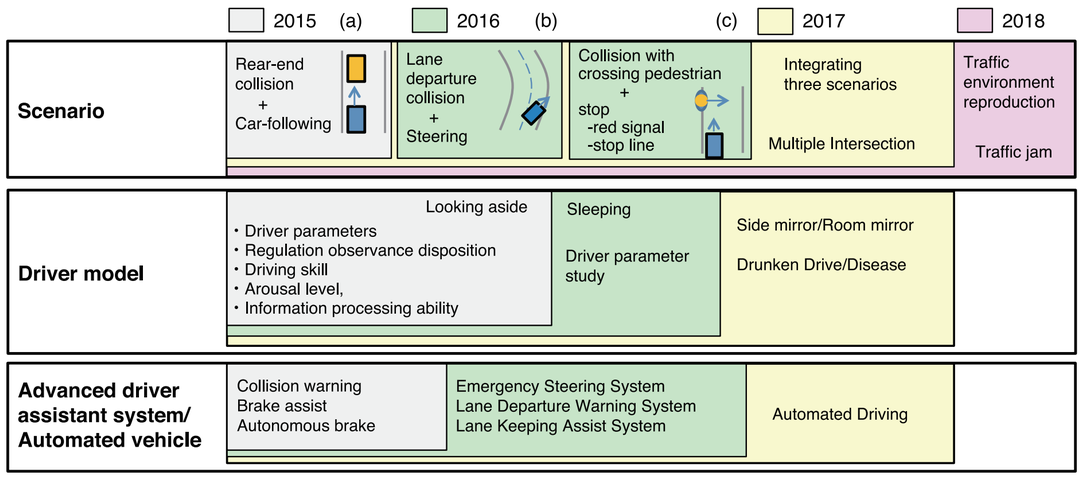
SIP-adus Workshop 2017
on Connected and Automated Driving Systems

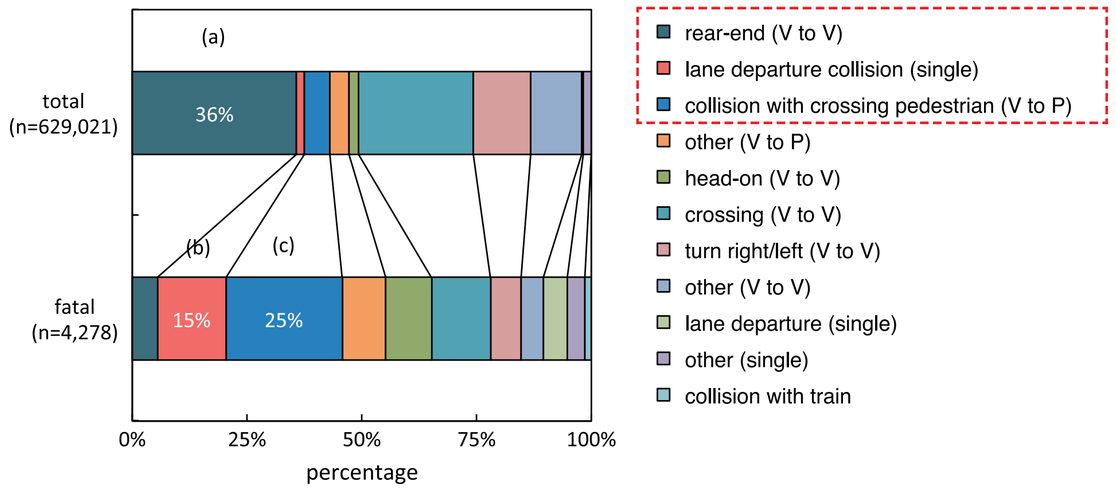
Impact Assessment

Development and substantiation of simulation technology for estimation of detailed traffic accident reduction effects

■ Objective of the project

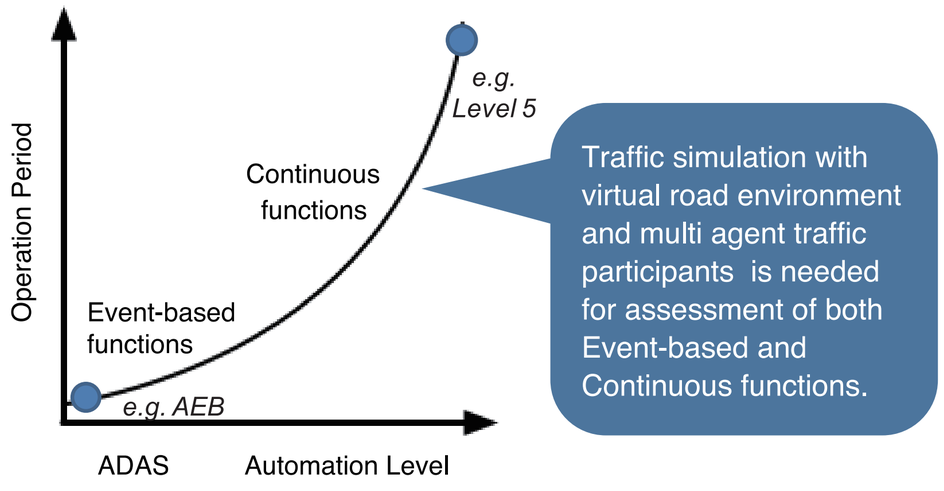
In order to achieve the safest automobile transportation society in the world, early practical use and promotion of the automated driving system have been expected. In this project, the simulation technology of the traffic environment reproduction to figure out the quantitative reduction effect of traffic accidents with such system is developed and contributes to the achievement of the above target.



