ABSTRAK

Driving safety is critical, especially when vehicles must travel quickly on uneven roads or encounter sudden obstacles. One common risk is the driver's inability to react quickly to sudden obstacles, which can increase the risk of accidents. To address this issue, this research aims to design a prototype automatic braking system (autobreak) for RC cars using ultrasonic sensors and fuzzy logic methods. This system is designed to detect obstacles ahead and automatically apply the brakes based on the distance of the detected obstacle.

This research process involved designing a detection system based on ultrasonic sensors mounted on the front of the vehicle to measure the distance to objects in front. When an object is detected within a certain range, fuzzy logic processes the data obtained from the ultrasonic sensors and generates a braking decision appropriate to the obstacle's proximity. Tests were conducted under simulated conditions with varying distances and speeds to assess the system's effectiveness in responding to obstacles on the road.

The test results showed that this autobreak prototype was able to accurately detect obstacles and automatically reduce the RC car's speed when the object approached a predetermined distance, thereby improving driving safety. The use of fuzzy logic methods in this system proved effective in automatically adjusting braking intensity based on the obstacle's proximity. With this system, it is hoped that it can improve driving safety.

Keywords: Ultrasonic sensor, autobreak, RC car, fuzzy logic