Exchange SUMO and openPASS

Meeting date: 10th December 2020
Location: MS Teams
Keeper of the minutes: Tuan Duong Quang, TÜV SÜD
Participants:

Name	Working Group	Participation
Robert Hilbrich	openMobility	X
Michael Behrisch	openMobility	X
Zoltan Baksa	openMobility	X
Arun Das	openPASS	X
Thomas Platzer	openPASS	X
Jan Dobberstein	openPASS	X
Per Lewerenz	openPASS	X
Dr. Daniel Schmidt	openPASS	X
Jorge Lorente Mallada	openPASS	X
Tuan Duong Quang	openPASS	X
Dr. Gwendal Lucas	openPASS	X

Topics:

The two working groups openMobility and openPASS have discussed in this meeting on how the SUMO project or components of it can be used within the simulation of openPASS. The goal is to take advantage of the 20 years development experience in SUMO to facilitate simulation in openPASS.

Tuan presented openPASS. OpenPASS is a harmonized and flexible platform for effectiveness assessment of advanced driver assistance systems and automated driving.

Robert presented SUMO. Sumo is a traffic simulation of urban areas. The focus lies on the precise capturing of movements of all elements in the city, persons, bus stops, cars, etc.

The main difference between both simulation tools is that SUMO is a simulator of traffic flow and openPASS goes more into details when it comes into the safety aspects of crashes and scenario simulation.

openPASS already uses some parts of SUMO. openPASS uses some SUMO driving models:
https://gitlab.eclipse.org/eclipse/simopenpass/simopenpass/-/tree/hlrs/OpenPass_Source_Code/openPASS/Components/Algorithm_ModularDriver/ActionDeductionMethods
https://gitlab.eclipse.org/eclipse/simopenpass/simopenpass/-/blob/hlrs/OpenPass_Source_Code/openPASS/Components/Algorithm_ModularDriver/AlgorithmActionDeduction.cpp

Those components from SUMO are static. A new approach would be to use a link to the SUMO dynamic library and connect them to the openPASS application.

Some ideas on how a possible collaboration between SUMO and openPASS can look like:

- SUMO as co-simulation takes over the background traffic simulation in scenario-based simulations. The details of the cars in the vicinity of the ego car should be high
- Using API calls to build up the communication between both simulation tools. SUMO can talk over TraCI API to other simulators. Get rid of delay of TCP/ IP Sockets by using API calls.

Next steps:

Until now there is no specific use case for a collaboration between SUMO and openPASS. The discussion will continue in January 2021.

Meeting minutes can be found here: https://wiki.eclipse.org/openPASS-WG