RESPOND-A

How digital tools can help LEAs managing emergencies

Next-generation equipment tools and mission-critical strategies for First Responders

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RESPOND-A is funded by H2020-SU-DRS02-2018-2019-2020 - Technologies for first responders.

A 36-month project that started in June 2020.

Aim

- The main aim of RESPOND-A is to leverage First Responders efficiency and safety by introducing a joint technological and conceptual framework for maximal Situational Awareness in terms of boosting:
  - ✓ Early Assessment
  - ✓ Safety Assessment
  - ✓ Risk Mitigation capabilities
  - ✓ Clear Common Operational Picture
  - ✓ Optimal management of operations at any scaling and complexity of disasters.

Technologies

Around 25 products and services are part of RESPOND-A. They can be sorted in the following 4 categories:

- Robotics and Unmanned Vehicles
- Sensors, Wearables and Mobile Devices
- Mission Critical Systems
- Augmented/Virtual Reality

Methodology

- The solutions developed affect the Perception, Network, Processing, Comprehension, and User Interface layers, which can be flexibly elaborated to support multiple levels and types of customization, so as, the intended technologies and practices can adapt to any disaster scenario.

Training as a tool to engage End Users

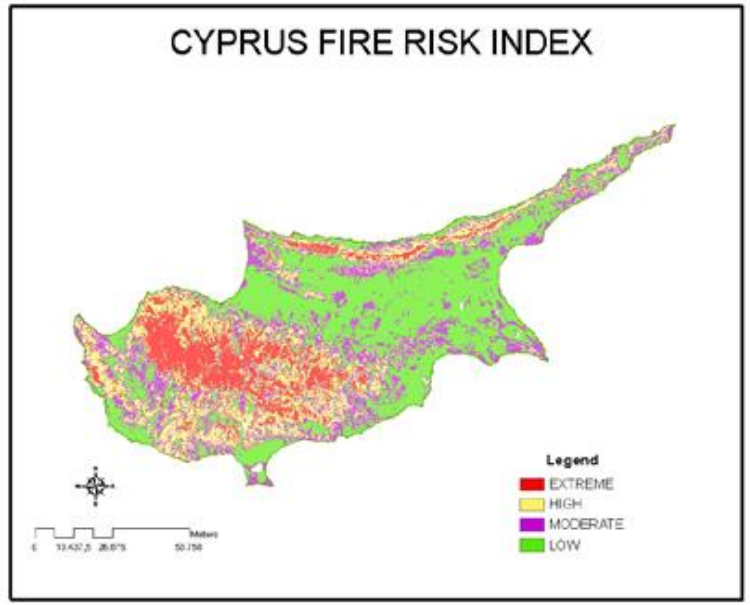
- RESPOND-A uses dedicated training sessions to familiarize responders with the use of innovative products, service and technologies. A total of 4 trainings is taking place throughout the project. Each training is comprehensively documented on the RESPOND-A website.

Ways of testing and promoting exploitation - 3 Pilots

- **Case 1** – FIRE (Cyprus)
- **Case 2** – EARTHQUAKE (Greece)
- **Case 3** – FIRE AND OIL SPILL (Spain)

Pilot (1) - Cyprus

- CASE 1 – FIRE
  - ✓ Enhanced Situational Awareness (Cyprus) / Weather-related EEA classified hazard.
  - ✓ Through this pilot, we plan to:
    - Reduce time needed for mobilizing the necessary First Responders matching needs with skills and specialties and for setting up the emergency logistics supply chain.
    - Test protective means for First Responders that will allow them to operate in complex environments with multiple threats such as fire, smoke, toxic ingredients, having protection against all of them above the average.
    - Test new communication technologies that will allow high quality, uninterrupted communication between Command Centers (including mobile ones) and First Responders cooperating with drones, robots, and sensors.
    - Improve or establish new Standard Operating Procedures (SDOs) for complex emergencies

