

ABSTRACT

Parking the vehicle is one of the things that are difficult for beginner drivers and older drivers, especially parked in parallel and in a narrow lane. The core of the problem is to set the steering direction and the speed of the vehicle when parked. Therefore needed a system to allow drivers to park their vehicles quickly and well. So in this final project will be designed a system that can park the vehicle automatically.

This parking system using the method of Ackerman Steering in determining the steering angle is the angle that will be implemented into the Path Planning Parking. After finding a parking space available with the safe distance the user just activate auto parking system, and the cars will start the automatic parking. Automatic parking starting from the start point and will move to end point with the formula movement through the Path Planning. When park the distance between the car park with the other cars will be measured using ultrasonic sensors. Speed and distance to go park the car when park measured by the Rotary Encoder. To control the system in this final project is used microcontroller Arduino UNO and DC motor as the steer that will be implemented method of Ackerman Steering.

Based on the test results obtained by the data that the system works quite well. Rotary encoder is used as feedback to work well with the greatest error is 8.5%, as well as with ultrasonic sensors have a very small error value. Process maneuver when parking process also works well and choose a good degree of accuracy with an average time of 36.92 seconds performance, it also assisted with Path planning thus simplifying the designed the car in maneuver. This control system is implemented on the electric car.

Keywords: Ackerman Steering, Path Planning Parking, Ultrasonic, Rotary Encoder, Arduino UNO