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## METHOD AND MECHATRONIC DEVICE TO TEST A SITTING- DOWN FES-BASED CONTROL STRATEGY IN PARAPLEGIA

BY

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**Abstract.** This paper presents new contributions to a control method that can be embedded within a neuroprosthesis aiming to restore standing in paraplegia. The method requires the measurements of the knee angles and the knee angular velocities as for the ONZOFF controller, and the pulse widths required to stimulate the chosen groups of muscles are calculated in accordance with a simplified algorithm. The proposed modified algorithm and method have been tested in simulation and on a mechatronic device that emulate the human body movements as initiated by a neuroprosthesis.

**Keywords:** Neuroprosthesis, Neurorehabilitation, Functional Electrical Stimulation.