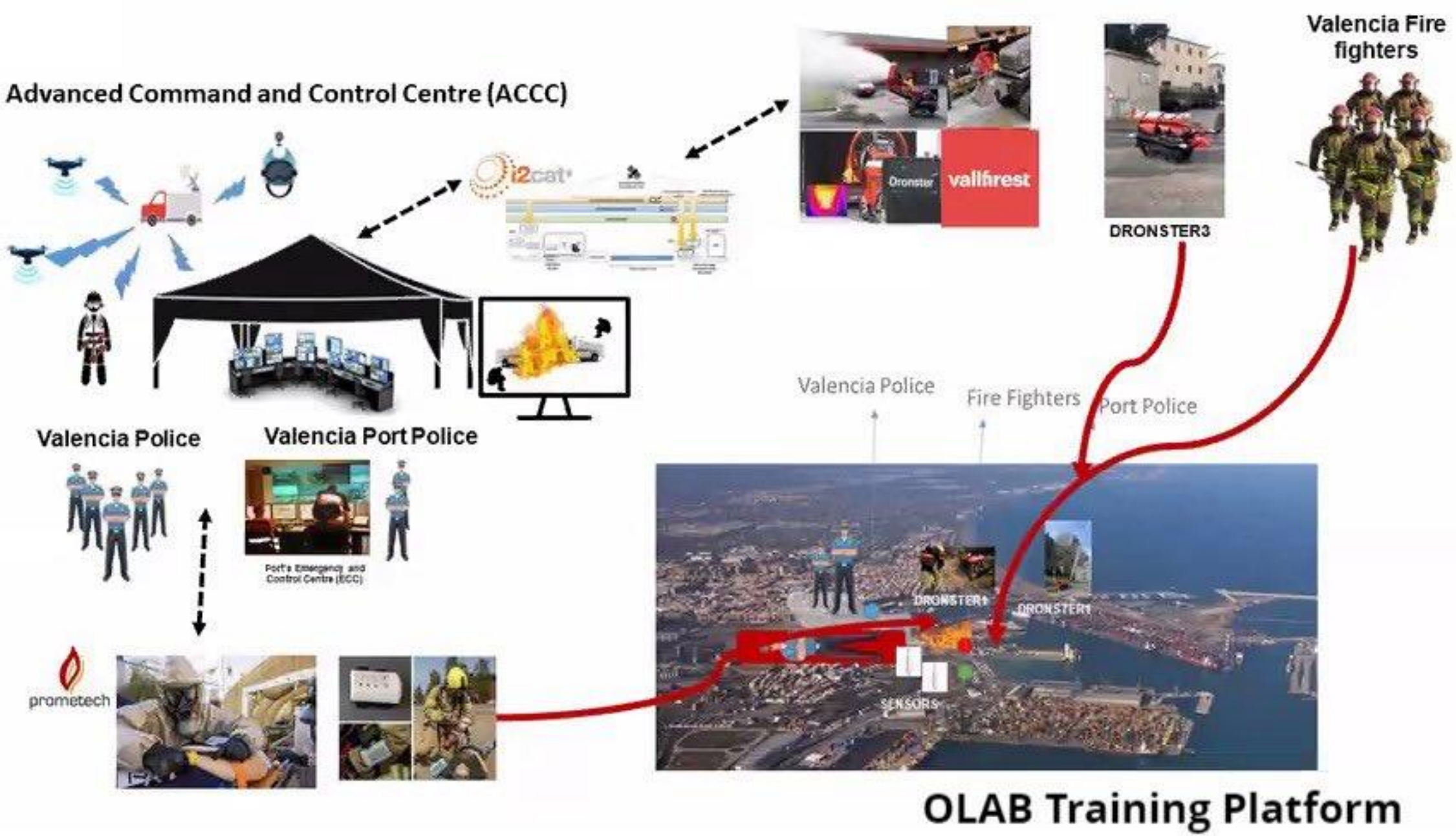


Pilot (2) - Greece

- CASE 2 – EARTHQUAKE
  - ✓ Professional Communications and Crowdsourcing through 5G (Greece) / Geophysical EEA classified hazard.
  - ✓ Through this pilot, we plan to:
    - Access the deployment time of 5G portable telecommunication systems
    - Validate that the infrastructure can be deployed simply and autonomously at any location and environmental condition, e.g., without the need of specialized technicians.
    - Ensure the simultaneous operation of voice and high-quality video calls at high quality for mission critical services, for at least a specific duration of time.
    - Validate the support from the broadband network of the simultaneous operation of many data-rich services, e.g., Virtual Reality, Augmented Reality, etc.
    - Test 5G network coverage at both indoor and outdoor locations, and if it offers the requested capacity in cases of congestions, e.g., many of First Responders gathered around a ROI.

Pilot (3) - Spain

- CASE 3 – A TRUCK ACCIDENT CAUSING FIRE AND OIL SPILL
  - ✓ AR applicability in land rescue and maritime cleaning operations (Spain) / Technological EEA classified hazard.
  - ✓ Through this pilot, we plan to:
    - Establish a Safety Assessment and Early Warning framework that protects First Responders.
    - Validate the ability to setup a robust 5G private mobile network in the area of the incident.
    - Assess 5G capability to provide sufficient bandwidth and low latency for video transmission from drones and for First Responder smart glasses.
    - Plan a more efficient stakeholders' coordination in case of an emergency, by sharing health, position and situation parameters in real-time between officers of same (or different) First Responders' organizations.


Advanced Command and Control Centre (ACCC)
i2cat
Dronstar
vallfirest
DRONSTER3
Valencia Fire fighters
Valencia Police
Valencia Port Police
Port's Emergency and Control Centre (ECC)
Valencia Police
Fire Fighters
Port Police
prometech
