

Assisted Driving

Objective: Technological solution based on C-V2X technology, reflecting the potential, importance and evolution of what the infrastructure will be in a few years' time, a connected and intelligent infrastructure capable of communicating with vehicles and assisting them in driving.

Description:

The two use cases of assisted driving implemented are:

- The vehicle is alerted by the traffic light that there is a pedestrian crossing a zebra crossing on a blind right turn. If the driver activates the right turn indicator, the vehicle displays a pedestrian crossing warning on the dashboard.
- The vehicle is warned by the traffic light that it is about to change to red imminently. It is up to the vehicle to decide, depending on its location, speed and trajectory, whether it has time to cross the traffic lights. If not, it displays a warning message on the car's dashboard.

As these use cases require low latencies, the deployment of NOKIA's MEC server has been fundamental, in which the application has been embedded, acting as a mediator between the infrastructure and the vehicles, making the pre-5G use case possible. As for the infrastructure owned by SICE, a thermal camera capable of detecting the presence of pedestrians and a 4G router have been installed in the regulator that controls the traffic light crossing of the demo. This regulator sends presence and phase information to the MEC application, which is responsible for redistributing it to the vehicles located within its radius of influence, which in this case is just one, a SEAT ATECA model. A TCU (Transmission Control Unit), a board developed by FICOSA, has been installed in the vehicle, which is integrated on the one hand with the vehicle itself and, on the other hand, with the mobile network. This board has a Qualcomm Release 13 3GPP chipset and a stack that implements the C-V2X protocol of the company Commsignia. Communication is via the mobile network, using a conventional SIM card integrated in the TCU. The advantage of using C-V2X technology over the mobile network is that it provides vehicles with additional information from the road environment, which allows them to take advantage of the existing network infrastructure without having to make specific deployments.

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