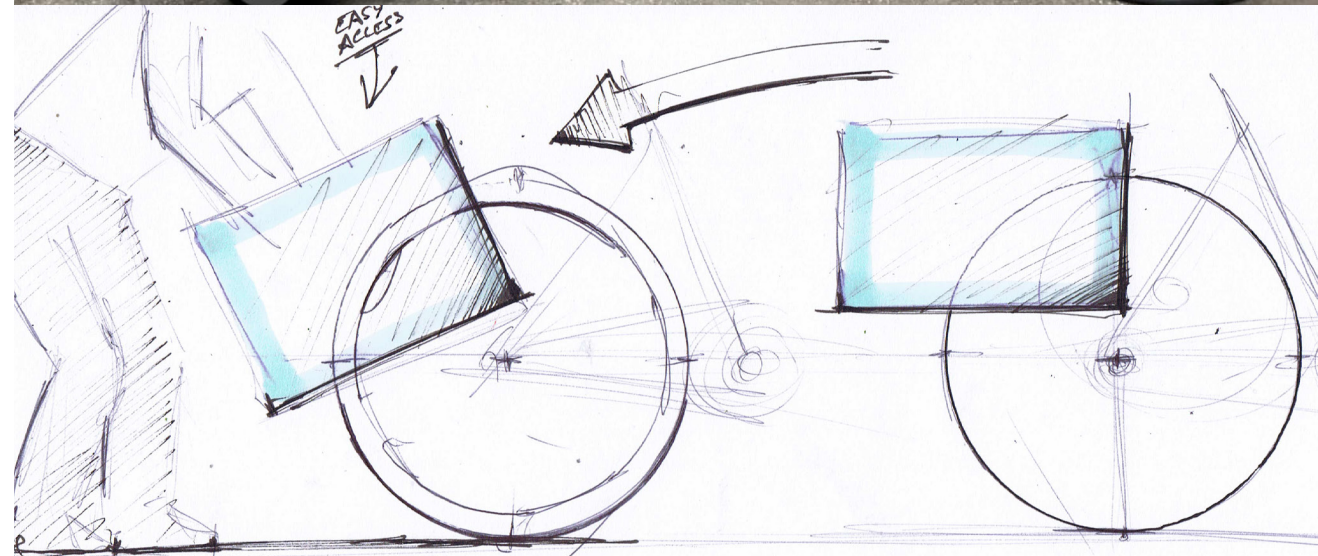
01 Ideation





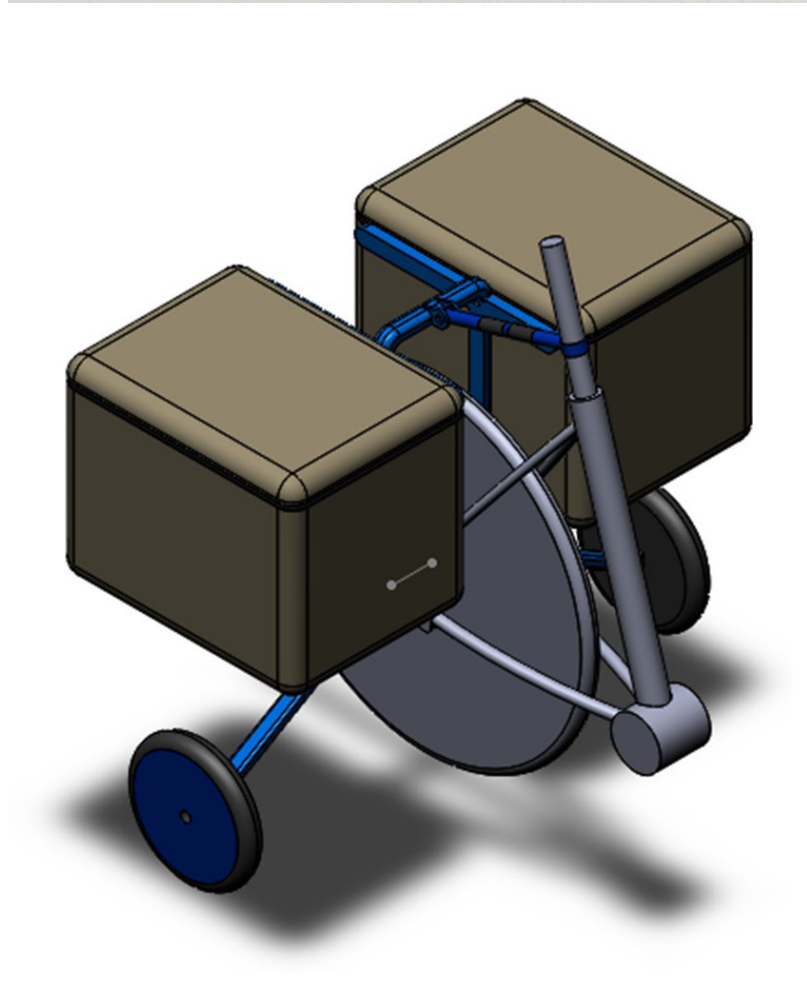
Corsaor

01 ideation



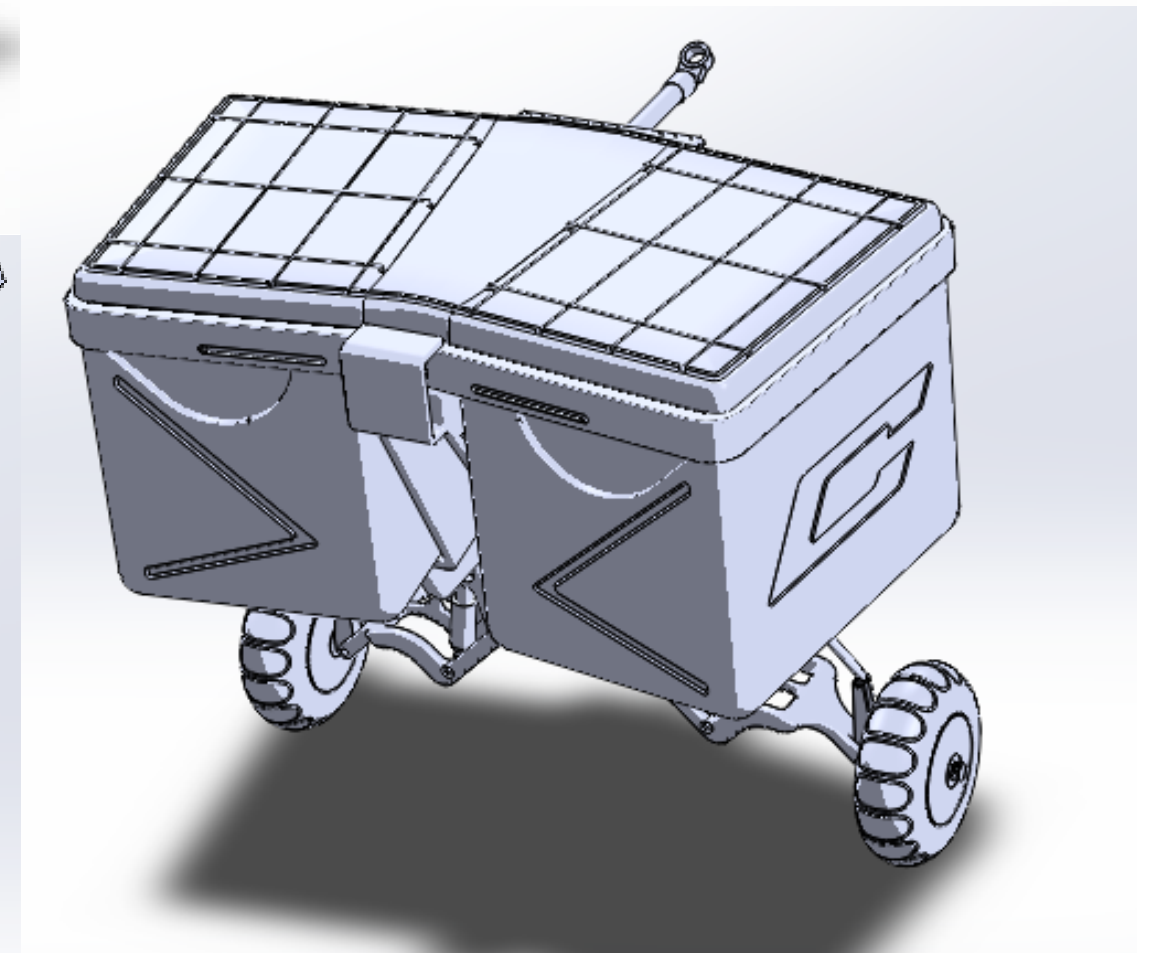
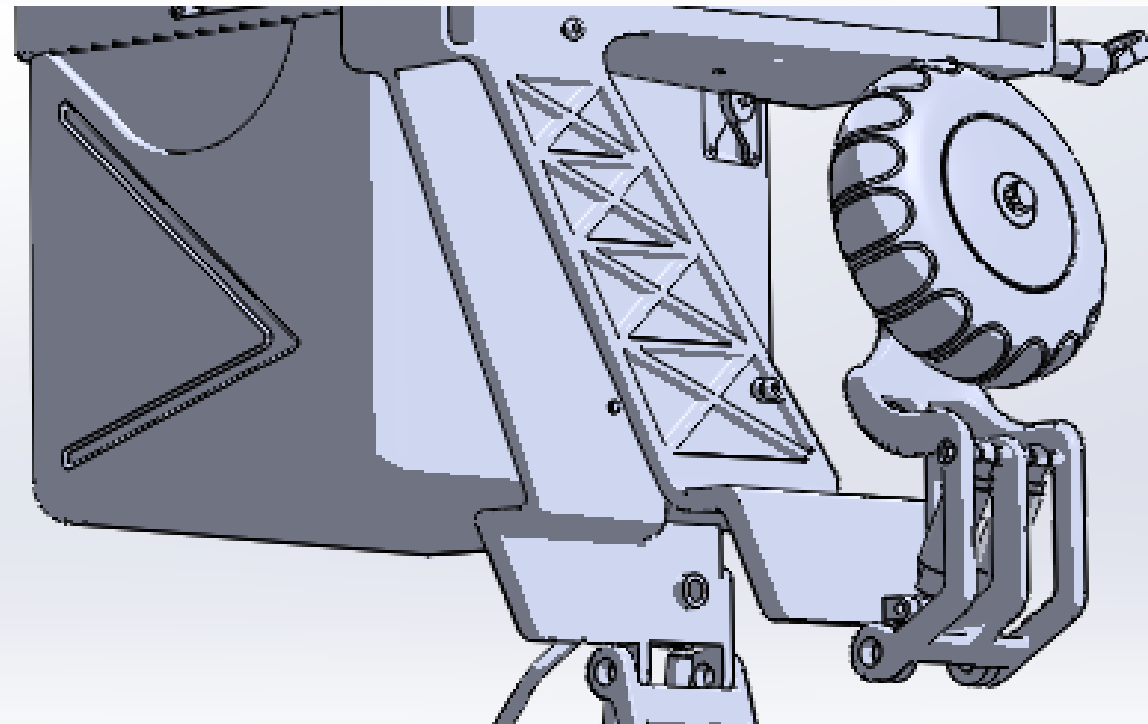
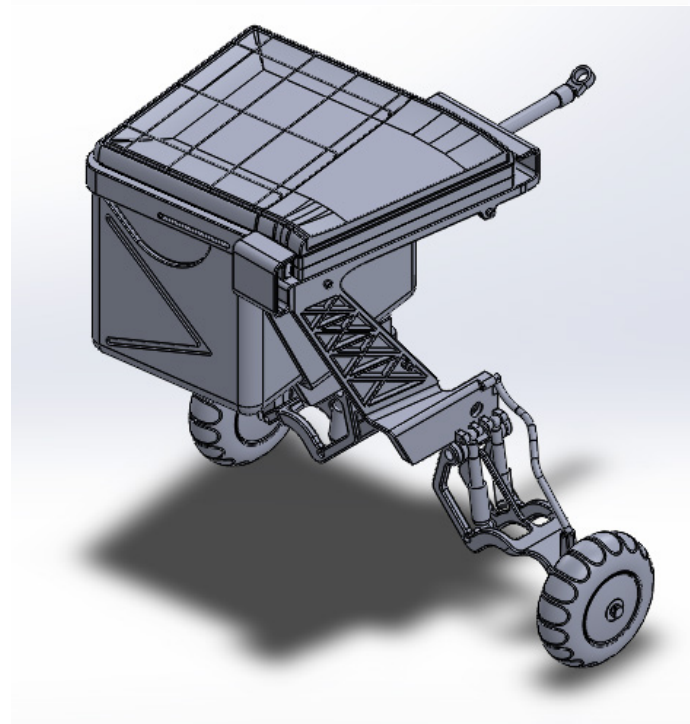
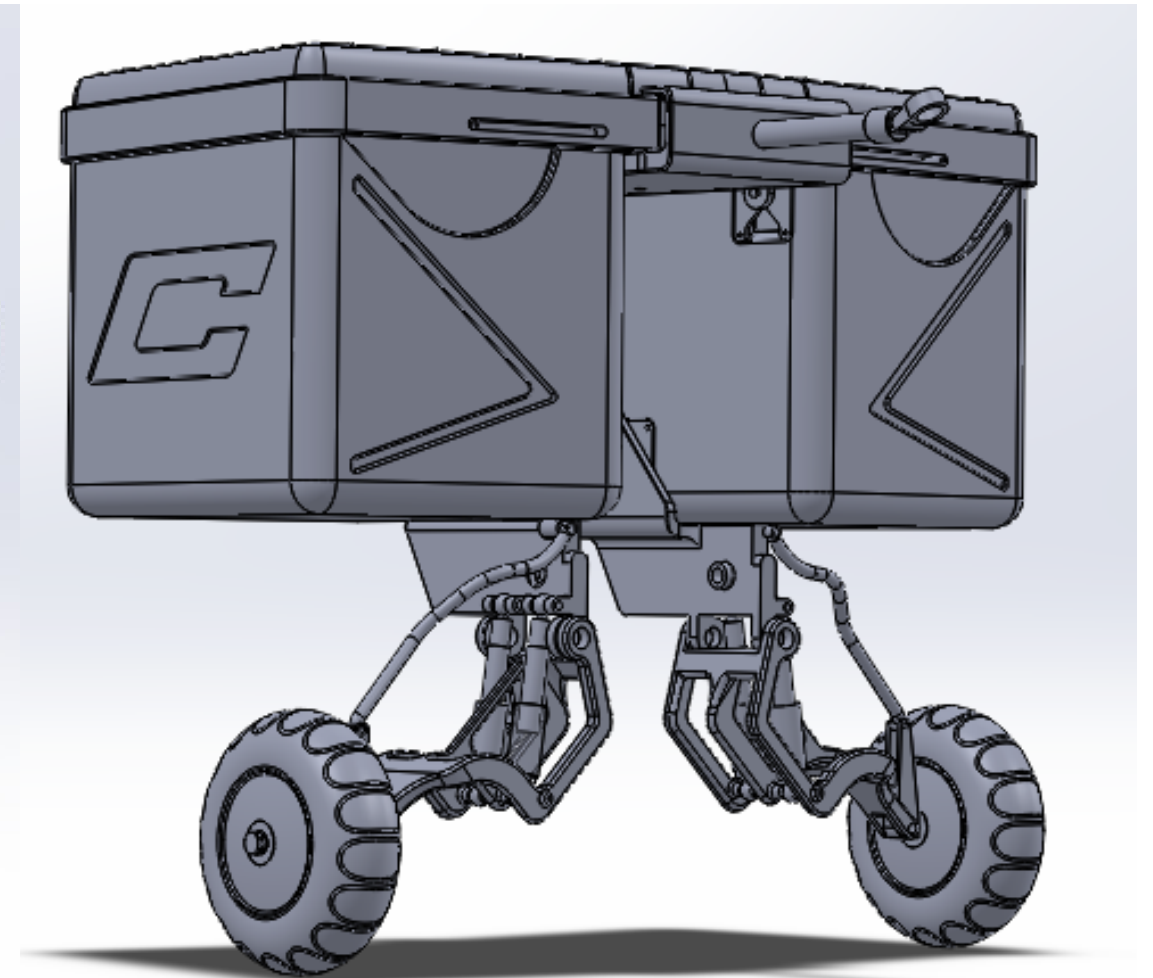
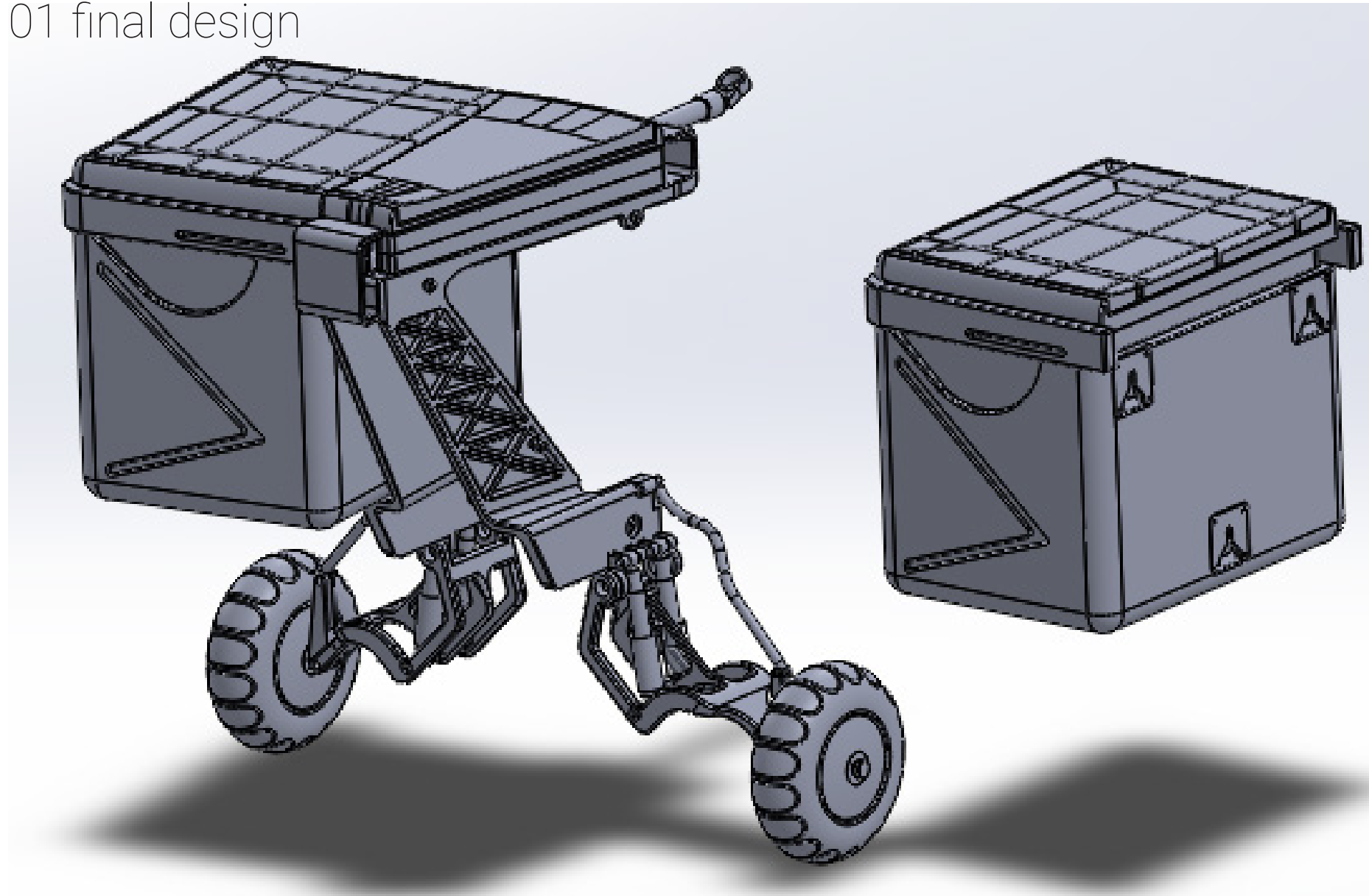
Corsaor

01 development



Corsaor

01 final design



Corsaor

01 final design



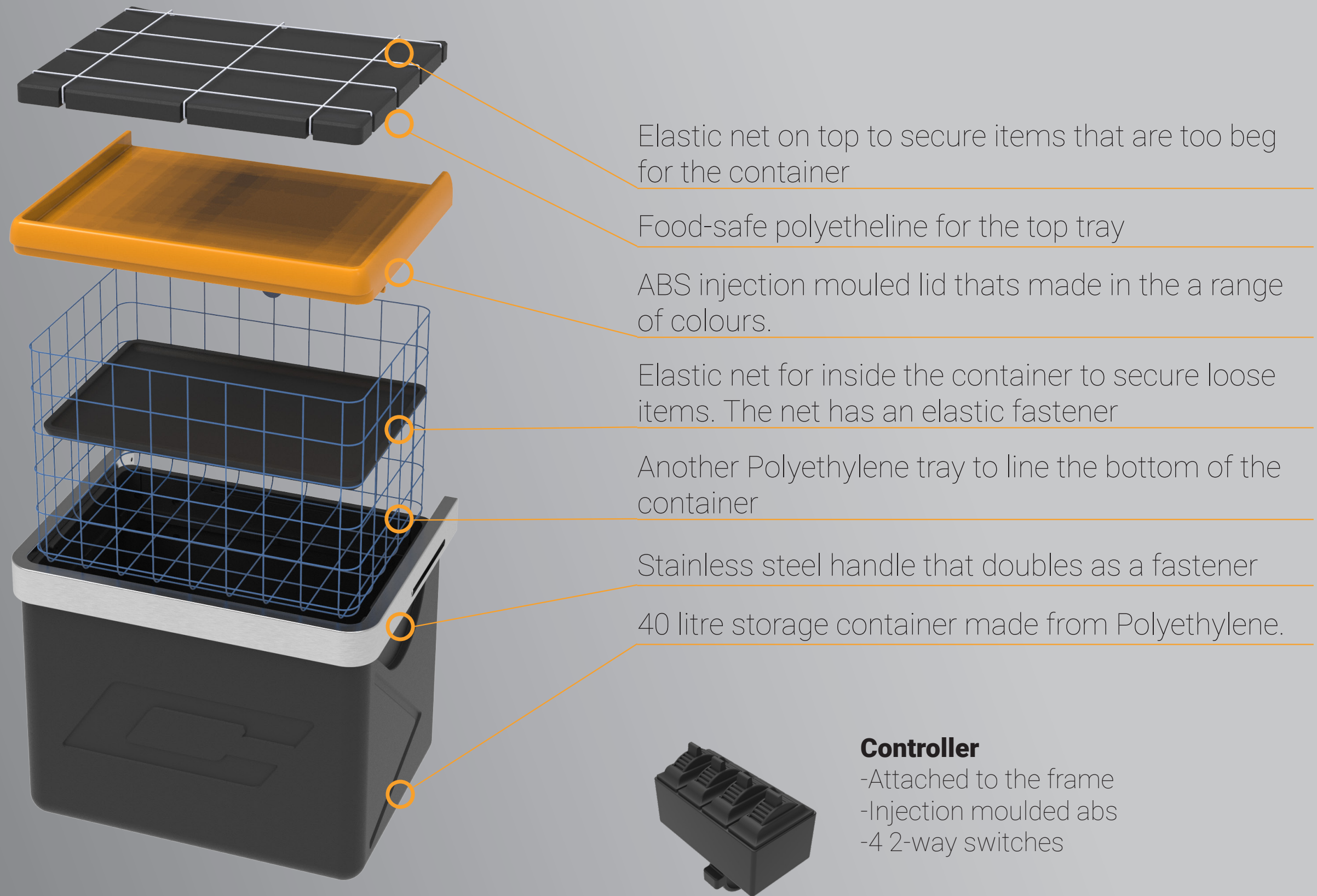
Frame

- Cast magnesium alloy construction
- 2 M365i motorized wheels
- 4 Frigelli linear servos that control the suspension
- 2 E-scooter batteries



Corsaor

01 final design



Handle Sanitizer Dispenser

Freelance Design

Description

The Handle Sanitizer Dispenser functions as a door handle with an integrated hand sanitizer to mitigate the spread of the COVID-19 virus. This innovative design involves spraying sanitizer fluid on the handle lever upon pulling it to open a door. As a result, the handle remains consistently sanitized and ready for the next user.

