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

٧