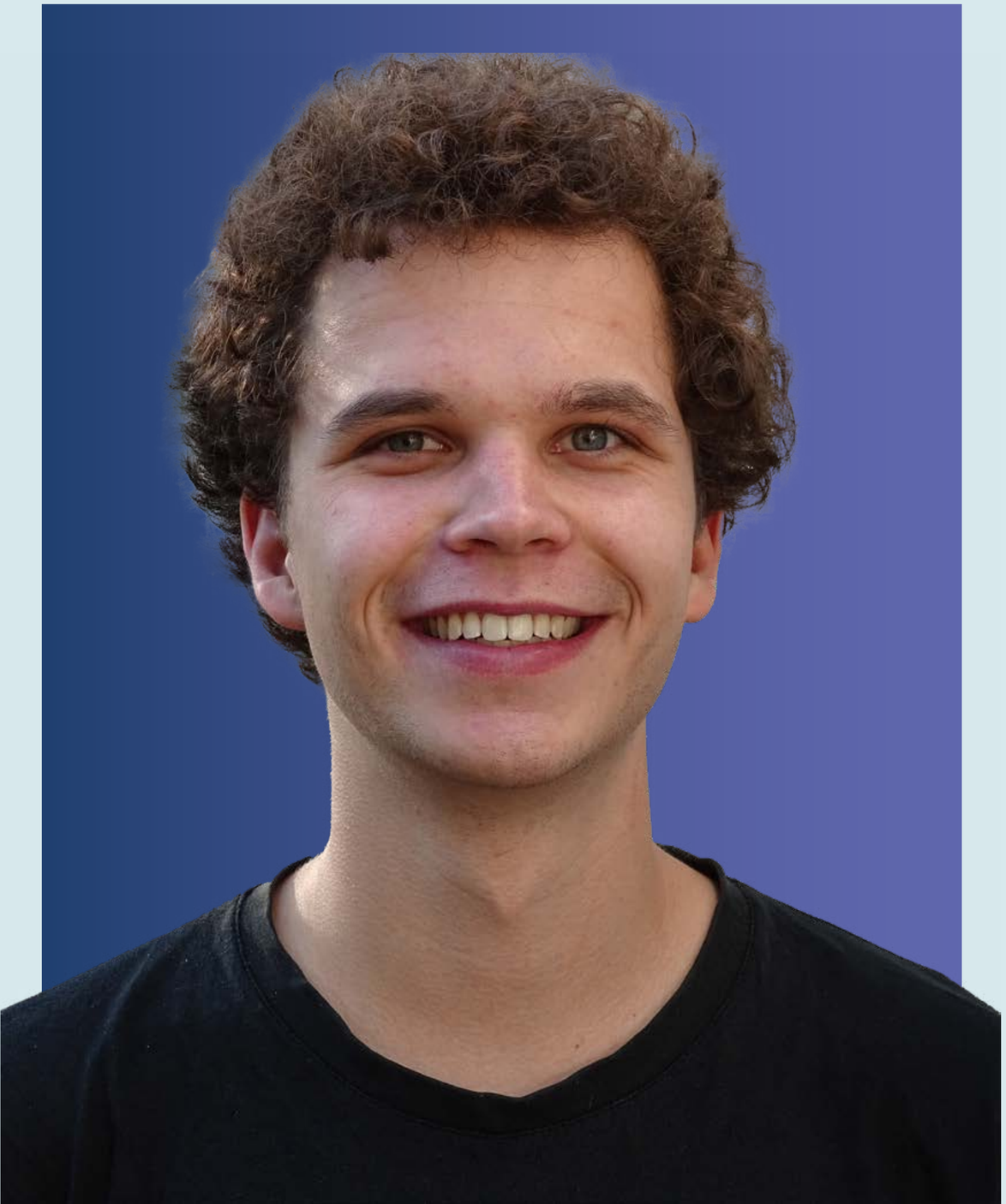
Portfolio

Sjoerd van Rietbergen



Hi! I’m Sjoerd

To me design is **all about the user**. User satisfaction is always my main concern when designing. **Combining user interaction with technology** and **sustainability** is my passion.