Background

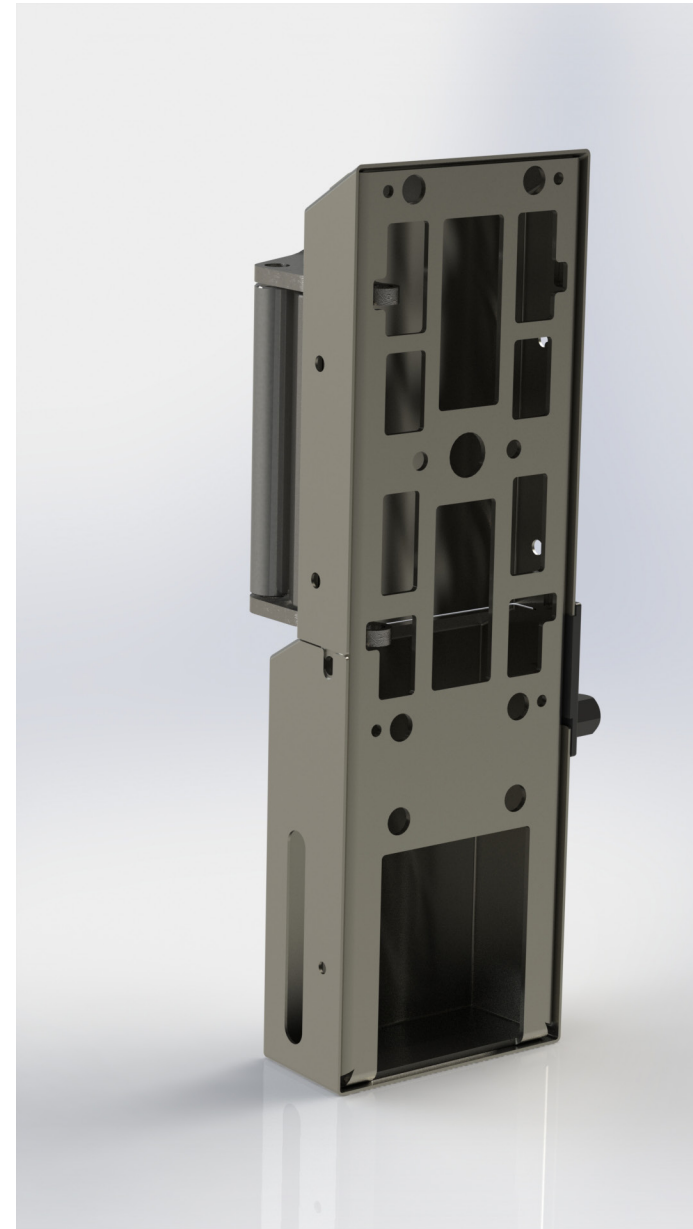
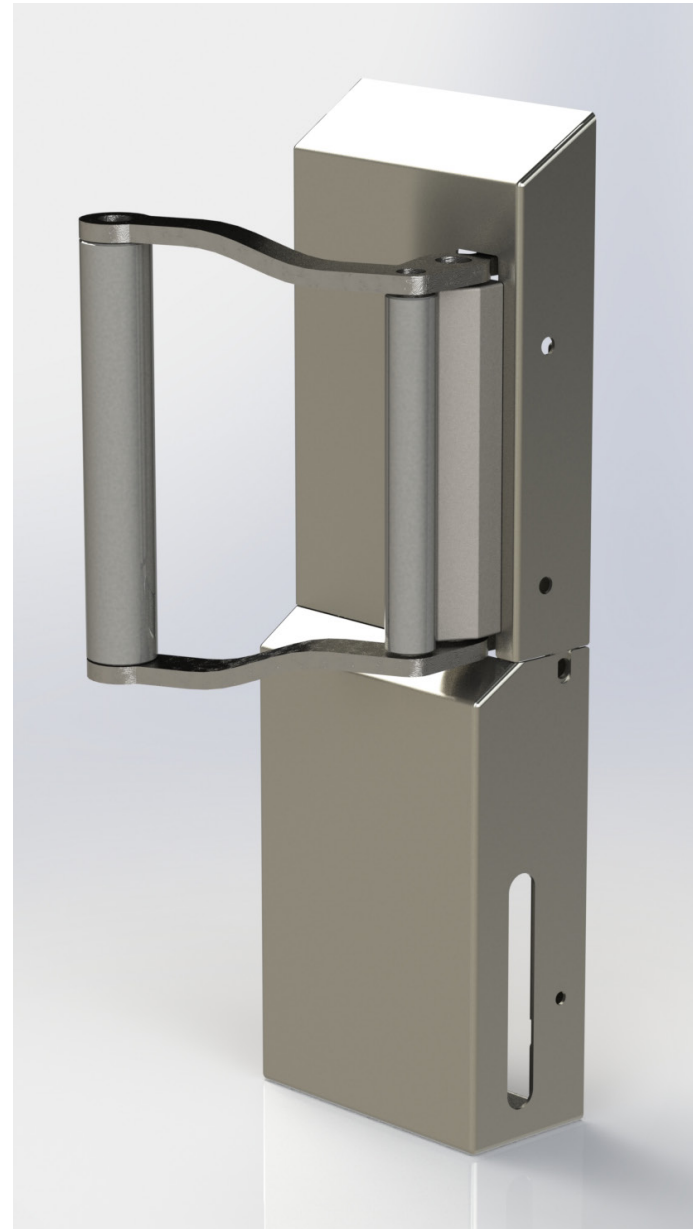
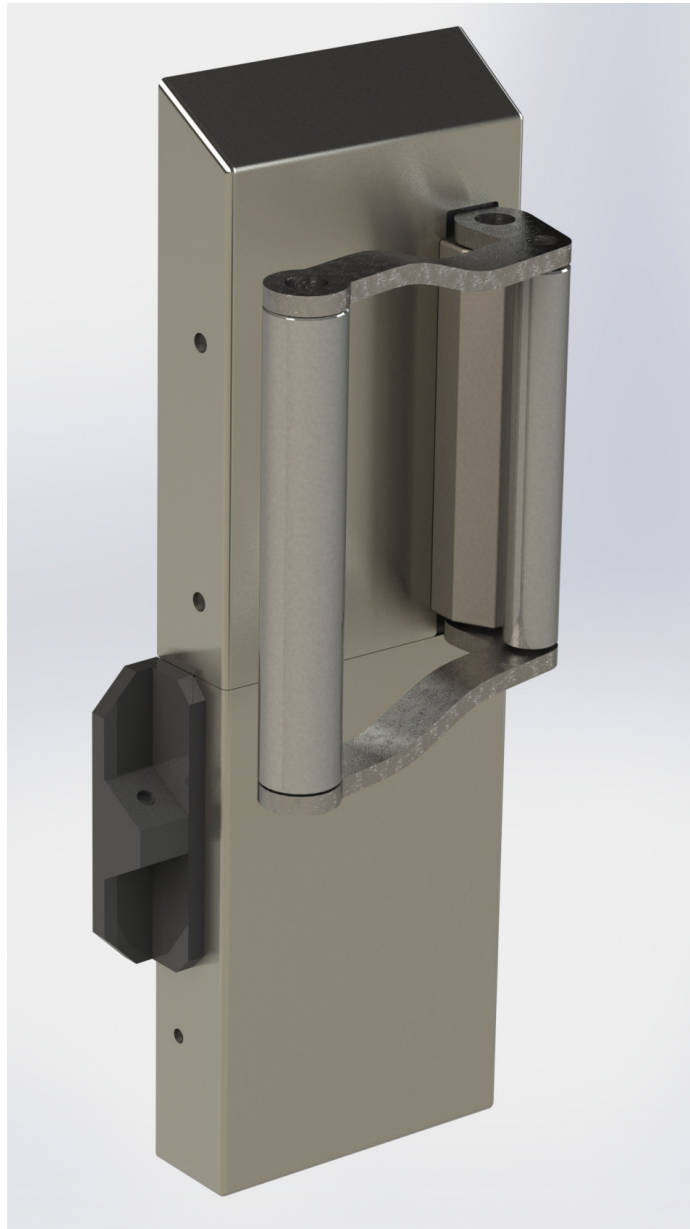
Freelancing as a product designer has significantly improved my professional skills. The diverse range of projects and clients has enhanced my adaptability, problem-solving, and time management abilities. Constant feedback loops help to refine my communication skills, ensuring the final product meets client expectations.

During the COVID-19 pandemic, numerous business owners sought to adapt their business models to comply with new regulations. Consequently, I chose to provide my services as a product designer, 3D printer, and prototyping specialist. This decision resulted in a diverse array of projects, ranging from gym equipment to customer service protection against COVID, including the Handle Sanitizer Dispenser. The development of this prototype product involved collaboration with multiple stakeholders across various time zones, making it a valuable aspect of my product design learning curve.



