OEA Makes Technology Award to Support Development of Wireless Sensor Network for Energy Asset Protection

Within the United States and throughout the world, the fundamental importance of energy systems has made these assets a potential target for terrorists. Technologies that enhance the physical security of critical energy assets are a key tool that can be employed to protect assets from malicious acts. As part of OEA's responsibilities under HSPD-7 (PDF 97 KB) the Office supports programs with the private sector to demonstrate technologies that can help ensure the reliability and security of the energy infrastructure.

In September 2004 OEA made an award to Eaton Corporation of Milwaukee, Wisconsin to develop a wireless sensor network for the physical protection of energy assets. The objective of the project is to develop a low-cost, robust, Wireless Sensor Network (WSN) to enable pervasive, real-time threat sensing, assessing, and evaluation to assure the physical security of the Nation's energy critical infrastructure. Eaton's Team Members on this project are DOE's Oak Ridge National Laboratory (ORNL) and the Electric Power Research Institute (EPRI).

Wireless sensor network technology is fundamentally transforming the architecture of physical security systems by allowing pervasive distributed sensors to be cost effectively deployed throughout the Nation's critical infrastructure. The system under development will implement a threat-aware, self-configuring wireless network with a reasoning system capable of interpreting and integrating spatially and temporally distributed, multi-spectral data and asynchronous information while postulating assertions about threats using Anticipatory theory. Anticipatory technology, modeled after a human's intuition to reason, enables the system with the capability to begin to react even before the event starts to unfold.

The project will begin in January 2005 and has a 24-month duration. During Phase 1 of the project the team will collect and analyze system requirements, develop baseline models for evaluation of performance via simulation, and refine and migrate the models into the development of prototype hardware. Phase 1 work also includes identification of sensor types required for physical security. During Phase 2 of the project the technology will be validated by conducting a series of field experiments in an end-user facility.

For more information on this project please contact Mike Soboroff, at OEA or Eaton's technical contact Jose A. Gutierrez. For more information about DOE's Oak Ridge National Laboratory and the Electric Power Research Institute Links please visit their websites.