

Abstract

Challenges in Mechanism Design for robotic systems as medical devices in motion assistance can be considered from several viewpoints in technical, social, and financial ones as a new strongly emerging service field referring specifically to elderly people. In this keynote main issues are discussed in terms of Innovation aspects coming from Mechanism Design as specifically addressing the needs and requirements for motion assistance of elderly people. The attention is focused on challenging aspects that are related to the mechanical structure and operation of motion assisting when considering tasks either in rehabilitating or helping elderly people in motion autonomy. The lecture presents aspects emphasizing the role of mechanism design in developments of medical devices as based on the fact that the action in performing tasks, either in coordination or not with nursery operators, is of mechanical nature due to motion and force transmission goals of the motion assistance. The challenges of mechanism design are presented both in terms of technical solutions and community activity, since each of them depends, impacts, and generates each other. Examples of past and current solutions are presented to show how a mechanism design can be determinant for successful achievements in device conception and community developments. In particular, the activities at LARM2 in Rome are outlined on topics and systems as illustrative example from the direct experience of the keynote speaker

Keywords: Medical Devices, Robotics and Mechatronics, Mechanism Design, Motion Assistance, Elderly People Welfare