

DESIGN MODELING AND OPTIMIZATION OF A PASSIVE LOWER-LIMB EXOSKELETON

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Keywords: Passive exoskeletons, Belt, Joint, Composite materials, Optimization

ABSTRACT

The project focuses on continuing the design of a passive leg exoskeleton that will help rehabilitation patients in terms of balance and limiting movement (Figure 1). The exoskeleton was designed using an innovative varying stiffness mechanism [1]. A design model was developed by an AAU student group [2] and fabricated by MP Exoskeleton research team.

The main objective of this project is to build a belt that fits around the waist of the patients and allows it to support all the stresses created by the movement of the leg exoskeleton. Also, a joint will be designed between the two pieces of the exoskeleton, being the upper and lower part, as twisting of the leg must be avoided.

The techniques to be used for the development of the project and the design of these components will be the optimization of the model in Ansys and the use of a composite material that can better withstand loads of the exoskeleton leg.



Figure 1: Design of the exoskeleton leg

Acknowledgement

The authors of this work gratefully acknowledge Grundfos for sponsoring the 10th MechMan symposium.

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