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International Journal of Engineering and Technology(UAE) [Open Access](#)
Volume 7, Issue 2, 2018, Pages 56-59

Robotic exoskeleton control for lower limb rehabilitation of knee joint (Article)

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Abstract

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Wearable devices such as exoskeletons are being opted frequently during rehabilitation processes for the post stroke recovery. Such devices are playing important role in the development of assistive rehabilitation robotic systems. In this paper three control strategies MPC and LQR and PID are introduced which were applied to knee joint of lower limb exoskeleton model for passive exercise. The two controls MPC and LQR are model based control which empowers them for stable responses. In this paper the analysis of robustness of control is done under the noisy and disturbance conditions. The results showed good performance of the exoskeleton model with the applied controls in the provided condition. In the future work the applied controls will be implemented on hardware. © 2016 Authors.

ISSN: 2227524X

Source Type: Journal

Original language: English

DOI: 10.14419/ijet.v7i2.34.13912

Document Type: Article

Publisher: Science Publishing Corporation Inc

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