



OPTIMIZED HYBRID WIRELESS MESH PROTOCOL USING ESTIMATION OF PACKET LOSS RATE ALGORITHM FOR VANET

Chandrabala Kathirvel¹, Dojohn Loyd²

¹M.Tech final year, Dept. of CSE, SRM University Ramapuram, pkchandrabala@gmail.com

²A.P, Dept. of CSE, SRM University, Ramapuram, djohnloyd7@gmail.com

Abstract

Vehicular Ad hoc Network (VANET), a new technology, which is a sub class of Mobile Ad hoc network leverages new paradigm in Vehicle to vehicle communication. VANET forms the communication between vehicles with high mobility and dynamic topology through wireless mesh network. While the dynamic topology architecture of VANET affects the communication between nodes, by losing the data packets without reaching to destination node, it turns out to be an important issue. In this paper the link reliability is established in VANET to reduce the packet loss rate. The combination of VANET and Universal Mobile Telecommunication System (UMTS) gives the longer connectivity between vehicles. This research helps in improving the reliability of the Gateway node in VANET – UMTS, increasing the packet delivery ratio and decreasing packet drop ratio. An optimized HWMP, a combination of IEEE802.11p and IEEE802.11s is used as a routing protocol. Real Time Packet Loss Estimation (RPLE) algorithm is used to estimate the packet loss rate, in identifying the gateway node by sending few probe packets. By simulating VANET in NS2, packet loss rate is obtained based on distance. And packet loss rate probability density is found using Gaussian Mixture Model. Experiment results show that an accurate gateway node is identified based on real time packet loss estimation algorithm.

Keywords: Vehicular Ad hoc Network ; UMTS; HWMP; packet loss rate

Full Text: www.ijcsma.com/publications/march2014/V2I320.pdf