

Capture Position Data From Multiple Vehicles Simultaneously



The Development Partner

GeneSys Elektronik develops innovative and high-precision sensor systems for demanding test and measurement applications. The sensor systems equipped with GNSS and inertial sensor technology are used in a wide variety of areas, including the development of autonomous driving, ADAS, and other application areas such as ground truth and route measurement.

The Challenge

Keep everything in view - despite multiple road users

The verification of adaptive cruise control, forward collision warning, and braking and blind spot assist requires that the positions and relative movements of multiple road users be precisely recorded.

The Solution

Time and place as an accurate situation picture

With the help of an ADMA inertial navigation system (ADMA = Automotive Dynamic Motion Analyzer) from GeneSys, all motion states of a vehicle such as acceleration, speed, position, rotation rate, position angle and float angle of the vehicle can be recorded with high precision under motion. The ADMA-INS calculates the vehicle's position and motion data from GNSS information. For data acquisition of multiple vehicles, each vehicle is equipped with an ADMA-INS. This sends its data to CANape via CAN or Ethernet. CANape from Vector is the universal solution for measuring, calibrating and logging ECUs and ADAS sensors.

Different solution approaches are possible:

Offline solution: In each vehicle, the data from the ADMA-INS is recorded with CANape. Since all data refer to the same UTC time, you can correlate the position data of all vehicles after the trip and calculate the relative speeds and distances of the vehicles to each other.

Online solution: If several vehicles are equipped with an ADMA-INS, they are directly coupled with each other via WLAN. One ADMA-INS calculates the relative data (for example, distance and speed) to another ADMA-INS. These relative data are additionally transmitted to CANape via CAN or Ethernet. In this way, the distance and relative speed to another vehicle are already available while the vehicle is still moving.

The Advantages

Synchronous data - in the vehicle and in the office

Offline solution: By using UTC time as a time reference for all measurements, you can directly correlate the data of all vehicles when evaluating with CANape / vSignalizer. Using the mathematical functions, you calculate and display the relative speeds and positions of the vehicles with respect to each other.

Online solution: In CANape, you record and visualize the relative speeds and positions of the vehicles in relation to each other while the vehicle is still moving, enabling immediate conclusions to be drawn even during testing. A co-driver can immediately see whether a desired driving maneuver was successfully performed or whether it needs to be repeated.

More Information:

www.vector.com/canape