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Innovate Illinois: Cbana's small systems analyze gases

By [Don Dodson](#)

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Two local companies are among 12 statewide finalists that will compete in the Innovate Illinois finals Nov. 10 in Chicago. Here's a closer look at Cbana Laboratories.

CHAMPAIGN – Rich Masel and Mark Shannon, the founders of Cbana Laboratories, have come up with small-scale systems that can detect pollutants, narcotics, even cancer.

"The challenge for Cbana is what commercial application makes the most sense to go after first," said Tim Hoerr, the company's chief executive officer.

In September, Champaign-based Cbana Labs was chosen as one of 12 finalists in the statewide Innovate Illinois competition.

Shannon made the company's presentation not only in the competition semifinals but also in a previous round.

"We had to cover 10 topics in five minutes, essentially an impossibility," Hoerr said. That was followed by a quick round of questions from the judging panel.



Rich Masel, left, chief technology officer of Cbana Labs, and Mark Shannon, director of development, show off their gas chromatograph at Cbana Labs in the EnterpriseWorks building in Champaign. By Heather Coit

Cbana Labs tweaked its September presentation based on feedback it got in the previous round, but Hoerr doesn't expect much change to be made for the finals to be held Nov. 10 in Chicago.

Cbana was founded in 2006 by Masel, a University of Illinois professor of chemical and biomolecular engineering, and Shannon, a UI professor of mechanical engineering.

Using a number of different technologies, including microvalves and microsensors, they developed a micro gas analysis system.

The system can do many types of air or gas sampling. In the field of breath analysis, for example, it can be used as a breathalyzer or for early detection of lung cancer, Hoerr said.

Currently available equipment is "not sensitive enough or portable enough to detect volatile compounds in the breath of someone who has lung cancer," he said.

But Cbana's system has that sensitivity. It can measure parts per trillion, while most equipment can analyze only parts per million, Hoerr said.

The sensors can also be used to monitor indoor air quality, for example, checking for indoor mold, he added.

But the application that has gotten the most attention so far has been for detection of chemical warfare agents and explosives.

In 2008, the company secured a couple projects through the Defense Advanced Research Projects Agency – one for the Army and one for the Air Force, the latter for chemical warfare agent detection.

Hoerr sees Cbana "revolutionizing the paradigm of gas analysis, enabling it on a much broader scale if we make it portable, make it light, make it affordable."

Currently available devices cost in the range of \$100,000 and weigh about 60 pounds, he said. Once a sample is collected, it's sent to a lab and it may take up to an hour or so for the analysis.

But Cbana's portable, handheld device will weigh less than a pound and presumably cost only several hundred dollars to a couple thousand dollars, Hoerr said. What's more, the device will be able to measure and report parts per trillion in as little as five to 10 seconds.

Most gas analysis devices require trained technicians, but Cbana aims to produce a device that could be operated by someone with minimal training, he added.

Cbana has been talking with other companies as it prepares to take the technology to market.

"We do have a commercialization partner, General Electric, and we've been working with them almost two years," Hoerr said. "GE has an intense interest in seeing the technology developed for different applications."

Cbana is also exploring relationships with other commercial partners for other applications, he added.

Hoerr said Cbana plans to have "beta" versions of its devices functioning in 2010 and actual commercial units in 2011, probably for one or two initial applications.

"We'll likely be partnering with a larger company for each application area," he said.

Cbana plans to put its gas analysis system on a chip inside a device the size of a BlackBerry, Hoerr said.

"We could be manufacturing chips or outsourcing them to OEM (original equipment manufacturer) partners," he said. "Or we might manufacture the complete device. It's not entirely decided at the moment."

As for the Cbana name, Hoerr said it's a play on Champaign-Urbana. The name was Masel's idea, and it connotes that the company is headquartered in Champaign-Urbana and intending to stay here.

Masel and Shannon are the primary shareholders in Cbana Labs. The University of Illinois is a shareholder by virtue of license agreements, and IllinoisVentures has also taken a stake. The employee group has been granted stock options, Hoerr said.

"We've done three hires this year, and I would assume we'd continue to add two or three scientific personnel in the next 12 months," Hoerr said.

Besides competing in Innovate Illinois, Cbana was also a regional finalist in the Global Security Challenge competition for "Most Promising Security Start-Up."

Cbana Laboratories

What it is: Developer of micro gas analysis systems that can sample air for various purposes including pollutant detection, cancer detection and narcotics detection

Founders: Rich Masel and Mark Shannon

Chief executive officer: Tim Hoerr

Established: 2006

Addresses: Corporate headquarters at 2001 S. First St., C; labs in EnterpriseWorks at 60 Hazelwood Drive, C.

Web site: www.cbana.com