www.testudo-project.eu

TESTUDO

AUTONOMOUS SWARM OF HETEROGENEOUS RESOURCES
IN INFRASTRUCTURE PROTECTION VIA THREAT PREDICTION AND PREVENTION

TESTUDO will deliver **a novel data-driven and process-oriented surveillance and intelligence platform for increased autonomy and improved situation awareness,** incorporating:

- **innovative autonomous platforms** comprised by a set of **unmanned vehicles** and individual **fixed sensors,**
- effective transmission of **heterogeneous multimodal data streams** to improve the critical issue for smooth operations and the integrity of CIs,
- **advanced detection, monitoring and prediction tools** delivering pertinent information to the operator,
- **virtual decision-making tool.**

TESTUDO aims to equip CI operators and other relevant agencies with innovative technologies reinforced with research tools for **optimal response and prediction/ prevention,** by employing:

Autonomous Response and Cognitive Intelligence
- Optimal resource allocation
- Threat identification by processing optronics data
- Edge computing for limited connected unmanned vehicles
- CBRN materials identification
- Autonomous response on cyber-attack identifications

Improved HMI for critical infrastructure surveillance
- Optimized 3D terrain and infrastructure mapping
- Fusion schemes of numerous modalities for improved data representation
- Threat assessment via XAI technologies
- Predictive intelligence and improved HMI via Digital Twins

Short and long-term deployment for large-scale and cross-sectorial trials

Use Case #1:
Disruptive online events in water reservoirs

Use Case #2:
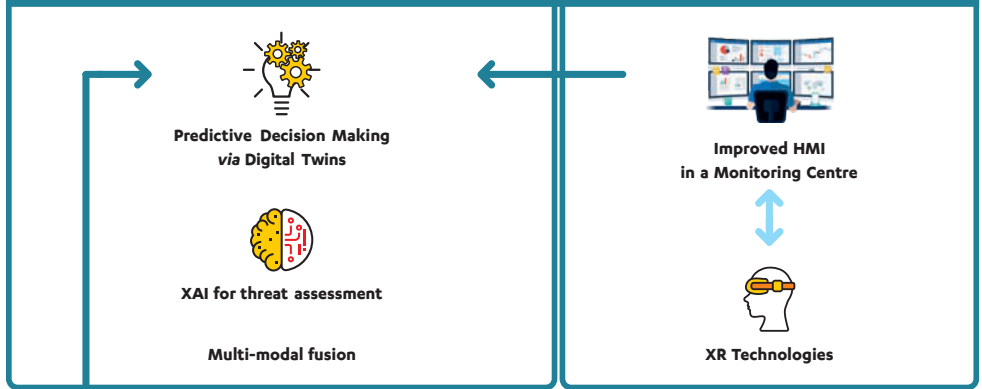**Chemical fire in tunnel provoked by an electric vehicle**

Use Case #3:
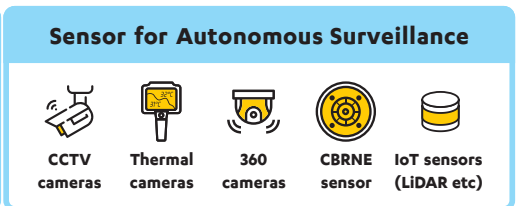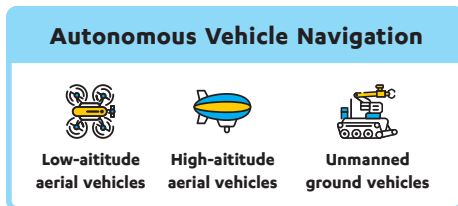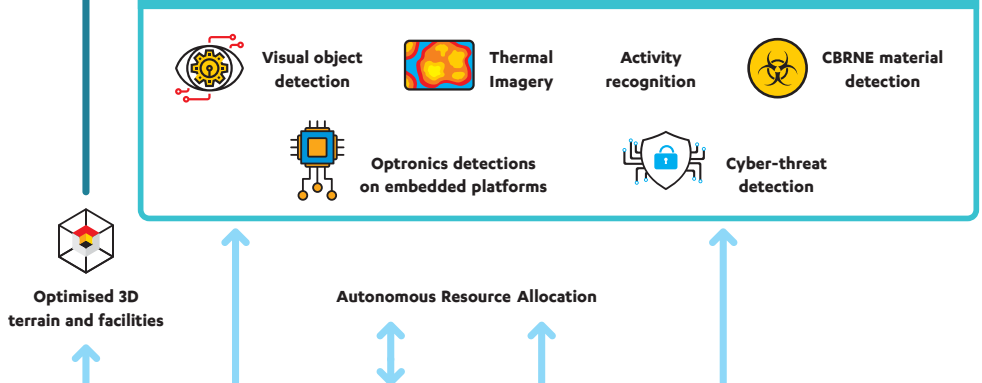**Synchronized attack on water treatment facilities**

TESTUDO ARCHITECTURE

CI Operator

First Responders

Safety Inspector

Law Enforcement Agencies

Predictive intelligence and decision support

Predictive Decision Making *via* Digital Twins

XAI for threat assessment

Multi-modal fusion

Improved HMI in a Monitoring Centre

XR Technologies

Cognitive intelligence for threat identification

Visual object detection

Thermal Imagery

Activity recognition

CBRNE material detection

Optronics detections on embedded platforms

Cyber-threat detection

Optimised 3D terrain and facilities

Autonomous Resource Allocation

Autonomous Vehicle Navigation

Low-aititude aerial vehicles

High-aititude aerial vehicles

Unmanned ground vehicles

Sensor for Autonomous Surveillance

CCTV cameras

Thermal cameras

360 cameras

CBRNE sensor

IoT sensors (LiDAR etc)

TESTUDO

Start date	01/10/2023
End date	30/09/2026
Call	HORIZON-CL3-2022-INFRA-01-02
Partners	20
Countries	11
Project Coordinator	Centre for Research & Technology Hellas (CERTH)

TESTUDO PARTNERS

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS · ACCELIGENCE · satways · NTT DaTa · CENTRIC Centre of Excellence in Terrorism, Resilience, Intelligence and Organised Crime Research · EYDAP · cea · ENGINEERING THE DIGITAL TRANSFORMATION COMPANY · Łukasiewicz PIAP · T4i engineering Extraordinary design · Robust engineering · Technology made simple · PROSEGUR SECURITY · vicomtech MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE · SINTEF · dfki ai · Bizkaia interbiak · Tekniker MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE · DRAXIS · adscensus · LAW AND INTERNET FOUNDATION · diadikasia BRIGHT GROUP MEMBER

X /TESTUDOproject

contact@testudo-project.eu
www.testudo-project.eu

in /testudo-project