Abstract

The proposed work deals with optimal tuning of a Proportional-Integral-Derivative (PID) controller for speed control of a DC shunt motor. PID controllers are widely used in industrial plants because of their simplicity and robustness. Industrial processes are subjected to variation in parameters and parameter perturbations, which when significant makes the system unstable. So the control engineers are on look for automatic tuning procedures. The performance of Ziegler-Nichols method, one of the widely accepted conventional methods has been compared and analyzed with the intelligent tuning technique called the Simulated Annealing method (SA). The results establishes that tuning the PID controller using SA technique which comes under evolutionary programming has proved its excellence in giving better results by improving the steady state characteristics and performance indices.

Angeline, P. J., 1998: Using Selection to Improve Particle Swarm Optimization, IEEE int. Conf. 4-9, pp. 84-89.


Varela L. R., R. A. Ribeiro and F. M. Pires, 2002, "Simulated annealing and fuzzy..."


Index Terms

Power Electronics Control Applications

Key words

PID Robust

Conventional techniques

SA

evolutionary programming

D.C shunt motor