As a designer I am very **curious** and **open-minded**. I am always willing to **try new things** and to **try them my way**, since I get a lot of energy out of exploring new programs and methods.

My skills lie within **prototyping**, **digital fabrication**, **embodiment design** and **biomechanics**. With this knowledge I would like to design products that actually **help and excite** people.

Re-pak

The completely reusable packaging solution

Bachelor final project

3 months

Individual project

TU Delft

inventum

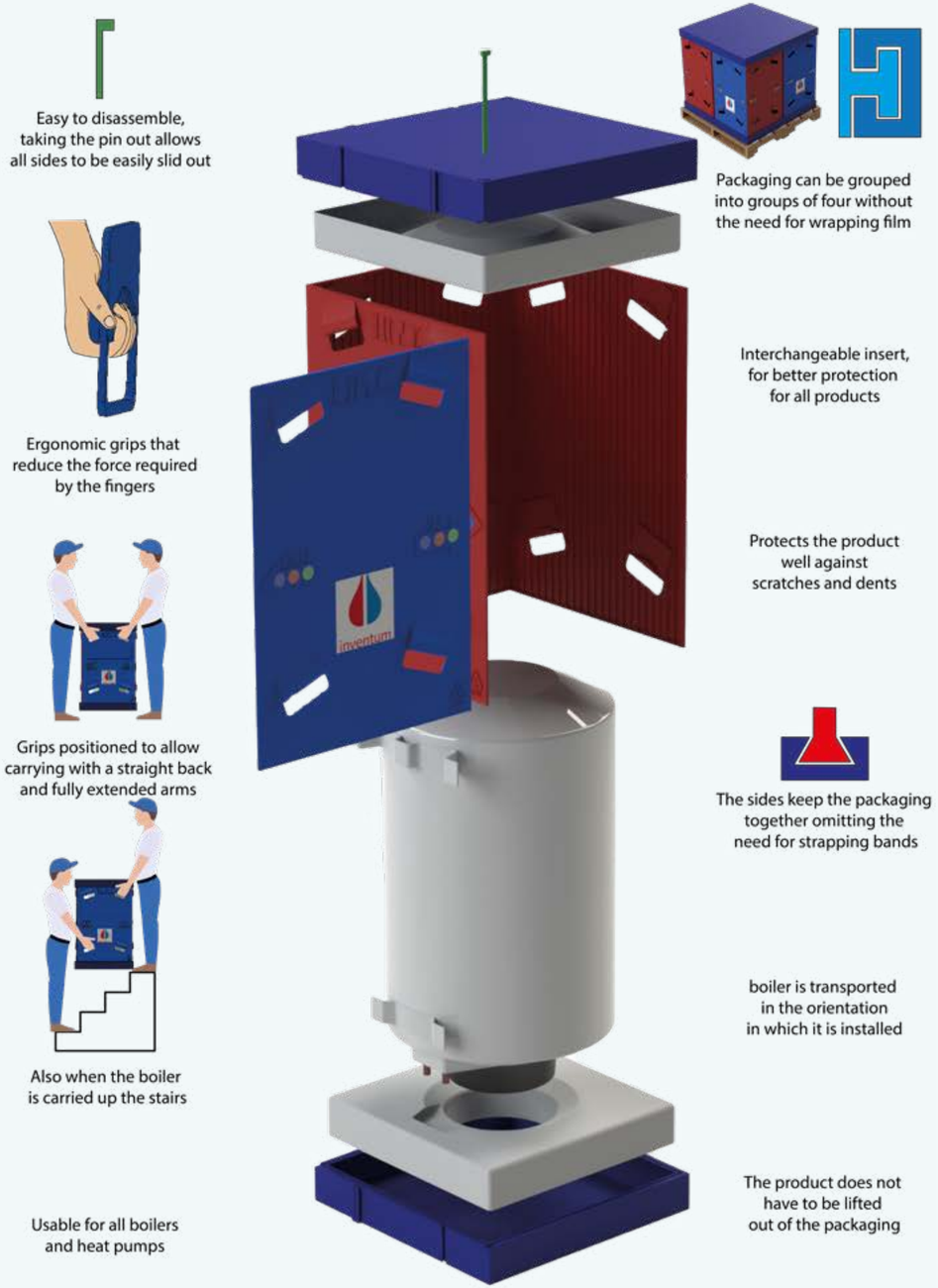
Re-pak - overview

The goal of Re-pak was to design a packaging solution for Inventum that was more in tune with their image: a company aiming to sustainably help with the energy transition by developing energy efficient heating systems for companies and family homes.

My goal was to design reusable packaging, packaging that could be used at least twenty times over. This lead to a strong focus on product chain mapping, as well as its life cycle and stakeholders requried for successful implementation

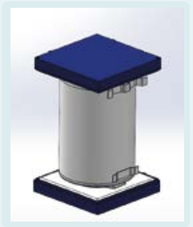
From:
completely single use packaging

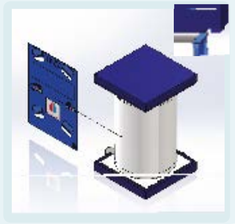
To:
completely reusable



Re-pak - usage

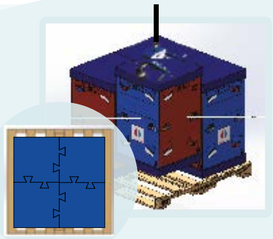
