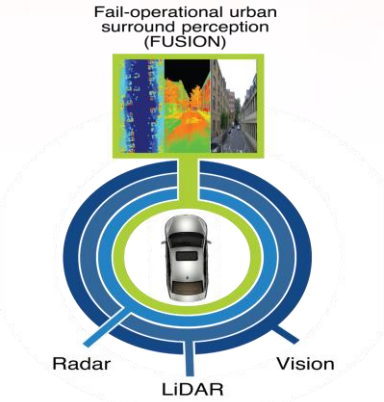
PRYSTINE

Programmable Systems for Intelligence in Automobiles

PRYSTINE's target is to realize Fail-operational Urban Surround perception (FUSION) which is based on robust Radar and LiDAR sensor fusion and control functions in order to enable safe automated driving in urban and rural environments.

PRYSTINE's high-level goals are:

1.Enhanced reliability and performance, reduced cost and power of FUSION components
2.Dependable embedded control by co-integration of signal processing and AI approaches for FUSION
3.Optimized electrical/ electronic architecture enabling FUSION-based automated vehicles
4.Fail-operational systems for urban and rural environments based on FUSION



PRYSTINE expected outcomes:

- Fail-operational sensor-fusion framework at component level
- Dependable embedded electrical/ electronic architectures
- Safety compliant integration of Artificial Intelligence (AI) approaches for object recognition, scene understanding, and decision making within automotive applications
- The resulting reference FUSION hardware/software architectures and reliable components for autonomous systems validated in numerous industrial demonstrators

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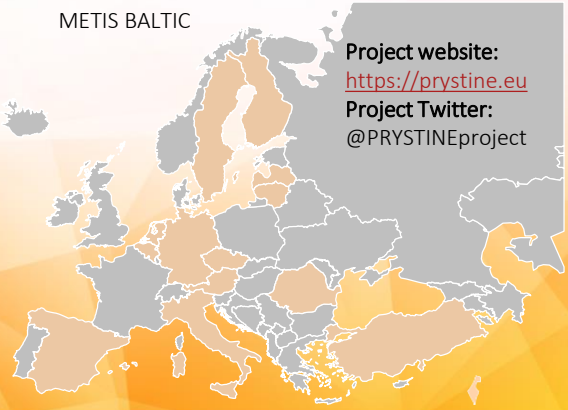

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ECSEL Joint Undertaking
Electronic Components and Systems for European Leadership

PRYSTINE

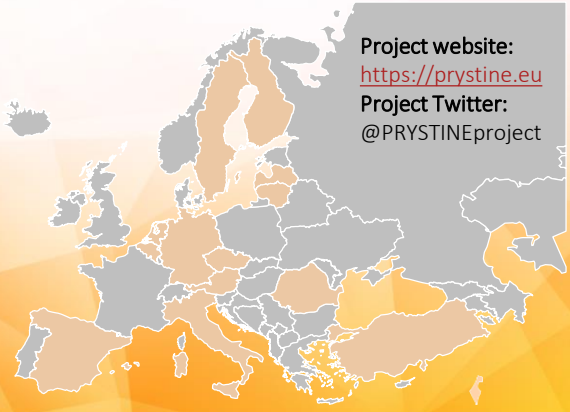
Programmable Systems for Intelligence in Automobiles

PRYSTINE objectives:

- O1 Enhanced reliability and performance, cost and power of FUSION components
- O2 System dependable control by co-integration of signal processing and AI approaches for FUSION
- O3 Optimized electrical/electronic architechture enabling fail-operational FUSION-based automated vehicles
- O4 Automated Driving Fail-operational systems for urban and rural environments based on FUSION
- O5 Competetive advantage for European industry
- O6 Increased user acceptance of automated driving funcions

Demonstrators:

Demonstrator 1.1: LiDAR + AURIX
Demonstrator 1.2: Radar + AURIX
Demonstrator 1.3: Radar
Demonstrator 1.4: Radar
Demonstrator 1.5: Vehicle-level health monitoring
Demonstrator 2.1: Fail-operational autonomous driving platform: acronym FOADP
Demonstrator 2.2: Drive-by-wire car
Demonstrator 2.3: Heavy-duty truck vehicle
Demonstrator 2.4: Passenger vehicle for low speed autonomy communication
Demonstrator 3.1: Electrical/electronic architecture demonstrator for automotive electronics enabling automated driving
Demonstrator 3.2: Simulation, development and validation framework for fail-operational sensor-fusion electrical/electronic architecture
Demonstrator 3.3: Dynamically shaped reliable mobile
Demonstrator 4.1: FUSION Hardware In the Loop (HIL) for heavy duty truck
Demonstrator 5.1: Heavy Duty Truck
Demonstrator 5.2: Truck (3 axles lorry with full size trailer)
Demonstrator 6.1: Traffic light time-to-green
Demonstrator 6.2: Trajectory recognition and Vulnerable Road User (VRU)
Demonstrator 6.3: Emergency lateral lane stop
Demonstrator 7.1: Shared control and arbitration (Level 2-3), studying driver-automation interaction and methods for vehicle authority transition Driver in the Loop (DiL) Simulator
Demonstrator 7.2: Layered Control (Level 2-3-4), studying cooperation between a passenger car and a bus, and driver role in supervising or controlling the vehicle when requested
Demonstrator 7.3: Highly automated vehicle (Level 3-4), study AI-based decision algorithms for urban and highway scenarios



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