World Academy of Science, Engineering and Technology
International Journal of Transport and Vehicle Engineering
Vol:15, No:07, 2021

Automated Tracking and Statistics of Vehicles at the Signalized Intersection

Authors : Qiang Zhang, Xiaojian Hu1

Abstract : Intersection is the place where vehicles and pedestrians must pass through, turn and evacuate. Obtaining the motion data of vehicles near the intersection is of great significance for transportation research. Since there are usually many targets and there are more conflicts between targets, this makes it difficult to obtain vehicle motion parameters in traffic videos of intersections. According to the characteristics of traffic videos, this paper applies video technology to realize the automated track, count and trajectory extraction of vehicles to collect traffic data by roadside surveillance cameras installed near the intersections. Based on the video recognition method, the vehicles in each lane near the intersection are tracked with extracting trajectory and counted respectively in various degrees of occlusion and visibility. The performances are compared with current recognized CPU-based algorithms of real-time tracking-by-detection. The speed of the presented system is higher than the others and the system has a better real-time performance. The accuracy of direction has reached about 94.99% on average, and the accuracy of classification and statistics has reached about 75.12% on average.

Keywords : tracking and statistics, vehicle, signalized intersection, motion parameter, trajectory
Conference Title : ICTTS 2021 : International Conference on Traffic and Transportation Simulation
Conference Location : Toronto, Canada
Conference Dates : July 19-20, 2021