

Exoskeleton for Hemiplegic Patients: Mechatronic Approach to Move One Disabled Lower Limb

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Abstract : The number of people suffering from hemiplegia is growing each year. This lower limb disability affects all the aspects of their lives by taking away their autonomy. This implicates their close relatives, as well as the health system to provide the necessary care they need. The integration of exoskeletons in the medical field became a promising solution to resolve this issue. This paper presents an exoskeleton designed to help hemiplegic people get back the sensation and ability of normal walking. For this purpose, three step models have been created. The first step allows a simple forward movement of the leg. The second method is designed to overcome some obstacles in the patient path, and finally the third step model gives the patient total control over the device. Each of the control methods was designed to offer a solution to the challenges that the patients may face during the walking process.

Keywords : ability of normal walking, exoskeleton, hemiplegic patients, lower limb motion- mechatronics

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