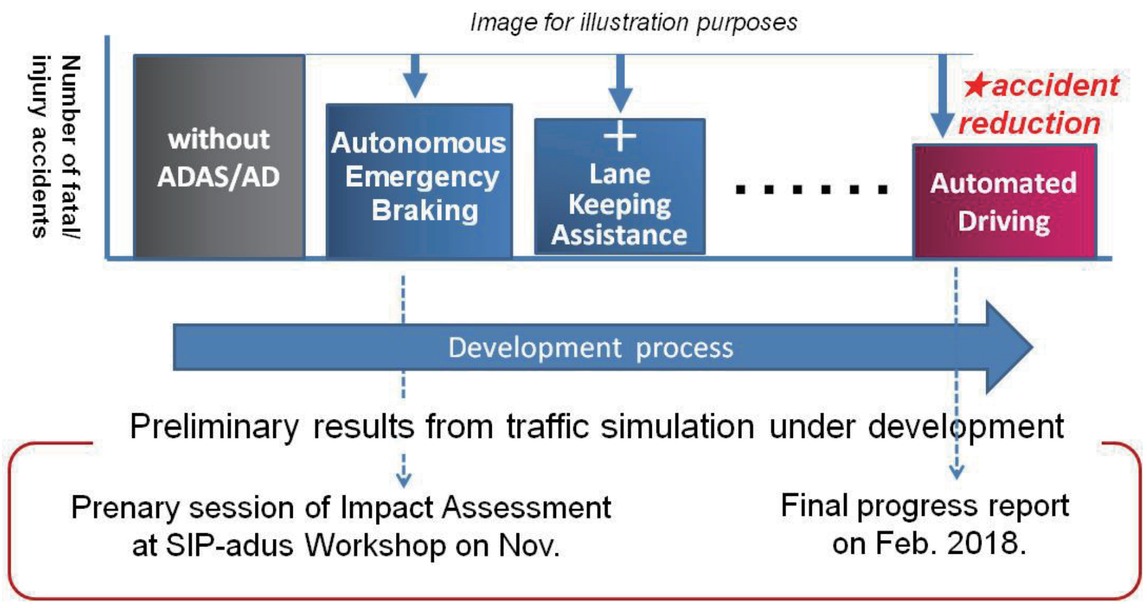


Type of functions in ADAS/Automated driving systems

"Event-based functions" and "Continuous functions" (AdaptiVe)



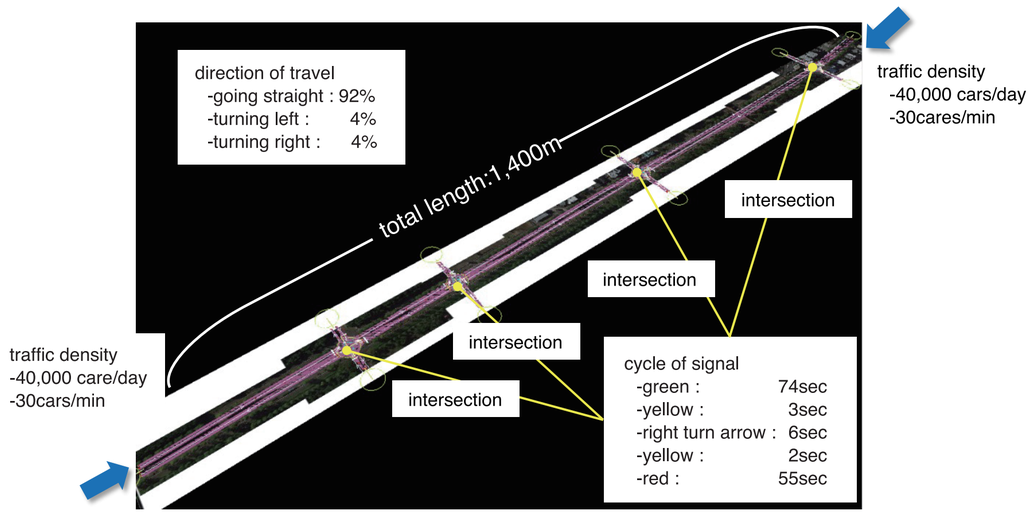
Target systems for safety impact assessment



