Introduction

Philips develops numerous innovative products at the Drachten site, such as shavers, beard trimmers, hairdryers, epilators, vacuum cleaners, SENSEO® coffee machines, and Wake-up Lights. Philips Drachten has been the development and production center of the advanced electronic Philips Shavers since 1950, having one of the biggest development and production centers in Europe. Philips Drachten has 1500 employees, including 200+ developers from among 35 nationalities.

Problem description

Personal care devices are becoming smarter and capable of assisting users to achieve desired outcomes with minimal effort. One way of achieving this is to add various sensors to the devices in the form of accelerometers, gyroscopes, temperature sensors, etc. and using smart algorithms to help boost the user's experience.

To develop and validate these algorithms, a large volume of sensor data is required that covers a wide variety of usage scenarios. Normally this data is collected by inviting many respondents to our test labs. However, this is time consuming and costly, especially if it has to be repeated several times during development. Therefore, there is a strong wish to come up with alternative solutions. One potential solution is to use robots.

Previous interns have developed methods to use a Universal Robotics UR5 robot for executing realistic IPL movements. They also proved that the accuracy is acceptable for the most relevant use cases. However, there are still some challenges to overcome before this can be used for actual tests. One of these is that a UR5 robot is not very good at controlling the applied force. This assignment is intended to develop a solution for this.

Relevance

Robotic testing can potentially save significant development time and costs. Therefore, this project is considered very relevant for Philips.

Aimed output

- Definition of requirements
- Ideation & selection of optimal solution
- Implementation & optimization (HW & SW)

- Verification of results incl. measurements & analysis
- Report

We are looking for

Mechanical Engineering, Robotics or similar students interested in a graduation project / master thesis with a duration of at least 6 months