ABSTRACT

This *self-driving car* or a car without a driver is a proof of the rapid spread of technology into one of the automotive sector sharing. Cars that have the ability to run autonomously following a track without crashing can increase security and be more effective when driving. To be able to follow the path and not crash it needs optimal control, for this final project this time applies speed control and steering direction control to the car robot. Robot car is a prototype of a car vehicle whose construction adapts to the vehicle car in general.

The system that is controlled in the Final Project this time is divided into two, namely the speed control system and steering or steering system control. Speed control functions to regulate the speed and movement of the car robot by adjusting the PWM value on the DC motor. While for steering control using the ackerman steering system with a servo motor which is the actuator. Both are set using the fuzzy logic controller method so that the car robot can move along the existing path and adjust the speed based on the path and surrounding environment.

The design of the controls on the simulation and the programming algorithm has been minimal from errors with an average error value on the simulation results for the servo angle of **0.771008** and for the speed of **0.392072**. Whereas in the programming algorithm the average error value for the servo angle is **0.149712** and for PWM DC motors **0.198168**. Robot cars in accordance with the logic of the fuzzy rules made. Car robots can execute turns and follow trajectories with a success rate of **93.33%**. The distance between the robot car and the track is **1.83 cm** on the inside of the track and **0.03 cm** on the outside of the track. The car robot can adjust its speed and can stop when there are obstacles / traffic lights with an average distance of **29.89 cm**.

Keywords : *Self-driving car robot, steering control, speed control*