

Advantages of Fuzzy Control Application in Fast and Sensitive Technological Processes

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Abstract : This paper presents the advantages of fuzzy control use in technological processes control. The paper presents a real application of the Linguistic Fuzzy-Logic Control, developed at the University of Ostrava for the control of physical models in the Intelligent Systems Laboratory. The paper presents an example of a sensitive non-linear model, such as a magnetic levitation model and obtained results which show how modern information technologies can help to solve actual technical problems. A special method based on the LFLC controller with partial components is presented in this paper followed by the method of automatic context change, which is very helpful to achieve more accurate control results. The main advantage of the used system is its robustness in changing conditions demonstrated by comparing with conventional PID controller. This technology and real models are also used as a background for problem-oriented teaching, realized at the department for master students and their collaborative as well as individual final projects.

Keywords : control, fuzzy logic, sensitive system, technological proves

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020