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SPEED CONTROL FOR BLDC MOTOR USING PID AND FUZZY PID CONTROLLERS

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ABSTRACT

Brushless DC (BLDC) motors are gaining more importance in industrial applications because of their high speed, high efficiency, high torque and low volume. Here in this paper, an improved Fuzzy PID controller to control speed of Brushless DC motor was proposed. The speed controller for BLDC motor is designed using proportional–integral–derivative (PID) controller and Fuzzy proportional–integral–derivative controller. This paper provides comparisons between the performance of conventional PID controller and Fuzzy PID controller. Tuning the PID parameters for BLDC motor to get satisfied speed control characteristics is difficult. So to have the accurate speed control characteristics, to control the BLDC motor, a Fuzzy PID controller has been designed. The modeling, control and simulation of the BLDC motor has carried out using MATLAB for different speeds and loads. The simulation results provide satisfactory and better control performance of Fuzzy PID controller than the conventional PID controller for the BLDC motor.

KEYWORDS: Brushless DC (BLDC) Motors, Proportional Integral Derivative (PID) Controller, Fuzzy PID Controller