

Adaptive H.264 Video Transmission Over 802.11 Inter-Vehicular Ad Hoc networks

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ABSTRACT

This paper focuses on video communications in inter-vehicular environments using the 802.11 ad hoc network protocol. In the first part of the work we present the results of transmission experiments between two cars equipped with 802.11 devices in two typical driving scenarios, urban and highway. Various video bitrates and packetization policies have been tested. The results show that the two scenarios differ in terms of link availability and SNR. Moreover, the video quality measured at the receiver by means of the PSNR value shows that the best packetization policy depends on the scenario. Building on these results, we design an algorithm which adapts the video packet size to the current driving conditions to improve the efficiency of the video transmission. Consistent perceptual quality gains in terms of PSNR value (up to about 3 dB) are achieved with respect to a fixed-policy transmission technique.