Design of Object Detection System Using You Only Look Once (YOLO) Algorithm on Robot Arm

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ABSTRACT

The application of image processing techniques for object detection in the robotic arm technology system is a development that aims to improve the ability of the robotic arm to classify and manipulate objects with a high level of accuracy. This study focuses on the integration of the YOLO (You Only Look Once) algorithm with the robotic arm, optimizing the object recognition process in real-time. Based on several tests that have been carried out, the results of object detection using YOLO are in accordance with the actual object with a 100% conformity rate and an average confidence value of 0.84. This system can also send data to the robotic arm controller, namely Arduino, with a delivery success rate of 100%. The average percentage of error in testing the x-axis object coordinates is 8.83% and on the y-axis is 1.08%..

Keywords: *You Only Look Once, Image Processing, Robot Arm*