
Abstract

Introducing the meaning of vehicle license plates has a broad impact on various aspects of life, especially enforcing traffic regulations. One of the latest innovations is an electronic ticketing system with government surveillance cameras. Each license plate has a unique serial number based on county vehicle registration, allowing for accurate identification and tracking. The license plate recognition system consists of three main stages: license plate detection, character segmentation, and segmented character recognition. The main challenge in this research is obtaining image data from irregular and dynamic environments, which can significantly affect system accuracy. To overcome this, the YOLO (You Only Look Once) method detects vehicle license plates using the Rodosol-ALPR dataset. However, the Rodosol-ALPR dataset does not have a bounding box and label information at the character level. Therefore, this study manually adds bounding boxes and labels at the character level to facilitate a robust segmentation approach. Experimental results show impressive accuracy performance, reaching 93.925% for all types of vehicles, 98.525% for cars, and 89.325% for motorbikes. These findings show that this system competes with state-of-the-art methods based on deep learning techniques. This increase in accuracy emphasizes the effectiveness of using YOLO for license plate detection and the importance of detailed manual labelling for character-level recognition, indicating potential for future development.

Keywords: machine learning, license plate recognition, yolo