DRONSTER1
DRONSTER1
SENSORS
OLAB Training Platform

Pilot (3) - Spain

1 **Civilians call 112 reporting the accident and the port ECC identifies smoke in the nautical area.**

Inflammable products causes a fire in the port-city interface next to nautical area

2 **Local and Port Police arrive to accident's location**

A first evaluation of the situation is made

3 **ECC activates the port's Self Protection Plan**

It includes calling the 112 to rise the alert to Local Police, Port Police and Fire Service

4 **Local and Port Police control traffic from port and city**

Some Police agents are affected by the toxic gasses

5 **Port Police and Valencia Police setup an Advanced CCC**

- **4G/5G Private Network AP**with several screens
- Information from UAVs, Robot (e.g., Dronster), Wearables
- coordination of the emergencie's oper.

6 **Setup a portable Communication System and DFF with UxVs**

This provides connectivity (5G private network) at accident location for UAVs and other tools connected to ACCC. Also, deploys the Data Format Fusion and source management. UxVs, detecs well known attacks: (jamming on telemetry and gps data, spoofing on gps data and alert raising.

7 **Delimit safety perimeter according to the presence of gases**

Using a robot with an environmental sensor

Land side

8 **UAV and robot are sent for accident's magnitude evaluation**

Video images allow to create a full common operational picture in the ACCC

9 **A remotecontrolled ground robowith VR360 video isused to aid FRs approach to victims**

ACCC informs the rescue team about the actual conditions
Robot extinguishes the fire surrounding drivers

10 **Fire Service and another Police unit arrive**

FRs and victims are fitted with NFC bracelets and sensorized vest (only FRs) for their health's Track&Trace

Land side

11 **Evacuation of injured people, fire is extinguished, toxic emissions sealed, and spill is contained and cleaned**

FRs perform a fast evacuation of the emergency area and victims are evacuated if required.

