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EMSL Spotlight

EMSL Experts Instrumental in Developing and Testing Security Detection System

Instrumentation, computing, and networking key to integrating technologies

Security. Science. Hockey. While most people do not think of these words together, experts from the Department of Energy's EMSL do. These experts in instrument development, computing, and networking are helping to field test a system designed to detect concealed items such as suicide belts and briefcase bombs. The detection system helps identify threats early, allowing responders to isolate the target long before it endangers others. Pacific Northwest National Laboratory, on whose campus EMSL resides, is testing the system for the Department of Homeland Security at six hockey games in the Toyota Center in southeastern Washington State.

Experts at EMSL helped integrate technologies, such as these roof-mounted sensors, for field tests held during hockey games in a large sporting arena in southeastern Washington State.

To build this system, experts in EMSL's Computing and Networking Services and Instrument Development Laboratory integrated an array of cameras, off-the-shelf sensors, and one-of-a-kind detectors. The EMSL team deployed the sensors and resolved issues that arose. "This was the first time these technologies have been integrated," said EMSL's Surya Singh, the networking lead on the project. "It was a very iterative and interesting process."

One key task was relaying the location of suspicious actors from one device to another. Imagine you have two detectors and a suspicious person between them, explained Dan Sisk, Capability Steward for EMSL's IDL. To one detector, the person is a hundred feet away on the left. To the other, the person is ten feet away and on the right. To relay the location of the person required accurate geometrical transformations and real-time transmission of the transformed location to one or more other detectors. The Target Dispatch System software, developed by IDL's Derek Hopkins and his team, performs this critical function. IDL's Mike Russcher and Beve Taylor helped demonstrate the software prior to use at the Toyota Center.

Working in the field, instead of the laboratory, presented new challenges to the deployment team. "Working in a controlled lab is one thing," said Lori Ross O'Neil, deployment lead. "Working on the roof of the Toyota Center in 100-degree heat is quite another." The deployment team credits their success to solid logistical planning and an agile and determined attitude. In addition to O'Neil and Singh, the team members are Donny Mendoza, Jerry Tagestad, Jake Horner, Kyle Parker, Nate Phillips, Doug Reid, and Susan Sande.

For more information, contact EMSL Communications Manager Mary Ann Showalter (509-371-6017).