

Wizard-of-Oz Vehicle to Analyse Take-Over Time Demand

VEHICLE FEATURES

- Duplicated vehicle control devices to switch between two “driving agents”
- Availability of additional / reconfigurable HMI devices
- Driving monitoring system including eye-tracking



BENEFIT

- Ability to emulate all levels & designs of driving automation systems
- Research tool to study user experience and behavior in real world scenarios

OBJECTIVES OF BOSCH STUDY

- Analysis of user experience and behavior resulting from a Highway Pilot function (SAE Level 3) in real traffic
- Impact analysis of various non-driving related tasks and individual factors on take-over performance

MAIN RESULTS

- High acceptance of presented automation design
- All take-overs were easily controllable
- Increased take-over times due to motoric unavailability
- Rapid stabilization of vehicle control after transition to manual mode
- Large inter-individual differences
- Chosen Wizard-of-Oz approach successfully deployed

MODELLING “DRIVER AVAILABILITY”

- Driver availability defined as expected time demand in relation to available time budget
- Two computational models were developed:
 - Data-independent cognitive model (task analysis and scheduling)
 - Data-dependent statistical model (regression analysis of study data)