Sea side

8 **An UAV with VR360 camera issent to the oil spill area**

It makes a first recognition in order to locate and measure oil spill and to check potential presence of people at risk near the spill

9 **ACCC receives video and meteorological data**

It realizes spill is bigger than expected and confirms the non-presence of victims in the water

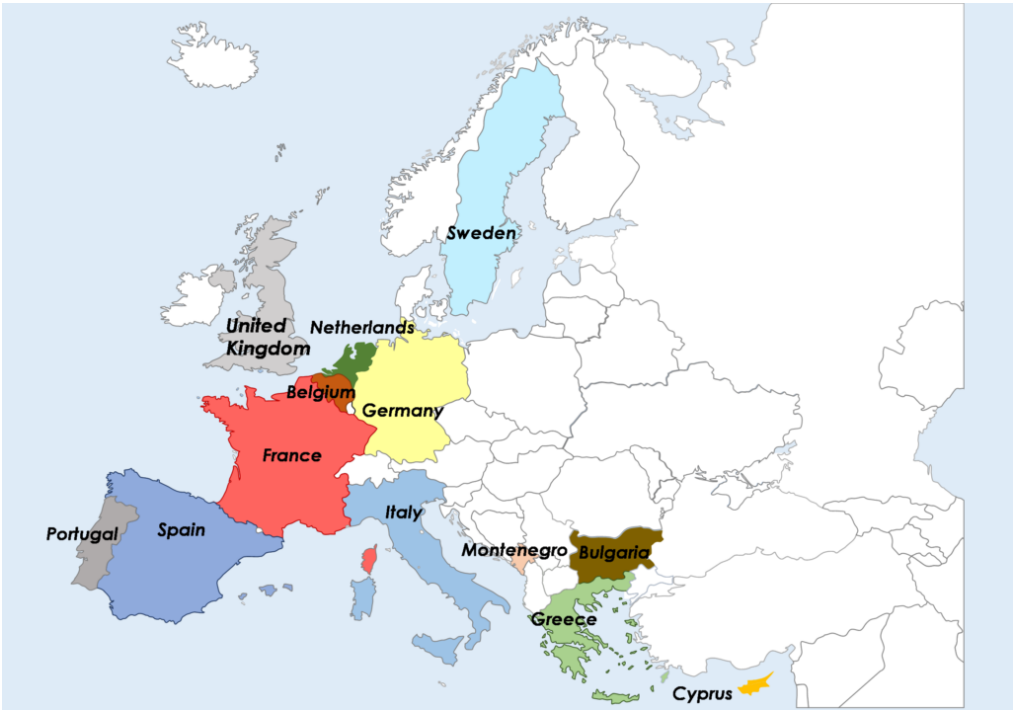
10 **Spill contention and rescue**

Sea side

Valencia Police evacuate people on quays and berthed boats potentially affected by the accident. The mooring service of the Port of Valencia deploys, from their boats, oil contention barriers to contain the spill. The pollutant is then sucked up through skimmers and pumped to specific tanks.

Consortium - Partners

- The Consortium consists of 33 partners:
  - 6 large Industries: ADS, ZII, ROB, HI, STX, VPF
  - 7 First Responders: PLV, CFS, MoE, BDI, AMSPM, HMOD, UMHAT
  - 14 SMEs: ATM, MSP, ATH, 0INF, MDS, PRO, 8BELLS, SID, CLS, VAL, CSI, SC, IEIT, IANUS
  - 6 Research Institutes and Universities: EUC, NCSRD, VICOM, i2CAT, PCF, PSCE



