

DC Motor Speed Control Unit Design

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Abstract: *This paper describes the speed control of a DC shunt motor using conventional controllers (PID, IMC) and Fuzzy Logic controller based on Matlab Simulation program. A mathematical model of the process has been developed using real plant data and then conventional controllers and Fuzzy logic controller has been designed. A comparative analysis of performance evaluation of all controllers has been done*

Keywords: DC shunt motor

REFERENCES

- [1] Husain Ahmed and Gagansingh, "Controlling of D.C. Motor using Fuzzy Logic Controller", Conference on Advances in Communication and Control Systems 2013 (CAC2S 2013)
- [2] Katsuhiko Ogata, "Modern Control Engineering". 5th edition 2010.
- [3] M.Saranya and D.Pamela, "A Real Time IMC Tuned PID Controller for DC Motor", International Journal of Recent Technology and Engineering, ISSN: 2277-3878, Volume-1. Issue-1, April 2012
- [4] H.X.Li and S.K.Tso, "Quantitative design and analysis of Fuzzy Proportional- Integral- Derivative Control- a Step Towards Autotuning", International journal of system science, Vol.31, No.5, 2000, pp.545-553.
- [5] Zadeh, L. A., Fuzzy Sets. Information and Control, 8, 338-353, 1965.
- [6] Assilian, S. and Mamdani, E.H.. An Experiment in Linguistic Synthesis with a Fuzzy Logic Controller. International Journal of Man-Machine Studies, 7(1), 1-13, 1974.
- [7] K. Venkateswarlu and Ch. Chengaiah "Comparative study on DC motor speed control using various controllers" Volume 1, Issue 6/ Dec 2013
- [8] AlokRanjan Singh and V.K. Giri "Design and Analysis of DC Motor Speed Control by GA Based Tuning of Fuzzy Logic Controller" International Journal of Engineering Research & Technology (IJERT), Vol. 1 Issue 5, July-2012
- [9] KiamHeongAng, Gregory Chong and Yun Li. "PID Control System Analysis, Design, and Technology," IEEE Trans., Control Syst. Technol., vol. 13, no. 4, pp. 559-576, Jul 2005