

MSc. DANIEL ZHUK INDUSTRIAL DESIGN ENGINEER
PORTFOLIO

HELLO, MY NAME IS

DANIEL ZHUK



As an always curious MSc. Industrial Design Engineer, I am looking for exciting, new opportunities, taking up challenges within the **entire design process**, with a keen interest in **materials** and **production methods**.

My ambition is to develop **innovative** and **user-friendly** products that people will love to use and that will give the user a sense of satisfaction.

What I believe in, is to take into account **sustainable solutions** within the whole product life cycle. I think designers need to aim to design a product and its life cycle in such a way that it has the lowest, or even positive, impact on the environment.



POWERWELL

A public charging point for two-wheeled electric vehicles

The 'Powerwell' is a charging point for two-wheeled electric vehicles which is user-friendly, vandalism-proof, and suitable to be mounted on both poles and walls. Unique to its design is its power plug-locking door, and QR code leading to a webapp for direct use.

2021
12 months
At: Lightwell B.V.

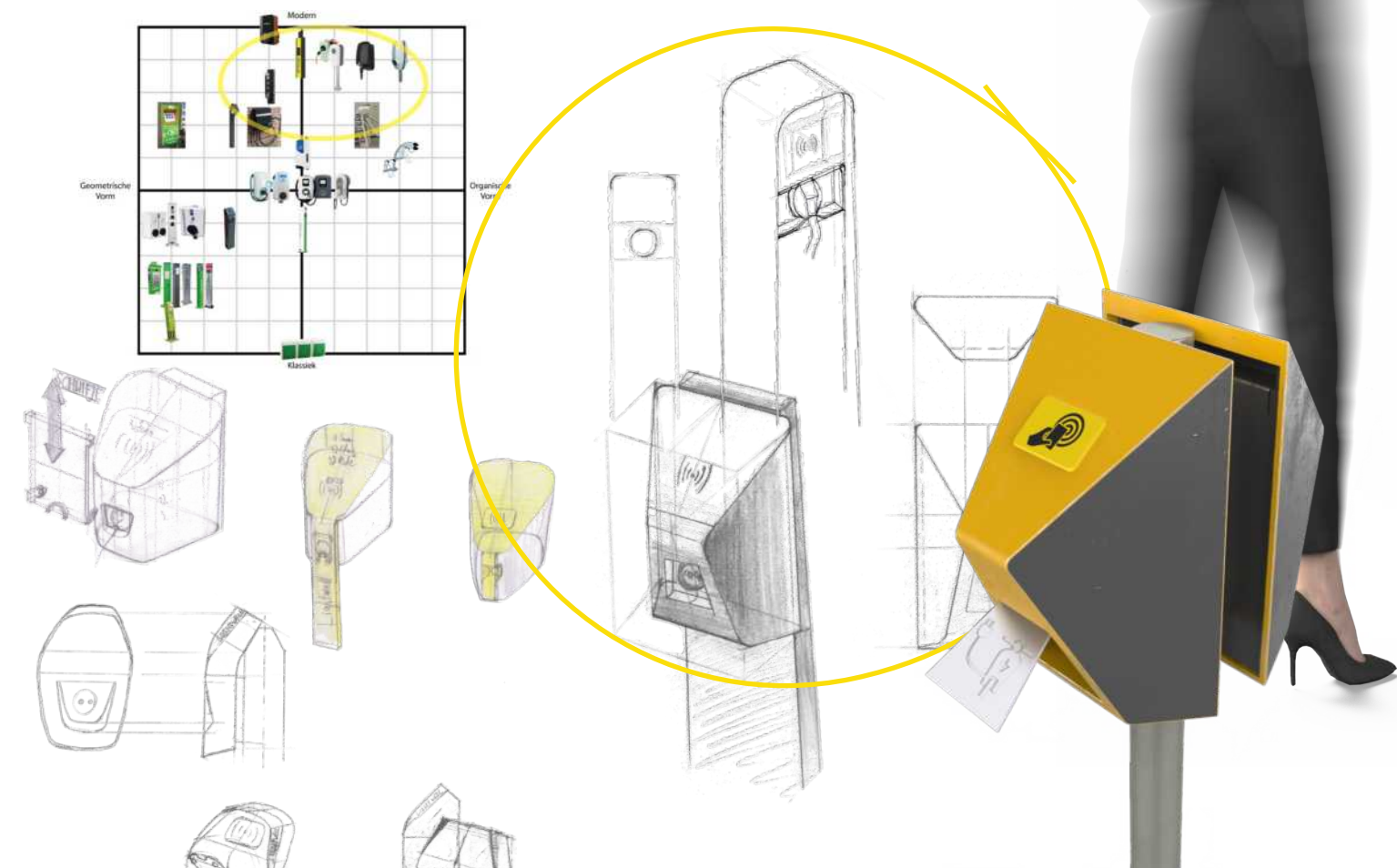
LIGHTWELL

CHALLENGE

As the number of two-wheeled electric vehicles is growing exponentially, research should be done on their needed infrastructure in (semi-)public spaces. Therefore, Lightwell B.V. joined a pilot project to design and produce charging points which will be used by researchers from the Amsterdam University of Applied Sciences (HvA) for user research and determine the most suitable business model.

