



The HERON Project | Improved Robotic Platform to perform  
Maintenance and Upgrading Roadworks

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Supporting maintenance tasks and upgrading roadworks through an  
integrated automated system

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# HERON IMPLEMENTATION FRAMEWORK

✓ Title: Improved Robotic Platform to perform Maintenance and Upgrading Roadworks: The HERON Approach

✓ Acronym: HERON

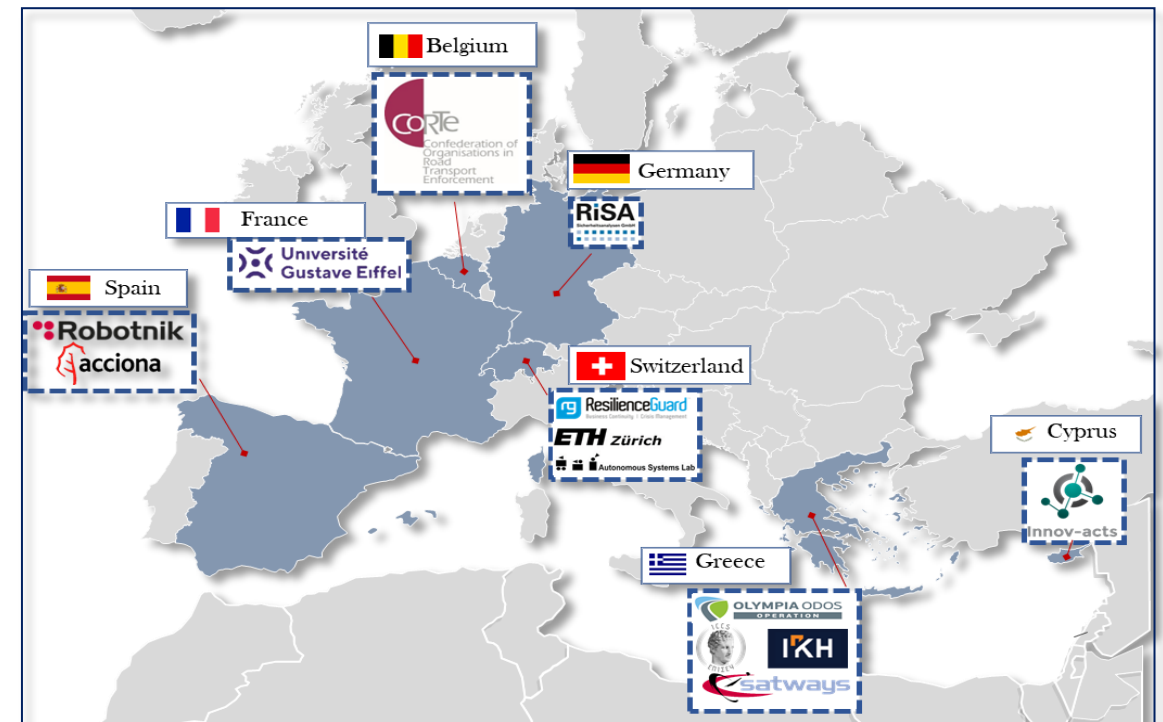
✓ Grant agreement ID: 955356

✓ Total cost € 4 998 000

✓ EU contribution € 4 998 000

✓ Call: SOCIETAL CHALLENGES - Smart, Green And Integrated Transport

✓ Topic: MG-2-10-2020

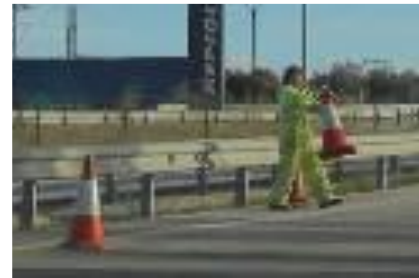


# TRADITIONAL vs HERON

Roads are crucial for economic development and growth, providing access to education, health, and employment. The maintenance, repair and upgrade of roads is one of the most important parts for their high-level service provision.