Handle Sanitizer Dispenser

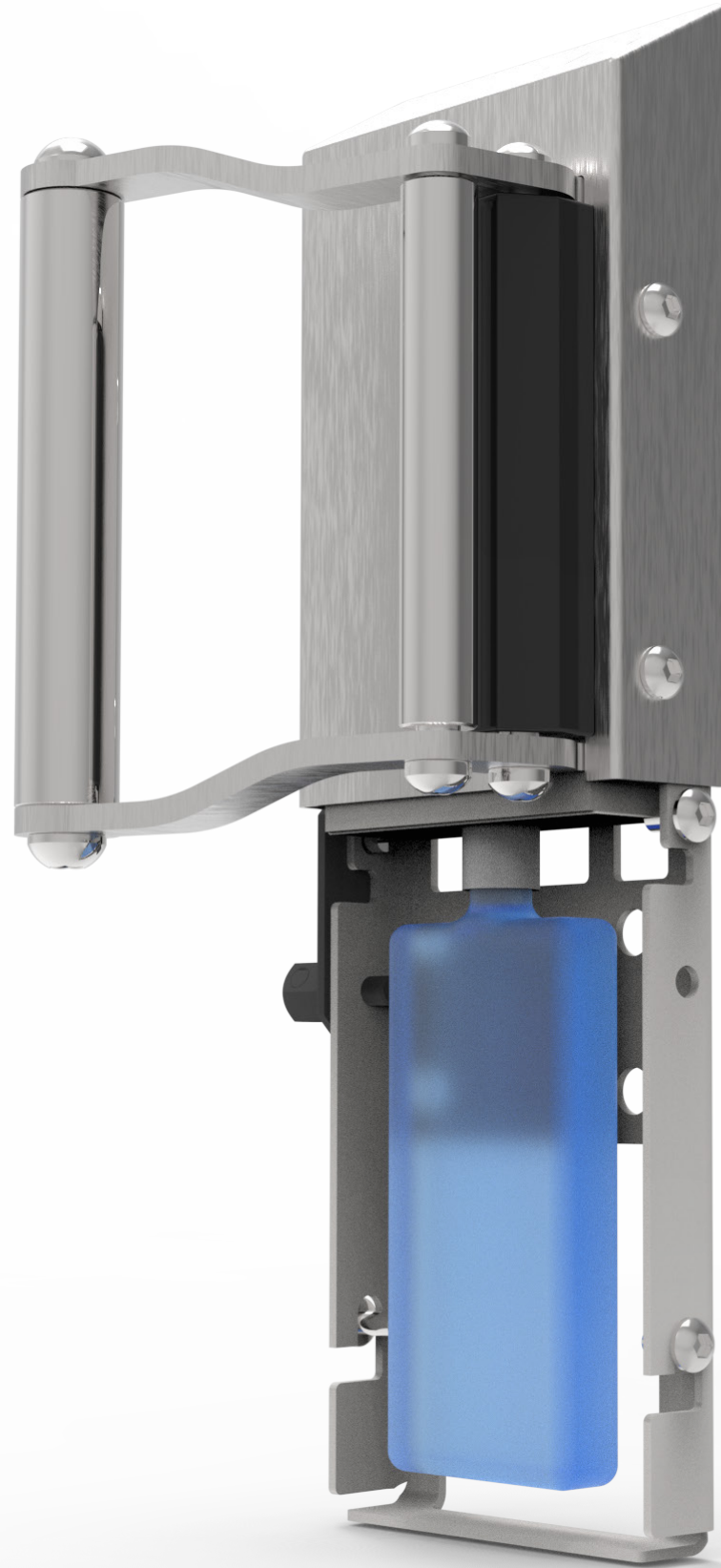
02



Early models used for render mockups and basic production costings of the exterior components for the prototype. During this time we also discussed whether or not to develop a larger lower cover to allow for increased sanitizer capacity.

Handle Sanitizer Dispenser

02



High fidelity renders for promotional use.

A more traditional handle design was developed to broaden the scope of users.



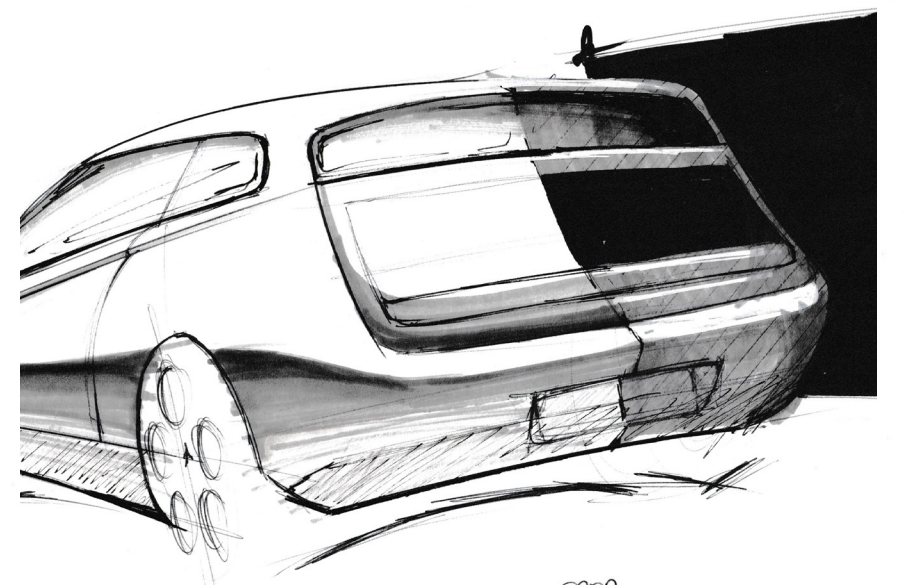
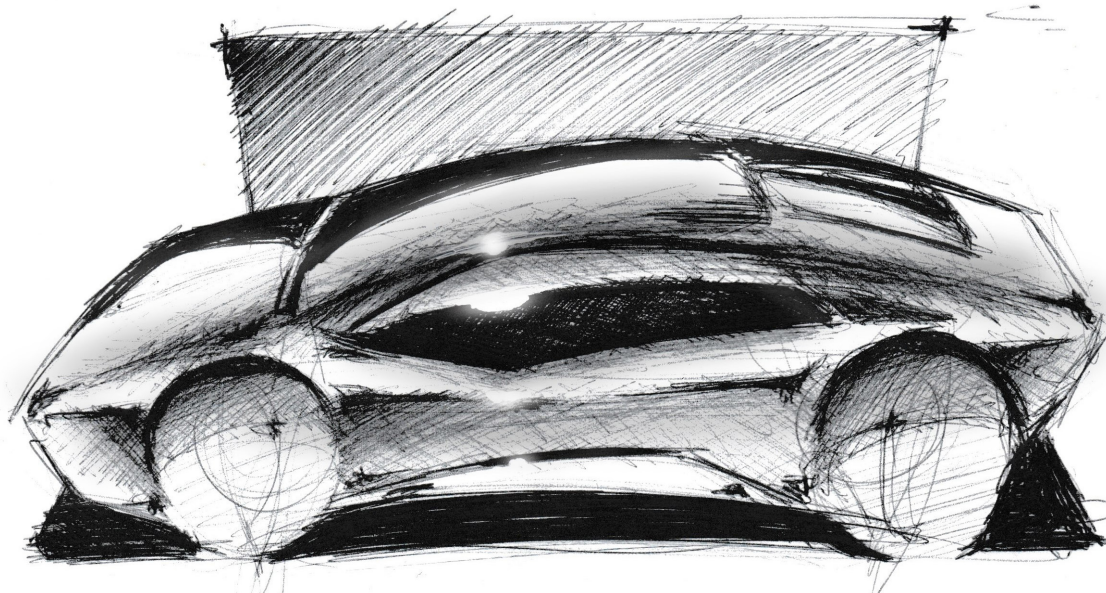
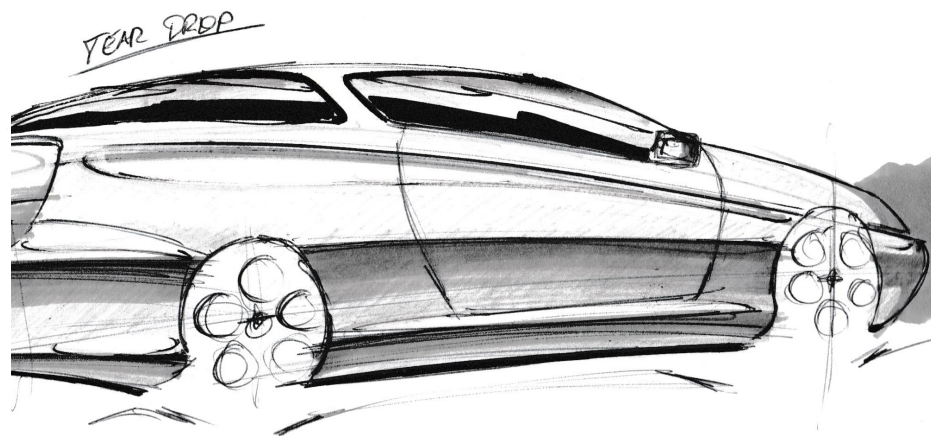
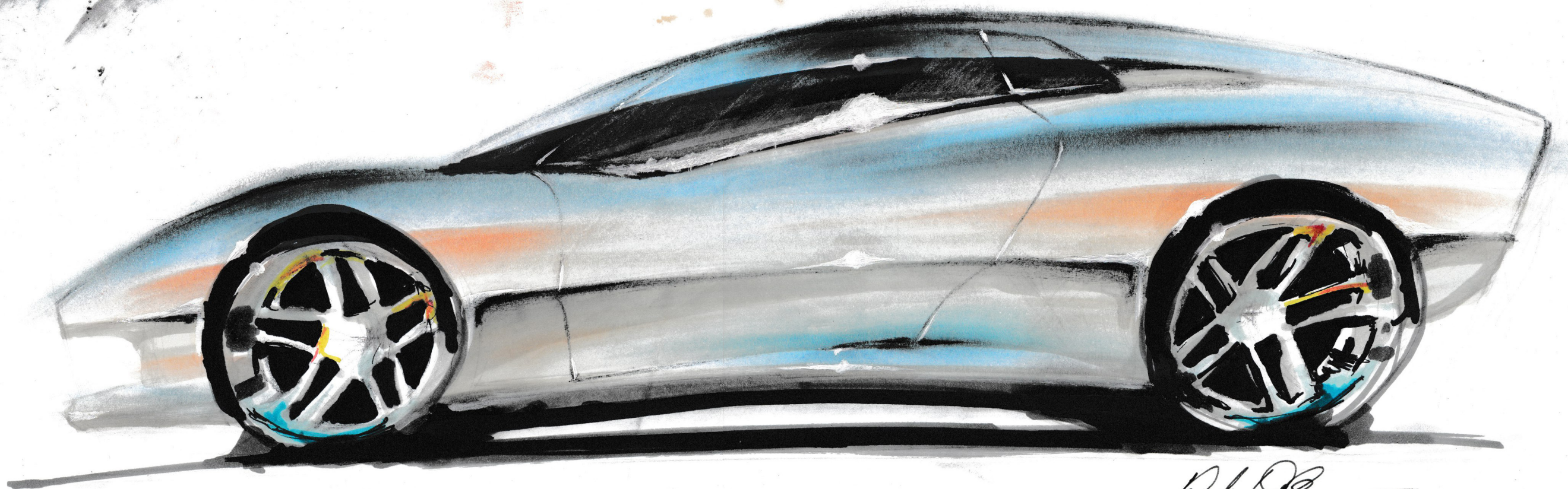
Handle Sanitizer Dispenser

