Abstract

The road side infrastructure plays a vital role for any Vehicular Ad-hoc Network for implementing a rich set of applications like traffic monitoring and management, road disaster mitigation etc. This is the reason that efficient communication between the vehicles and the road side infrastructure is required. The application under consideration is providing a zero traffic lane (Z-Lane) for an ambulance. The scenarios are implemented with the help of Simulation of Urban Mobility (SUMO) which is a road traffic simulator based on Krauss Mobility Model. For the normal working of the said application, road side infrastructure broadcasts alert messages informing the vehicle drivers to vacant the lane. The problem addressed in this research work is the scenario where no infrastructure is present in the range of ambulance. In this case, the trigger from the ambulance must reach the nearest infrastructure as early as possible. For this purpose vehicle to vehicle communication is used. After analyzing various routing algorithms Ad-hoc On Demand Distance Vector (AODV) routing algorithm is chosen for the said communication. The AODV protocol has significant amount of end to end delay. The research work aims to modify AODV to reduce the Route REQuest (RREQ) packet generation. This is done using the geographic position of the neighboring node. The simulation results of the implementation of modified AODV shows that the number of RREQ packets reduces drastically and in turn end-to-end delay also reduces. The network traffic simulation is done with the help of Network Simulator - 2. MObility generator for VEHicular network is used to generate the scenario in SUMO and converting it into NS-2 readable form.
Enhancing Routing Strategy to Optimize Architecture of Vehicle to Infrastructure Communication

References


Index Terms
Keywords
Vehicular Ad-hoc Networks  SUMO  Ad-hoc On Demand Distance Vector Routing