The main focus was removing all single use materials in the packaging. But for this to be successfully implemented, it needs to be able to be implemented in the factory, in transport, in installation and in return to the factory. Each of these phases had their own requirements, wishes and stakeholders.

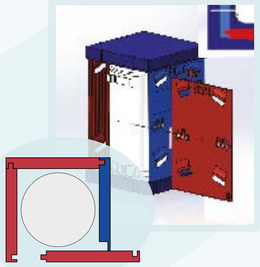


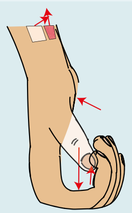


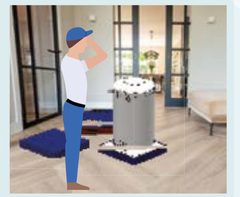
For implementation in the factory, the most important were ease and speed of assembly: making assembly easy to understand for factory workers and reducing the amount of steps required.

Transportation was improved by increasing the amount of products that fit within a single truck by 33%. As well as removing the need for wrapping foil, while keeping tranportation safe.

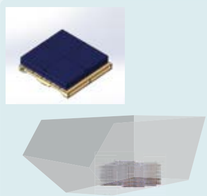


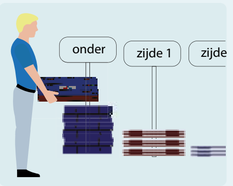






The package is mainly used by the installers, which is why use is mainly aimed at them.
This packaging allows them proper posture while carrying, reduces the force required by the hands and makes sure the product does not have to be lifted out of the packaging.





When designing something reusable, it is important that a return system is set up. For the return of the package the retrieval service of the wholesaler is used, retrieving the many packages at a time from construction projects