02



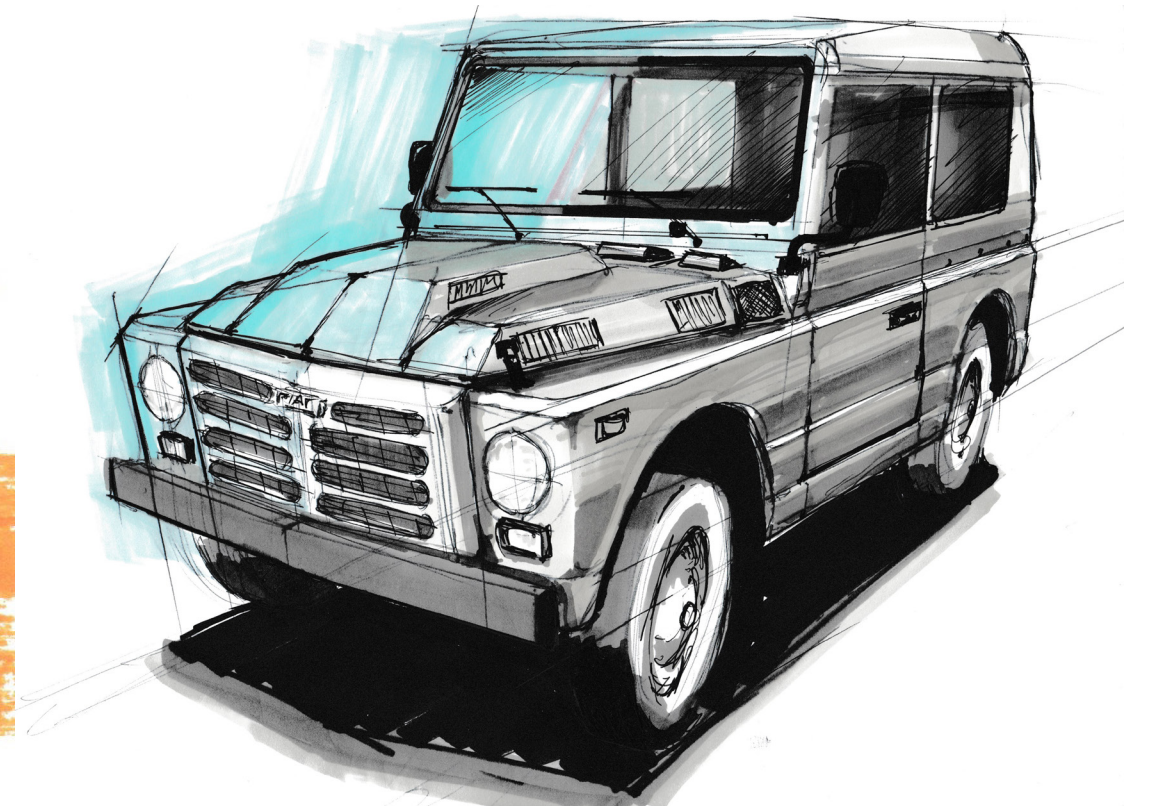
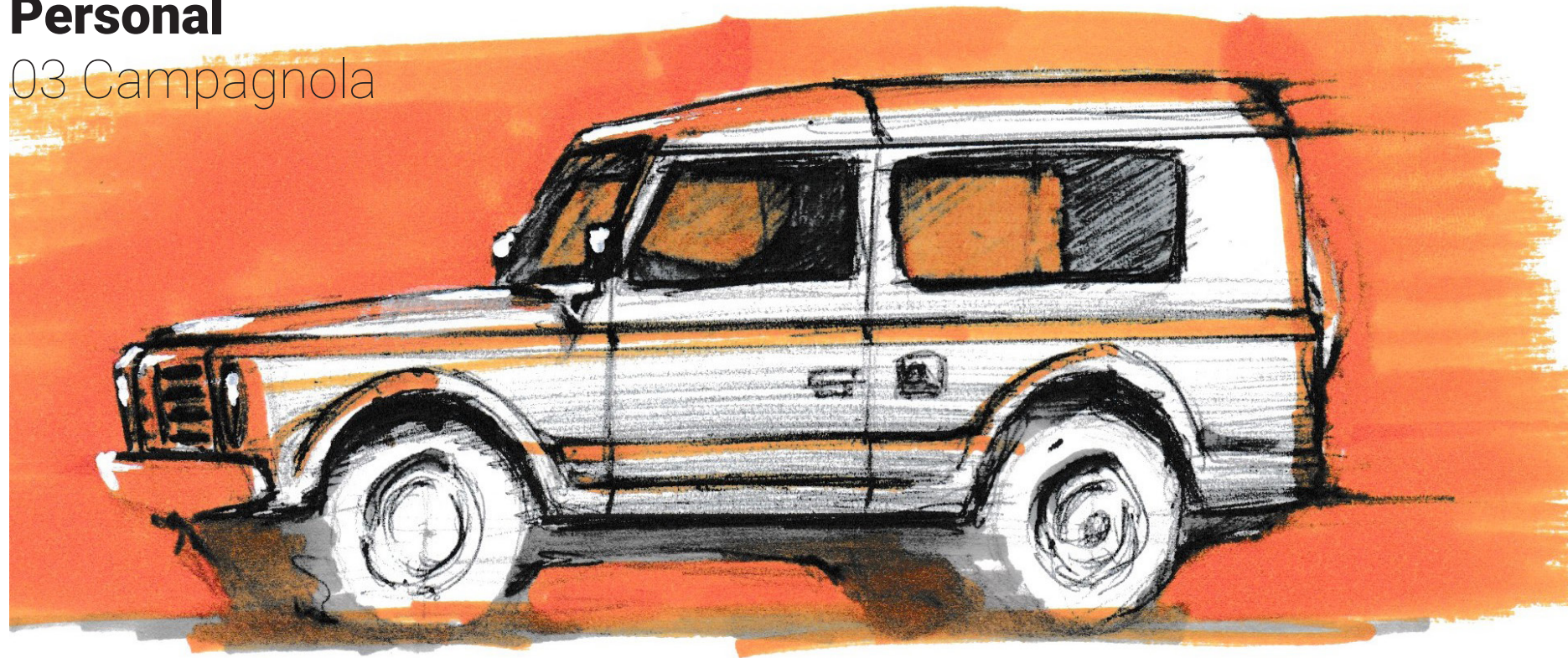
Personal

03 Sketching



Personal

03 Campagnola

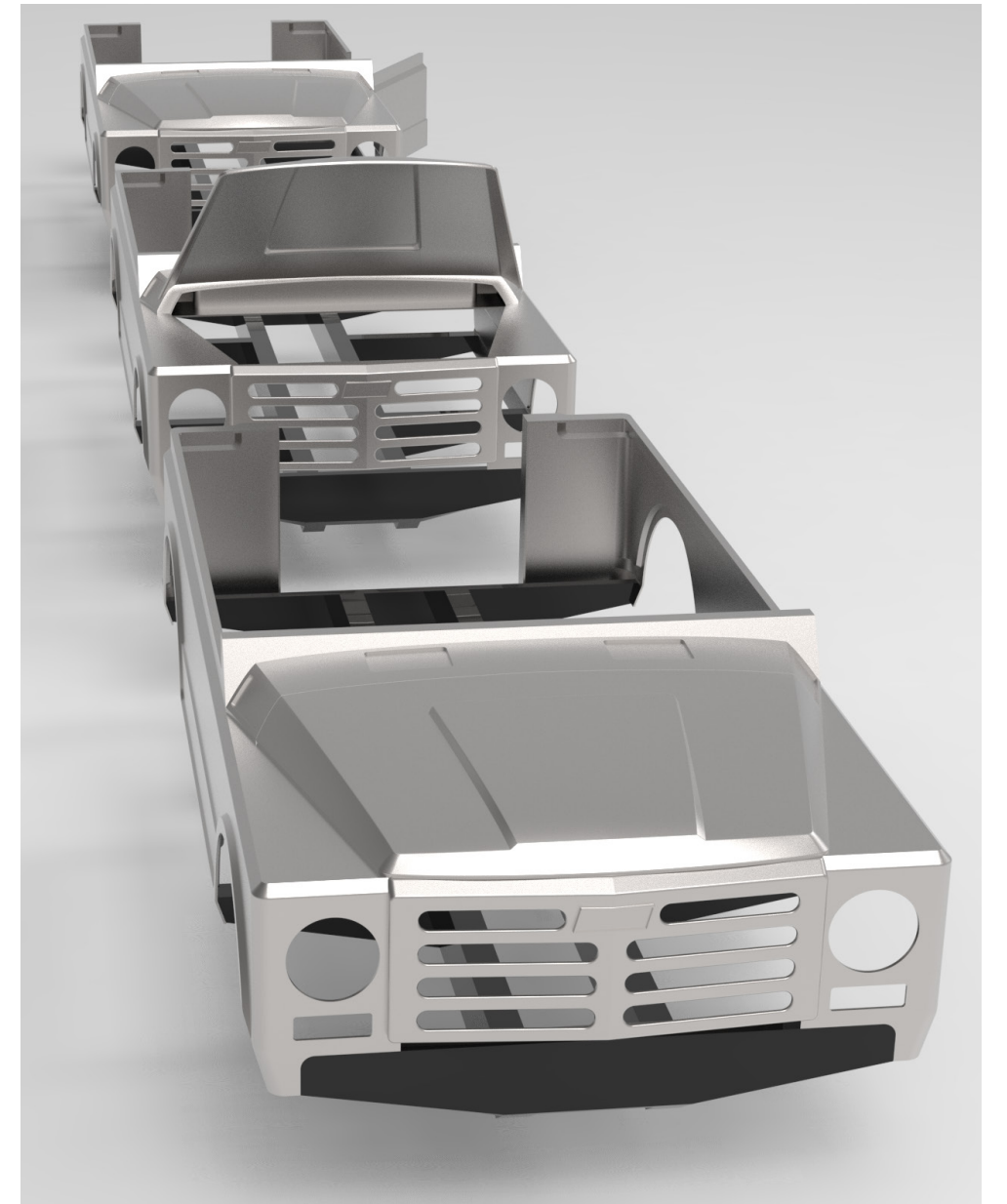
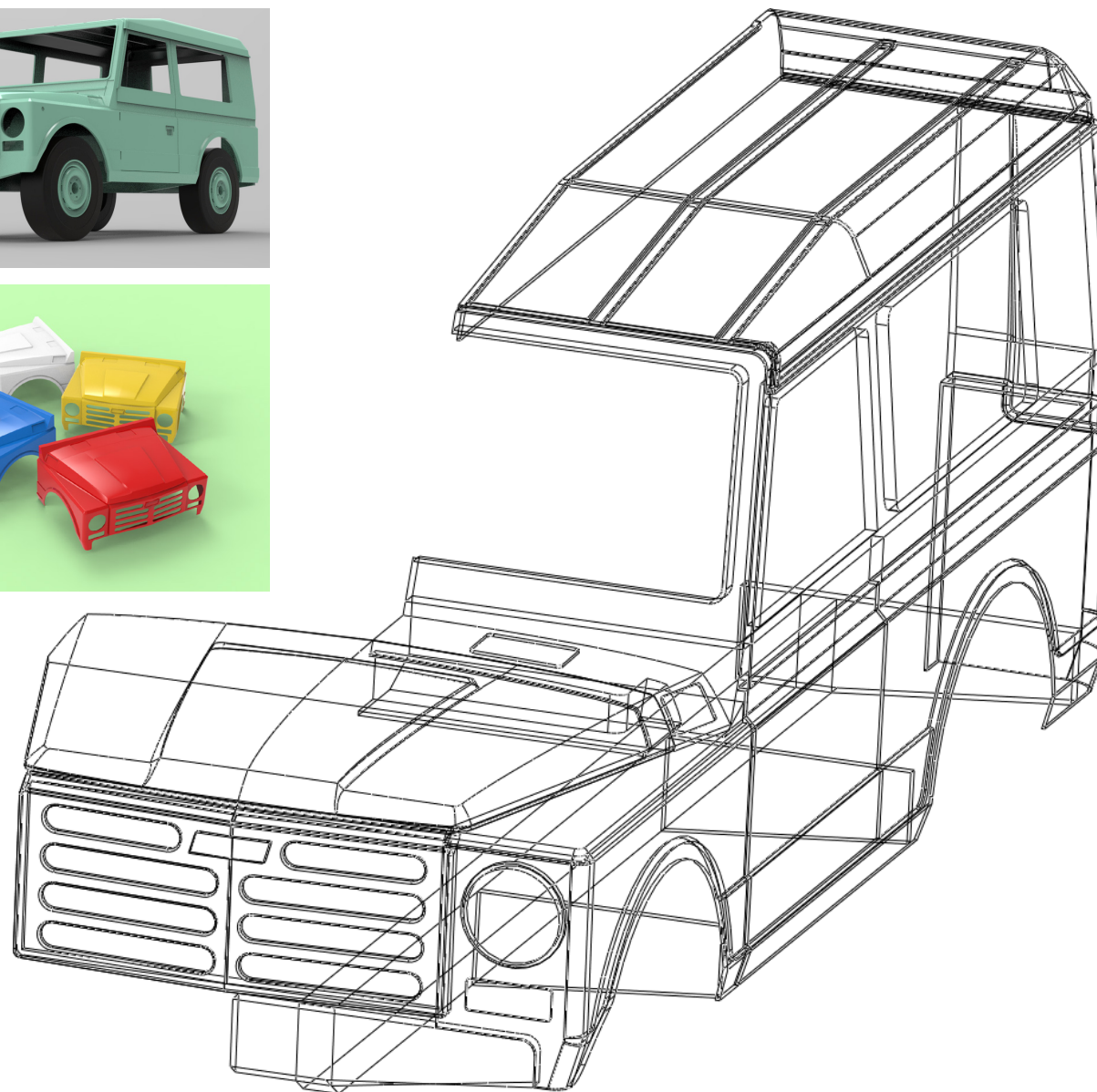


FIAT Campagnola

As a way of keeping my CAD design skills sharp, I take on projects like recreating the Fiat AR76 as a 1/10 scale fully functional RC car.

