assist-iot

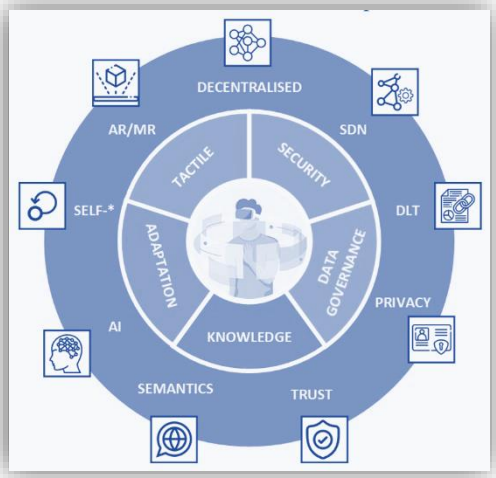
Architecture for **S**calable, **S**elf-human-centric, **I**ntelligent, **S**ecure, and **T**actile next generation IoT

H2020 ICT-56-2020 “Next Generation Internet of Things”

TARGET/VISION

ASSIST-IoT is a EU H2020 ICT-56-2020 funded research project which aims at designing, implementing and validating an open, decentralized reference architecture, associated enablers, services and tools, for assisting human-centric applications in multiple verticals.

ASSIST-IoT will design, implement and validate, in a realistic, measurable, and replicable way, a unified innovative multi-plane, (semi-)autonomous, decentralized edge-cloud reference architecture, supplemented by cross-cutting digital enablers. The architecture will support continuous integration and long-term sustainability of domain-agnostic, interoperable, self-* capable, intelligent, distributed, scalable, secure and trustworthy IoT ecosystems.



OBJECTIVES/DETAILS

There are 8 objectives related to the **ASSIST-IoT** concept and validation:

- ✓ Design, implementation and validation of an NGIoT Reference Architecture
- ✓ Definition and implementation of distributed smart networking components
- ✓ Definition and implementation of decentralized security and privacy exploiting DLT
- ✓ Definition and implementation of smart distributed AI enablers
- ✓ Definition and implementation of human-centric tools and interfaces
- ✓ Definition, deployment and evaluation of real-life pilots
- ✓ Establishment of an innovative cooperation and business framework
- ✓ Impact creation: Showcasing ASSIST-IoT and Disrupting the current market

THE CONSORTIUM

The **ASSIST-IoT** Consortium combines expertise of every area required to create, evaluate and promote innovative, transferable and sustainable results, needed to ensure quality of envisioned solution with an adequate level of manageability.

ASSIST-IoT brings together 15 partners from 7 countries and forms a well-balanced mixture of stakeholders (TEMINAL LINK, MOSTOSTAL WARSZAWA, S21SEC), RTOs (UNIVERSITAT POLITÈCNICA DE VALÈNCIA, SRIPAS, CERTH, ICCS, CIOP), industry (FORD, NEWAYS TECHNOLOGIES, KONECRANES FINLAND), SMEs (PRODEVELOP, INFOLYSiS, TWOTRONIC) and telecom operators (ORANGE POLAND).

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THE PILOTS

PORT AUTOMATION

The Port Automation pilot focuses on how ASSIST-IoT benefits port mechanisms by automizing them. Four scenarios are considered:

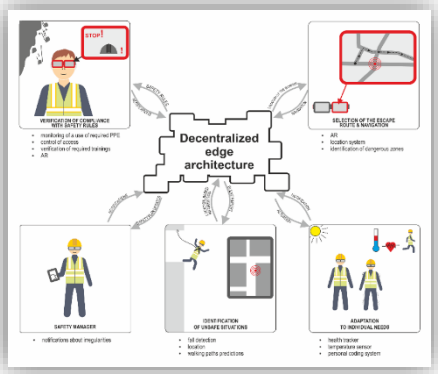
1st scenario: The objective is to enhance the operational performance by the automation of complex tasks and demonstrate the feasibility of technologies like Optical Character Reader and QR codes.

2nd scenario: The scenario examines how by using a combination of real-time telemetry fleet assets, QR codes and image-based positioning we can automatically report containers location and reduce inventory errors.

3rd scenario: The aim of this scenario is to redefine how the staff in the terminal interacts with the heavy machinery through the application of AR, and immersive spatial technologies.

4th scenario: This scenario focuses on remote operation of CHE relying on the architecture of ASSIST-IoT project.

SMART SAFETY OF WORKERS



This pilot presents the benefits of the ASSIST-IoT approach on increasing OSH at the dynamic environment of a busy construction site. Three scenarios are evaluated:

1st scenario: This scenario focuses on optimizing the safety in workplace by preventing unauthorized personnel to entry critical zones with the help of AR.

2nd scenario: Its aim is to demonstrate the use of smart IoT devices functioning together in a closed feedback loop in order to perform an OSH risk management process.

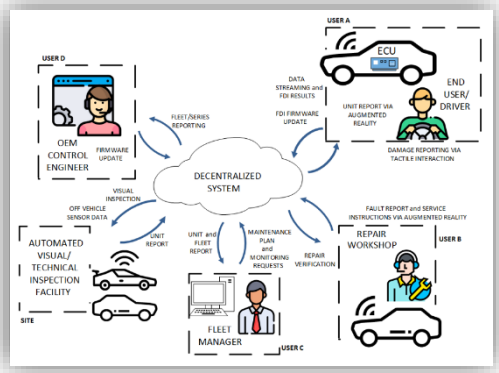
3rd scenario: The aim of this scenario is to perform a real-time prediction of risks and hazards with the use of DLT.

COHESIVE VEHICLE MONITORING AND DIAGNOSTICS

This pilot demonstrates the benefits of the ASSIST-IoT approach for the case of vehicle fleet diagnostics, where inputs coming from different sources are combined for providing an incremental and cohesive evaluation of the vehicle condition. Two scenarios are considered:

1st scenario: This scenario includes advanced powertrain monitoring and diagnostics focused on identifying driving scenarios or units that are not fulfilling in-service conformity requirements.

2nd scenario: This scenario deals with identification of mechanical malfunctions and monitoring of vehicle's aesthetic condition.



Stay Tuned!

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