IDEATION

After researching currently used charging points, several idea directions were explored.



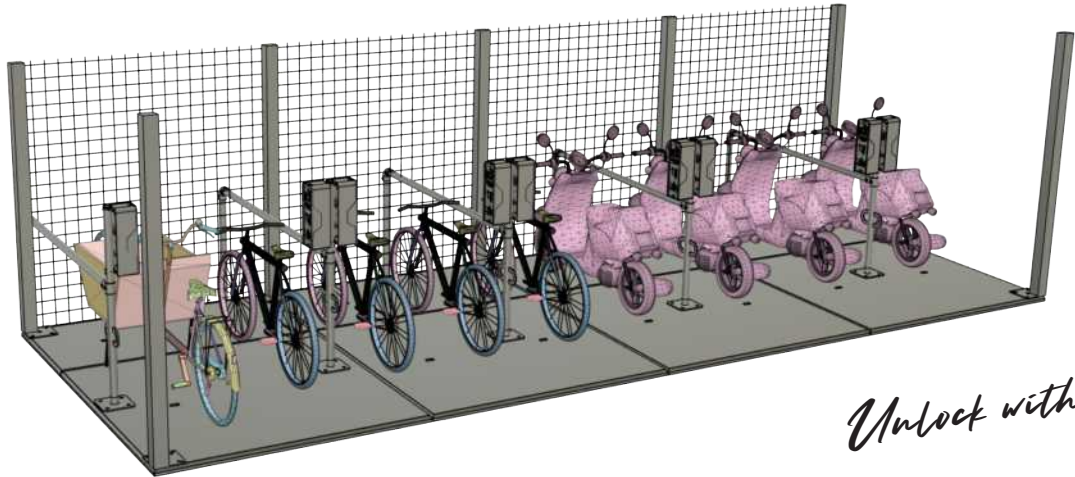
DETAILING

After continuing with two idea directions, one of them was chosen due to its looks, scalability, and ease of dimension adjustment for when further detailing of internal components would require that.

