

About Philips Drachten

In Drachten, you will find one of Philips' largest global innovation sites. With 1,500 colleagues from over 35 nationalities, it is an inspiring international environment. At Philips Drachten, consumer-product developers work together to create innovative solutions to real-world problems in a dynamic and fast-moving consumer-goods environment.

Assignment

For a good shave, shaving caps must be able to follow the shape of the skin and face. A good touch score of the shaving caps results in a quick, close and uniform shave across the whole face. For this reason, most shaving units have multiple degrees of freedom.

The mechanisms that enable this motion must fit within the limited space available in the shaving unit. In addition, achieving the correct pivot points and stiffnesses is crucial for a good and comfortable shave. The current layout restricts design freedom and the space available for additional features in the shaving unit. Therefore, new mechanisms for floe tilt and unit tilt are needed.

This assignment aims to develop a homo-kinetic joint concept with a virtual pivot, where the desired rotational movement is created without a conventional pivot located at the centre of rotation. You will explore suitable mechanisms, model their motion and develop proof-of-principle concepts for a compact application.

Relevance

A virtual-pivot solution could create more freedom in the architectural build-up of future shaving units. Removing or relocating the physical pivot may free space, enable additional features and improve the integration of surrounding components.

The project will also build knowledge of compact compliant or linkage-based mechanisms, motion guidance, stiffness, tolerances and durability.

Aimed output

- Define the required movement, pivot points, loads, stiffness and available space.
- Investigate mechanisms capable of creating a homo-kinetic joint with a virtual pivot.

- Develop and compare several compact concepts.
- Build and test proof-of-principle prototypes.
- Recommend the most promising concept for further development.

Nice to have

- Model the kinematics, stiffness and tolerance sensitivity.
- Perform DFM (Design for Manufacturing) and DFA (Design for Assembly).

What we are looking for

You are a student in Mechanical Engineering or Mechatronics Engineering, with an interest in mechanisms, kinematics, modelling and prototyping.

Our offer

Philips Drachten could be the start of a promising career, with opportunities for personal development locally or internationally. You will work on a real product-development challenge and will have the opportunity to:

- Strengthen your capabilities and knowledge.
- Be guided by a team of experienced professionals.
- Receive an internship allowance.
- Expand your professional network.

Practical information

- **Type of assignment:** Internship / graduation project / Master thesis
- **Preferred duration:** Approximately 4-6 months, to be agreed
- **Preferred start date:** Q1 2027
- **Location:** Philips Drachten
- **Initiator/Supervisor:** Dick Dekker