KEY activities of RI operators:

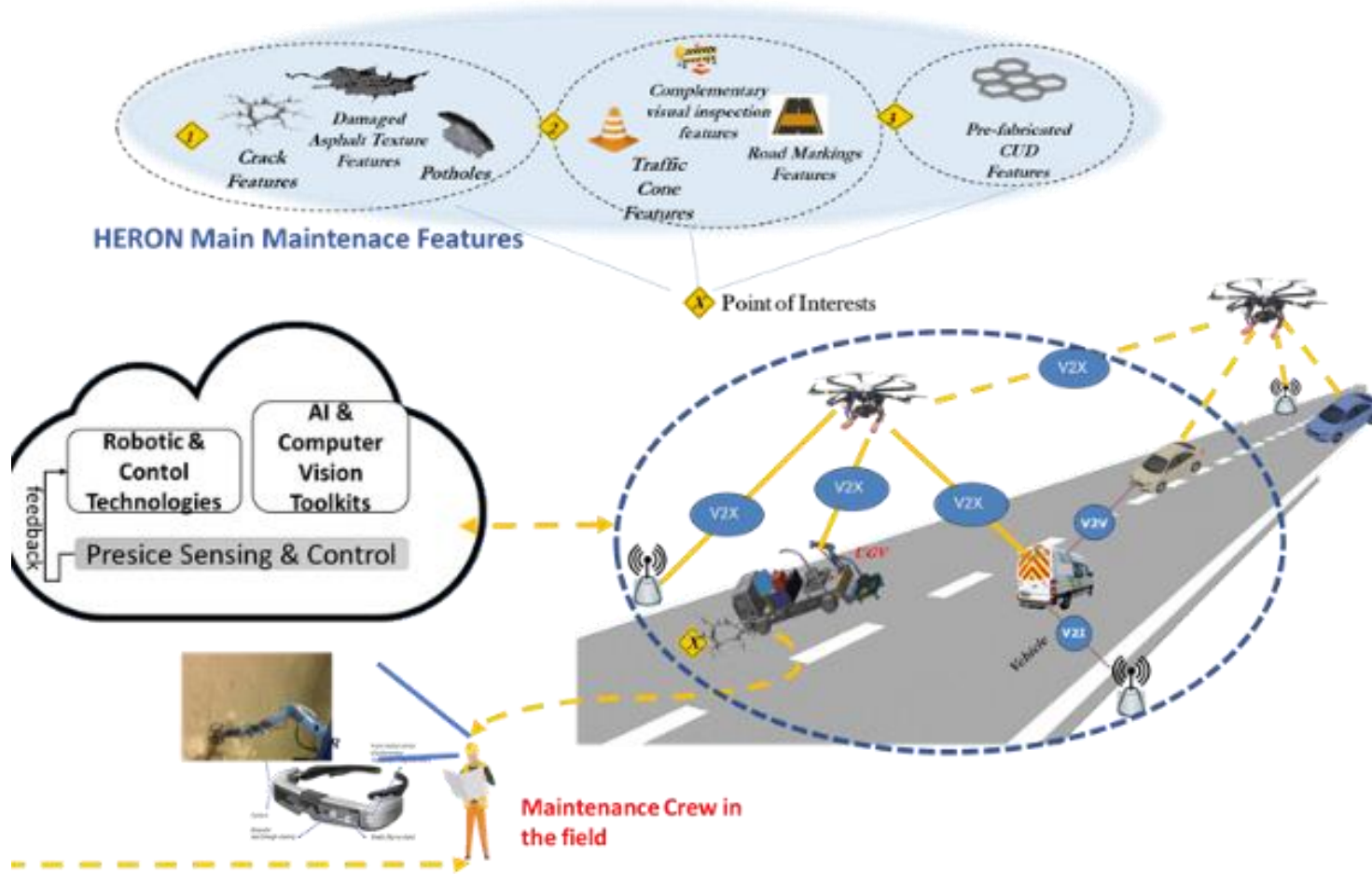
- ✓ Inspection and inventorying of potholes and cracks
- ✓ Detection and repair of cracks
- ✓ Inspection and reporting of road marking
- ✓ Inspection and replacement of CUD pavements
- ✓ All combined with pre-post intervention phase (cones placement and removal)