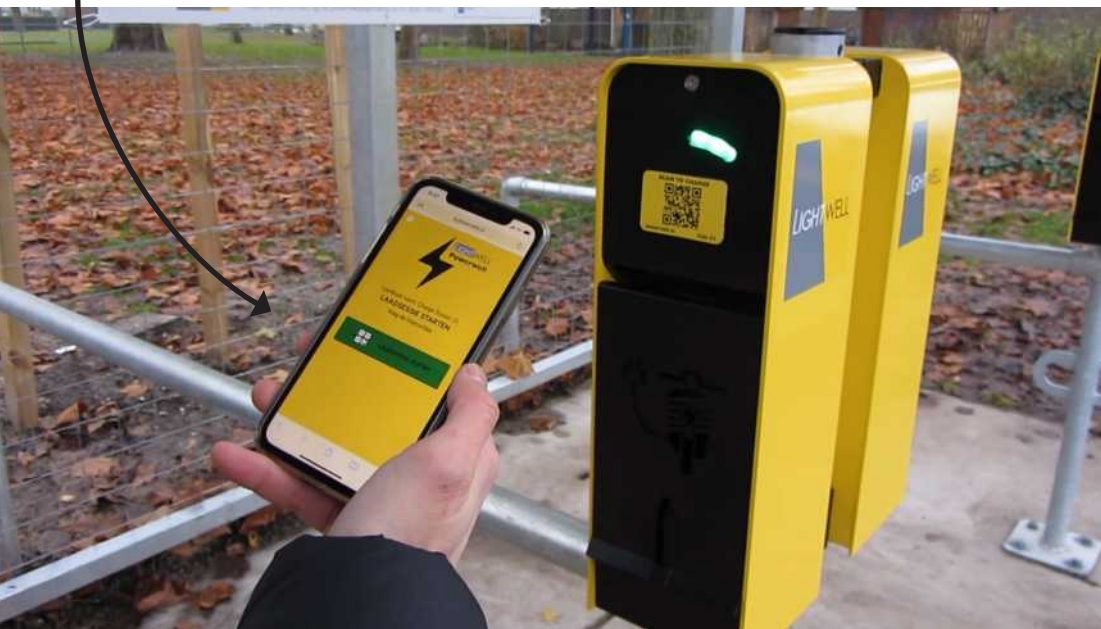


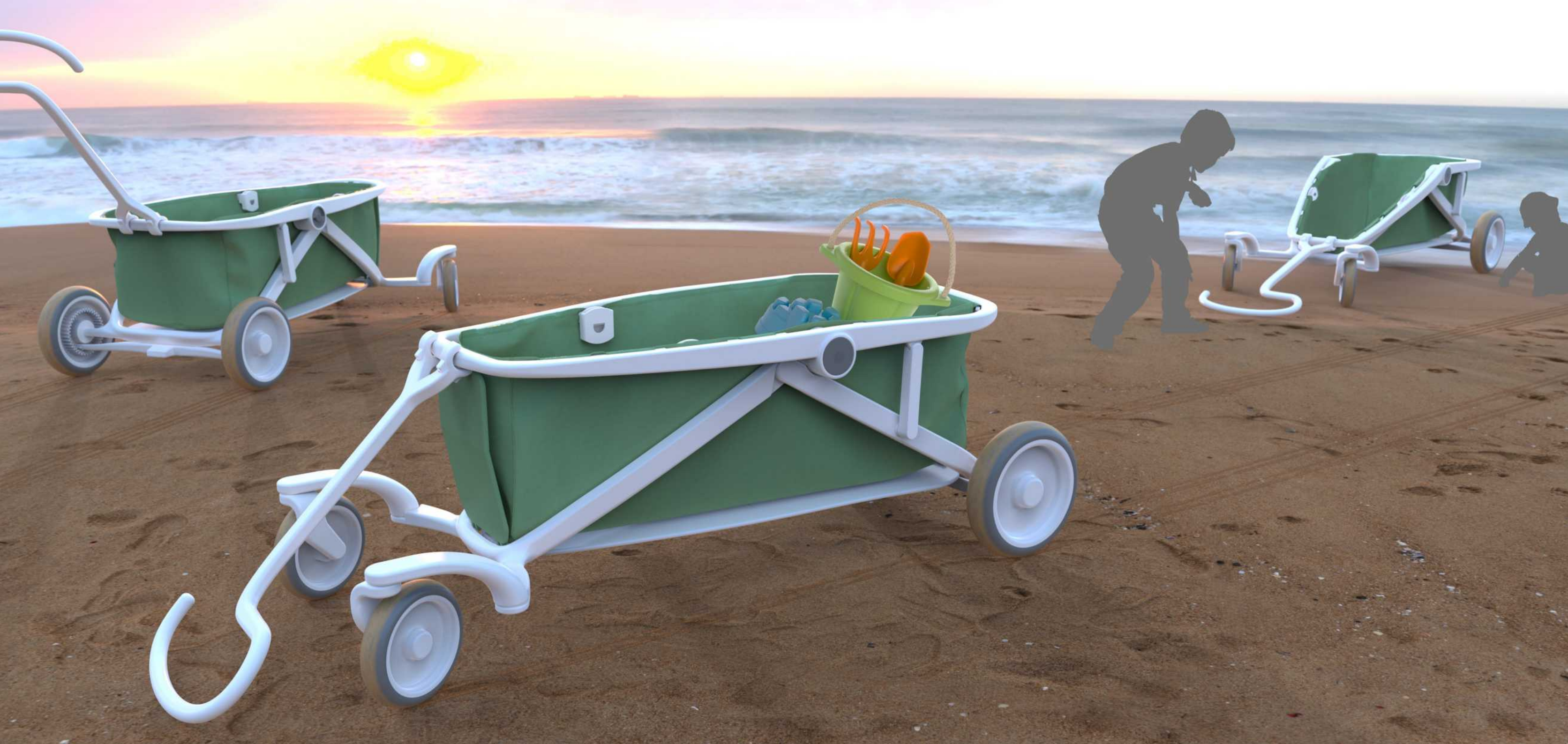
SOLUTION

Nine functioning charging points for e-bikes and e-scooters have been produced. Usage is possible through a developed web application, and internal electronics allow for the interaction with the charging points. The charging points are connected to one another through a placed street cabinet, the entire installation has been NEN1010 approved, the development and placement of the roof has been guided, and the project was approved an environmental permit.



