Conference Paper – Volume 932, Issue 1, IOP Conference Series: Materials Science and Engineering 2020, Pages 1 - 7

Parametric design optimization of an ankle rehabilitation robot using SolidWorks

Abstract

This paper presents the approach to determine most suitable dimensions and volume of the proposed ankle rehabilitation robot design. This design aim is the robot needs to be portable without compromising the workspace of the proposed robot and it must fulfill all required basic ankle motions. To do this, optimisation was used to generate possible initial dimensions in order to achieve suitable length for the outer frame through minimization of the dimensions. Based on the selected variables and constraints, the result of the optimization shows minimization of the proposed design has been achieved through reduction of the dimension of the outer frame of the robot in which translate the reduction of the weight of the robot.