

## **ABSTRACT**

*Motor vehicle accidents, especially car lately increased. Data released from the police in 2009, an average of 20,000 lives lost per year due to a car accident. According to research conducted by the National Highway Traffic Safety Administration (NHTSA), the main cause of accidents is human error factor is loss of concentration and fatigue. So we need a tool that can assist humans in driving the car so that accidents can be reduced.*

*In this study, the cruise control system is built to analyze the vehicle in front speeds to match the speed of our vehicles, then followed the vehicle speed to a certain safe distance. As input the system can use the webcam that will scan the vehicle in front at a certain distance. This system will be built in several sub-systems, the first image capture via webcam installed in the car. Then be processed with color detection algorithm is used to recognize objects that caught the car or not and determine the distance between the car in front of the car observer. Furthermore, by using fuzzy logic, signal processing system sends commands to the control system to keep the distance fixed by adjusting the car speed of the observer. The control system is a microcontroller with actuator servo motors to control the accelerator and brake.*

*This research produces a prototype of the cruise control system that can work in a way that is observed to recognize the car, adjust and set the initial distance between the car and the car observer observed, then adjust the accelerator and brake pedal in the car so that the distance between the car and the car observer observed to have a constant distance along the same time as the initial distance. With this system the driver can be helped to control the vehicle so as to reduce the rate of accidents due to loss of concentration on driving.*

*Keyword: cruise control, color detection algorithm, fuzzy logic, microcontroller, servo motor*