https://youtu.be/YYMK8RmRUHw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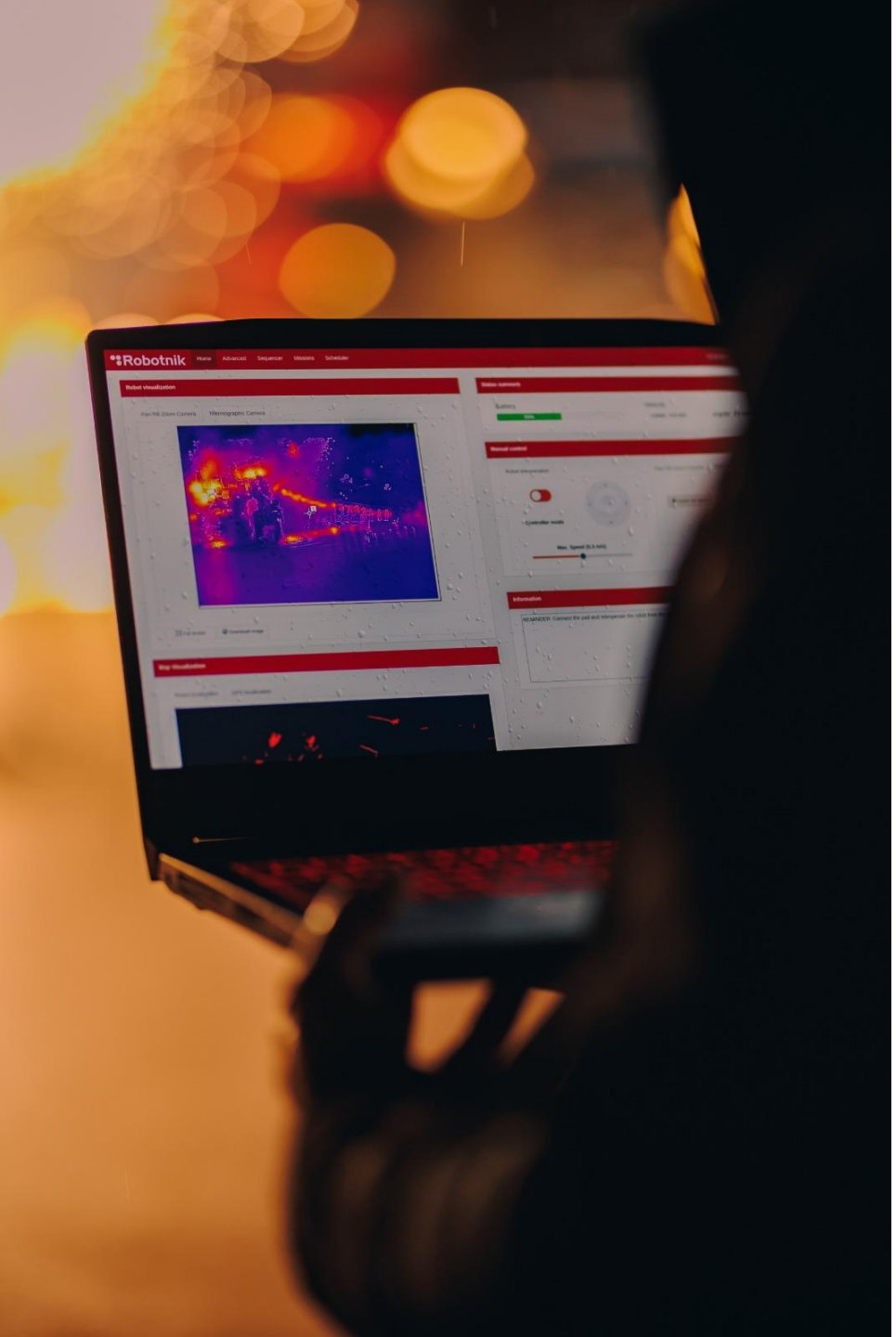
RESPOND-A
respond-a-project.eu
CONSORTIUM