## Infrastructure operators and maintenance companies needs

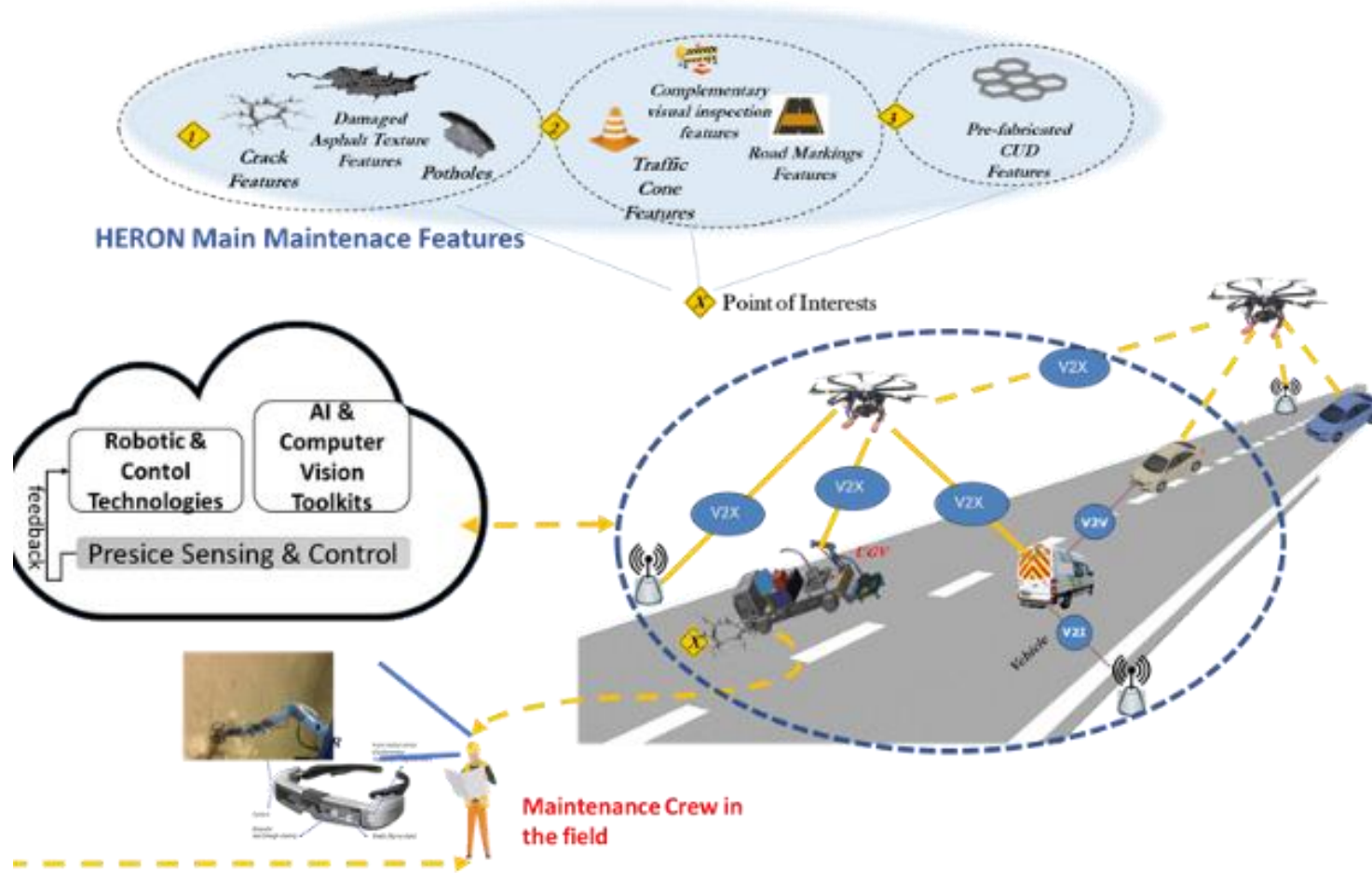
- ✓ Increase of **maintenance and upgrading** tasks versus traditional procedures;
- ✓ Increase of **area covered by inspections** versus traditional visual inspection;
- ✓ **Decrease of human intervention** during maintenance, upgrading and inspection of RI;
- ✓ Decrease of human intervention during operation, patrolling, inventorying and inspection activities;
- ✓ **Cost reductions** of maintenance and upgrading of RI versus traditional costing;
- ✓ Cost reductions of operation, patrolling, inventorying and inspection activities;
- ✓ **Reduction of traffic jams.**