The aim is to faithfully recreate the exterior, interior and drivetrain of the Italian off-roader in a way that's both accurate and 3D print-friendly.

The drivetrain must also keep the characteristics and functionality of the AR76 while using off-the-shelf model parts to increase durability.

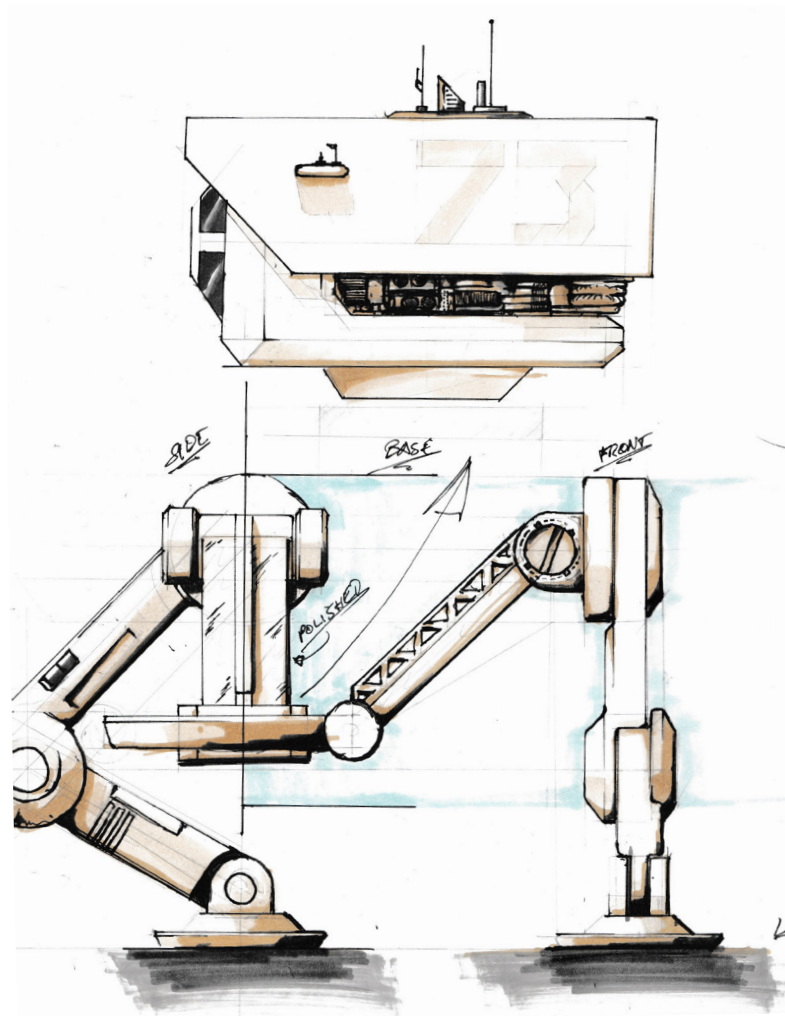
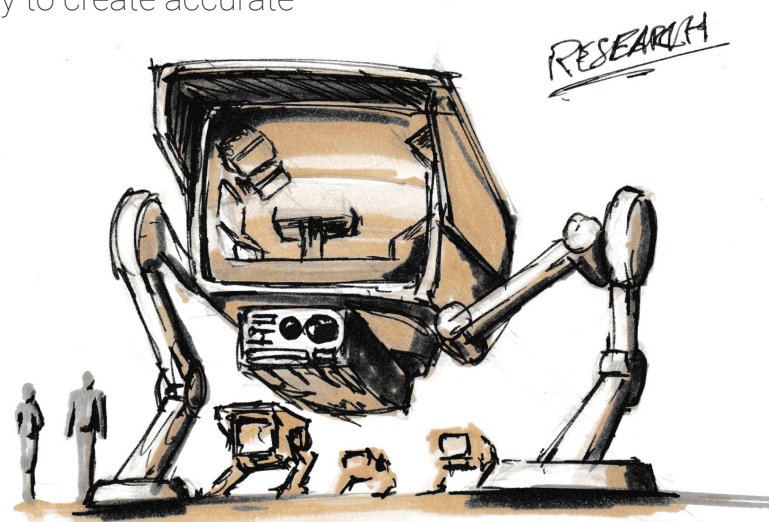


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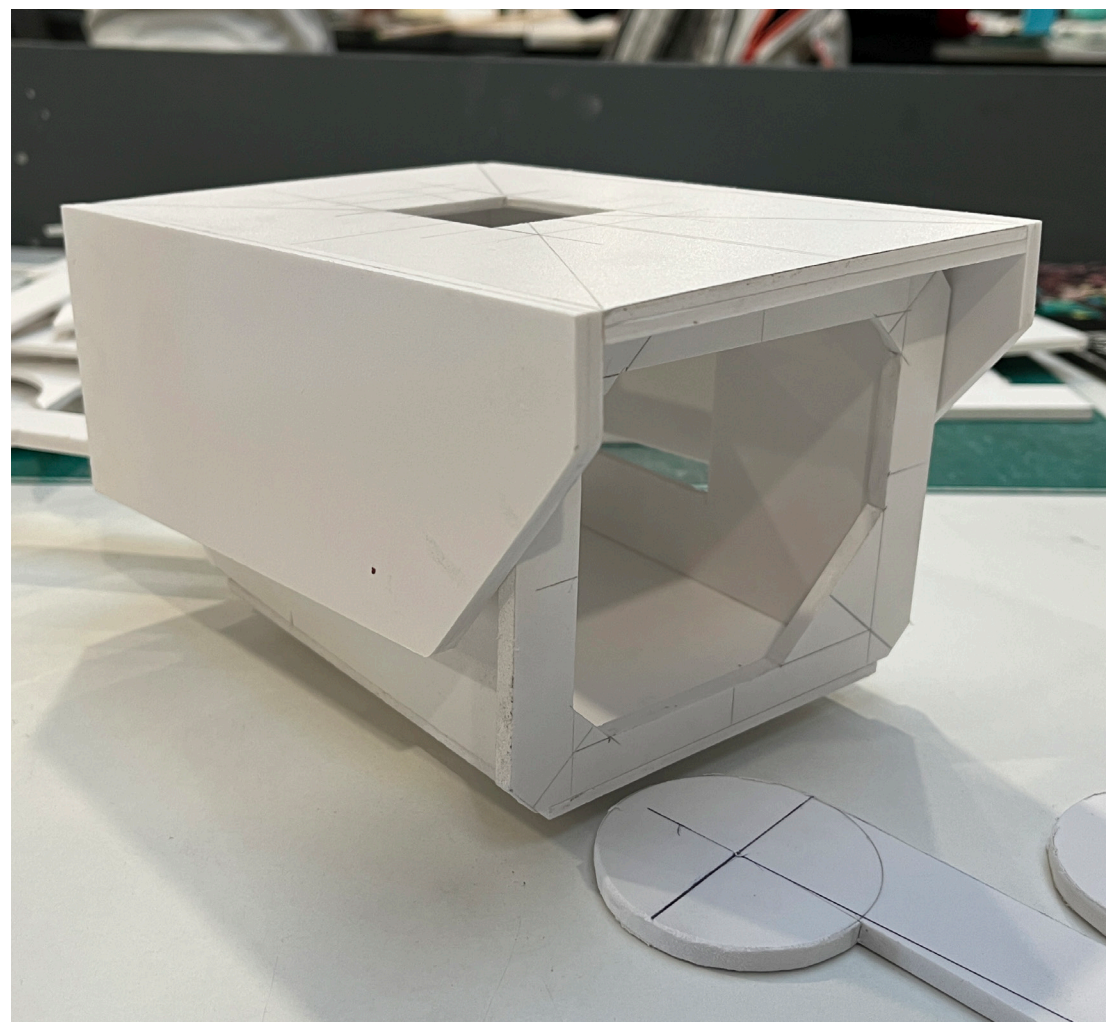
03 Model Making