Unlock with webapp





GREENTOM GO

Designing a circular and sustainable
hand cart

The 'Greentom Go' is a sustainable hand cart for young families in the Netherlands, which is simple in its design, easy to use, and affordably priced. The hand cart can transport goods as well as up to three children up to six years old.

2019
12 months
Graduation project
In collaboration with: Greentom

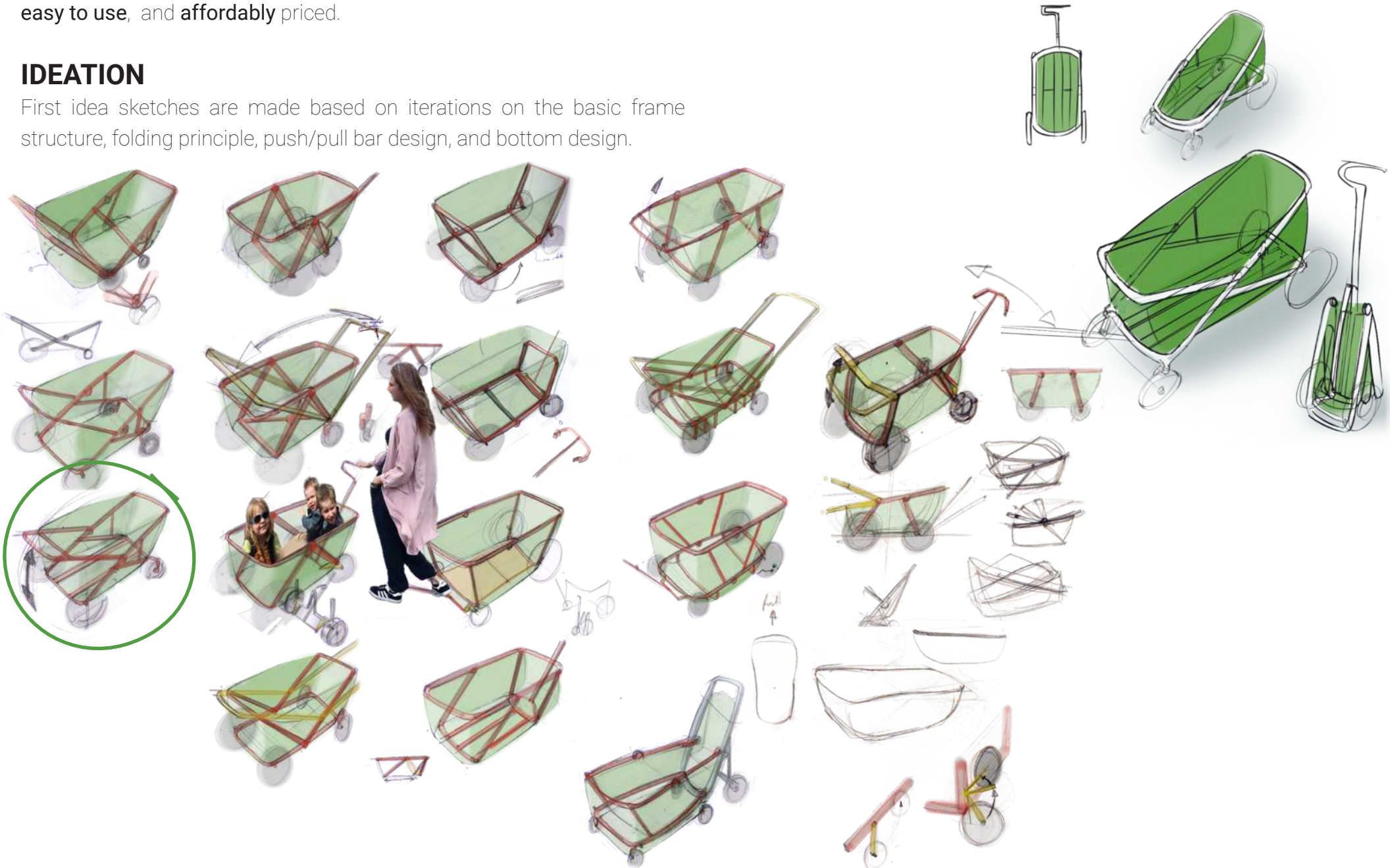
GREENTOM

CHALLENGE

To expand Greentom’s portfolio, the goal is to design a **sustainable** hand cart for young families in the Netherlands which is **simple** in its design, **easy to use**, and **affordably** priced.