Design4Repair

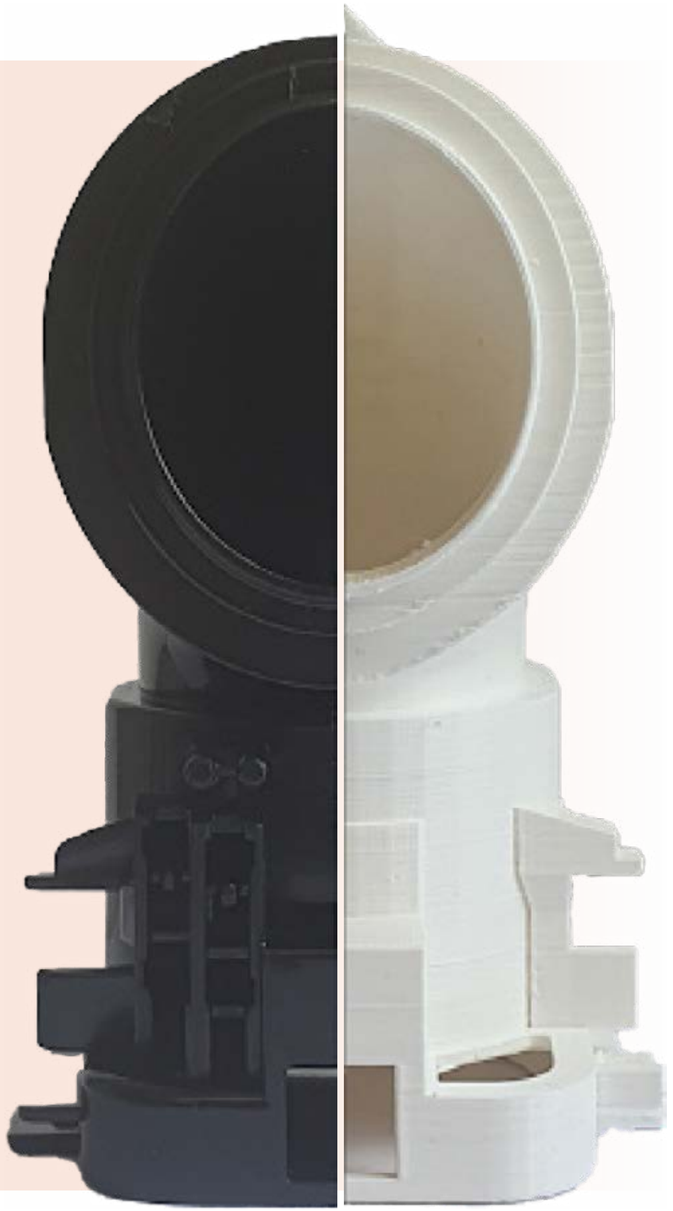
Designing 3d printed replacement parts

Advanced Prototyping Project

3 months

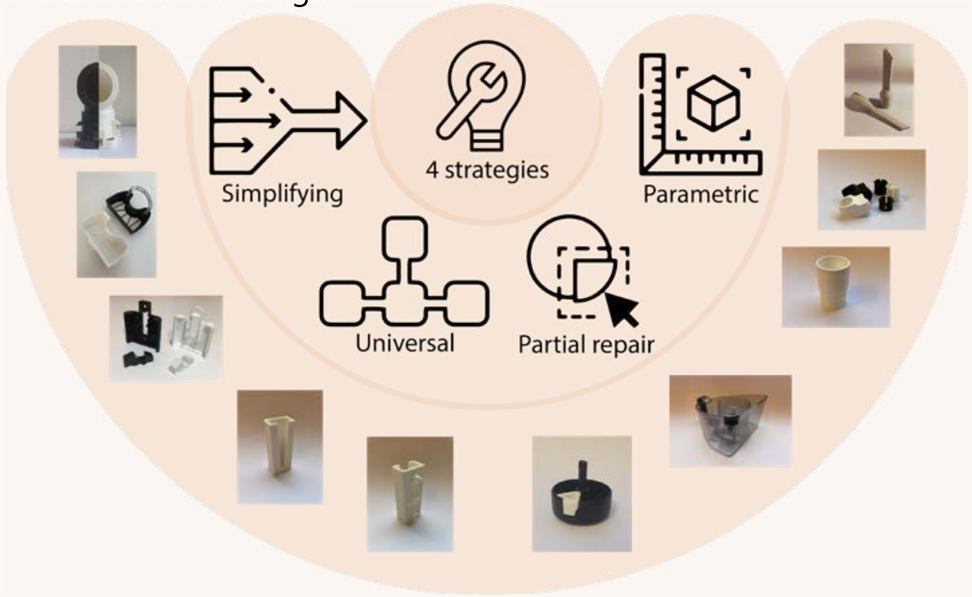
Group project:

