Safety Evaluation Report of MOBATSim -AEB

according to ISO 26262, ISO 21448, EuroNcap

Author: Test Author

14-Jun-2021

Table of Contents

Chapter 1. Introduction

This is a safety evaluation report for MOBATSim which according to three standards and generate a case study.

Chapter 2. HARA

2.1. Scenario definition -laneMerge

The test scenario shows below which contains two traffic paticipants drive on a merged road, the trajectories of two vehicles are distinguished with different color .

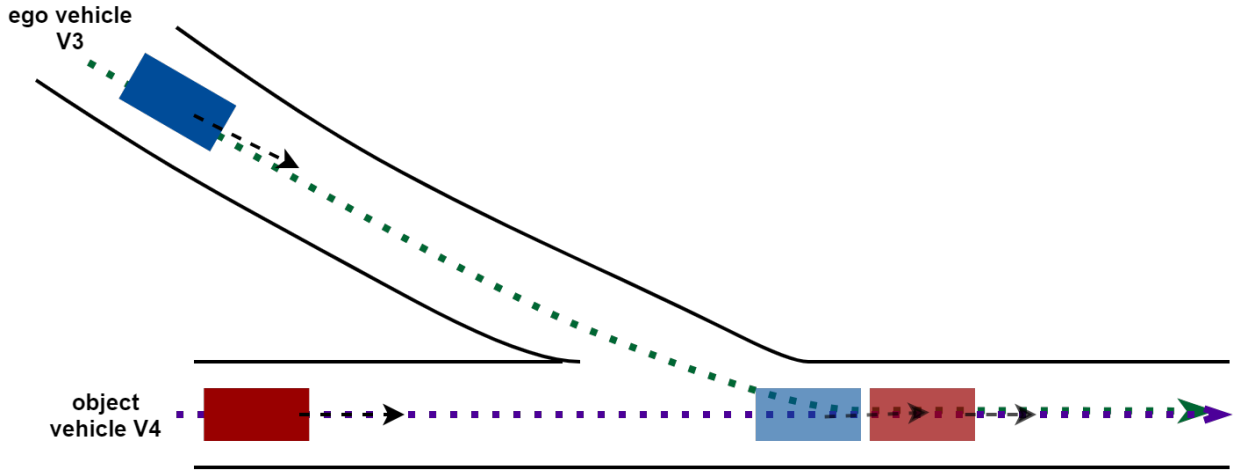


Figure 2.1. Test Scenario in MOBATSim

The road features of the test scenario are listed below:

1. Single lane
2. Road length
3. lane width 3.7m
4. No traffic signal and traffic signal controller

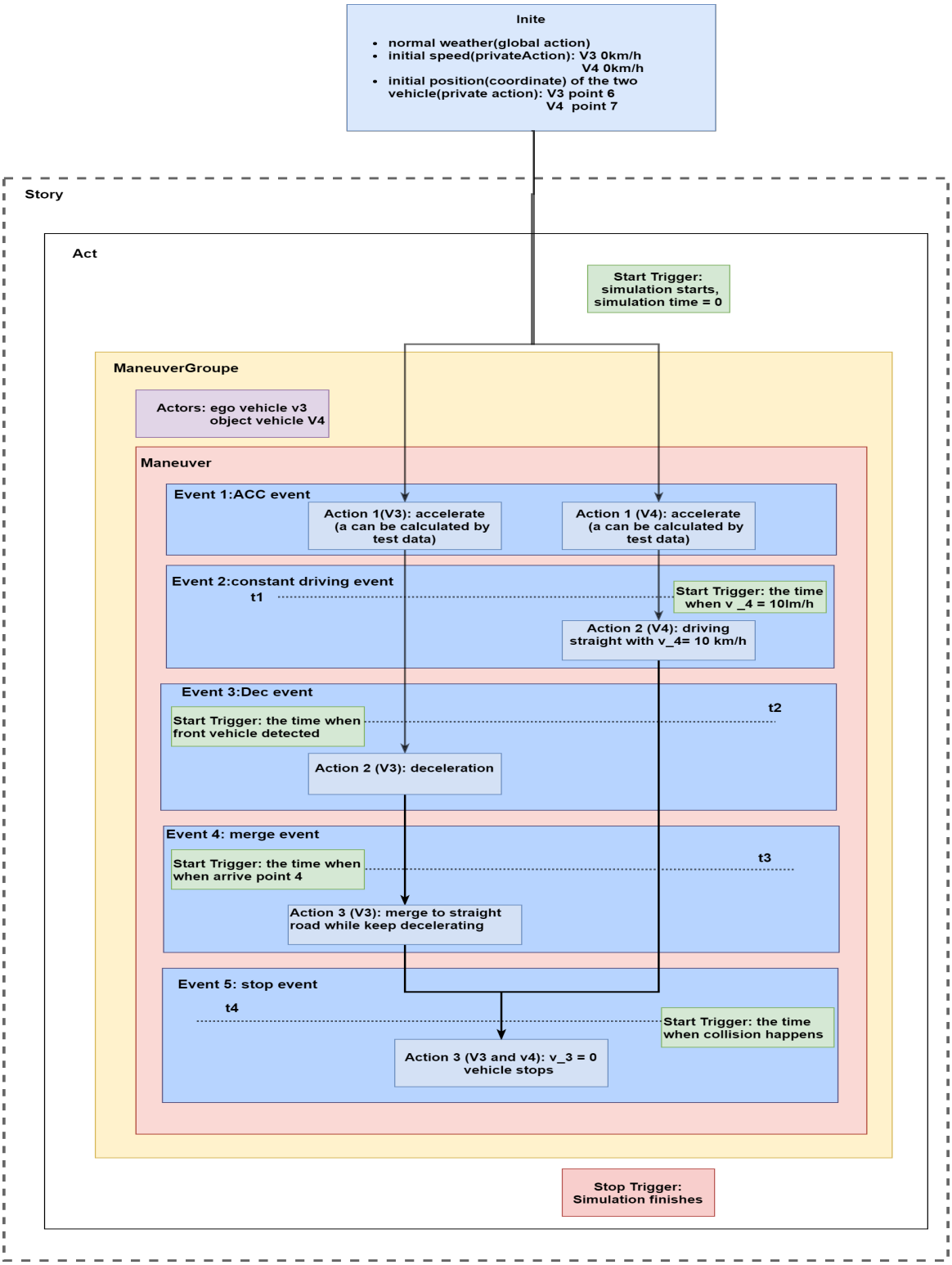
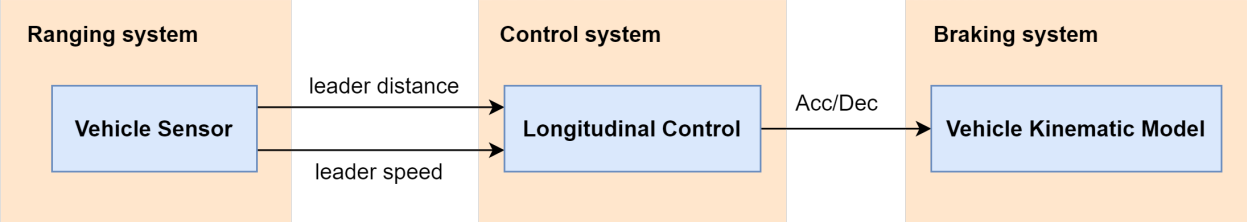


Figure 2.2. Scenario Definition under OpenScenario

2.2. Item Definition -AEB



1. Functionality: AEB detect leading vehicle with ranging system, with the caltulation of the control system, gives the braking command to the braking system.
2. Operational design domain: This AEB function is only appropriate for the MOBATSim platform, in which most of the roads are single lanes and no other vehicles drive alongside the leading vehicle.

2.3. Situation analysis

1. Operational mode: normal driving.
2. Operational scenario: Normal city road with single lane.
3. Environmental details: Normal weather (default)
4. Situational details: low speed (10km/h~30km/h)
5. Item usage: correctly used (default)

2.4. Hazard identification and hazardous event classification

The ASIL level is ASIL B.

