Abstract

Until 2021 the number of motorcycle users in Jakarta is 21,758,695 people and continues to grow to date. This large number of users makes it difficult for the authorities to discipline unscrupulous motorists who do not obey the rules, one of which is crossing the sidewalk. The construction of the bollard itself can only block cars but cannot block motorbikes because the width of the bolar must exceed the width of a wheelchair.

The bollard is an iron pole that is built permanently perpendicular to the sidewalk. In order to allow wheelchairs to pass through, an intelligent system based on object detection can be built to detect these wheelchairs.

In this study, the detection algorithm was built using datasets taken from kaggle.com and google images using image scrapping techniques. Testing the model using a wheelchair object, wheelchair detection using the YOLOv3 algorithm, produces a precision recall model and a mAP value with an IoU threshold configuration of 0.5 which is used to detect wheelchair objects as input for testing of 456 images. This wheelchair detection system can block motorized vehicles and provide access when detecting wheelchairs passing by on the image used as a test.

Keywords: Bollard, YOLOv3, whellchair.