ABSTRACT

The growing industry in Indonesia requires automation to reduce the human error. The use of AGV (Automated Guided Vehicle) is being developed in Indonesia is one form of increased efficiency mobilization of products with a vehicle which is controlled automatically. However, the use of AGV will encounter problems when there are objects blocking the path of the AGV. AGV who find obstacles in the path will hit the barrier or stop so would cause the cessation of mobilization of the product.

In this study designed a collision avoidance system that is integrated into the AGV. Collision avoidance system serves to prevent AGV collide with the barrier and continue to function as a means of transportation products. In general, the sensors that are used in collision-avoiding for AGV system using a sensor that is quite expensive and difficult to obtain in Indonesia. In the present study, collision avoidance systems will be created by using ultrasonic sensors that output will be used as a parameter for controlling the AGV uses fuzzy logic. As a collision avoidance system controller is used also angle encoder and sebgai controllers use line sensor navigation systems.

Results of this research is to create a powerful collision avoidance system with ultrasonic sensors are cheap enough that processed using fuzzy logic to get a smoother result. This is supported by the average percentage of successful avoidance of the three kinds of conditions amounting to 86.7%. It is hoped with this study used AGV can work more efficiently.

***Keywords**: Automated Guided Vehicle, collision avoidance, ultrasonic sensors, fuzzy logic, path planning*