ReliablE in-Vehicle pErception and decisioN-making in complex environmenTal conditionS (EVENTS)

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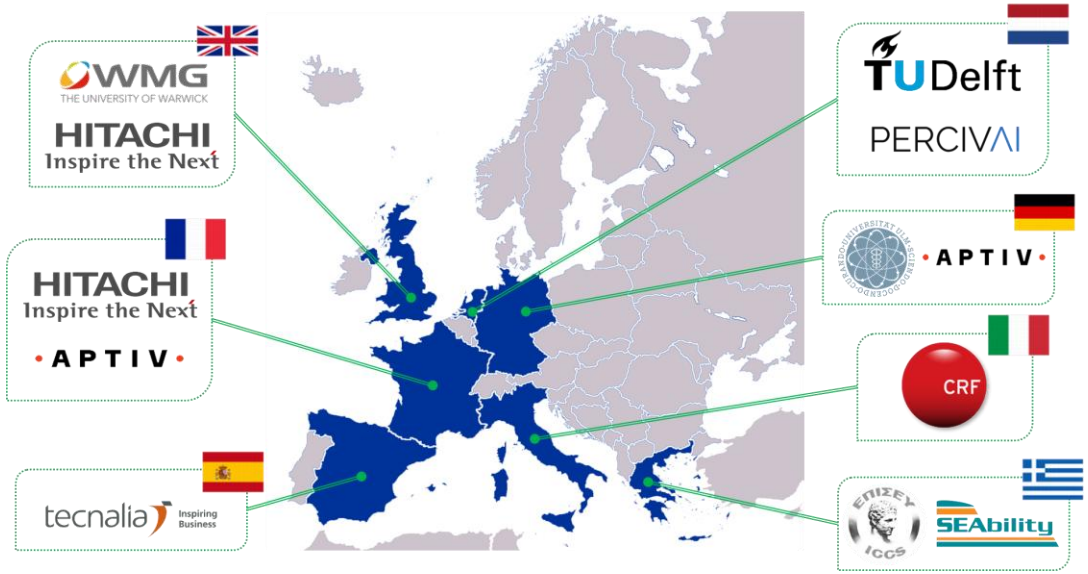
EVENTS

General facts and figures

- **Title:** ReliablE in-Vehicle pErception and decisioN-making in complex environmenTal conditionS (EVENTS)
- **Call:** HORIZON-CL5-2021-D6-01
- **Topic:** HORIZON-CL5-2021-D6-01-01
- **Type of Action:** Innovation Action
- **Starting date:** 1st September 2022
- **Duration:** 36 months
- **Budget:** 6.920.598 euros | **EU Funding:** 5.534.448 euros
- **Consortium:** 12 partners (2x2 associated) from 7 countries



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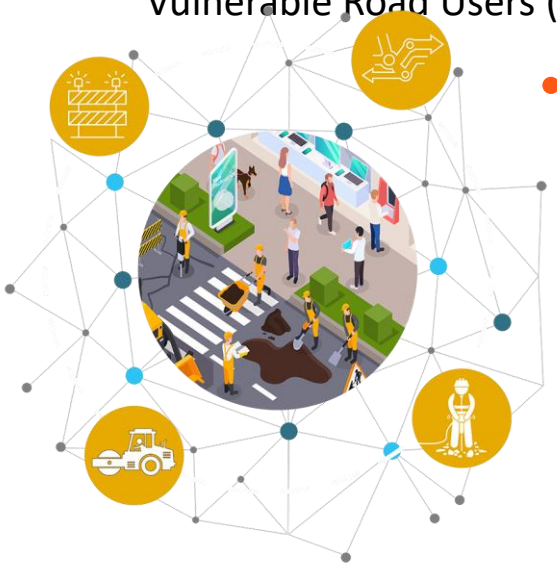
Use cases

- **UC1 – Interaction with Vehicles and VRUs in Complex Urban Environment**
  - Safe and resilient automated driving in complex urban environment i.e. cluttered surroundings (occlusions), multiple road users etc. Particular focus on interacting with Vulnerable Road Users (e.g. pedestrians, cyclists).



- **UC2 – Non-Standard and Unstructured Road Conditions**
  - Nowadays, automated driving systems feature ODDs which assume benevolent, normative traffic conditions and roads with lane markings. In other conditions, current systems will (often unknowingly) fail. This use case investigates non-standard and unstructured road conditions, for example, road work- or accident-zones and urban park areas with no lane markings.

- **UC3 – Low Visibility & Adverse Weather**
  - The majority of AD functions today is designed for “normal” environmental conditions, i.e. clear weather (no rain/snow/fog/low-standing-blinding sun) and daytime. This use case aims to extend the environmental conditions of AD functions.

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EVENTS – Data Sharing & Practices

Types of data in EVENTS

- **Sensor Data** (Camera, LiDAR, Radar, 4D Radar): Used for object detection, perception, and scene reconstruction.
- **Simulation & Synthetic Data**: Generated to replicate adverse weather conditions and rare driving scenarios/corner cases.
- **Object Detection Data**: Collected for training autonomous vehicle perception systems.
- **Collective Perception Messaging (CPM) Data**: Shared among vehicles (and partners) to improve situational awareness
- **Real-World Driving Data**: Gathered from prototype vehicles in controlled or public road tests for evaluation.

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EVENTS – Data Sharing & Practices

Best practices in EVENTS involve:

- Following **Open Data Principles (FAIR)**: Making data Findable, Accessible, Interoperable, and Reusable (FAIR principles) ensures it can be shared and reused effectively.
- The use of **Standardized Data Formats** found in CCAM: Commonly used formats in EVENTS include ROSbag (Robot Operating System), JSON and CSV.
- Comprehensive documentation specifying sensor types, data collection conditions (e.g., weather, time of day), and ground truth annotations.
- Compliance with Data Privacy & Security Regulations by anonymizing any personal data (e.g., faces, license plates) from camera footage, by complying with GDPR when handling data that may involve people (e.g., pedestrians in traffic scenarios), and by using data encryption when storing and transferring sensitive datasets.
- Share publicly synthetic datasets (e.g., adverse weather image augmentation) via open-access repositories (primarily Zenodo).
- Utilizing GitHub/GitLab for sharing software code and algorithms.
- Interoperability with Vehicle Communication Standards: Data for Collective Perception Messaging (CPM) aligns with ETSI ITS-G5.

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