

An integrated model to control traffic lights : controlling of traffic lights in multiple intersections using fuzzy logic and genetic algorithm

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ABSTRACT

In this paper we propose an integrated model combines Fuzzy Logic (FL) and Genetic Algorithm (GA), utilizing their applications in order to minimize the traffic congestion and traffic delay, through controlling traffic light system in three proposed traffic intersections. The proposed model in this paper will adjust the timing and phasing of the green traffic lights according to the current situation in the proposed traffic intersections; each intersection is supposed to be controlled by traffic signals that will apply the model. The green light interval time length shall provide at an intersection will be decided by FL. the outputs of FL will be optimized by GA, in order to obtain a higher performance. This performance can be measured considering the reduction in the waiting time and the total amount of vehicles that arrived to the Queue of the three intersections. The proposed model expected to provide a significant improvement to the traffic light system performance which might be very important to be applied in the metropolitan areas in Malaysia.

KEYWORDS

Traffic Light, Fuzzy Logic, Genetic Algorithm, Congestion, Malaysia

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