

Vehicle Detection Counting Algorithm Based on Background Subtraction Algorithm and SORT

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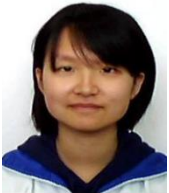
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Abstract—At present, the depth neural network model is commonly used to detect the vehicle in the video, and the detection accuracy is relatively high. However, the neural network model requires high computing performance and high demand for network transmission bandwidth. In many cases, the edge computing device used is of small computing power, so the neural network model is not applicable. However, background subtraction algorithm is easy to realize because of its low requirement on hardware calculation force and fast and accurate detection speed. Using SORT algorithm to track with accurate detection results can improve the speed again and reduce the consumption of computing resources. Therefore, this paper proposes an algorithm that uses the background subtraction algorithm to detect the vehicles in the video, and then uses the SORT algorithm to track the detected vehicles. The vehicle counter will automatically count when the vehicle in the video passes the traffic flow counting line. The accuracy of traffic flow counting results in this paper is 88%, which proves the feasibility and effectiveness of vehicle detection counting method based on background subtraction algorithm and SORT.

Keywords— Background subtraction algorithm; SORT algorithm; Vehicle detection count; Edge Computing; Image processing.



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