

Performance Evaluation of Location-Based Geocast Routing Using Directed Flooding Rectangular Forwarding Zone in City VANET

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Abstract

Vehicular ad hoc network (VANET) is an application of mobile ad hoc network (MANET) where vehicular nodes are integrated with GPS and other controlling devices to communicate among each other. Because of predefined structure of roads as well as very high moving speed of vehicles, routing becomes an extremely challenging issue in VANET. In literature, authors in research papers related to vehicular communication evaluate mostly the performance of topology or position-based routing protocols. This article implements a geocast approach called directed flooding rectangular forwarding zone in distance-effect routing algorithm for mobility (DREAM), location aided routing (LAR) and zone routing protocol (ZRP) for city vehicular environment. Packet delivery ratio normalized routing load, delay, throughput, dropped packet ratio and bandwidth wastage parameters are evaluated using NS-2.33 integrated with IEEE802.11p and IDM_IM based VanetMobiSim. The impact of mobility on these parameters is also analyzed.

Keywords: VANET, geocast routing, NS-2.33, VanetMobiSim

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