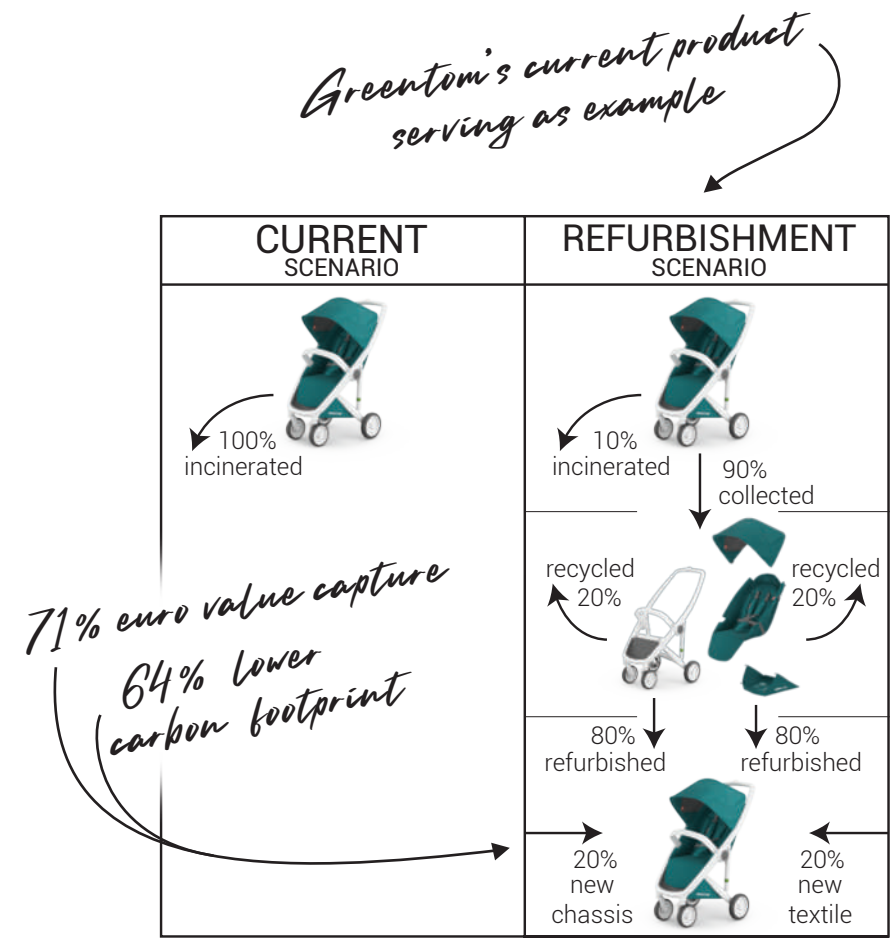
IDEATION

First idea sketches are made based on iterations on the basic frame structure, folding principle, push/pull bar design, and bottom design.

