Abstract

Multi-agent system helps in achieving a single global goal by working on different tasks in a distributed environment. This research presents a new framework for handling the prioritization of exigency services in an urban transportation system. Prioritization in exigency services needs to be handled for vehicles like Ambulance, Police Mobile, Fire Brigade, Bomb Disposal squad, Search and Rescue vehicle, Turntable Ladder and other similar vehicles. In the proposed framework a single ARTIS agent with four In-agents are deployed at each signal node. In-Agents at different nodes share information about the exigency with the ARTIS Agent that analyses the input data and determines the types of conflict that might cause delays in emergency services provision. For exigency vehicles with different priorities we operate the signal based on their priorities. In case they have same priorities then we use the lane congestion and vehicle wait time to operate a signal. We demonstrate the application of our proposed approach using different cases of a traffic case study.