

ABSTRACT

The development of robotics is very significant in this era. Human interest towards robot development became higher dan research related to robot development emerge. One of those development is research about biped walking robot. Biped walking robot is system which adapted from human walking mechanism. Human walking mechanism or called human gait consist of two phase there are stance phase and swing phase. In stance phase, foot contact with the ground and generate the force needed to support the weight of the body. Instead, in swing phase foot is not contact on the ground and swinging with a specific angular position.

This research will be simulated swing leg phase in biped walking robot. Phase of the swing leg on biped walking robot is an important phase to minimize the complex control system. Swing leg simulation in this research use adaptive control system and also use MATLAB/Simulink software as simulation tool.

This research has successfully simulate plant swing leg with adaptive control using MATLAB/Simulink where the position of the swing leg angles can follow desired angular position with the value of low frequency 0,05 Hz and value of high frequency 1 Hz. Simulation result of swing leg's mass and length variation can be concluded that the adaptive control system is robust to mass and length variation by 30%. This robustness was proved by the simulation result which still converge, stable and still be able to follow the desired angular position.

Keywords : Swing leg, adaptive control, biped walking robot