

Evolvable traffic signal control for intersection congestion alleviation with enhanced particle swarm optimisation

ABSTRACT

Urban congestion in major cities of Malaysia is getting severe over decades with increasing active vehicles and travelling time on the road. Part of Intelligent Transportation Systems development involves advanced computation in traffic management to cope for the projecting congestion trend. This work simulates traffic system and develop an optimising algorithm to instruct the traffic signal timing plan. A multipleintersection traffic system has been developed using probability and statistical model based on the real case traffic data collected from local traffic intersection. Enhanced particle swarm optimisation algorithm is developed to ensure result consistency with smaller variation. As a result, the algorithm suggested signal timing increases the average waiting time of non-congested directions by approximately 4.17% but reduces the queue length at congested junction significantly in order to even up the flow at intersections.