Odyssey Studios 2023

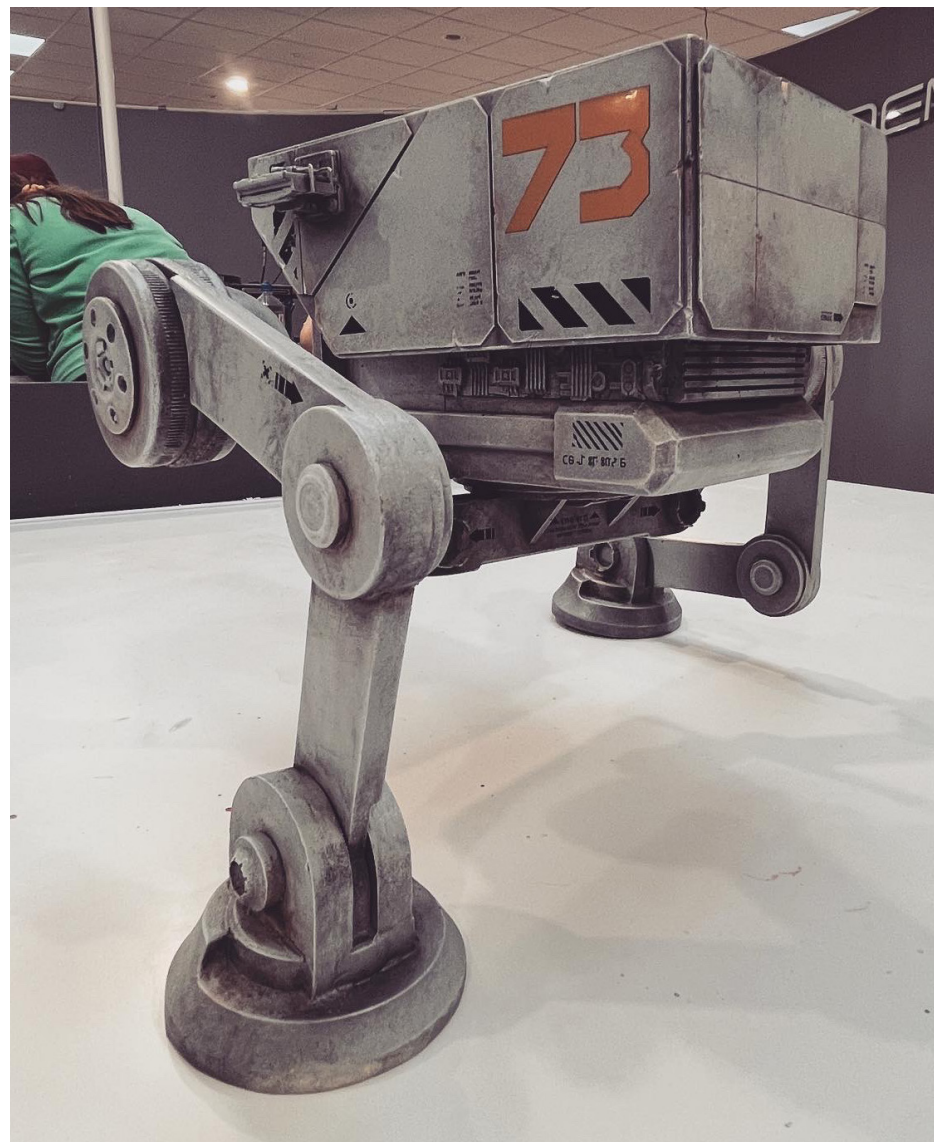
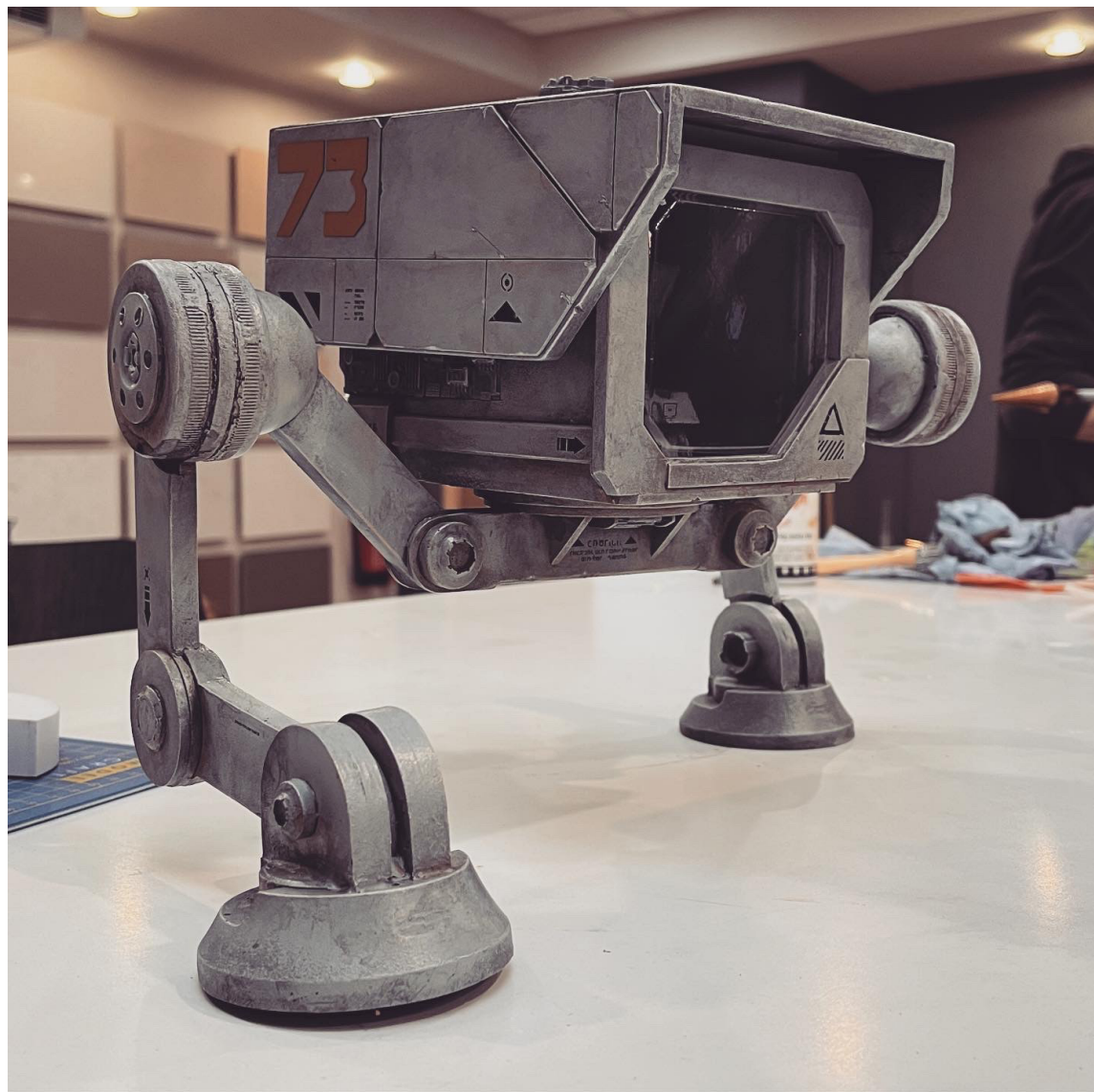
In 2023 I attended a 2 week Model Making course for films at Odyssey Studios, Limerick. This course provided me with valuable insights and into model making that I believe will be vital to improving my ability to create accurate prototypes for products.



Sketches I made before the course began (left)



Personal
03 Odyssey Studios

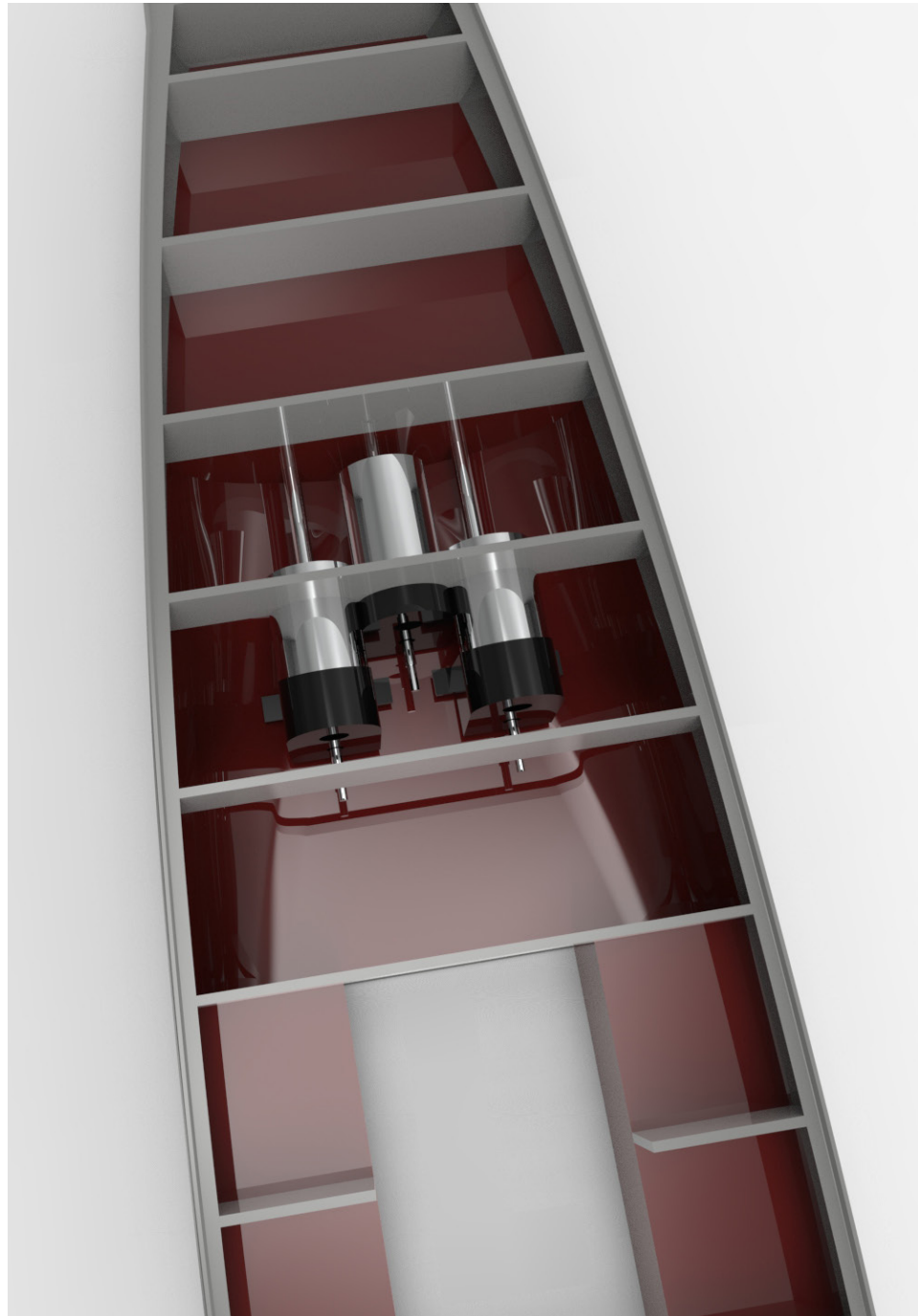
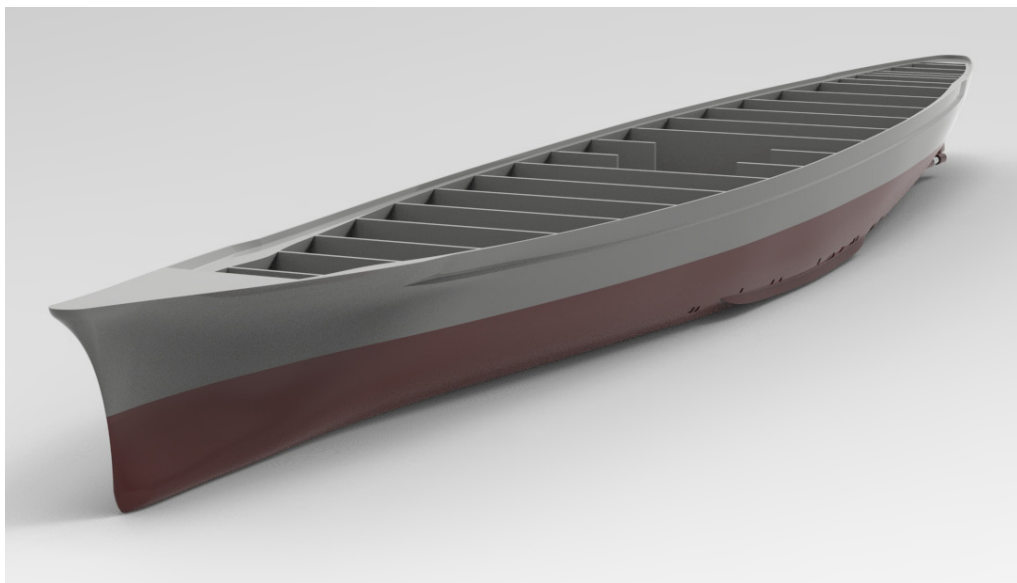
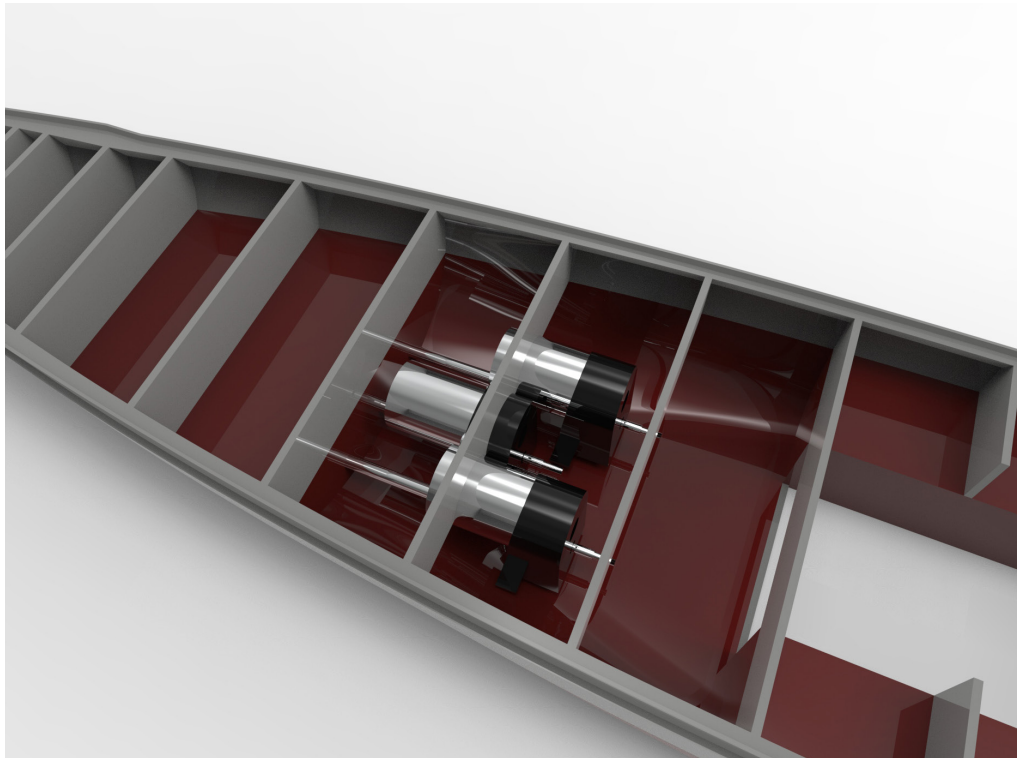
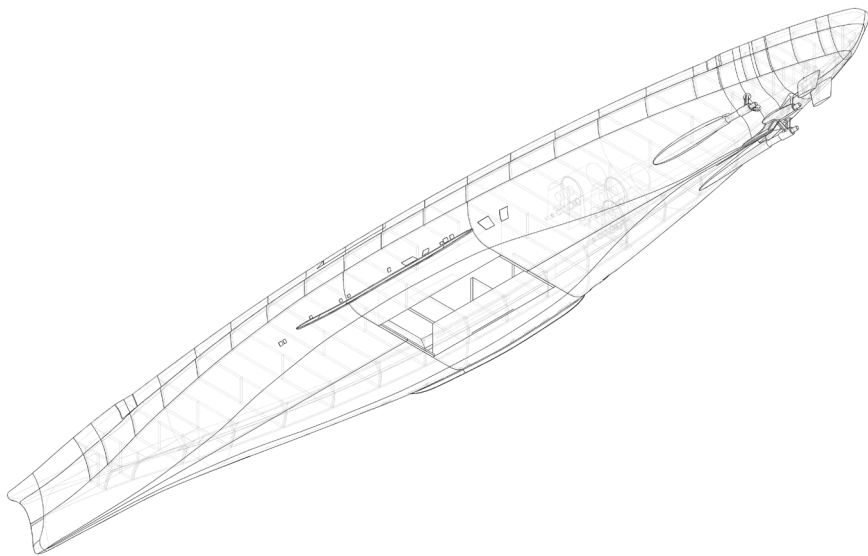
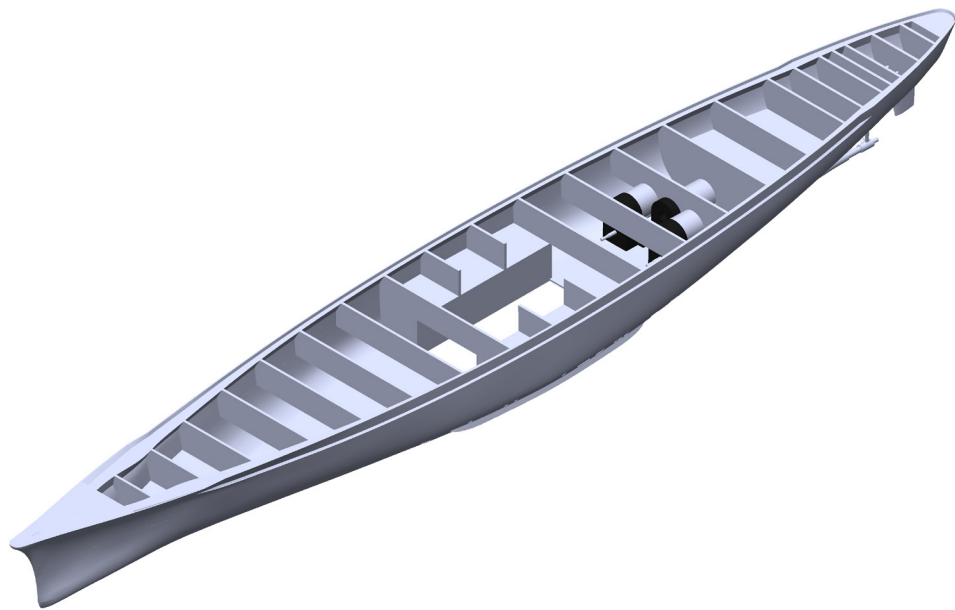
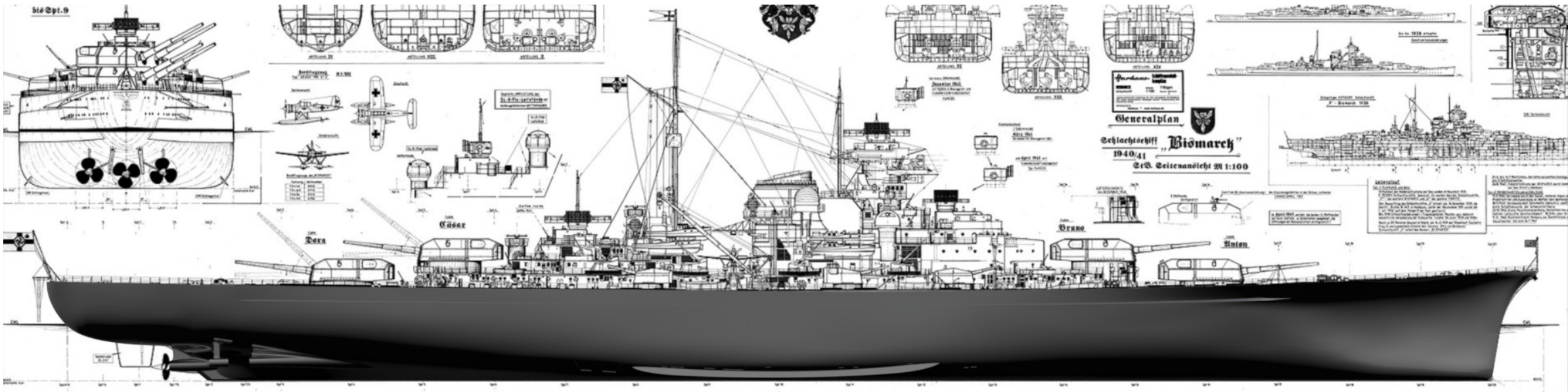