# TRADITIONAL vs HERON



HERON AIMS TO DEVELOP AN **INTEGRATED AUTOMATED SYSTEM** TO PERFORM **MAINTENANCE AND UPGRADING** ROADWORKS, I.E. SEALING CRACKS, PATCHING POTHOLES, ASPHALT REJUVENATION, AUTONOMOUS REPLACEMENT OF CUD ELEMENTS AND PAINTING MARKINGS, AND SUPPORTING THE **PRE-/POST-INTERVENTION PHASE** INCLUDING VISUAL INSPECTIONS AND DISPENSING AND REMOVING TRAFFIC CONES IN AN AUTOMATED AND CONTROLLED MANNER.

# TRADITIONAL vs HERON



THE HERON SYSTEM WILL CONSIST OF:

- ✓ UGV ACTUATORS
- ✓ UGV / UAV SENSORS
- ✓ ROBOTIC SYSTEM
- ✓ SECURE DATA COMMUNICATION
- ✓ MIDDLEWARE & DF
- ✓ SENSING INTERFACE & AI
- ✓ IMS / DSS / AR

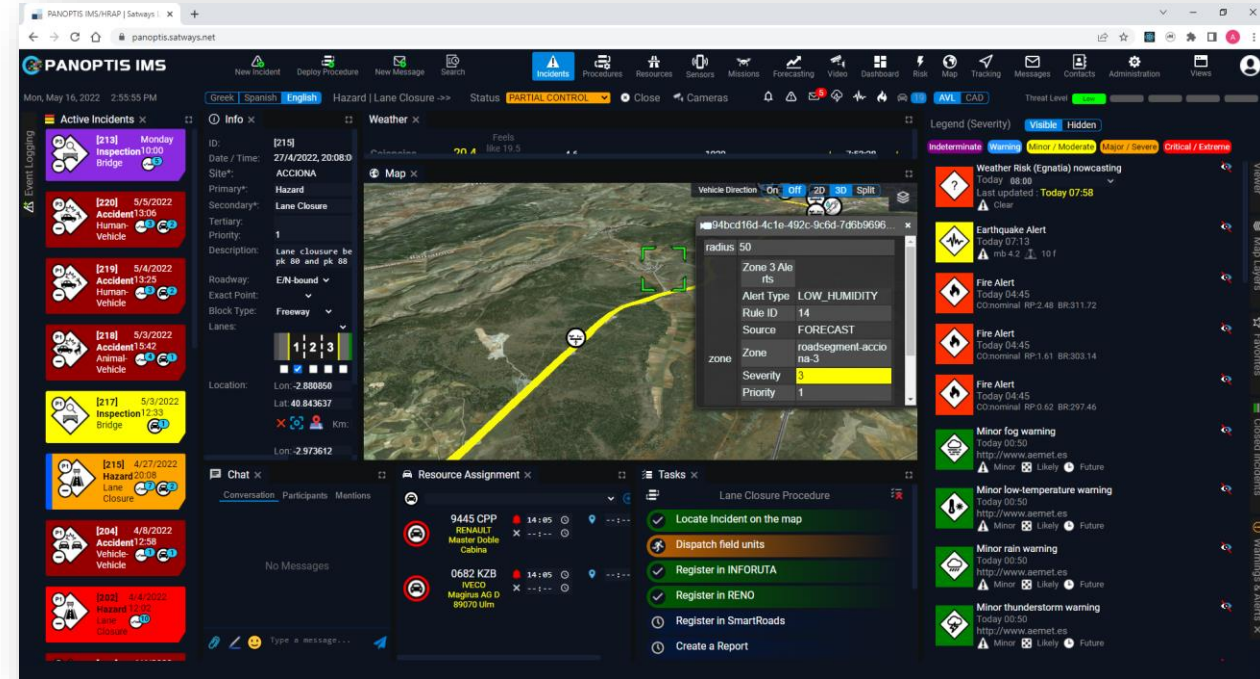
