

ABSTRACT

Traffic accidents these days should be a special concern for all of us. Accidents occur because of a lack of self-awareness from the public about the traffic rules themselves. The police as an institution that helps the public in educating the importance of obeying traffic rules must not be tired in carrying out their duties. One way of education carried out by the police is by means of traffic control. They go to the field to take action against violators who do not comply with the rules, of course this method has several drawbacks, such as limited human resources and limited time.

With that technology can actually be used to perform a more flexible supervisory function. Object detection-based systems can be used as a solution to take action against violations, especially motorcycle vehicles that are often silent in the zebra cross area when the red light is on. This situation causes pedestrians to often feel disturbed and even do not use the zebra cross for pedestrian crossings themselves. With this, an object detection system using the You Look Only Once (YOLO) algorithm can be used to detect these violators, by calculating how long the motorcyclist has been silent in the zebra cross area.

When used, this system can provide information on the motorbike that violates it and then print out information about the violator such as Tracker ID and also the coordinates of the video. The results of the research that has been carried out in this final project show that the detection system for motorcycle violators at the zebra cross based on object detection using the YOLO algorithm gets 100% precision, 100% recall, 100% F1-Score, 82.23% Average IoU, Average Loss 2.31%, mAP 99.99% and the accuracy obtained reaches 99.66% with the parameters used are Data Ratio 70% test: Data 30% Test, Batchsize 64, Learning Rate 0.004, and Max Batches 4000.

Keywords : *Deep Learning, Traffic, Object Detection, YOLO*