Announcing a New Cluster of EU Projects Advancing Road Safety and Automated Mobility in Complex Urban Environments

A groundbreaking cluster of EU-funded projects has been formed to revolutionise road safety, automated mobility, and the interaction between drivers and vulnerable road users (VRUs). This collaborative effort brings together five ambitious initiatives - **AI4CCAM**, **HEIDI**, **EVENTS**, **PHOEBE**, and **SOTERIA** - to develop cutting-edge solutions addressing the growing complexity of urban transport systems, forming a cluster on **"Road safety in complex urban environments".**

The cluster aims to promote a safe, inclusive, and sustainable mobility system that is resilient, trustworthy, and road user-centric. By uniting efforts across these projects, this initiative is set to transform European transport research and establish new standards for road safety and automated driving.

Cluster Overview

At the heart of the cluster's mission is a shared vision for establishing the "safe system" approach. This shifts the focus from placing responsibility solely on road users to a holistic strategy where every stakeholder—from infrastructure designers to transport operators—plays a role in creating safer environments. The projects will work together to ensure that automated mobility technology is not only efficient but also transparent, inclusive, and adaptable to real-world road conditions.

The five projects are exploring how advanced technologies like artificial intelligence (AI), simulation environments, predictive analytics, and human-machine interfaces (HMIs) can enhance urban road safety for all road users, particularly vulnerable groups such as pedestrians, cyclists, and individuals with reduced mobility.

Projects Highlights

AI4CCAM leverages the potential of AI to create trustworthy and ethical models for predicting the behavior of vulnerable road users in urban environments. Its focus on user acceptance of automated vehicles and ethical dilemmas ensures the development of AI systems that people can trust.

EVENTS seeks to overcome the limitations of current Connected and Automated Vehicles (CAVs) by developing a robust and resilient perception and decision-making system that can manage unexpected "events" like adverse weather/light conditions, unstructured road environment, imperfect data, sensor/communication failures, etc., ensuring continuous safe operation in dynamic environments.

HEIDI is breaking new ground by designing a cooperative HMI that connects drivers and pedestrians in dangerous situations. With internal and external HMIs, HEIDI adapts in real time to the behaviors and needs of drivers and VRUs.

PHOEBE aims to support urban transport planning with an evidence-based framework for predictive road safety. This project offers a blueprint for cities to manage safety risks effectively, integrating human behavior modeling and transport system simulations to prevent accidents.

SOTERIA focuses on creating a data-driven safety intelligence framework that integrates electric micro-mobility services in urban environments. It emphasises inclusivity by fostering a co-creation process with local communities and vulnerable road users.

Collective Strengths

The cluster of projects is founded on several shared strengths:

Human-Centric and Inclusive: Prioritising the needs of all road users, including vulnerable populations such as children, elderly, and those with reduced mobility.

Ethical and Trustworthy AI: Developing AI models and decision-making systems that are transparent, reliable, and capable of handling complex ethical issues.

Advanced Simulation Technologies: Leveraging co-simulation environments, hybrid testing, and machine learning to safely evaluate and validate new technologies.

Scalability and Resilience: Ensuring that solutions are adaptable across various transport modes, from micro-mobility services to automated vehicles, and capable of handling unexpected events and system failures.

Impact and Future Directions

By integrating innovative technologies and road user-centered approaches, this EU-funded cluster of projects aims to deliver substantial advancements in road safety and automated mobility. The initiative will not only contribute to the development of safer transportation systems but also foster public trust and acceptance of emerging mobility solutions.

In particular, the exchange of knowledge and practices between projects regarding AI and simulation technologies could further amplify their positive impact, fostering innovation and improving outcomes across the board. Through close collaboration, these projects will offer new methodologies, standards, and tools to help urban planners, policymakers, and transport operators create safer and more efficient mobility networks across Europe.