# HERON COP – IMS - DSS

Based on PANOPTIS H2020 project, HERON DSS will grants users with real-time information stream enhancing their situational awareness through the following capabilities...



# HERON COP – IMS - DSS

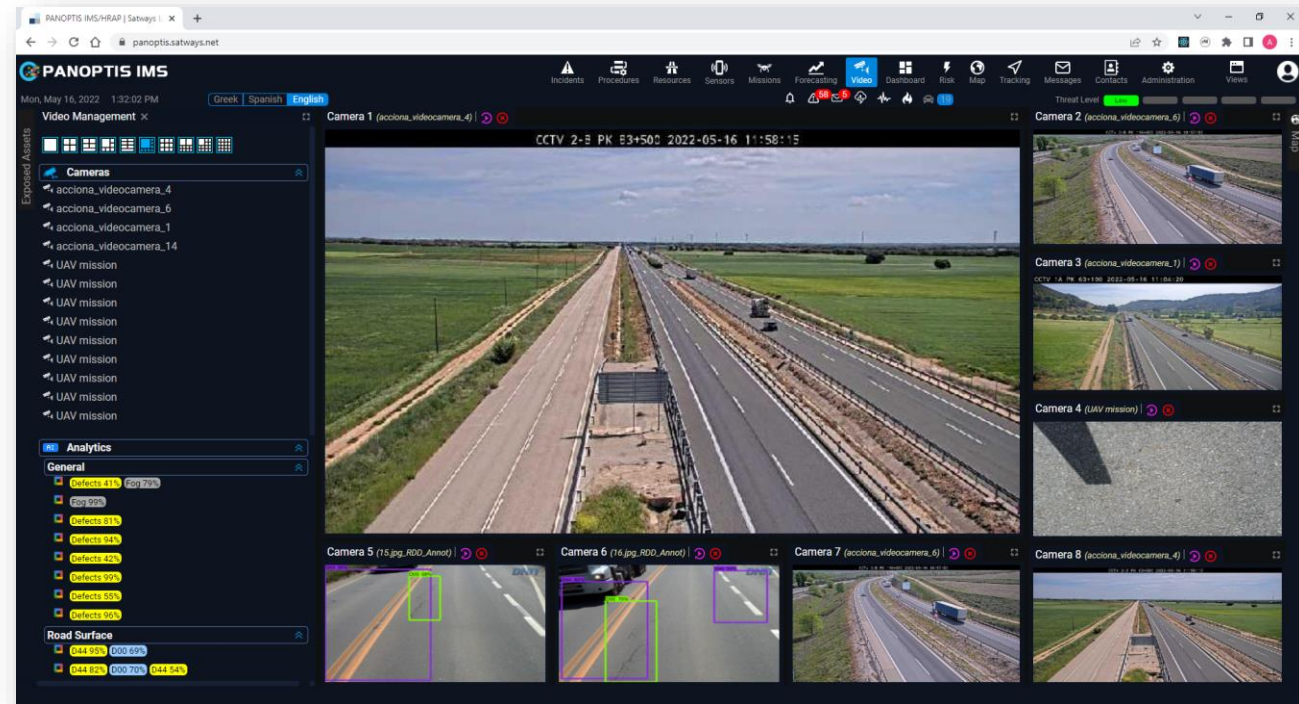
- ✓ Software-as-a-Service or on Premise
- ✓ Integration of unique and diverse tools and services for RI Situational Awareness & Decision Support
- ✓ Warning & Alerts
- ✓ Video Management
- ✓ UGV/UAV missions
- ✓ Resource management and tracking
- ✓ Event and incident management
- ✓ Collaborative response
- ✓ AR capabilities for displaying functional elements
- ✓ Dashboards with analytics and notifications for control centers





