ABSTRACT

Speed and Position Control in Cargo Lift Prototype Using *Fuzzy Logic*

The background of this research create a cargo lift prototype embedded with a system capable of controlling the speed of a motor that connected to a pulley within the cargo lift prototype. To achive this goal, author employs position and speed control using fuzzy logic method.

In this research, position control is used to control position, and speed to control the rotation speed of the motor in the cargo lift protorype system. The setpoint used are the height and rotation speed of the motor from cargo lift prototype. The input that been used is the height of the lift which is read by the ultrasonic sensor HC-SR204 and the motor rotation speed which is determined by the load which is read by loadcell sensor. The data that obtained was processed using Arduino UNO with fuzzy logic method to produc output in the term of PWM values. The PWM values is used to rotate the DC motor, so that the lift will reach the desired the speed and position.

At the end of the research, the cargo lift prototype that have been made was able to control speed and position, but the speed of the motor when its pulling the lift was too slow than expected.

Key Word : lift, ultrasonic, load cell, *fuzzy logic*, *position control*, *speed control*, Arduino UNO