ABSTRACT

APPLICATION OF THE FASTER R-CNN ALGORITHM IN RECOGNIZING RUPIAH BANKNOTES

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Money is an important part of human life. Humans are never separated from activities related to money. In the modern era, the use of money has increasingly developed. One of the conveniences that the public can feel is the existence of technology or a system that can recognize the nominal value of banknotes. Therefore, we need a technology that can differentiate banknotes based on their nominal value; one that can be used is object detection. Object detection is one of the most popular branches of computer vision. There are many methods for carrying out object detection, such as Faster R-CNN. Faster R-CNN has been widely used in various fields to perform object detection tasks. Faster R-CNN has advantages over its predecessor because it uses a Region Proposal Network (RPN) as a substitute for selective search, which requires less compilation time. This research aims to apply the Faster R-CNN algorithm with ResNet-50 architecture to recognize rupiah banknotes. The dataset used is 1120 images consisting of 8 classes. The model gets an accuracy of 87.5% in the RGB scheme and 82.1% in the HSV scheme with HOG. Even though they show good numbers, the two models cannot predict class well.

***Keywords*: *Faster R-CNN, Object Detection, Rupiah Banknotes, ResNet-50, Deep Learning*.**