



AN AUTOMATED TRAFFIC SIGNAL SYSTEM BASED ON TRAFFIC QUEUE LENGTH

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ABSTRACT

Traffic congestion is a massive problem experienced by many urban cities in Sri Lanka. This study suggests an automated traffic signal system, based on vehicle queues formed at intersections. The presented system focuses on dynamic queue length estimation, designing of traffic phases and signal coordination algorithms, in such a way that provides maximum opportunity for vehicles. The system developed here is for a four-legged junction. To represent intersection network and design traffic phases graph theory concepts are utilized. This paper suggests using sensor networks arranged in an efficient geometry as the estimator of traffic queue lengths. The proposed system results in four sets of traffic phase changes. The system optimizes the traffic flow by providing more opportunity for vehicles while eliminating unnecessary green time assigned for the corresponding traffic streams.

Keywords: Traffic phases, planar sets, traffic stream lines, compatibility