

Robots in nuclear power plants

An effective tool for ALARA, robots are able to go into the radiation control area and perform operations, recording critical data and protecting personnel at safe standoff distances.

Monitoring and Inspections

- Thermal and Visual Inspection
- Video Recording of Inspections
- Two-way Audio
- WRM-2 Network Compatible
- In-service Inspections
- Leak Detection
- Meter and Gauge Reading Verifications
- Radiation Monitoring
- Dosimetry
- Survey

Plant Applications

- Confined Space
- Detection, Monitoring and Measurements
- Emergency Response
- Environmental Cleanup
- Inspections and Investigations
- Material Transport and Storage
- Remote Manipulation
- Security
- Waste Handling

Demonstrated performance at:

- H.B. Robinson
- Brunswick
- Fukushima Daiichi

Fukushima Daiichi

Equipped with a range of sensors and payloads, PackBot and Warrior have been performing operations for 16 months in areas of the disabled power plant where radiation levels and temperatures are too high and unsafe for people.

- 16,000 mSieverts total gamma dose to robots (as of Nov. 2011)
- Temperatures up to 106 degrees F with 99% humidity
- Gamma levels of more than 5,000 mSieverts/hour







iRobot 710 Warrior® characterizes and places filters into a shielded container.

Small, light and throwable, iRobot 110 FirstLook™ is ideal for investigating confined spaces.

iRobot 510 Packbot® performs an inspection at the disabled Fukushima Daiichi nuclear power plant.

Robots in nuclear power plants



iRobot 110 FirstLook™

The remote reconnaissance robot for confined space

- 5.2 lbs
- 4" H X 10" L X 9" W
- Sealed to IP67 Easy to Decon
- Throwable Survives 16-foot drops
- · Waterproof to 3 feet
- Cameras/Video on all 4 sides for inspection (8x zoom)
- IR illuminators for dark spaces

iRobot 510 PackBot®

The robot to support WRM-2 network-compatible devices

- Man Portable System 60 lbs
- Sealed to IP67 Easy to Decon
- 30 lb lift capability
- 312x zoom camera for detailed inspections
- · White and IR illumination for dark spaces
- · Fiber optic and radio operation
- 7 +ft camera reach
- 4 +ft gripper reach
- Support for multiple sensors including HAZMAT and Radiation detection
- Designed for and compliant with a wide variety of EMI standards

iRobot 710 Warrior®

The big and powerful robot for heavy lifting

- Sealed to IP67 Easy to Decon
- Lift Capacity
- In excess of 70 lbs at full extension
- 300 lbs at close-in position
- 312x zoom camera for detailed inspections
- · Illumination for dark spaces
- Fiber optic and radio operation
- Up to 11 ft gripper reach
- Designed to meet: MIL-STD-461 and 464 for Electromagnetic Interference Characteristics











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Why iRobot's robots for nuclear power plants?

- · Tethered or teleoperated robot control
- Easy to decontaminate
- Support WRM-2 network-compatible devices

More than 4,500 iRobot tactical mobile robots have been delivered worldwide.

The Mesh Radio Advantage

Establish robust communications in radio challenged environments. Improve the range of communication between robots and OCUs. Protect the robot operator with increased standoff distances.

With Mesh Radio capabilities, your robot uses multiple nodes to establish and relay communications, increasing its operational range in radio challenged environments. Capabilities are interoperable across robot platforms.

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