

Design and Analysis of FLC and Feedback Control for Three Finger Gripper System

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ABSTRACT

These researches present the fuzzy logic design and control for three finger gripper system to grasp an object. Two objectives are mainly considered in this work, which are the analysis of different membership types and the gripper performance with feedback and without feedback control. The comparison is also including different number of rules analysis as well as the fuzzy membership types. The simulation and analysis are carried by using MATLAB Simulink and SimMechanics toolboxes to analyze the system performance. The result shows that the gripper system with trapezoidal memberships achieved faster response and good grasp. Besides that, the proposed system with feedback has produced the best result to grasp the object with suitable torques and angles in comparison to the non-feedback gripper system.

Keywords: fuzzy logic, feedback, non-feedback, three finger gripper, membership functions.