

***AUTO REJECT SYSTEM PADA OMNIDIRECTIONAL CONVEYOR EMPAT  
RODA BERBASIS IMAGE PROCESSING YOLO***

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**ABSTRACT**

*The manufacturing industry is required to increase productivity without sacrificing product quality. Traditional quality control is prone to human error, necessitating an automated computer vision-based system. This research develops an Auto Reject System on a Four-Wheel Omnidirectional Conveyor based on YOLO11 using Research and Development (R&D) method. The system consists of three ESP32-based omnidirectional conveyor units as slaves and a laptop as master, communicating via Modbus RTU over RS485. The YOLO11m model was trained on 2,258 images across six classes, achieving mAP50 of 99% and mAP50-95 of 88%. Detection accuracy under normal lighting averaged 85%, increasing to 100% after adding LED lighting and manual exposure settings. The overall system test achieved 95% success rate from 80 trials.*

***Keywords:*** YOLO11, *Omnidirectional Conveyor, Quality Control, Computer Vision, Modbus RTU*