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5G, the Car and the City

The development of advanced driver assistance systems has become one of the most watched trends in the automotive industry. With both the 5G mobile communications standard and increased Cellular Vehicle-to-Everything (C-V2X) connectivity becoming more prevalent, new technologies with life-saving potential will be enabled to come rapidly to market. This C-V2X connectivity allows automobiles to “speak” to the city’s infrastructure and create safer interactions in urban areas.

With that in mind, Harman has developed a new 5G-enabled solution known as Vehicle-to-Pedestrian (V2P) technology. It utilizes low latency 5G peer-to-peer signals and proximity scanning to identify and notify drivers of any objects in the vehicle’s path. In a similar vein, pedestrians or cyclists with a C-V2X-enabled mobile device will also receive an alert that a vehicle is entering their path. As a result, drivers, pedestrians and cyclists can be alerted to any potential safety conflicts, even in situations where a camera might not be able to see an obstruction.

The V2P technology is only one of many safety enhancements that are enabled by C-V2X technology and situational awareness between 5G-enabled devices. As 5G technologies and networks mature, C-V2X will create new opportunities for vehicles to communicate more intensively with even more of their surroundings – including other vehicles,

road infrastructure and control systems, as well as road users such as pedestrians and cyclists that might have an impeded view.

The transition toward ever more connected roadways involves providing the current infrastructure with the necessary high speed technologies. Existing infrastructure can act as a literal data driver. For example, Harman is equipping existing city buses in Seoul (South Korea) with telematic communication systems that provide real-time feedback to a centralized control room. As a result, communities can start harvesting one of their most precious resources – that is, their transportation data – to create better traffic systems, and gradually plan for the future of autonomous vehicles. This model has the potential to spread throughout metropolises, with the ultimate goal of reducing the number of traffic incidents to as low as possible.

At present, we are focused on the safety and driver information elements of the C-V2X technology and ensuring the driver is alerted and can react accordingly. For the future, these technologies will also offer the possibility for pedestrians to be notified of an impending incident and to take corrective action. Together with our parent company Samsung, we are looking at how this technology could pair with smartphones initially, as well as other 5G-enabled devices such as headphones and wearables later in the decade.