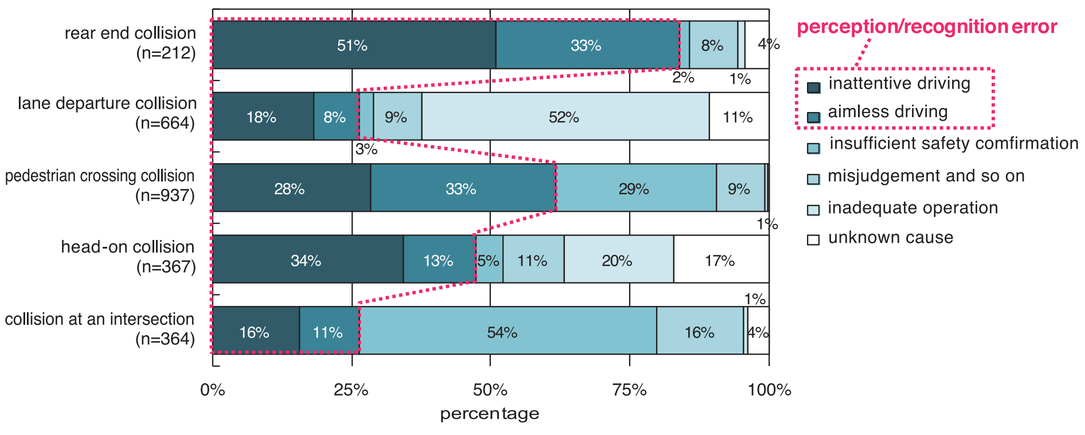
■ Simulation of safety system for rear end collision

• Simulation conditions

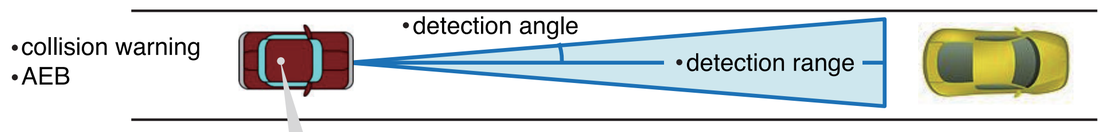
(1)Road environment: straight road section including 4 signalized intersections



(2)Driver error: inattentive driving/ aimless driving



(3)Safety system: collision warning/ autonomous emergency braking (AEB)

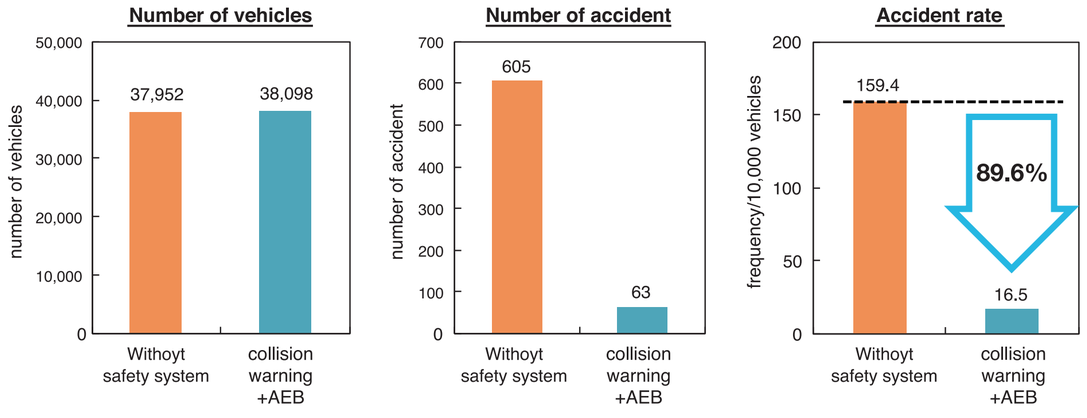


- time-to-collision actuation of collision warning:1.8sec
- time-to-collision actuation of AEB:0.6sec
- brake jerk:2.0G/s[19.6m/s²]
- maximum deceleration:0.8G[7.8m/s²]

Homma et al.(2012)

• Simulation result

Reduction of accident rate: **89.6% (Preliminary result)**



Reproduction
-real traffic flow at straight road section
-driver error(perception/recognition) relevant to rear end collision

Estimation
-effect of safety system for rear end collision