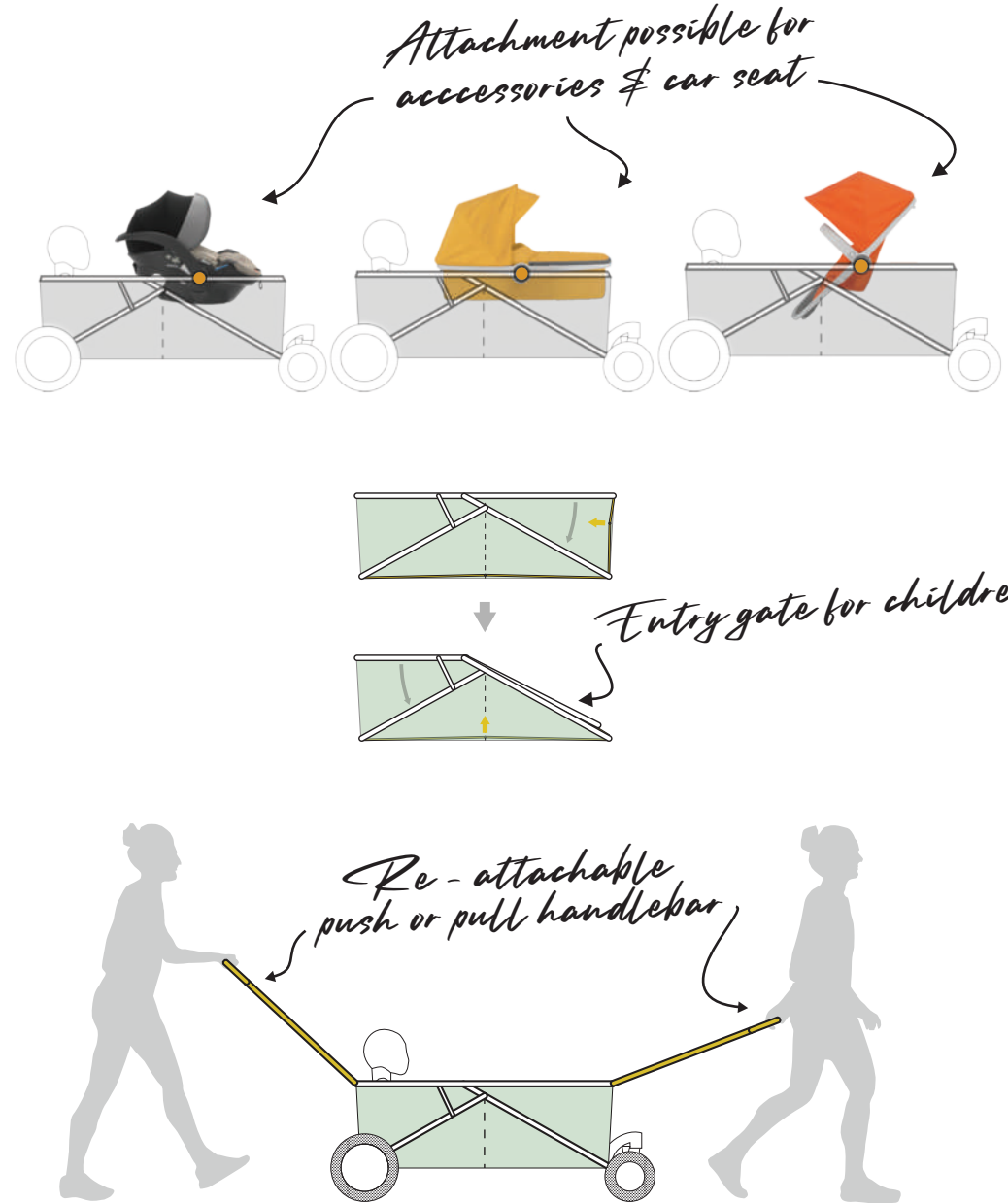


SUSTAINABILITY

Since the hand cart could have similar attributes to Greentom’s current product which is a stroller, a conclusion on the best end-of-life scenario for the latter can serve as the concluded preferred scenario for the Greentom Hand Cart. Methods used are the Circularity Calculator by ResCom and the Fast-track Life Cycle Analysis.



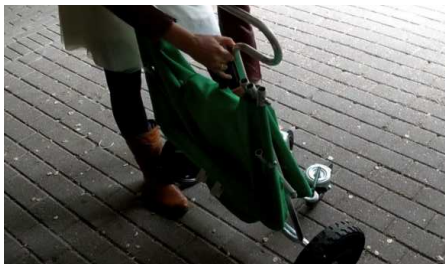
DETAILING



PROTOTYPING



Users evaluate the dimensions and attributes of the design



SOLUTION

The 'Greentom Go' concludes to be:

