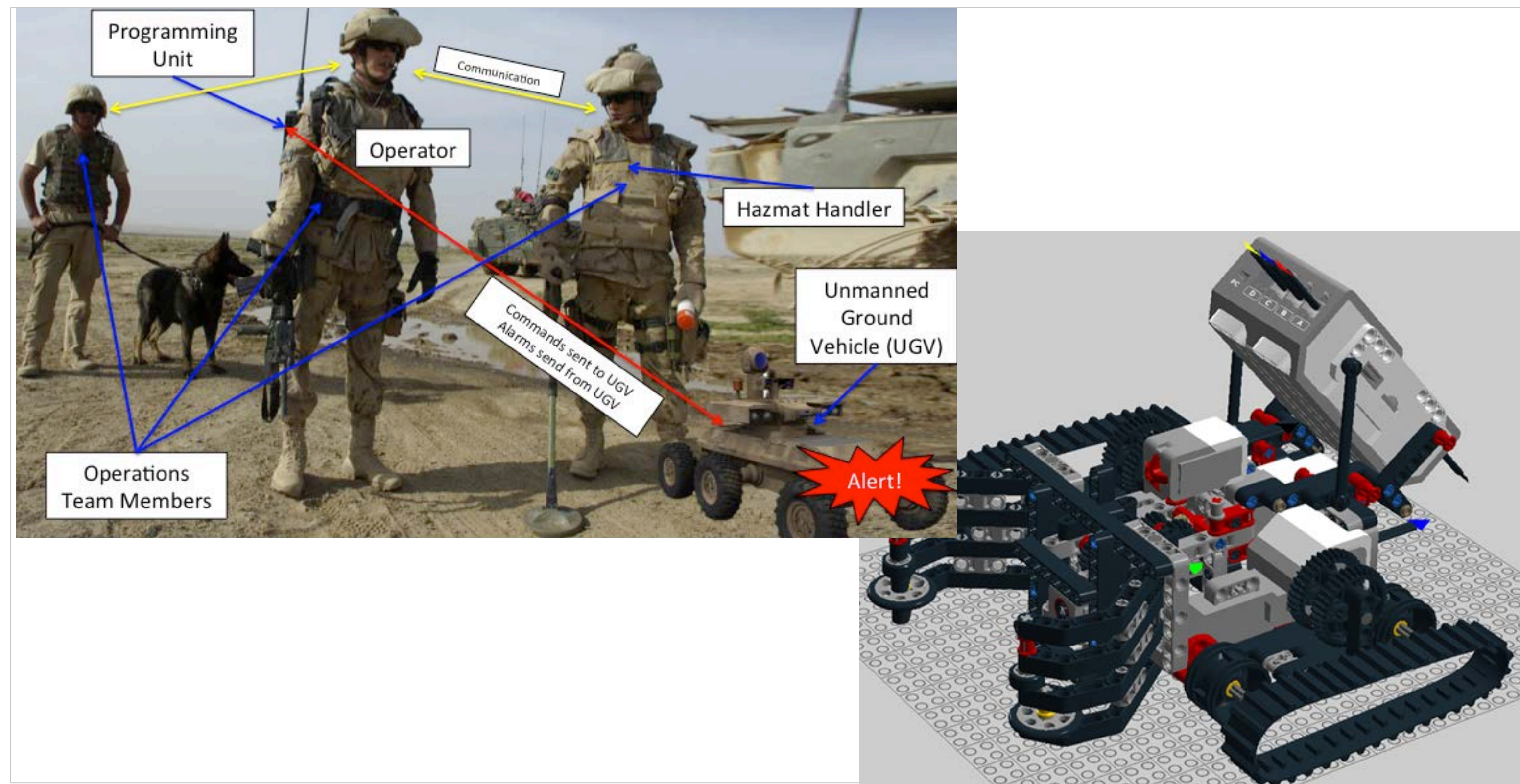


Robotic system software engineering classroom case study



NAVAL
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Student-led Capstone Project: Real-world problem replicated with a classroom robotics challenge.

- Create a set of development artifacts, e.g.:
 - System specification
 - UML-based design model
 - Architecture and detailed design
 - Source code (C, Java)
- Student projects will complement faculty educational material development
 - Working HW/SW prototype
 - Design Reference Mission and simulated battlefield environment
 - Classroom-compatible hardware and software using Lego EV3 technology

- For use by Systems Engineering and other instructors
- Provide an end-to-end robotic system case study with conventional and object-oriented (O-O) software approaches
- Develop a series of six to ten modules
 - Instructor material
 - Student assignments
 - Development artifacts
 - Robotic vehicles for classroom and student use.

- Demand by DoD for robotic systems is increasing
 - More capable and effective in meeting the rigors of the battlefield
 - Allowing the warfighter to avoid dangerous and dirty tasks
 - Robotics and autonomous systems development has unique challenges
- Improve NPS student capabilities in developing and acquiring robotic systems:
 - User needs and requirements engineering
 - Requirements modeling and functional design
 - Translating robotic system requirements into a useable system
 - Better understanding of hardware/software technology and its limitations