SIT-TO-STAND MOVEMENTS USING PID CONTROLLER

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DECLARATION

It is hereby declared that all materials in this Project Report are the result of my own work and all the materials, which are not the result of my own work, have been clearly acknowledged in this Project Report.

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ABSTRACT

This study presents a humanoid model performing sit-to-stand movement. The main goals of this project are; the development of humanoid dynamics model and the development of controller to control the movement of the system. To achieve this, MSC.visualNastran Desktop 2002 has been selected as the platform to build the humanoid. PID controller is developed in Simulink and integrate with the model in MSC.visualNastran Desktop 2002 to control the movement. The output trajectories for ankle, knee and hip are controlled to follow the desired input. The output from the simulation shows that the PID developed to control the humanoid model able to produced better trajectory and achieve better transient response. Therefore, interaction between the humanoid dynamics model and the PID controller give proper performance of sit-to-stand movements.