Develop: ADAS that incorporate driver/rider state situational/ environmental context and adaptive HMI to automatically hand over different levels of automation and thus ensure safer and more efficient road usage for all vehicle types (conventional and electric car, truck, bus, motorcycle).

**Concept**

- A driver’s state of mind is monitored in real-time, using physiological measurement algorithms to detect changes in driver state (e.g. stress, fatigue).
- The system adapts the HMI to the driver’s current state to improve safety and efficiency.
- When the system determines that the driver is no longer capable of driving safely, it takes over control and provides clear instructions.

**Objectives**

- Development of multimodal, user-oriented and adaptive information, warning, actuation and handover control.
- Development of robust detection/prediction algorithms for driver/rider state monitoring of fatigue/drowsiness, as well as of multimodal tailored handover strategy.
- Holistic impact assessment of automation opportunities and real road conditions and for different driver/rider states and automation use cases/levels.
- Development and realisation of demonstrator systems in different environments.
- Automation testing and CO2 footprint from non-automated to automated driving modes.
- Performance of legal checks for the validation of critical software.
- Validation of the developed systems in real-world cases with a wide pool of drivers/riders under simulated, controlled and real road conditions and for different driver/rider states and automation use cases.

**Adaptive ADAS for Different Driver States Ensure Support Through Tailor Made HMI During Automation**

**Adaptive ADAS to Support Incapacitated Drivers Mitigate Effectively Risks Through Tailor Made HMI under Automation**

**Taboets**

- Development of ADAS that incorporate driver/rider states into situational/environmental context and adaptive HMI to automatically hand over different levels of automation and thus ensure safer and more efficient road usage for all vehicle types (conventional and electric car, truck, bus, motorcycle).

**Adaptive ADAS Drivers in Different Driver States Receive Support During Transitions and Hand Over From Automation**

**Adaptive ADAS**

- Electric Vehicle Range Anxiety
- Driver State-Based Smooth and Safe Handover Transitions
- Non-Reacting Driver Emergency Manoeuvres
- Long Range Advanced Cyber Systems
- Rider Fair
- Passenger Pick-Up/Drop Off Automation for Buses