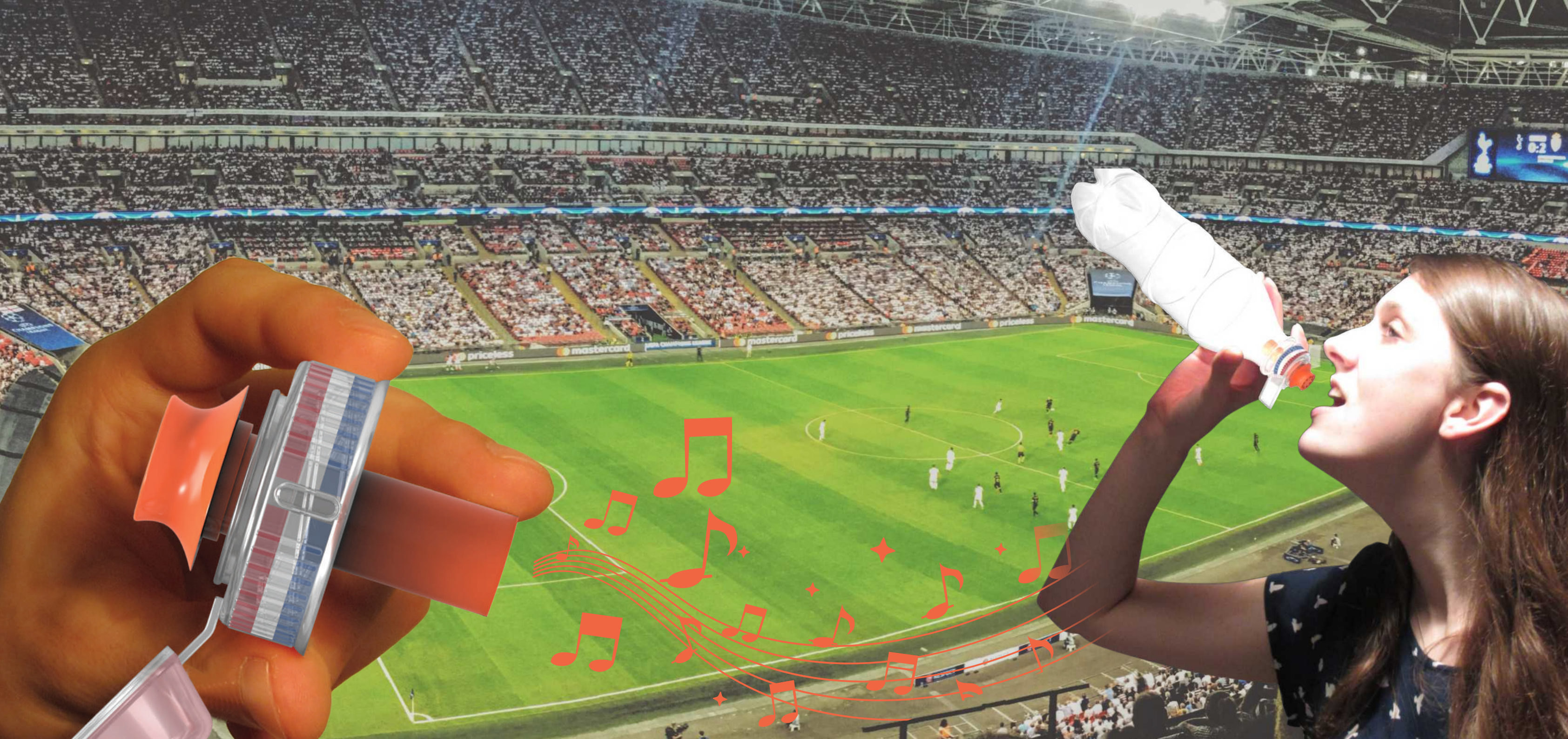
1) sustainable, using recycled and recyclable rPP chassis material, rPET textile material, and having an incentivized take-back system for refurbishing resulting in a 64% lower carbon footprint and 71%€ value capture.

2) simple in its design, complying with Greentom's form family.

3) easy to use as it is easily (un)foldable, enables children to independently step in and out through the entry gate, allows attachment of existing Greentom accessories as well as a baby car seat, and is well manoeuvrable by having large wheels, a re-attachable push and pull handlebar, and by being lightweight (7.57kg).

4) affordable since the reuse of existing and future moulds as well as the refurbishment end-of-life scenario allows for lower total costs enabling a selling price of €220.





DOPFLUIT

A soccerfan's promotional gadget

The 'Dopfluit' is a whistle integrated in the bottle cap of a sports drink, meant as a promotional gadget for a European soccer championship.

