Abstract

This paper presents the design and implementation of an adaptive fuzzy logic controller for the speed control of brushless dc motors. The proposed system uses an adaptation of the slope of the membership functions of the variables used in the conventional fuzzy controller based on the magnitude of the error. A simulation analysis of the fuzzy controller and the adaptive fuzzy controller are done and their performances are compared. Simulation results of both fuzzy and adaptive fuzzy controllers are presented. The adaptive fuzzy controller is better than the fuzzy controller based on the performance parameters considered. An experimental implementation of the designed adaptive fuzzy controller on an embedded microcontroller is also presented.

Reference

Index Terms

Electrical & Electronics
Control Systems

Key words

Brushless DC motor
Fuzzy controller

Adaptive fuzzy controller
microcontroller