

Filter cleaning installation

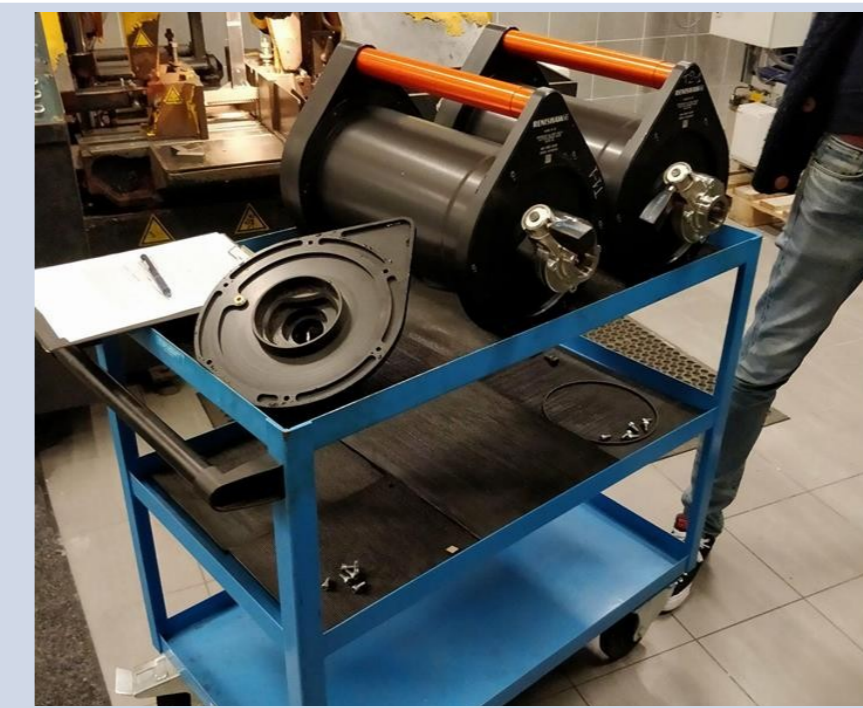
Wout Droogmans & Simon Meulendijks

Specialization Electromechanical Engineering Technology

Company

Situation

Dentsply Sirona
Implants

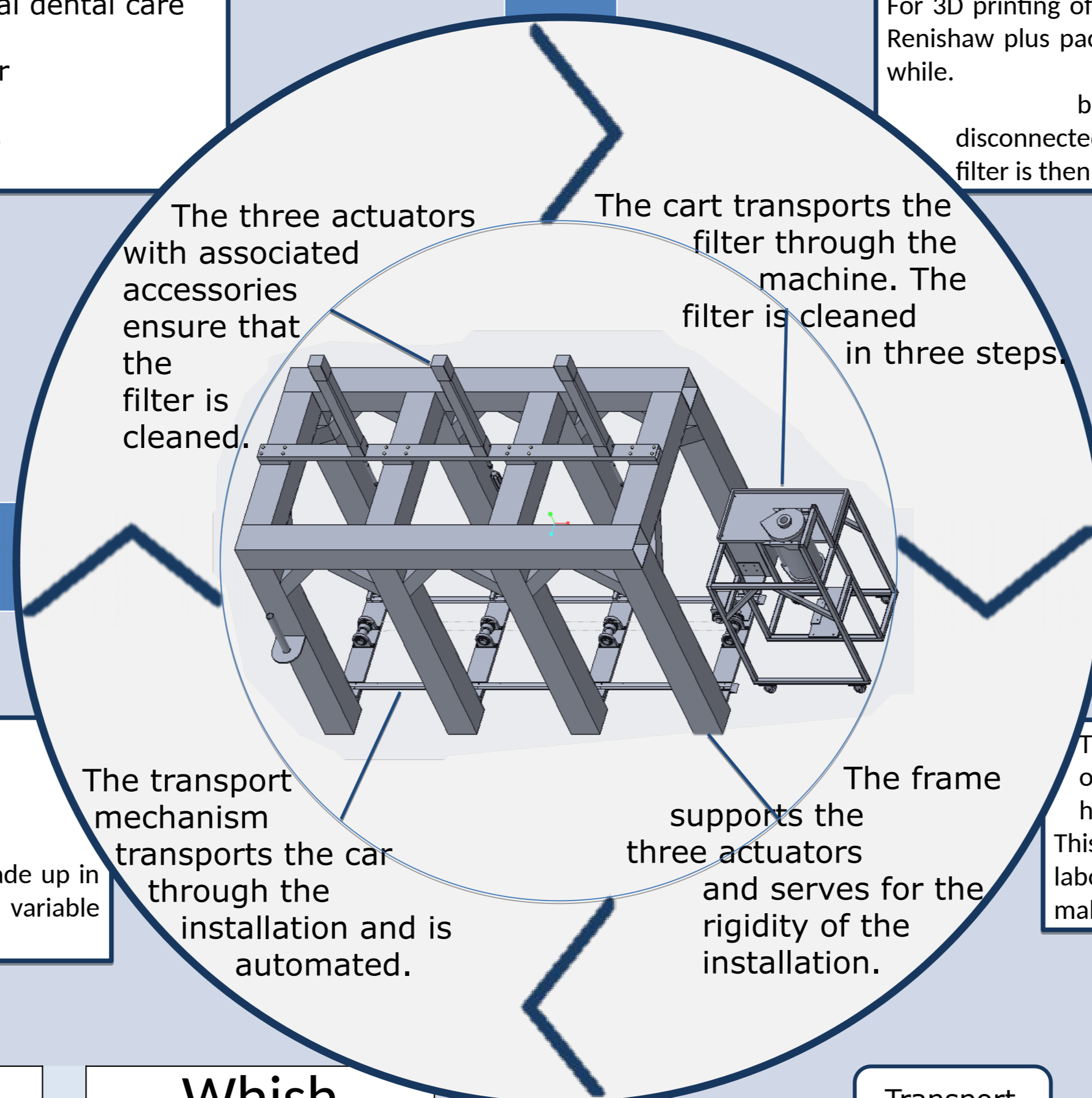


Supports dentists so that they can achieve optimal dental care

- Innovative solutions for dental care
- Design and manufacture of superstructures for dental implants
- 3D printing or milling of these superstructures

For 3D printing of superstructures, Dentsply uses large 3D printers of the brand Renishaw plus pack. These 3D printers contain solid filters that get dirty after a while.

They must be cleaned and dried. Before cleaning, the filter must be disconnected and then taken to the cleaning room. The filter is then reinstalled.



The goals of the project is to design a transport + cleaning installation that makes it possible to efficiently and ergonomically clean the filters of 3D printers.

To fulfill this assignment a set of requirements has been made up in consultation with the client, with both fixed and variable requirements and wishes.

