

## **N167. Applied Robotics Test Facility - A New Partnership For The Mobile Robotics Community**

Since the mid-1980s, 44 U.S. utilities have become involved in the application of mobile robotic devices to perform potentially hazardous tasks in nuclear and fossil-fired power plants. According to a recent survey conducted by the Utility/Manufacturers Robot Users Group (U/M RUG), robots have been used in 192 utility specific applications. Much of this technology has grown out of the use of robots for the clean-up of the Three Mile Island nuclear power plant.

To foster a fruitful working relationship with the many members of the robotics community, PSE&G has established an Applied Robotics Test Facility (ART) at a company location in Hillsborough, New Jersey. ART functions as an applied R&D laboratory where new robot designs and prototypical equipment can be tested and evaluated. Vendors and developers are invited to bring their hardware to ART and demonstrate it to PSE&G's engineers, who will in turn provide a critique of its performance as well as make recommendations for further improvements. ART is equipped with various test tracks, pipe crawling mazes, underwater test tanks, and obstacle courses to challenge many of the different types of robots now emerging in the utility area.

ART also functions as a development facility where PSE&G and selected vendors and developers can jointly work on the design and development of new types of robots. The overall mission of the ART Facility is "To provide an industry focus for influencing the development of utility specific robotic systems, and to serve as a nationally recognized robotic training and demonstration center."

Specifically, the goals of the ART Facility are described below:

- Provide a training, mock-up, and test/demonstration area for the application of robotic devices.
- Perform a robotic service for PSE&G departments that may be in need of assistance, and provide robot instruction and training to personnel.
- Stimulate improved utility mobile robot designs by working closely with vendors to develop and test commercial and prototypical devices.
- Transform mobile robotics technology and expertise into a royalty/revenue stream through joint PSE&G/vendor development of needed robotic devices.
- Act as a utility industry clearinghouse for mobile robotics information, applications, and training.
- Serve as a conduit for the application of mobile robotics research into other areas of interest to the company, and its industrial and commercial customers.
- Provide a learning environment for local college and university engineering students who can work on selected robotics research projects.

Many large commercial and industrial customers can utilize mobile robots for use in their businesses, factories and processes. Over the next 1-3 years, in addition to testing utility specific robots, PSE&G plans to begin testing and evaluating security, fire fighting, service, hazardous spill clean-up, environmental monitoring, and various inspection and maintenance robots. Many of the techniques and robotic devices can be applied in the industrial and commercial sectors. The key emphasis for PSE&G in the long term will be robots for maintenance as distinguished from their use today primarily for inspection, surveillance, and monitoring.

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