

PRESS RELEASE

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DRZ Advances European Disaster Robotics

From Research to Real-World Deployment

In disaster situations where conditions are too dangerous for human intervention, robotic systems can play a crucial role in protecting emergency responders. The German Rescue Robotics Center (DRZ) e. V. is actively shaping this development: as a full partner in the European research project CARMA, DRZ contributes its expertise directly to the development and testing of innovative robotics solutions for real-world operations.

The goal of the CARMA project is to advance state-of-the-art disaster robotics technologies for practical emergency response applications. The focus lies on autonomous systems that use advanced environmental mapping methods and artificial intelligence to assess complex operational environments, detect hazards, and support emergency personnel in decision-making processes — even in zero-visibility conditions through 2D radar mapping. In addition, collaboration between humans and machines should be significantly improved through speech processing and extended reality technologies.

DRZ plays a central role particularly in the practical validation of these technologies. During two large-scale pilot trials in Madrid and Paris in March 2026, the developed systems were successfully tested under realistic conditions with the involvement of emergency responders. In Madrid, a complex traffic accident involving the release of hazardous materials was simulated. Robotic systems — including the ANYmal quadruped robot deployed by DRZ — took over key reconnaissance tasks and supported the detection of injured persons, enabling emergency teams to minimize entry into hazardous areas.

During the second pilot trial in Paris, the technology faced an especially challenging environment: a smoke-filled underground parking garage with a simulated fire. Despite limited visibility, the systems navigated reliably and provided relevant situational information. The combination of radar, thermal, and optical data, together with autonomous decision-making processes, proved critical to the success of the operation.

With its experience in testing and integrating robotic systems into real operational procedures, DRZ is making a significant contribution to ensuring that innovative technologies are not only developed, but also validated and refined under practical conditions. The objective is to seamlessly integrate rescue robotics into the daily operations of emergency services and civil protection organizations while sustainably reducing the burden on responders.

The insights gained during the pilot trials are now being incorporated into refined operational requirements that will guide further development of the systems. Final trials in Marseille, France and Attica, Greece in spring 2026 will demonstrate how the technologies can be even more precisely adapted to the practical needs of emergency response operations.

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DRZ-CARMA-Pilot-Madrid-1: The quadruped reconnaissance robot ANYmal exploring the environment, operated by emergency personnel from the Madrid Police Department, who are gaining practical experience in robotic operations under the supervision of DRZ staff.



DRZ-CARMA-Pilot-Madrid-2: As part of the CARMA pilot project, an injured person was rescued from a vehicle involved in a CBRN incident and safely transported to a medical treatment station.



DRZ-CARMA-Pilot-Paris-1: The TEC800 UGV from ANGATEC is evacuating an injured person from the underground parking garage



DRZ-CARMA-Pilot-Paris-2: The team leader of the robotics response team is coordinating the deployment of the robots from a safe location

About DRZ

A collaboration of application, science, and industry – this is what the German Rescue Robotics Center (DRZ) in Dortmund represents. A unique feature of the center is its so-called Living Lab, which provides ideal conditions for realistic testing of robotic systems for use in civil safety operations. Innovative technologies are tested, validated, and further developed under deployment-like conditions.

The goal of DRZ is to support the development of innovative technologies that improve rescue operations for authorities and organizations with civil safety responsibilities (BOS), particularly in environments that are hazardous for humans and in light of continuously growing operational demands. In the future, robotic systems could increasingly help make missions safer and more efficient both for people at risk and for emergency responders themselves.