

# **DESIGN AND CONSTRUCTION OF HUMAN FOLLOWER ON AN AUTOMATIC TROLLEY BASED ON ARDUINO**

**Jihad Insan Mulia**

*Electrical Engineering Study Program, Faculty of Science & Technology  
University of Technology Yogyakarta  
Jl. Ringroad Utara Jombor Sleman Yogyakarta  
E-mail : [hadinsan19@gmail.com](mailto:hadinsan19@gmail.com)*

## **ABSTRACT**

*In this modern era, the role of robots is very significant in helping and can replace human tasks. One example is seen in the supermarket environment, where robots can help make the shopping process easier. The process of moving goods occurs every day. For items that are not heavy and in small quantities, they can be moved by lifting them by hand, but if the items being moved are large or heavy, then humans need tools that can help humans to move the items. Therefore, a tool is needed that can be used as an automatic goods carrier to overcome this problem by using an automatic trolley so that it can increase efficiency and productivity in the process of moving goods. The results of this research are that the trolley robot can automatically follow the user's direction and can avoid obstacles with a success percentage of 97.61%. As well as the test results on the sensors used on the automatic trolley robot, the ultrasonic sensor accuracy rate was 99.98%. The compass sensor has an accuracy level of 99.97% before calibrating and an accuracy level of 99.99% after calibrating. The proximity sensor is capable of detecting objects well with a maximum distance of 15 cm.*

**Keywords:** *Automatic, Ultrasonic, Compass Sensor, Proximity*