respond-a-project.eu
vallhrest
VUZIX


Robotnik
Robotnik


Robotnik


POLICIA
LOCAL
VALENCIA


Robotnik

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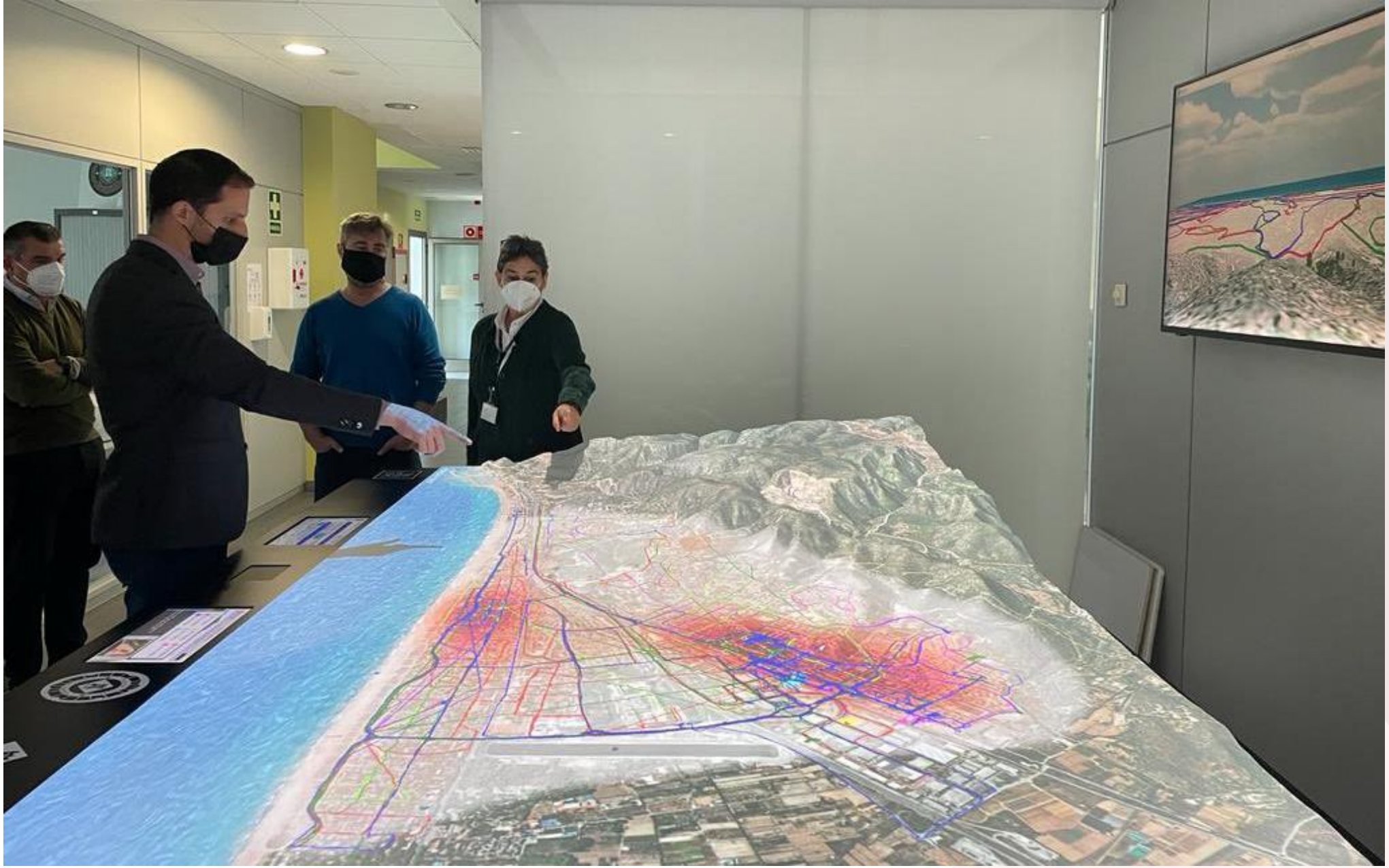
POLICIA LOCAL



WEBSITE
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Thank you!

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