2016
3 months
Personal Project

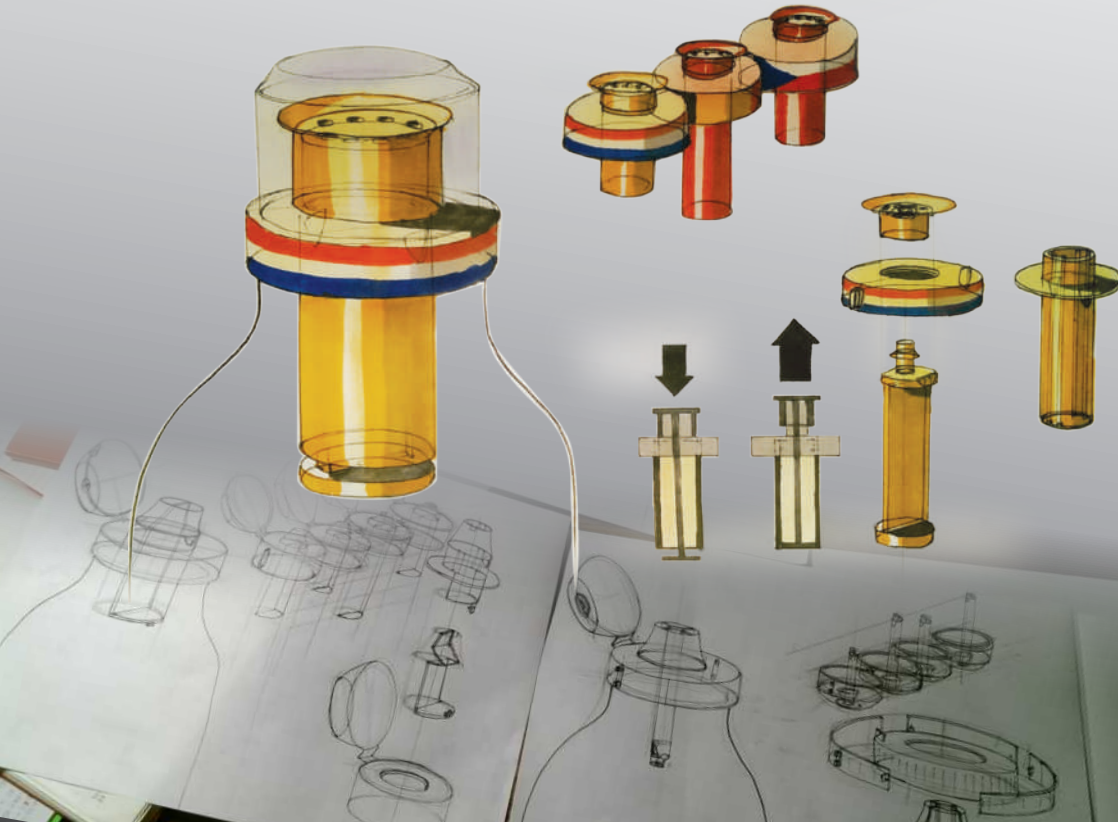


CHALLENGE

The challenge is to make a friend's idea into a **functional**, **attractive**, and **realizable** product concept which will be attractive for millions of world cup soccer fans.



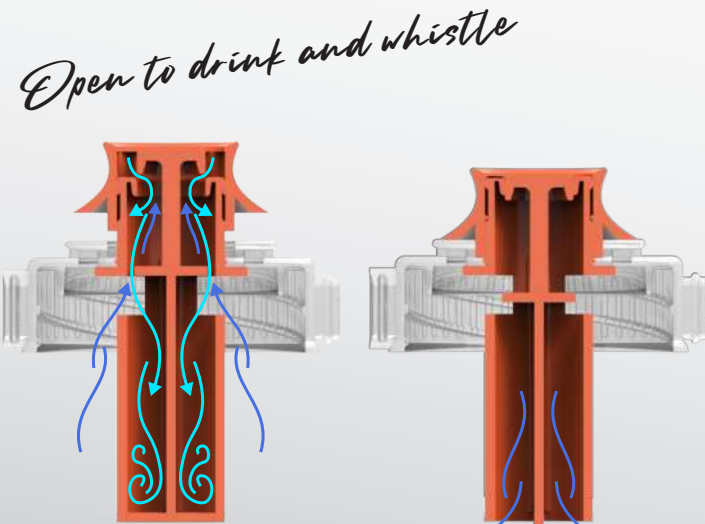
IDEATION



PROTOTYPING



Click together



SOLUTION

The 'Dopfluit' concludes to be an attractive gadget for soccer fans as it:

- 1) represents fans of the 11 most successful world cup countries, being available in 11 flag and team colours.

- 2) produces a unique tone for each country thanks to different shaft lengths per country.

- 3) allows connecting multiple Dopfluit gadgets together to encourage fans collecting all variants.





CENT-R SMALL

An innovative electronics enclosure

The Cent-R Small is a new kind of electronics enclosure integrated with lamp posts. Designed not only to take up less public space, it allows easy and separated acces for grid operators and electricians from different contractors for maintainence on the electronics for both the grid, light fixture, or installed lamp post hardware such as emission zone cameras.

2023
12 months
At: Lightwell B.V.



Other than the “Cent-R” predecessor, the “Cent-R Small” is to be made even slimmer while maintaining the same recognisable look. The slimmer design also means redesigning the entire product, fastening, and assembly from scratch.

Different ideas for assembly and lamp-post fastening were made. Several other requirements were integrated, such as the need for separate compartments while ensuring future electronics will fit.

To optimize all design solutions, functional models and dimension models were made of the model-carrying brackets and the inner dimensions of the electronics compartments.

The result is an integrated electronics enclosure, taking up less public space, and suitable to be accessed by multiple stakeholders due to separate compartments and dual locks per door. The design can withstand the outside environment as well as vandalistic attempts with its IP44 rating and IK10 rating.

The design received such positive feedback by grid operators and electricians using it, that an order for 100 pieces was placed for the next year for multiple municipalities, as well as the order of two additional designs, suitable for both wider and narrower lamp posts.

