

Navigation idea finds its way home

By MATT WICKENHEISER, Portland Press Herald Writer

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SOUTH PORTLAND — It took the launch of a navigation-technology startup company to guide Zachariah Conover back home to Maine. In a lot of ways, Conover could be the poster boy for the state's economic hopes. He was raised in Hampden and then Islesboro, graduated from high school in 1995 and attended the Coast Guard Academy, where he studied electrical engineering. Toward the end of his Coast Guard career, he entered the executive MBA program at Drexel University in Philadelphia, discovered a market opportunity to develop a piece of navigational equipment and came up with a business plan.

Now the 28-year-old has brought that idea back to Maine, where he's formed CrossRate Technology LLC, employs two of his childhood friends as engineers in the venture and has another engineer working full time as well.

In short, he and his friends gained education and life experience while away and have brought economic potential back home.

"This is what the state of Maine is trying to do; it's good to be part of it," said Conover. "This is our opportunity to come back home to the state."

Conover is president and chief executive officer of CrossRate. Mike Leathem, 28, a friend from Hampden, is vice president of engineering. Henry Atkins, 26, is a younger friend who has become a programming



Staff photo by Jack Milton
CrossRate's Mike Leathem, vice president of engineering, and Zachariah Conover, president and chief executive officer, are childhood friends now working together. They are developing a single device that pinpoints a user's location using both GPS and another signal system now under development called enhanced Loran, or eLoran.

ABOUT CROSSRATE

ADDRESS: 3 Adams St., South Portland 04106

WEB ADDRESS: www.crossrate.com

FOUNDED: July 2004

EMPLOYEES: Three full-time, one part-time

QUOTE: "My opinion is Maine is moving in a very positive direction. We saw that." - Zachariah Conover, founder, president and chief executive officer

guru, said Conover, and he's working part time for CrossRate.

Leathem, who has his master's degree in microelectronics engineering from Rochester Institute of Technology, said he hadn't totally written off returning to Maine to work.

"I have worked for National Semi in the past, and with National and Fairchild being in the semiconductor industry, I knew those were possibilities," he said. "Those were out there as possibilities, but I didn't really expect (being able to work in Maine). It's neat to be kind of back, being able to do something like this within the state."

The company has gotten some validation from the state's technology-funding clearinghouse, the Maine Technology Institute. CrossRate first received a seed grant, a small amount of money that helped it do some market research. In June, MTI awarded CrossRate a \$160,000 development award that potentially opens the door to private investors.

"Although these folks are young, they are experienced technically and in the marketplace," said Joe Migliaccio, MTI program manager. "Zach is a real pusher. He's enthusiastic, he's sharp, he's polished - all the things you look for in a future or current CEO. With the technical team he's assembled, they really have a chance of coming up with a solution."

That solution is essentially a backup to the critical global positioning system that's used by everything from the military to hikers, ATMs to cargo trackers.

CrossRate is developing a single device that pinpoints a user's location using both GPS and another signal system now under development called enhanced Loran, or eLoran.

eLoran is the next generation of the Loran system, the navigational precursor to GPS. Loran originated as a top-secret project during World War II to guide bombers over Germany and Japan, and it was also used during the Cold War.

In addition to the military, commercial and private airplane pilots use the system, as do boat captains. But with the advent of GPS in the late 1980s, the Loran system, maintained by the U.S. Coast Guard, was tagged for mothballing.

Studies of the GPS system, however, suggested that it was vulnerable to a number of problems, and that Loran should be maintained as a backup, or secondary system, said Conover.

GPS is dependent on satellite systems, and can be disrupted through solar activities. It's also possible to block GPS, said Conover. There are instructions on the Internet on how to build a GPS blocker with about \$300 in parts from Radio Shack, said Conover, and the device could take out GPS signals for a city the size of Portland.

Loran is a separate system that uses AM radio towers to send signals that allow a receiver to determine location through triangulation. Basically, a receiver picks up signals from three

different Loran stations and can thereby fix a location, Conover explained. Loran also has vulnerabilities, but they're different from the limitations on GPS - so the two systems complement each other.

The government has improved the Loran system, giving rise to eLoran, and appears to be heading toward using that new network as the backup to GPS, said Conover. But that final decision on whether or not to launch and support eLoran hasn't been made, said Conover, as various government agencies debate who will fund it and run it.

In the meantime, most companies that worked on Loran technology in the past shelved it as GPS dominated the market and the older navigation system appeared headed for extinction. The new eLoran system needs entirely new technology for receivers.

While there are some established companies working on eLoran receivers, CrossRate has a shot at the market window, said Conover. CrossRate is building a device that incorporates an off-the-shelf GPS receiver with an eLoran receiver. CrossRate is developing the hardware and programming for the eLoran receiver, and is creating the integrator that would take either signal - eLoran and GPS - and give a location.

Two of the main challenges include the question of whether or not the government moves forward with eLoran and the competition from other businesses.

"I look at competition as a good thing. If I see other companies going after the same thing, that means I'm not completely out to lunch," said Conover.

As for the government's decision, CrossRate has gotten support from Maine's senators, both of whom hold positions of influence on committees that would be concerned with the eLoran system. Indications are that eLoran will be supported, said Conover.

The idea for the integrated receiver came from Conover's stint in the Coast Guard, where he was the configuration manager for the North American Loran system. Basically, he handled the logistics and planning to ensure that each Loran transmitter was up 99.9 percent of the time, per congressional mandate.

"The idea came from my being up to my neck in it," said Conover.

Conover entered an MBA program at Drexel, where his classmates were all executives from Philadelphia-area companies. He came up with the navigation device as a business plan for a class project, and his experienced classmates vetted it and saw real potential.

He entered a student business plan competition, came in third and was given space in Drexel's business incubator as a prize. He developed the idea and brought it to Maine, where he's found a home in the Center for Environmental Enterprise, an incubator at Southern Maine Community College.

"From a technology development center standpoint, the way they have started out their company and brought it along serves as a good model for others," said John Ferland, executive director at the CEE. "There's a technique at work there, other students on campuses could emulate it - presenting yourself professionally, listening to feedback, and for those areas you feel are at issue, not to react negatively, but to look at what you can learn as a way of addressing the situation.

"It's been a way for this company to evolve successfully."

When Conover contacted Leathem, his friend had been recently laid off from Micron Technology, a semiconductor maker in Idaho. He was living out of his truck, hitting rock climbing spots before settling down in North Conway, N.H., to sell skis for the winter. So, said Leathem, he had the luxury to take a good look at his friend's idea and perhaps take the risk of joining a startup - something he might not have considered if he was sitting in a lucrative engineering job.

"I was in a unique position, I could kind of afford to wait and see," said Leathem.

The startup has been funded by family and friends so far, Conover said, and the company was working to match the MTI development grant, as required. They've begun to talk to early stage angel investors, he said.

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