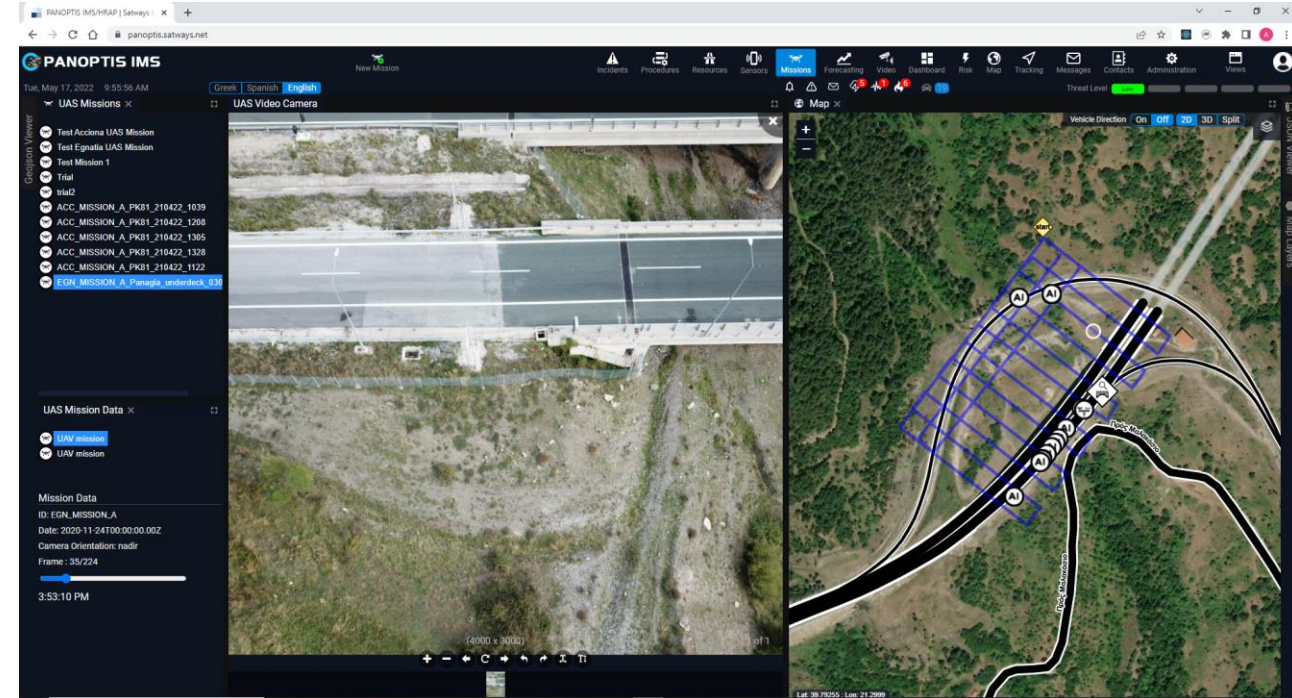
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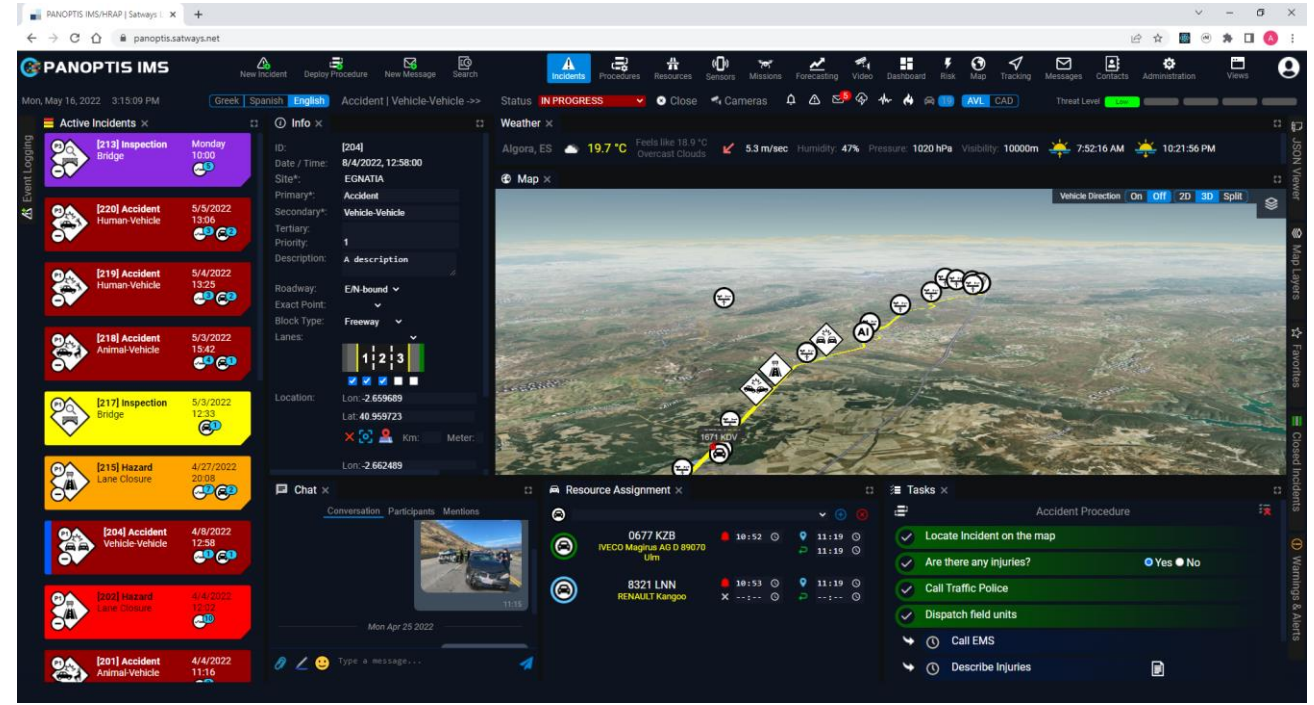
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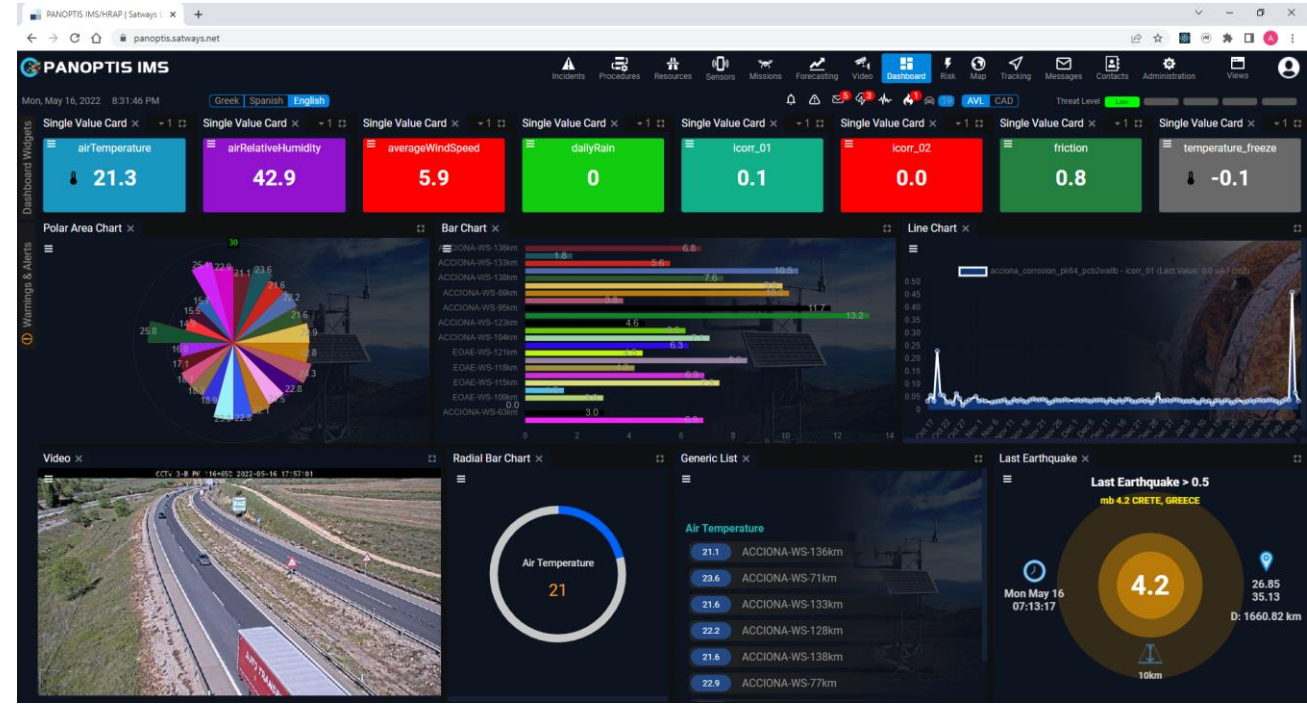
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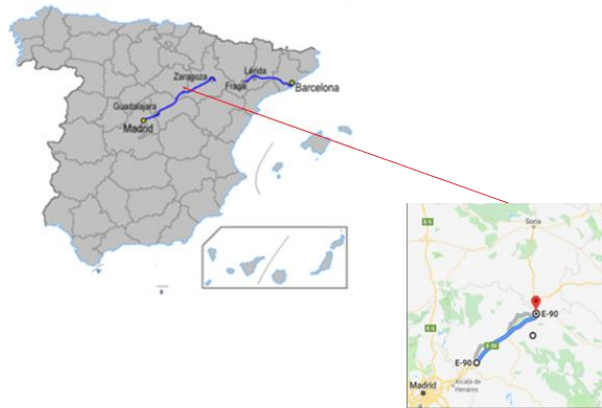
