

Abstract

Mohamed I Abu El-Sebah

Simplified intelligent Universal PID Controller

Many researches give a great attention to invent different techniques for process controller application. All of them tend to simplify the controller design algorithm and make it more intelligent, but the two goals seem to be an opposite goals. Although the artificial intelligent controller is proper, they need sometimes a complicated algorithm and parameter adaptation process. This paper presents a new idea to simplify the process controller, also to make it an intelligent controller. Moreover, the proposed controller is used as universal controller. The paper also contains details of the controller design and development. This Simplified Universal Intelligent PID (SUI-PID) controller is designed to yield a good command tracking for different systems. The proposed controller can be designed using a very simple logic algorithm. This algorithm adapts the controller parameters automatically, therefore no need for controller adaptation. The proposed controller is simulated using Matlab Simulation software package and applied to different systems to verify the controller properties effectiveness. The simulation results illustrate an excellent performance of the proposed controller, which used as a universal controller for any system.