

PRESS RELEASE #2

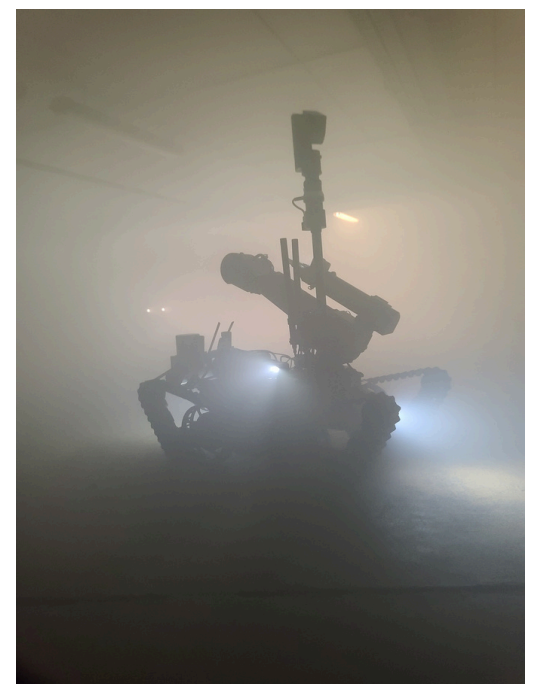
Paris Pilot Validates CARMA's Mission-Critical Robotics

Hosted by the Paris Fire Brigade (BSPP)

Successful collaborative robotic missions in smoke-filled underground environments marks a new era for civil security

Paris, March 26, 2026 – The CARMA project has recently reached a crucial milestone with the success of its second pilot in Paris. This initiative, aimed at assisting first responders in disaster scenarios where conditions are too dangerous for human intervention, has shown promising results thanks to the use of an intelligent robot platform.

In an environment reproducing complex conditions (a 5,000 m³ underground parking lot filled with smoke, featuring simulated victims and a fire) where human responders lose their senses and current robotic teleoperations fail due to sensor limitations, the CARMA robots demonstrated their capability to operate under harsh and low-visibility environment.

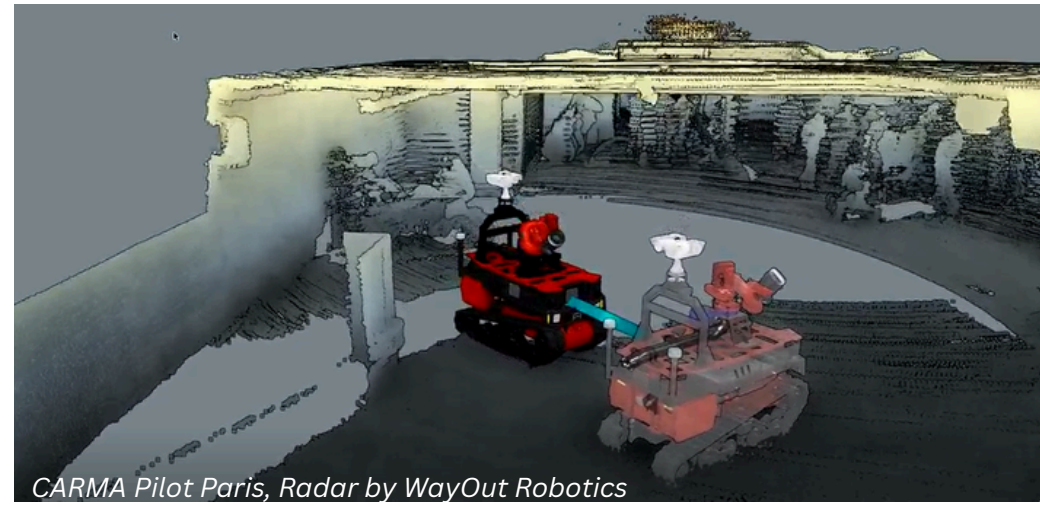
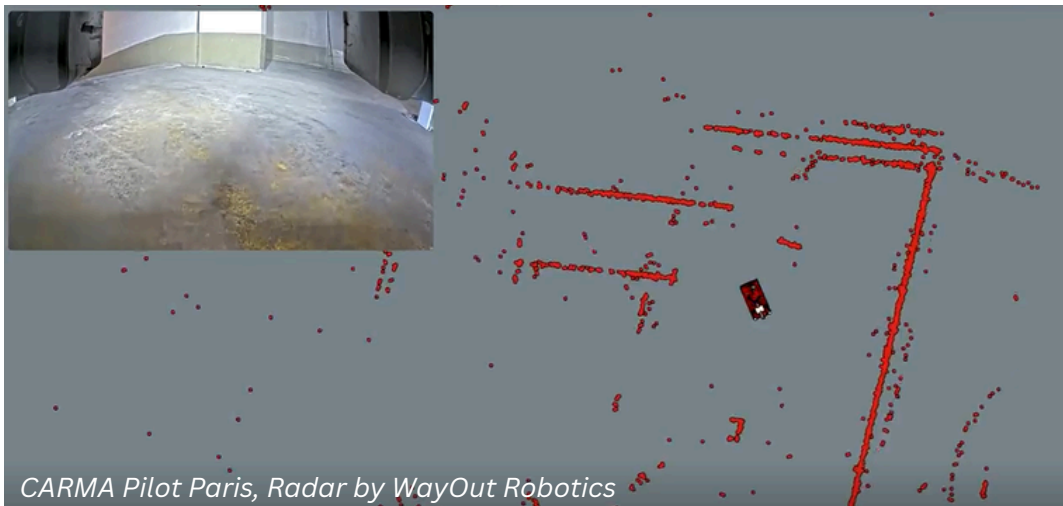
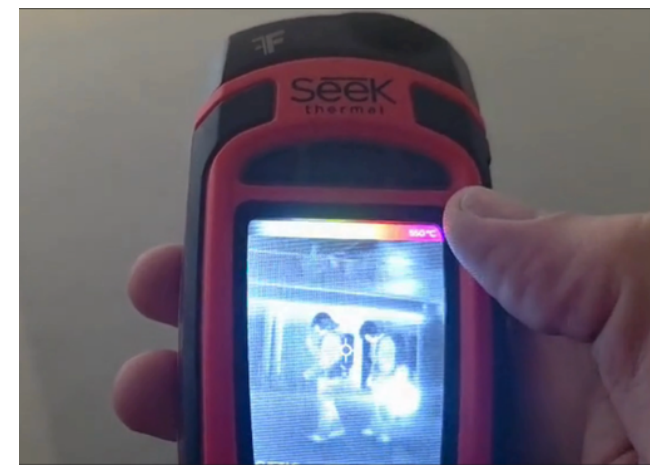
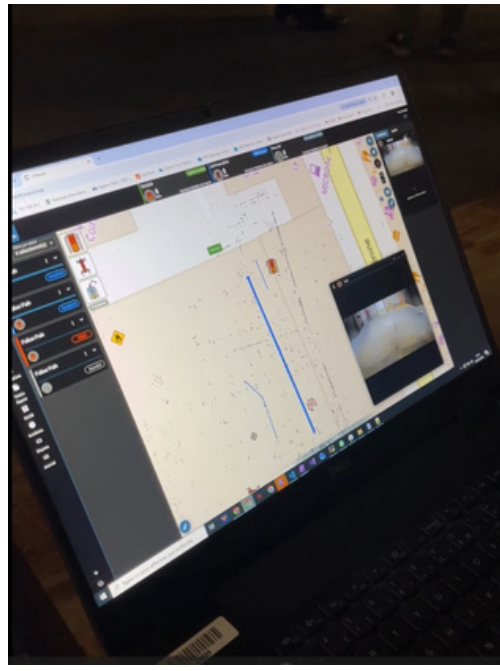


