

MARSHA is a vehicle designed and built specifically to address needs of the Cleveland Fire Department (CFD) that are unmet by robots currently available in the marketplace. Working with Lt. Terry Bindernagel of CFD, and supported by the Innovative Partnerships Program, the MARS and communication team joined a previously scheduled exercise between the CFD and the Ohio National Guard to demonstrate a robotics sensors platform and communications test bed. MARSHA, operated by Norm Prokop, the lead engineer for the vehicle and its control system, was remotely driven down a 200 foot hallway into a staged laboratory. Along the way, MARSHA was commanded to, and successfully deployed, a communications repeater when signal strength was seen to be dropping dangerously low. MARSHA entered the laboratory and sent back images of the room, including a staged laboratory bench setup, and telemetered back to the command post gas concentrations measured by the MultiRAE gas sensor which MARSHA carried on her HAZMAT sensor payload pallet. MARSHA was then successfully driven back out of the room and returned to the command post, the mission was complete. GRC has agreed to loan MARSHA to the CFD for six months for further demonstration and testing in the field. Significant interest was expressed by the Ohio National Guard Civil Support Team, who had not previously operated with a robot, and a future visit is planned to Rickenbacker AFB to review DOD's current suite of sensors for detecting Weapons of Mass Destruction/Chemical, Biological, Radiological, Nuclear (improvised) Explosive Devices. The goal of this project is to apply the concepts of open architecture and ruggedized designs learned through NASA's planetary robotics mission experience, to earth-based robotic systems for the protection of first responders to a variety of hazardous incidents.