

Abstract

Mohamed M Mohamed Fouad Eltaweel

Performance Evaluation of the IEEE 802.11p Protocol in a VSNET scenario

Abstract: Vehicular sensor network (VSNET) is an emerging technology, which combines wireless communication offered by vehicular ad hoc networks (VANET) with sensing devices installed in vehicles. VSNET creates a huge opportunity to extend the road-side sensor infrastructure of existing traffic control systems. The efficient use of the wireless communication medium is one of the basic issues in VSNET applications development. The Intelligent Transportation Systems (ITSs) has also emerged as a key candidate that is benefited from the unique features and capabilities of VANET and Wireless Sensor Networks (WSNs). Currently, WSNs are beginning to be deployed in a rapidly manner. It is not unreasonable to expect that in 5-10 years that the world will be covered with wireless sensor networks with access to them via the Internet. This can be considered as the Internet becoming a physical network. The IEEE 802.11p Wireless Access in Vehicular Environment (WAVE) protocol providing for vehicle to infrastructure and vehicle-to-vehicle radio communication is currently under standardization. This paper provides a simulation study of the proposed IEEE 802.11p MAC protocol focusing on vehicle-to-infrastructure communication, and evaluates the performance of protocol under metrics such as throughput and packets rate of . To carry out the simulation process, an open source simulator tool is used for this study namely-NCTUns-6.0 (National Chiao Tung University Network Simulator).