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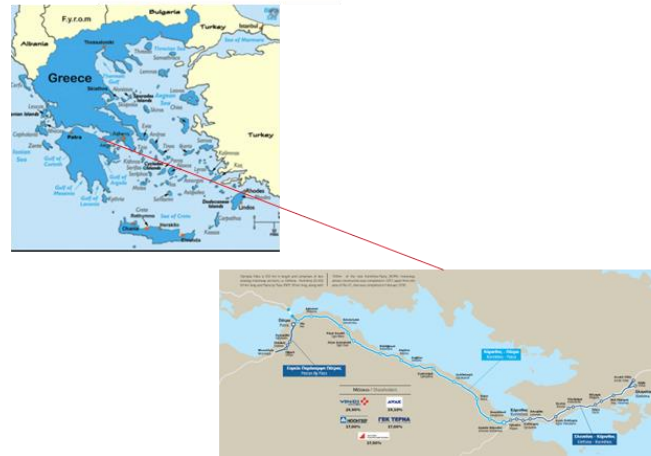
# HERON validation



## Spain



## Greece



## France



## KPIs



- **KPI\_1.** Maintenance operators' collaboration
- **KPI\_2.** Manipulation tasks
- **KPI\_3.** Improved CV & ML

- **KPI\_4.** SLAM accuracy and robustness
- **KPI\_5.** Visibility enhancement
- **KPI\_6.** Cognition devices integrated
- **KPI\_7.** Interactive operating centre



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Thank you!

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