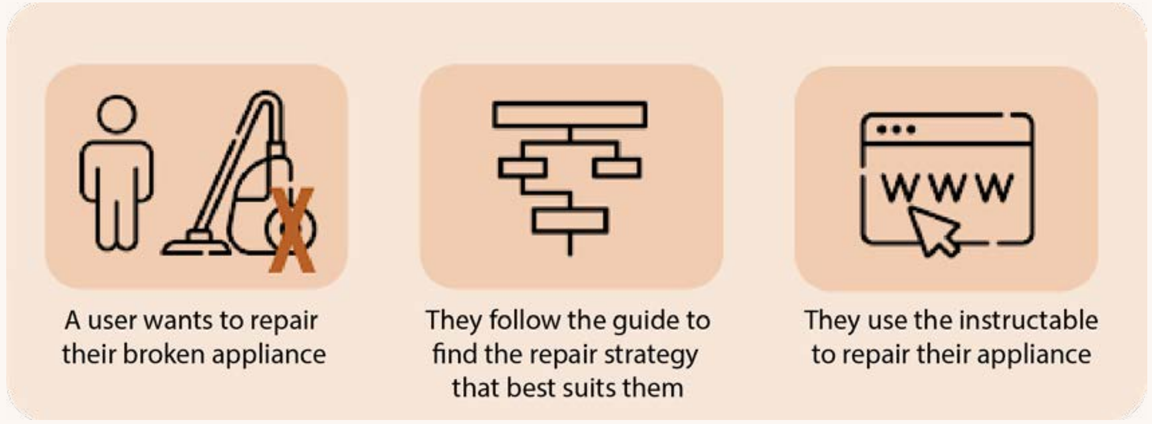
Emma Jansen, Emina Šehmehmedovic,
Lina Duong, Nola Houtepen,
Pepijn Theeuwes & Sjoerd van Rietbergen

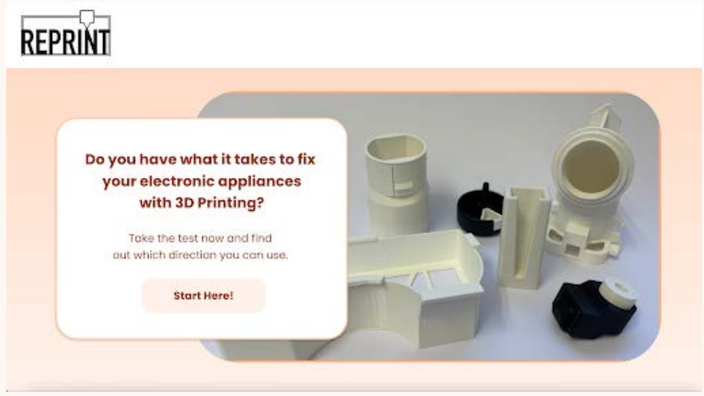


D4R - overview

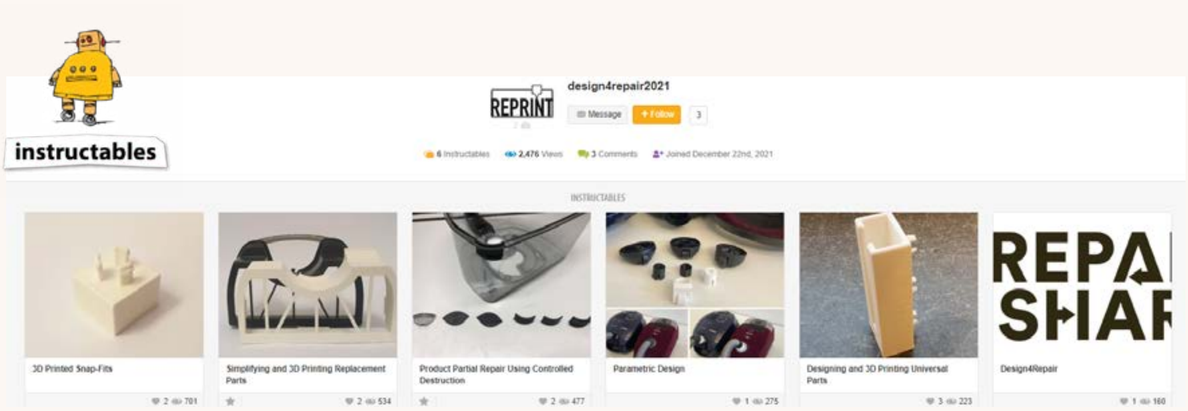
Electrical consumer products are often thrown away because a small plastic part breaks, rendering the product useless even though all electrical parts still work. This leads to much unnecessary electronic waste. 3D printing could be used as part of the solution, allowing people to replace these small parts with 3d printing.
Consumer products however, consist of many different parts that differ between brands and even versions of the same product. This is why it important to help people design their own replacement parts. During this project, with a vacuum cleaner as an example, we explored what is important when designing replacement parts as well as ways to help people do it themselves. This lead to the discovery of four different repair strategies, a guide for users to find the best strategy for them and instructables for each of these strategies.





