ABSTRACT

At some time, item storage place didnt have enough space to store the items that were deposited. The solution to overcome the problem is adopt the concept of rotary parking that will be called rotary trolley. Rotary trolley is needed control system to adjust the position of each rack to the set point. This is so that the rack on a rotary trolley can stop in the right position with different loads from each user.

In this final test the author designs, implements, and analyzes the rack position control system on a rotary trolley using the Fuzzy Logic Controller (FLC) method on automatic item storage based RFID. Inputs to the FLC control system are error (e) and delta error (Δe) obtained from the rotary encoder sensor. Error (e) at the input is defined as how far the position of a rack is deviated from the setpoint and represented by the value of the rotary encoder sensor. Whereas delta error (Δe) is defined as the difference between the error (e) of the current position and the error (e) of the previous position. The output of the FLC is Pulse Width Modulation (PWM) which is used to control the speed of the DC motor.

The results were obtained from 3 variations of the meeting results, the no-load test had a completion time of between 3.11-3.24 seconds and steady-state conditions between 3 to 8 counters. Testing with a load of 250 g has a completion time of 3.92-8.80 seconds and steady-state conditions between -5 to 4 counters. While testing with a load of 500 g has a settling time of 4.66-7.39 seconds and steady-state conditions between 8 to 12 counters. Testing with the different load on 2 rack and 3 rack has a completion time of 1,2-4,27 seconds and steady-state conditions between -18 to 11 counters.

Keywords: *Item storage places, rotary trolley, FLC*