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| **Abstract:** |  |
| The traffic controlling system in Bangladesh has not been updated enough with respect to fast improving technology. As a result, traffic rules violation detection and identification of the vehicle has become more difficult as the number of vehicles is increasing day by day. Moreover, controlling traffic is still manual. To solve this problem, the traffic controlling system can be digitalized by a system that consists of two major parts which are traffic rules violation detection and number plate recognition. In this research, these processes are done automatically which is based on machine learning, deep learning, and computer vision technology. Before starting this process, an object on the road is identified through the YOLOv3 algorithm. By using the OpenCV algorithm, traffic rules violation is detected and the vehicle that violated these rules is identified. To recognize the number plate of the vehicle, image acquisition, edge detection, segmentation of characters is done sequentially by using Convolution Neural Network (CNN) in MATLAB background. Among the traffic rules, the following traffic signal is implemented in this research. | |