Innovative technology for rescue operations

The system designed by the CARMA project integrates several key innovations:

- **A radar by Xtonomy**, allowing to see through dense hot smoke and enabling real-time 2D environment reconstruction. The produced point cloud, fused with thermal camera streams could open enormous perspectives by providing a much clearer understanding of the environment despite the smoke.
- **A mesh network provided by CERTH** that can be deployed by robots to maintain communication, despite thick concrete walls and hot smoke laden with particules reducing wireless signal strength and limiting communication.

- **Autonomous navigation delivered by WayOut** on 3 European UGVs with complementary abilities, including remote exploration and fire extinction: the ANYmal (ANYbotics, operated by DRZ), aunav.NEO HD (EM&E Group), and TEC800 (ANGATEC).
- **Multiple sensors analysis**, based on thermal and optical data, and AI-processing capabilities provided by CERTH enable robots to identify victims and hazards and report to the C2.
- **A C2 to coordinate robotic units:** The CARMA Paris pilot showcased Crimson-based CARMA Command and Control disaster management platform, enhanced with novel robotic mission management and optimized symbiotic mission planning features enhancing collaborative human-robot operations and human oversight during interventions.



Complementing First-Responders

The CARMA Paris pilot showcased the CARMA Control and Control center, based on the Crimson disaster management platform, which has been enhanced with novel robotic mission management and optimized symbiotic mission planning features enabling collaborative human-robot operations and human oversight during interventions. The CARMA robots demonstrated strong potential in supporting first responders by autonomously deploying fire hoses and enabling the connection of additional hoses, thereby reducing the need for responders to carry them manually.

Future Perspectives

The CARMA project continues to evolve as we transition into the next phase of pilot testing. We are shifting our focus toward the significant operational challenges posed by collapsed buildings and degraded environments, where navigation is exceptionally difficult.

Specifically, the project will examine the complexities of maneuvering within the cramped, hazardous confines of a ship's engine room during an active fire. These environments present unique obstacles to movement and situational awareness, and we look forward to seeing how upcoming developments address these grueling conditions to better support first responders in the field.

Acknowledgments

We would like to extend our sincere gratitude to the LCPP for their logistical support, as well as to all the partners and teams involved in the coordination and execution of these trials.

Special thanks go to the ELD specialists for their vital operational roles: the officer at the command vehicle who managed the C2 system and provided a clear visual overview of the operation, the team leader who coordinated robot missions via tablet, and the operator who piloted the TEC800. Their constructive feedback has been invaluable to the CARMA partners and will be instrumental in the project's continued development.

About CARMA

CARMA is a project designed to push the boundaries of innovation, developing next-generation technologies and solutions that will strengthen Disaster Resilience Societies (DRS) under the Horizon Europe framework. From tackling challenges in emergency response to creating more effective, agile, and intelligent systems, CARMA is set to redefine how humans and robots work together for the greater good.

Project Coordinator: Yana LAZAROVA (CS Group)

For media inquiries please contact: carma-project@cs-soprasteria.com

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CARMA Consortium

The CARMA Project brings together **12 partners from 5 EU countries and 1 associated country.**

