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AI Based Product Detection and Sorting

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Abstract: *Product detection and sorting are critical processes in industries such as manufacturing, agriculture, and e-commerce. Traditionally, these tasks are carried out manually or with basic automation systems, often resulting in slower processing speeds and inconsistencies due to human error. This paper proposes an AI-based solution to enhance the accuracy and efficiency of product identification and classification. The system leverages image processing techniques and machine learning algorithms to detect product features, categorize them based on trained models, and automate the sorting process. By reducing human involvement, the proposed approach minimizes operational costs, increases throughput, and ensures consistency in sorting accuracy. The model is especially beneficial in real-time industrial applications where speed and precision are paramount. Experimental results show that AI integration significantly improves performance over traditional methods, making it a scalable and reliable solution for smart industrial automation.*

Keywords: Artificial Intelligence (AI), Product Detection, Product Sorting, Machine Learning, Image Processing, Computer Vision, Industrial Automation, YOLOv8, Deep Learning, Smart Manufacturing, Object Classification, Real-time Detection

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