

## Spying Profits in Infrared Thermal Imaging

By Thomas Gaudio - 1/2/2006

A startup that nearly went belly up is back on its feet. Parsippany-based Multispectral Imaging, shooting to get its infrared thermal-imaging (TI) sensors into fire departments, cars, and surveillance systems, last month nailed down \$4.7 million in capital in its second round of venture financing.

That brings the total amount the company has raised to some \$6.1 million. But shortly after its first round of financing two years ago, the young business venture nearly folded.

"The initial technology wasn't ready for prime time" says Multispectral CEO Matt Miller. "We made a shift in 2005. A different technical approach was needed."

Miller says Multispectral's imagers will now use "different thermal detection techniques that are cheaper and fundamentally more sensitive" than the technology that's in use today. Since making its shift, Multispectral has been developing technology licensed from Oak Ridge National Laboratory in Tennessee, a science and energy lab run by the U.S. Department of Energy. The company intends to sell its technology to makers of thermal imaging cameras, or TICs, says Miller, who holds a doctorate in physics from Princeton University. Multispectral plans to build prototype sensors by the end of the year.

Thermal imaging has been used by the military in night-vision devices for decades, but it is costly to commercialize. Unlike the pupil of the human eye, which needs reflected light to do its job, a TIC allows its user to see even in darkness. It creates an image by differentiating objects in its path according to their varying temperatures. This can enable the sensors to detect people and objects even through walls.

Multispectral's main competition for new infrared technology is Redshift Systems, a startup TI company based in Waltham, Massachusetts. Other TI makers like Flir Systems, with headquarters in North Billerica, Massachusetts, and Parsippany-based DRS Technologies, "produce products for the military," says Miller, rather than for the markets that Multispectral is aiming at.

Firefighters have been eager to test and use such devices. "The fire departments are the low-hanging fruit," says Miller. "They [TICs] have been proven effective in the field but at around \$10,000 a camera, you might get one per fire company. It's our goal to get a camera in the hands of every firefighter in the country."

Federal and state grants have given the technology a foothold in the firefighting community. Susan Abbey, a spokesperson for the New Jersey Department of Community Affairs, says the agency's Division of Fire Safety "gave one TIC to every municipality in the state that has a fire department" during the 1990s.

"They also gave additional TICs to those cities with higher populations. There's a huge demand to outfit every company in a department with a TIC, but cost is a major factor preventing this," says Abbey.

Firefighters who respond to calls with TICs use the on-screen contrast—lighter means hotter—to help find people and fire sources in smoke-filled structures.

The New Brunswick Fire Department has four companies and four handheld TICs. The department got its first thermal unit in 1990. Deputy Chief William Bradley says the total cost for the cameras was about \$33,000. “We could use a few more,” says Bradley, whose department of 86 career firefighters covers a city of about 50,000 residents. “We’re happy that we have them, but it couldn’t hurt to have backups.”

Bradley says the devices are handy in “keeping a \$10 fire from becoming a \$1,000 one” by helping to locate hidden flames. But they have some limitations. “You can’t rely on them too much,” he says. “You still have to use common sense, instinct, and experience when you’re in that situation. They’re not a save-all, but they’re useful when you use them in addition to everything else.”

Bradley wouldn’t mind having “the TICs that are mounted on helmets” for his department. Miller wants to take things a step further. “I see it being built right into the firefighter’s equipment as a part of the self-contained breathing apparatus,” he says. The company’s technology could also be used in security equipment to detect people, and in vehicles to give drivers a better picture of foggy roads.

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