2.5. Safety goal and functional safety requirement

Chapter 3. SOTIF

Chapter 4. Case study

The next table is and exanmlpe of test data from the simulation. For the sake of simplicity, only the data from vehicle_3 and vehicle_4 is presented here, which is used to get score for AEB system when the collision happens .

Table 4.1. Test Data of the Scenario for vehicle_3 and vehicle_4

	V_3	V_4
speed	7.9500000000000002	7.8200000000000003
minDec	-9.1500000000000004	-9.1500000000000004
position_x	-234.22	-213.31
position_y	12.710000000000001	90
AEB distance	25	25
front sensor range	100	100
TTC	inf	inf

The next figure shows the variation of the speed during the simulation time (30s)in which presents the time point that the collision happens.

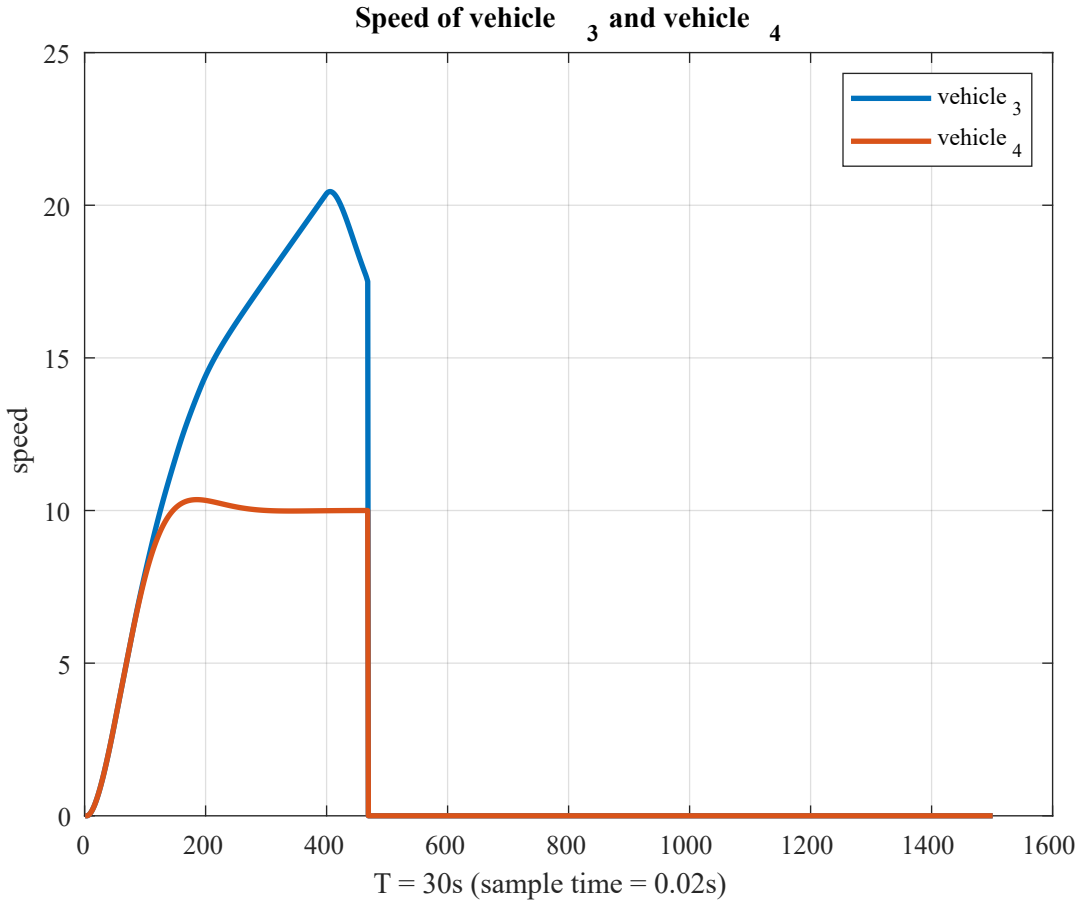


Figure 4.1. The speed of vehicle_3 and vehicle_4 in laneMerge scenario

Chapter 5. Chapter 5: Summary