

ABSTRACT

The development of the number of motorized vehicles both motorbikes or cars has increased so quickly that it can cause the growth of vehicle management and parking areas. In a place, such as in a mall, a vehicle parking lot can consist of several floors in the basement or at the top of a building. In addition, many sectors have also been turned into parking lots. In this situation, a flexible vehicle monitoring system is needed, and the system is to detect the type of vehicle ownership through the base color on the license plate connected to the Raspberry Pi, which is expected to be able to accommodate this problem.

This research makes a system that can recognize the type of vehicle based on the color on the plate number whether the vehicle is a private, public, or government vehicle. The data consists of images taken using a webcam through the acquisition of Raspberry Pi. The system is designed by using edge detection and morphology and using the Hough Transform method to correct the edge and Harris Corner to detect angles in the image, after which the plate cropping process is carried out. Then the license plate base color is detected using the YCbCr color space, and the system will also measure the quality of the network between the Raspberry Pi and the laptop used during the detection process.

The system gets the best accuracy results of 100% when detecting private vehicle license plates and the worst accuracy results of 70% when detecting public vehicle license plates. The average accuracy obtained in this system is 88.9%. The average computation time is 0.99 seconds, which means that the detection process is quite fast.

Keywords: Number Plate, Hough Transform, Harris Corner, YCbCr, Raspberry Pi