Speed Control of BLDC Motor By Using PID Control and Self-tuning Fuzzy PID Controller

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Abstract

This paper presents three different robust controller techniques for high performance brushless DC (BLDC) motor. The purpose is to test the ability of each control technique to force the rotor to follow a preselected speed/position track. This objective should be achieved regardless the parameter variations, and external disturbances. The first technique is conventional PID controller. The second controller technique use genetic algorithm to adjust the PID controller parameters based on three different cost functions. Finally a self-tuning fuzzy PID controller is developed and tested. These controllers are tested for both speed regulation and speed tracking. Results shows that the proposed self-tuning fuzzy PID controller has better performance.

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