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Efficient Data Traffic Control Protocol with Vehicle Prioritization Approach

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Abstract

Vehicles and their communications play a key role in the Internet of Things. The Social Internet of Vehicles (SIOV) is a subset of the Social Internet of Things (SIoT) in which vehicles are objects that communicate and exchange information via wireless waves with each other and access points, afterwards the knowledge and information obtained utilize for various motivations such as guidance drivers and managing conditions. In the Data Traffic Control and Prioritization Protocol (DTCPP) proposed in this research, the environment around an access point is divided into four parts with different radii. Vehicles are also located in one of the four assigned areas according to their distance from the access point. Each vehicle has the opportunity to transmit packets to the access point according to the desired area and only in a dynamic time slot, and is asleep at other times. The results of the analysis indicate that the DTCPP increases the throughput near 95% -98% and also reduces the energy consumption about 17% -22% compared to the VSNP method.

Keywords: Wireless Sensor Networks (WSN), Internet Of Things (IOT), Social Internet of Vehicles (SIOV), VANET, Data Traffic Control