

## INTISARI

Dalam kurun waktu belakangan ini, *Intelligent Transportation Systems* (ITS) berkembang sangat pesat menjawab makin banyaknya jumlah pelaku dan variasi alat transportasi di kehidupan sehari-hari. Tidak hanya dalam pengaturan lalu lintas di jalan raya, namun juga pada sistem keamanan seperti manajemen parkir kendaraan, identifikasi kendaraan curian, deteksi kecepatan kendaraan otomatis, serta pengawasan dan akses kendaraan pada tempat tertentu. Metode yang paling sering digunakan adalah pengenalan plat nomor kendaraan atau biasa disebut *Automatic Number Plate Recognition* (ANPR).

Telah dibuat sistem pengenalan plat nomor kendaraan berbasis Raspberry Pi dengan memanfaatkan *computer vision* melalui OpenCV 3.0 dan pengenalan karakter optik (*Optical Character Recognition*) menggunakan Tesseract OCR 3.03. Keseluruhan sistem dibuat dengan bahasa pemrograman Python. Sistem bekerja dengan cara mengambil citra dari *webcam* kemudian citra dilakukan *preprocessing* meliputi proses *resize*, *grayscale*, *threshold*, *contour* sehingga didapatkan daerah lokalisasi plat nomor. Daerah lokalisasi plat nomor kemudian dilakukan proses segmentasi untuk mendapatkan *Region of Interest* (ROI) dari tiap karakter pada plat nomor. Karakter ROI kemudian digabungkan untuk dikenali oleh Tesseract OCR. Persentase akurasi sistem dalam mendeteksi plat mencapai 84,44% dan akurasi rata-rata pengenalan karakter mencapai 90,34% serta waktu deteksi sistem rata-rata selama 9,788 detik.

**Kata kunci:** *ANPR, Raspberry Pi, OpenCV, Tesseract OCR, computer vision, image processing, Python.*

## ABSTRACT

*In recent years, Intelligent Transportation Systems (ITS) are rapidly growing to answer increasing amount of transportation user and variation in the daily life. Not only for traffic control on the road, but also in security system such as parking management, stolen vehicle identification, automatic speed control, and security and access of vehicle to the limited area. The frequently methods that were used are Automatic Number Plate Recognition (ANPR).*

*The number plate identifier system with Raspberry Pi has been developed by using computer vision through OpenCV 3.0 and Optical Character Recognition with Tesseract OCR 3.03. The system was developed using Python programming language. The system works by taking image from webcam and then that image put on the preprocessing method through resize, grayscale, threshold, contour so that the system get the local area of number plate. That local area of number plate then go through segmentation process to get Region of Interest (ROI) from each character on the number plate. ROI characters were combined to obtain the identification by Tesseract OCR. Accuracy percentage of system in identifying the local area of number plate reach 84,44% and average accuracy of character recognition reach 90,34% also average system detection time as long as 9,788 seconds.*

**Keywords:** *ANPR, Raspberry Pi, OpenCV, Tesseract OCR, computer vision, image processing, Python.*