

NUMBER PLATE DETECTION AND READING SYSTEM USING DEEP LEARNING AND OCR (OPTICAL CHARACTER RECOGNITION)

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ABSTRACT

vehicles are a means of transportation that are widely used to carry out activities to move goods and also to make it easier for humans to carry out activities to move to other places in a relatively short and fast time. While on the road, the process of monitoring road users through the license plate of the vehicle is still carried out by officers directly in the field. When the situation in the field is not supportive, such as bad weather, this will cause obstacles for officers when conducting the process of monitoring road users in the field which causes officers to be less than optimal when carrying out the process of monitoring vehicles on the road. The existence of a number plate is important to distinguish the area of the vehicle, license plate detection systems usually use machine learning or deep learning methods and also use OCR (Optical Character Recognition) for number plate detection and extract data from the detected number plates. Deep Learning is used to detect vehicle license plates from an image, video, or in real-time through a camera or image. OCR (Optical Character Recognition) is used to extract data from the detection results into letters or numbers that can be read by the machine. The shape of the number plate in each country varies, the number plate in Indonesia has various colors such as: black, yellow, red, and white. This number plate detection system is made to detect vehicle number plates that match the shape of the number plates in Indonesia. The detection system testing was carried out twice, the first was the system test to detect number plates by testing on 20 different number plate images and testing the detection system with a threshold value of 0.5 getting an accuracy value of 100%. In the second detection system testing, it was carried out with a threshold value of 0.8 and obtained an accuracy value of 85%. The second test is a character reading test using EasyOCR with a threshold of 0.5 and 0.6 resulting in a reading accuracy of 70% and 75% correct reading. The error in the number plate reading is caused by the position of the number plate and also the use of various characters on the number plate causing the reading to be difficult.

Keywords : SSD Mobilenet, EasyOCR, License plate, TensorFlow Object Detection API