A COMPARATIVE ANALYSIS OF ARTIFICIAL BEE COLONY AND PARTICLE SWARM OPTIMIZATION SWARM INTELLIGENCE ALGORITHMS IN DESIGN A FRACTIONAL FUZZY PID CONTROLLER AND IMPLEMENTATION ON DC MOTOR

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ABSTRACT

In this article, has been studied implementation of fractional fuzzy PID controller on a DC motor. A fractional fuzzy PID controller is a conventional PID controller that includes two non-integer derivative and integral parameters (λ,μ) in addition to k_p,k_i,k_d could be perform against uncertainties as fuzzy logic. Design strategy contains five parameters. This research uses from artificial bee colony and particle swarm optimization for designing of controller parameters. Artificial bee colony in designing proposed FFPIID has improved system robustness considerably compared with designed controller based on PSO and conventional PID.

Keywords: Fractional Fuzzy PID Controller, Artificial Bee Colony, Particle Swarm Optimization, Robustness.