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FIRST LINE OF DEFENSE

UNIVERSITY OF PITTSBURGH PROGRAM HELPS TAKE FIRST-RESPONSE TECHNOLOGIES FROM THE LAB TO THE MARKET

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For a dozen years, Kuchera Defense Systems in Somerset County has built a robust business producing high-tech equipment for military defense customers such as Northrop Grumman, Raytheon and McDonnell Douglas. But after 9/11 completely altered how the world thinks about terrorism and homeland security, owner Bill Kuchera started wondering how the company could customize its products to meet the needs of police, fire, medical and other emergency response personnel. "It was natural to turn it into a first-response business," said Mr. Kuchera, the president and chief executive officer of the suburban Johnstown company, in Windber.

For help in his new endeavor, Mr. Kuchera is working with FirstLink, a University of Pittsburgh program that tries to move promising first-response technologies from laboratories to the commercial market. The program was created last year through \$3.4 million in federal grants, secured mainly through the efforts of U.S. Rep. John Murtha, D-Johnstown. "Since 9/11, the need has grown to equip first responders ... firefighters, police, emergency medical technicians, as well as Secret Service, the FBI and hazardous-material teams," said FirstLink director James Rooney, who hopes to secure an additional \$2 million in funds next year. "There's been a tremendous investment in DOD lab research, and our goal is to capitalize on that investment."

A perfect example is the 3-inch-tall robot Kuchera Defense developed in conjunction with Utah State University for the DOD. It is being used in Iraq and Afghanistan as well as strategic locations in the nation's capital to inspect the underside of vehicles for contraband or other suspicious materials. Mr. Kuchera thinks it also could be highly effective for municipal police departments or border patrol agents. "If they see a vehicle they believe is suspect, they call a special team equipped with these robots to look under the vehicle and determine if they need a bomb squad or a bioterror squad."

The 30-pound robot spins, crawls and looks through windows by remote control and takes photos displayed on a screen attached to its human operator. "No one has to be within 1,000 feet of the vehicle," said Mr. Kuchera. FirstLink not only is helping Mr. Kuchera market the robot to new customers, but it also is scouting labs at Pitt and elsewhere to find technology that will enhance the robot's capabilities. These include sensory devices that would allow it to smell and hear dangerous materials, technology that could convert it to an off-road vehicle "and a lot else I can't talk about," Mr. Kuchera said.

FirstLink "is opening a lot of doors. As it is sniffing around DOD labs and sees something that will complement our technology transfer mode, we get to take a peek and determine whether it's conducive to what we're doing."

Matching technologies with companies that can use and commercialize them is the aim of FirstLink, initially called the DOD National Center of Excellence for Commercialization and Technology Transfer for First Responder Technologies before taking on its simpler name this year. The original moniker "was impossible ... for people to get their arms around," said Mr. Rooney, 38, whose family owns the Pittsburgh Steelers and who made an unsuccessful run for state legislator in 2001.

Mr. Rooney in a way helped get the program started. He was working at Pitt's Institute for Entrepreneurial Excellence when, in 2002, he began seeking federal dollars for PantherlabWorks, a division of the institute that tries to commercialize early-stage ventures. When the DOD grants that created FirstLink arrived, they stipulated that the program be affiliated with PantherlabWorks, and Mr. Rooney was tapped to head it.

At offices in the Gardner Steel Conference Center on Pitt's campus, Mr. Rooney heads a team of six and several interns from Pitt's Katz Graduate School of Business. They review ongoing developments at university research centers, 88 government defense labs and private companies to pinpoint technologies that would aid first responders. Mr. Rooney was recently named to the steering committee looking into establishing a Regional Joint Readiness Center at the 911th Military Airlift Wing at Pittsburgh International Airport. The center would combine the efforts of military, government agencies, hospitals and universities in planning response to emergencies such as terrorist attacks.

The greatest need among first responders right now, Mr. Rooney said, is for advanced communication systems to use in emergency situations, as well as sensors and clean-up equipment to address explosions. Once FirstLink identifies potential technologies, it analyzes the market potential and economic viability of such products, said Mr. Rooney. "When we feel a thorough analysis is done, we scan for a private sector partner that could deliver it to market."

FirstLink also helps its client companies secure federal dollars to fund their projects. Recent successes have included a \$1 million Small Business Innovation Research grant awarded to Caracal Inc., a Ford City company that makes silicon wafers used in semiconductors, and a \$1 million contract from the DOD's Office of Naval Research to Sage Technologies of Willow Grove, near Philadelphia, that makes defense and emergency response products such as helmet-mounted infrared cameras that improve visibility for firefighters working in dark or smoke-filled conditions.

The interval from lab to viable product isn't rapid -- it can take from three to 15 years for technologies to be ready to hit the market, Mr. Rooney said. "We're looking at a very long path between R&D and getting to the market ... so our approach is to look at the low hanging fruit and try to bring in the most viable partners so that the commercial sector drives this."

Another local business FirstLink has assisted in penetrating the homeland security market is Nabco Inc., a Canonsburg company that employs 25 and designs and manufactures containment vessels for bombs and other explosives. Nabco isn't a new player. It has sold its systems since the early 1980s to the military, the FBI, the Secret Service, state and local bomb squads, and international police and security agencies.

But creation of the Department of Homeland Security after 9/11 has greatly expanded its potential market. FirstLink is "helping us find technology that might exist in some [U.S.] government labs that might be applicable to the type of work we do," said Nabco President Randy Markey. Though he won't discuss specifics of high-security products his company is working on, Mr. Markey said being connected with the right technology "could enhance the capabilities of our existing units and possibly provide for new product developments as well." "It's tough for a small company sometimes. The government is a very daunting process."

Joyce Gannon can be reached at jgannon@post-gazette.com or 412-263-1580.

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