

Research on nonlinear automation for first order delays system

ABSTRACT

First order delay system (FODS) is in class of nonlinear systems. In these systems design control algorithms are very important. In this research nonlinear terms of incremental Proportional Integral Derivative (PID) algorithm is used to nonlinear model-free integrate large amounts of control methodology in a single methodology. This work, proposes a developed method to design nonlinear based PID controller. In this methodology nonlinear model-free sliding mode algorithm help incremental PID to estimate and linearization of first order delay system. According to this research, the controller robustness improved based on nonlinear term of sliding mode algorithm and the chattering is reduced/eliminate based on PID incremental method.

Keyword: First order delays system; PID incremental controller; Nonlinear function; Sliding mode controller; Model free robust sliding mode algorithm