ABSTRACT

Helmets are one of the safety riding for motorbike drivers that function to protect the head. Low awareness of motor users to use safety devices in accordance with the Act. The accident rate in Indonesia is dominated by motorcycle vehicles. There is also an obligation regarding motorcycle passengers must also use helmets that meet Indonesian national standards in accordance with Article 106 paragraph (8) No. 22/2009.

Therefore, a helmet detection system was created. One of the methods created to create object detection is the You Only Look Once (YOLO) method. The way YOLO works is by looking at the entire image once, then passing through the neural network once directly detecting the object. The method for the recognition of the object of the helmet in the user of such a motorcycle is the Convolution Neutral Network (CNN). What results from the work on this Final Project is a helmet detection system that can detect motorcyclists who use and do not use helmets that can be applied on the road. This system is made using the YOLO Tiny3 method, it is hoped that with the system many motorcyclists are aware of the use of helmets and minimize accidents.

The results of this implementation aim to detect motorcycle riders who use helmets and do not use helmets, with the output in the form of images that have been detected by people who use helmets or do not use helmets with labeling and bounding boxes on images that have been detected on motorcyclists on the highway. From the test results on a total of 15 images, it shows that the system can display notifications whether or not there is a motorcyclist violation committed in 3 scenarios, there is an accuracy value of 100% with a processing time of 0.2 seconds. And the test results on a total of 75 images carried out in 3 scenarios there is an average value of the highest system precision that is 88% in scenario 1 with an average processing time of 0.2 seconds and the lowest average precision value is in scenario 2 which is 76% with an average -average processing time 0.2 seconds

Keywords: *helmet, YOLO, detection object*