USE CASE

Autonomous Driving

RELIABLY SIMULATED WITH PTV VISSIM

Tomorrow's customers expect far more than just sheet metal. They expect smarter, safer and higher levels of autonomy from their vehicles, all technological advancement that are already being tested on test drives. Thanks to the legislation putting computers and human drivers on an equal footing, driverless vehicles have recently been made legal.

Nevertheless, it remains important to questions: can a computer make the right decision at the right time? Have all conditions been considered in the development of the control algorithms to ensure the safety of all road users? Our answer: use PTV Vissim for your testing – the industry leading solution for creating realistic traffic environments.

SHORTER TIME TO MARKET

Product development cycles in the car industry take four to five years, however customers expect innovations to occur in shorter time intervals, fuelled by changing attitudes towards mobility, rapid digitisation and interconnectivity.

Driverless vehicles will have to integrate into real-world traffic environments. This makes the development of autonomous vehicles complex and expensive particularly when it comes to testing on the road. In this context questions must be answered such as, how will other road users behave in normal and extreme situations? Or which situational dynamics will result from the interaction between humans and driverless vehicles.

To ensure the highest level of safety every interaction imaginable between road users must be tested in all conditions which is not possible in real traffic.

THE SOLUTION: SIMULATION WITH PTV VISSIM

Using PTV Vissim developers can comprehensively evaluate the behaviour for all levels of automation in a virtual environment. Vehicles can be tested in every possible scenario and under different framework conditions in a simulated environment.

Whether it is individual motorists, freight transport, rail-and-road public transport or pedestrians and cyclists – the software can simulate all road users and their individual movement processes and interactions.

This allows users to study not only the driving behaviour of autonomous vehicles, but also how they interact with conventional vehicles and their impact on the overall traffic flow. In the simulation penetration rates can vary from one to all vehicles.

ANY SITUATION FOR ANY TIME OF DAY

Whether it is rush hour in city traffic or on the motorway, with or without speed limits, PTV Vissim can simulate any environment and any volume of traffic. To ensure realistic outputs the topography of a test route, different weather conditions or even country-specific driver behaviours can also be included in the simulation.

EASE OF USE AND RELIABLE RESULTS

PTV Group offers both fully preconfigured traffic scenarios for every type of route and specific route sections can also be made available, be it in Stuttgart, Munich or Ingolstadt. This make PTV Vissim the most detailed and realistic virtual testing environment to complement real-world testing.

Further Benefits: PTV Vissim runs faster than in real-time significantly shortening the testing process. Furthermore it is scalable meaning tests can be carried out alongside one another making it possible to collect results in a highly efficient way.

BENEFITS AT A GLANCE

MEETS YOUR REQUIREMENTS

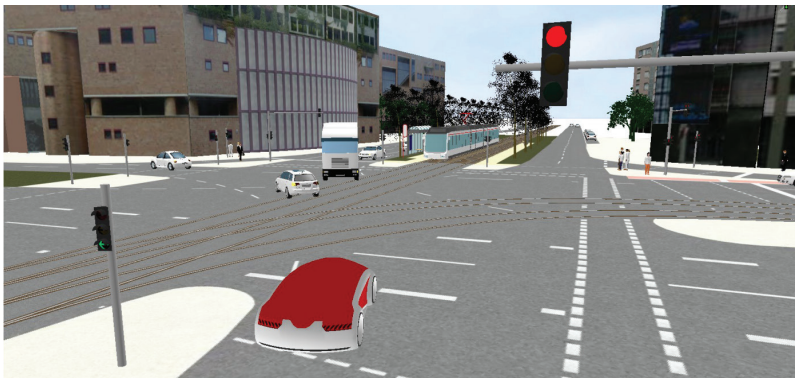
- Any test route or test section in any environment
- Realistic traffic flows for all hours of the day
- Sample size as large as needed: more test cases than possible on the road
- Impact the surrounding traffic situation has on the test vehicle
- Statistical significance: high reliability of results can be achieved in different scenarios

COST-EFFICIENT AND FAST

- Fast results without significant technical and labour resources
- Ready-to-use traffic scenarios including roads and traffic

IMMEDIATE RESULTS

- Simple integration into existing development processes
- Easily accessible outputs for further analysis
- Interfaces with other engineering tools



Are you ready for a test?

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