FACH
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University of Applied Sciences

**Master's Program: Biomedical Engineering**

# Master's Thesis

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**Title: Development of Experimental Bench for Characterization of Frictional Properties of Contact Lens.**

**Summary:**

The contact of eyelid and lenses during blinking process is to a degree related to comfort level of user as friction force is generated in this interaction. It became a huge concern for contact lens' manufacturer to reduce this friction force in the pursuit of comfort. However, there is hardly any device commercially available that specifically designed to measure low friction force of contact lenses, as well as imitates the real eye conditions. Thus, this thesis deals with development of experimental bench to characterize low frictional properties of contact lens, mainly focusing on improving the rotary stage. Taking advantage of commercially available DC-servomotor, rotary stage is successfully designed and it is then integrated with other important parts of the whole set up which are friction force sensor, lens holder as well as normal force sensor. Various tests manipulating velocity and normal forces onto the lenses have been run using this prototype and it has produced promising results. However, further measurements are needed to be performed under tighter experimental conditions.

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