ABSTRACT

Along with the times, robotics technology in the industrial sector is required to grow, including the automotive industry sector. For example, autonomous car control systems are currently being developed by car companies. The development of this technology is expected to minimize accidents caused by human error in driving a car.

In this final project, the system designed is a wheeled robot that can run automatically based on object detection. This wheeled robot allows for object recognition in the form of line like markings on paved roads and is able to control the car to drive automatically with the Fuzzy logic method. In addition, the author also developed this wheeled robot to detect traffic signs and traffic lights. When it detects a stop sign, the robot will stop for 5 seconds. Then, when the robot detects a red light, the robot will stop until the light turns green .

Based on the results of the tests carried out, the performance of image processing as a "Self Driving Car" system is running well where the robot can detect roads, 'STOP' signs, replica cars and traffic lights. Image processing based on Haar-Like Classifiers can achieve an average accuracy of 92,7%. In the Fuzzy Logic-based control system, the robot can run well until it reaches an average accuracy of 91,94%.

Keywords: Fuzzy Logic, Image Processing, OpenCV