Improving Relay Selection Scheme for Connecting VANET to Internet over IEEE 802.11p

Abstract

Vehicular ad hoc networks (VANETs) enable vehicles to communicate with each other (V2V) as well as with roadside infrastructure units (V2I). These units provide different services such as driver information systems and Internet access. When one node will connect to the Internet, first it must discovery the route to these units. Based only on mobility parameters, we can select longest life time routes to routing packet, but these routes may be with low quality of signal. So, a dropping packet and enforcing retransmission will be certainly happened. For that reason, we propose, in this paper, an efficient routing protocol that improve relay selection scheme by considering link life time and quality of signal as parameters of relay selection, in order to make vehicles able to select longest life time and best quality of signal route to the roadside units. Our relay selection scheme consists to select next forwarding node based on predicted life time of links, received signal strength indicator (RSSI) and signal to interference-noise rate (SINR). The objective is to be sure that data packets will be routed on longest life time, highest received signal strength and strongest routes. The simulation results show that the proposed protocol enhances throughput and decreases the packet loss and overhead with comparable end to end
References

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Index Terms

Computer Science  Wireless
Keywords

Vehicular ad hoc Networks, routing, lifetime, quality of signal, RSSI, SINR, RSUs