

# Add-On Systems for Explosive Ordnance Disposal Robots

*Distance measurement & manipulation assistance*

*"Plug & play" camera & laser range finder*



*Touch screen user interface for navigation & reconnaissance*



*Pan/tilt/zoom & panoramic cameras*

**We make EOD robots smarter and easier to use.**

# NREC's add-on perception and autonomy packages make life easier for EOD robot operators



NREC's "plug & play" manipulation assistance system is compatible with both the Talon and Packbot platforms. (Photos courtesy of US Army)

## Manipulation Assistance

- "Plug & play" camera and laser range finder unit gives distance from the end effector to the target
- Recommends optimum manipulator arm movements to reach the target
- Replaces existing end effector camera
- Easily retrofitted to fielded EOD robots
- Overlays on robot's existing OCU

## Situational Awareness

- Ultra-fast pan/tilt/zoom camera lets operators scout out the terrain and zoom in on objects and places of interest
- Panoramic video cameras give operators a full, 360° view of the robot's surroundings
- Miniaturized laser range finder gives distance to target

## Autonomy

- "Click & go" — The robot navigates to a target selected by the operator, automatically avoiding obstacles
- "Click & grab" — The robot moves itself within reach of the target, extends the manipulator, and grasps the target with the end effector

## Benefits

- Improves operator awareness of the robot's environment
- Reduces operator workload
- Supports surveillance, reconnaissance, and related missions



Operators can zoom in on areas like the underside of the truck (indicated by the green brackets on the bottom right). The camera automatically adjusts its contrast for darker areas.

ENGINEERING THE FUTURE OF ROBOTICS

NATIONAL ROBOTICS  
**NREC**  
ENGINEERING CENTER

National Robotics Engineering Center  
Ten 40th Street • Pittsburgh, Pennsylvania 15201  
412.681.6900 • Fax 412.681.6961 • [www.NREC.RI.CMU.edu](http://www.NREC.RI.CMU.edu)

Carnegie Mellon