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Performance Evaluation for SE 113 Flow Control System Plant Using Self-Tuning Fuzzy PI Controller (Conference Paper)

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Abstract

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The aim of this project is to evaluate the dynamic process performance of SE113 Flow Control System Plant using self-tuning Fuzzy PI controller . The experimental data is used to model the process and the control analysis is done using Self-Tuning Fuzzy PI Controller . The performance evaluation is based on the percent overshoot, rise time and settling time of the process. The overall performance is compared with the conventional Proportional-Integral control method. The results had shown that self-tuning Fuzzy PI controller simplify the tediousness in tuning the controller and enhance the capability of PI controller . © 2018 IEEE.

SciVal Topic Prominence

Topic: Tanks (containers) | Controllers | Coupled tank

Prominence percentile: 73.048

Author keywords

Fuzzy PI controller | Matlab Simulink | Proportional-Integral control

Indexed keywords

Engineering controlled terms: Controllers | Flow control | Two term control systems | Water craft

Engineering uncontrolled terms: Control analysis | Conventional proportional integrals | Dynamic process | Fuzzy - PI controllers | MATLAB/ SIMULINK | Percent overshoot | Proportional-integral control | Settling time

Engineering main heading: Process control

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References (12)

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1 Marlin, T.E., Marlin, T.E.
(2000) *Process Control: Designing Processes and Control Systems for Dynamic Response*. Cited 500 times.
2nd Ed., New York: McGraw-Hill

2 Yan, Z., Liu, C., Song, X., Song, Z., Zhang, Y.
Application of fuzzy adaptive PID control in chlorine flow control system

(2013) *Proceedings - 6th International Symposium on Computational Intelligence and Design, ISCID 2013*, 2, art. no. 6804826, pp. 53-56. Cited 3 times.
doi: 10.1109/ISCID.2013.127

View at Publisher

3 Vadivazhagi, S., Jaya, N.
Fuzzy gain scheduled pi controller for a two tank conical interacting level system
(2014) *International Journal of Engineering and Technology (IJET*, 6 (6), pp. 2588-2594.

4 Manoj Manjunath, R., Janaki Raman, S.
Fuzzy adaptive pid for flow control system based on
(2011) *IJCA Special Issue on "computational Science-New Dimensions & Perspectives*, p. 8. Cited 3 times.

5 Mazlan, Z., Ibrahim, R.
Development and implementation of Adaptive Fuzzy PID Controller (AFPIDC) for flow control application

(2012) *ICIAS 2012 - 2012 4th International Conference on Intelligent and Advanced Systems: A Conference of World Engineering, Science and Technology Congress (ESTCON) - Conference Proceedings*, 1, art. no. 6306148, pp. 1-6. Cited 4 times.
ISBN: 978-145771967-7
doi: 10.1109/ICIAS.2012.6306148

View at Publisher

6 Jinz, J., Huang, H., Sun, J., Pang, Y.
Study on Fuzzy Self-Adaptive PID control system of biomass boiler drum water
(2013) *Journal of Sustainable Bioenergy Systems*, 3, pp. 93-98. Cited 11 times.

7 Ram, A.G., Lincoln, S.A.
Fuzzy adaptive PI controller for single input single output non-linear system

(2012) *ARPN Journal of Engineering and Applied Sciences*, 7 (10), pp. 1273-1280. Cited 13 times.
http://www.arpnjournals.com/jeas/research_papers/rp_2012/jeas_1012_789.pdf

8 Korsane, D.T., Yadav, V., Raut, K.H.
PID tuning rules for first order plus time delay system
(2014) *International Journal of Research in Electrical Electronics Instrumentation and Control Engineering*, 2 (1). Cited 15 times.
Jan

9 Yusuf, Z., Janin, Z., Taib, M.N.
Application of fuzzy logic controller for glycerin bleaching process

(2009) *SCOReD2009 - Proceedings of 2009 IEEE Student Conference on Research and Development*, art. no. 5442979, pp. 438-441. Cited 5 times.
ISBN: 978-142445187-6
doi: 10.1109/SCORED.2009.5442979

View at Publisher

10 Ihedioha, A.C., Eneh Ifeanyichukwu, I.
Water level monitoring and control using fuzzy logic system
(2015) *Int Research Journal of Engineering and Technology (IRJET)*, 2 (8).
Nov

11 Tan, W.
Water level control for a nuclear steam generator

(2011) *Nuclear Engineering and Design*, 241 (5), pp. 1873-1880. Cited 29 times.
doi: 10.1016/j.nucengdes.2010.12.010

View at Publisher

12 Pawan, D.M., Pandey, K., Chugh, R.
Simulation of water level control in a tank using fuzzy logic
(2012) *IOSR Joournal of Electrical and Electronics Engineering (IOSRJEEE*, 2 (3), pp. 9-12. Cited 3 times.

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