

Ultra-Reliable Low Latency V2X Communication for Express Way Using Multiuser Scheduling Algorithm

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Abstract : The main aim is to provide lower-latency and highly reliable communication facilities for vehicles in the automobile industry; vehicle-to-everything (V2X) communication basically intends to increase expressway road security and its effectiveness. The Ultra-Reliable Low-Latency Communications (URLLC) algorithm and cellular networks are applied in combination with Mobile Broadband (MBB). This is particularly used in express way safety-based driving applications. Expressway vehicle drivers (humans) will communicate in V2X systems using the sixth-generation (6G) communication systems which have very high-speed mobility features. As a result, we need to determine how to ensure reliable and consistent wireless communication links and improve the quality to increase channel gain, which is becoming a challenge that needs to be addressed. To overcome this challenge, we proposed a unique multi-user scheduling algorithm for ultra-massive multiple-input multiple-output (MIMO) systems using 6G. In wideband wireless network access in case of high traffic and also in medium traffic conditions, moreover offering quality-of-service (QoS) to distinct service groups with synchronized contemporaneous traffic on the highway like the Mumbai-Pune expressway becomes a critical problem. Opportunist MAC (OMAC) is a way of proposing communication across a wireless communication link that can change in space and time and might overcome the above-mentioned challenge. Therefore, a multi-user scheduling algorithm is proposed for MIMO systems using a cross-layered MAC protocol to achieve URLLC and high reliability in V2X communication.

Keywords : ultra-reliable low latency communications, vehicle-to-everything communication, multiple-input multiple-output systems, multi-user scheduling algorithm

Conference Title : ICCV 2023 : International Conference on Connected Vehicles

Conference Location : Boston, United States

Conference Dates : April 17-18, 2023