The filter must be moved several times by the operators and cleaned by hand. This is also a heavy filter.

This process of cleaning is a manual, time-consuming and very labor-intensive task. Dentsply wants to automate this process, make it more efficient and more ergonomic.

Fixed

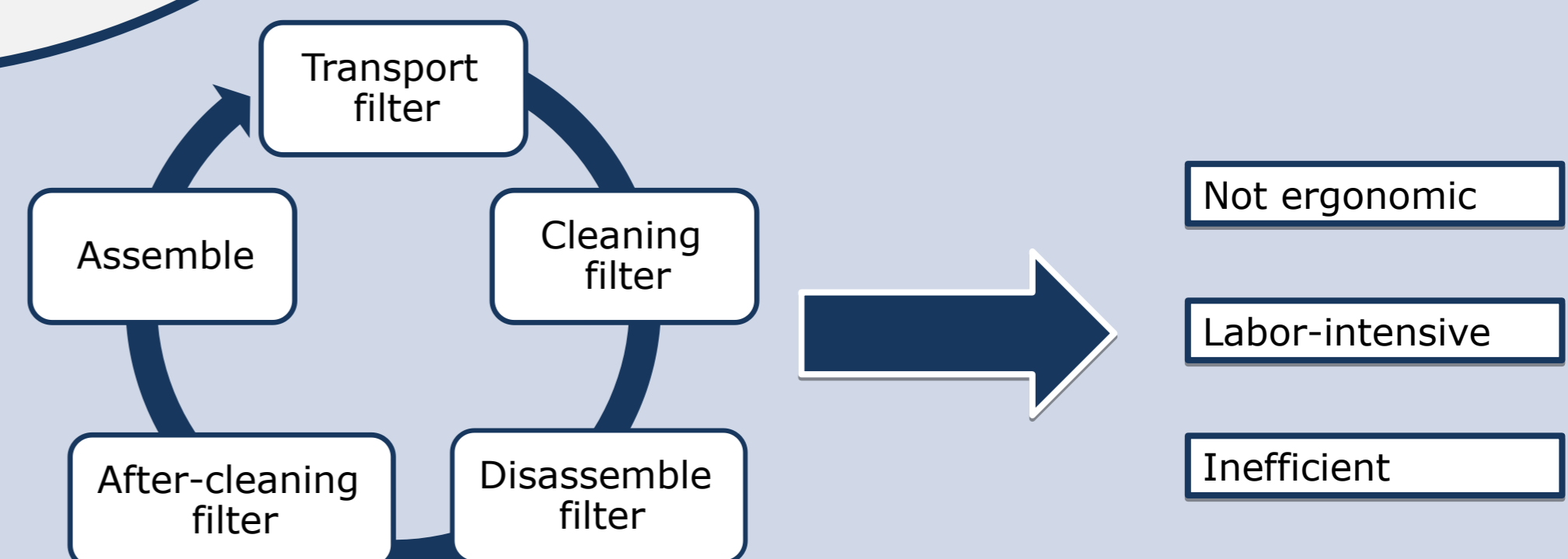
- Manual supply of filters
- The filters are first cleaned and then dried.
- The filter installation must be available 24 hours a day
- The filter media is discarded with each cleaning cycle and replaced with a new one

Variable

- The maximum dimensions of the installation are 3m X 2m X 2m
- The cart max is up to half a meter wide and one and a half meters long.
- The installation must be able to clean at least 8 filters in one day

Whish

- Operator present during the cleaning process
- Installation must be easy to maintain by operators
- Consider the flammability of the material



Objectives

Problem definition

Supervisors / cosupervisors: Prof. dr. ir. Michael DAENEN dr. Jeroen LIEVENS
 Dr. Ing. Karel KELLENS Ing. John BIJNENS