Genetic algorithm based signal optimizer for oversaturated urban signalized intersection

ABSTRACT

Relieving traffic congestion is an urgent call for traffic engineering. Although various adaptive control strategies have been reported in literature to reduce the travel delay, most of them are not tested under oversaturated condition, where the traffic demand is higher than the road capacity. Therefore, this work proposes genetic algorithm (GA) to optimize the traffic signals for reducing the average delay at the at-grade crossed intersection under oversaturated condition. A comprehensive traffic model has been dexeloped as the testbed. The average delay experienced by every vehicle to traverse the intersection is taken as performance metric to evaluate the performances of the formulated GA. The simulation results show the formulated GA is able to optimize the traffic signals and minimize the average delay of the intersection to 55.2 sec or equivalent to level-of-service (LOS) D.