Personal

03 Surface Modelling

Solidwork model render superimposed on the original A0 scanned document used at the beginning of the project. (right)

Keyshot renders of the 'three-motor' layout that I selected to replicate the life-size propulsion system of the Bismarck battleship.(bottom right)

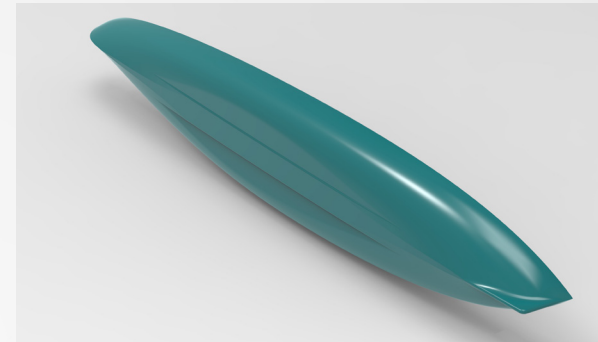
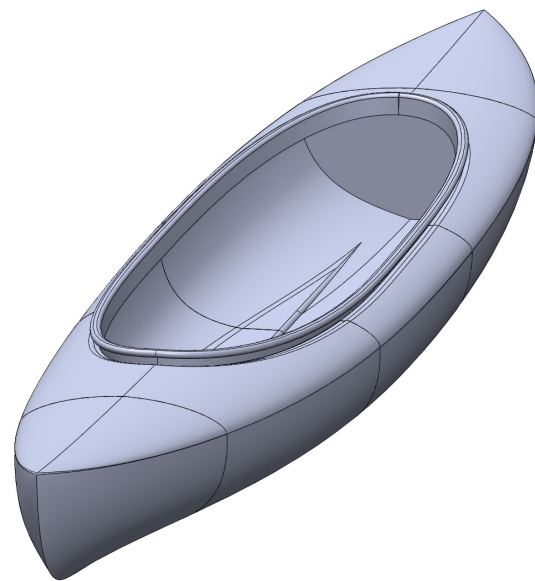
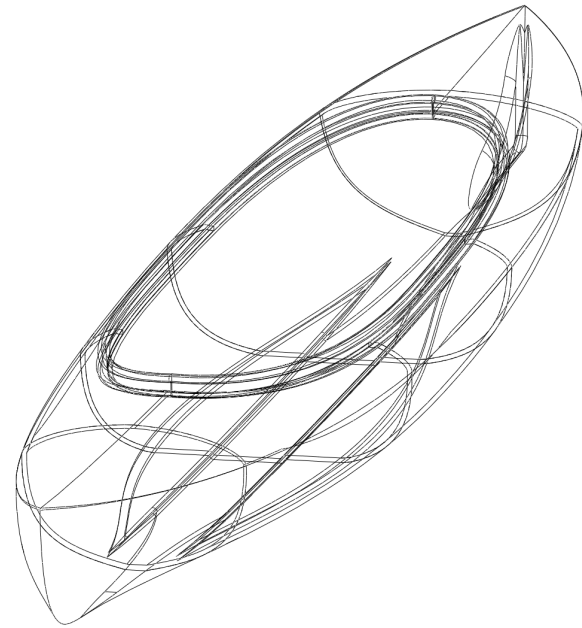
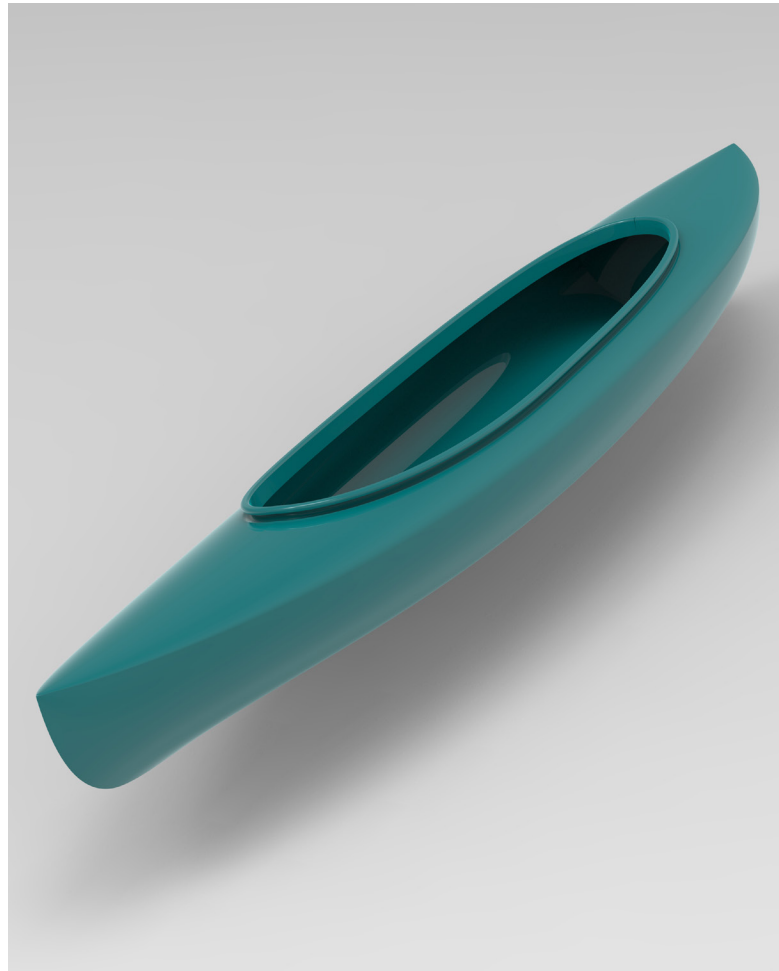


Personal

03 Surface Modelling

The Kiwi 2 is a 2 man Kayak made by Perception kayaks of Great Britain and was used on the 1998 Camel Trophy Adventure in Mongolia.

The popularity of this event has led to the manufacture of a 1/9 Scale series 1 Land Rover Discovery and so I decided to create a 3d printer Friendly 330mm Kayak to match the car.



THANKS FOR YOUR ATTENTION