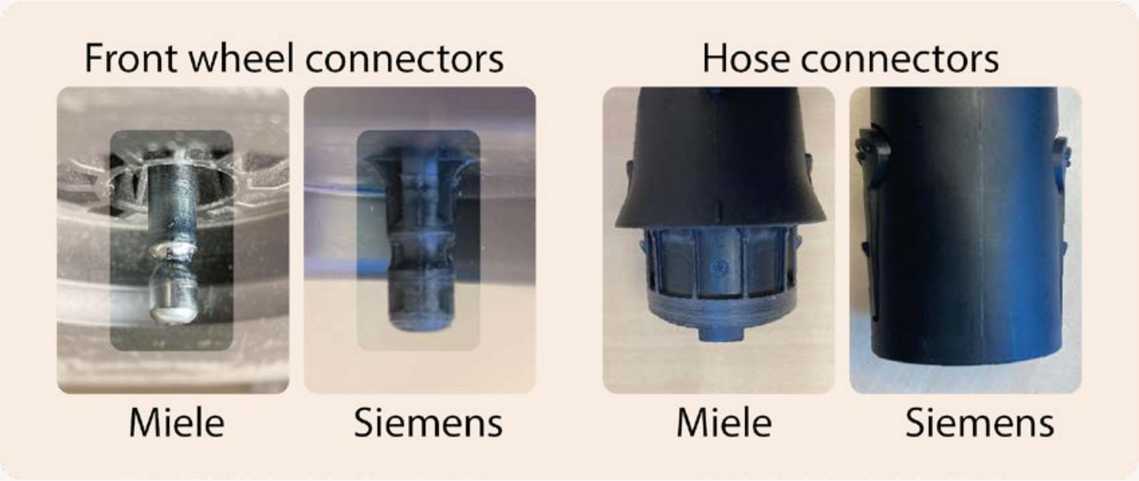


Each strategy is best used for parts with certain characteristics, which is why the guide is used to help people find the strategy best suited for their specific broken part. The guide then leads to the corresponding strategy instructable(s), which will help them during the design process.



D4R - parametric

I myself worked on the parametric repair strategy. Desingning parts that change depending on dimensions measured by the consumer. This way most consumers do not need any knowledge on designing replacement parts themselves, they just need to measure the indicated dimensions to generate their replacement part.
This strategy came about because consumer products consist of many different parts, of wich almost all differ between brands or even versions of the same product. A single part will therefore not work on multiple brands or versions of the product. However, the parts with the same function often have about the same dimensions, working principles and/or shapes, it is often just the details that differ, which is illustrated below.



Parametric design was used for parts that were seperately connected to the product, e.g. wheels, vacuum cleaner hoses and hose extensions, because then only one connection needs to be considered: the connection to the main body. This allows parts to be generated using a maximum of five easily measurable dimensions.

Parametric design was mainly used adapters to:
1. Fit a 3d printed replacement onto any brand/version
2. Replace a broken part with that from another brand