



Microcontroller Implementation for DC Motor Speed and Position Control

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Abstract:

This paper presents the design and experimental implementation of a Fuzzy logic controller (FLC) for a DC servomotor speed and position control. The motivation to utilize the FLC is its robustness against model's parameters inaccuracy and uncertainty. The implementation of the FLC algorithm is carried out by a low cost 8-bit microcontroller instead of using expensive general purpose microprocessors which are commonly employed in practice. This leads to a reasonable hardware cost for such applications. The experimental results in terms of reference tracking and disturbance rejection show high performance with the FLC approach in comparison with PI and PD controllers designed for the same purposes.

Keywords:

DC motor control, Fuzzy logic controller, Mamdani Type Fuzzy Controller, Microcontroller

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