URN etd-0407109-183723-1881
Author Sheng-Yi Huang
Author's Email Address No Public.
Statistics This thesis had been viewed 51 times. Download 0 times.
Department
Year 2007
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Positioning of Linear Motor Stage Using Backstepping control
Date of Defense 0000-00-00
Page Count 62

Keyword
No Any Keyword Information.

Abstract
Backsteppnig control is applied to the positioning of ironless linear motor stage in this thesis. The controller design starts from a lower dimension subsystem and design a Lyapunov candidate for it. By choosing some appropriate virtual control input, the stability of the subsystem is guaranteed. Then extend to a larger system and choose a stabilizing control input for the extended Lyapunov candidate. The procedure is repeated until the overall system's actual control input appears, Again, the overall system's stability is guaranteed when the control input is appropriately chosen.
The experimental setup consists of a personal computer installed with NI PCI- 6251 data acquisition card, a Copley Xenus driver, and a Hiwin linear motor stage with air bearing.
NI LavVIEW was used to control the experimental system. Sine curve with amplitudes of 30mm, 50mm and T curve 100mm desplacement were used as the desired trajectories. The controller gain K was varied in the test. The results demonstrated the effectiveness of the backstepping controller in tracking.
Advisory Committee Huang,Dong-Yong - advisor

Files No Any Full Text File.
Date of Submission 2008-07-17