Abstract

This paper deals with the control aspects of magnetic levitation system using fuzzy logic controller (FLC). The magnetic levitation system is a mechatronic system already acknowledged and accepted by the field experts. For such a system it is desired to proposed a suitable controller for positioning a metal sphere in air space by the help of an electromagnetic force. In the ideal situation, the magnetic force produced by current from an electromagnet counteracts the weight of the metal sphere. Nevertheless, the electromagnetic force is very sensitive, and there is noise that creates acceleration forces on the metal sphere, causing the sphere to move into the unbalanced region. FLC proposed in this paper is to control the nonlinear magnetic ball suspension system using Mamdani implication method. Samples of simulation results with different initial conditions concerning the ball's position and speed are provided included to validate the theory. The effectiveness of this proposed technique is validated through experimental results obtained by performing experiments on Feedback make Magnetic levitation system

References
Digital Control of Magnetic Levitation System using Fuzzy Logic Controller


Index Terms

Computer Science Control Systems

Keywords

Magnetic Levitation System Fuzzy Logic Control Pid Control