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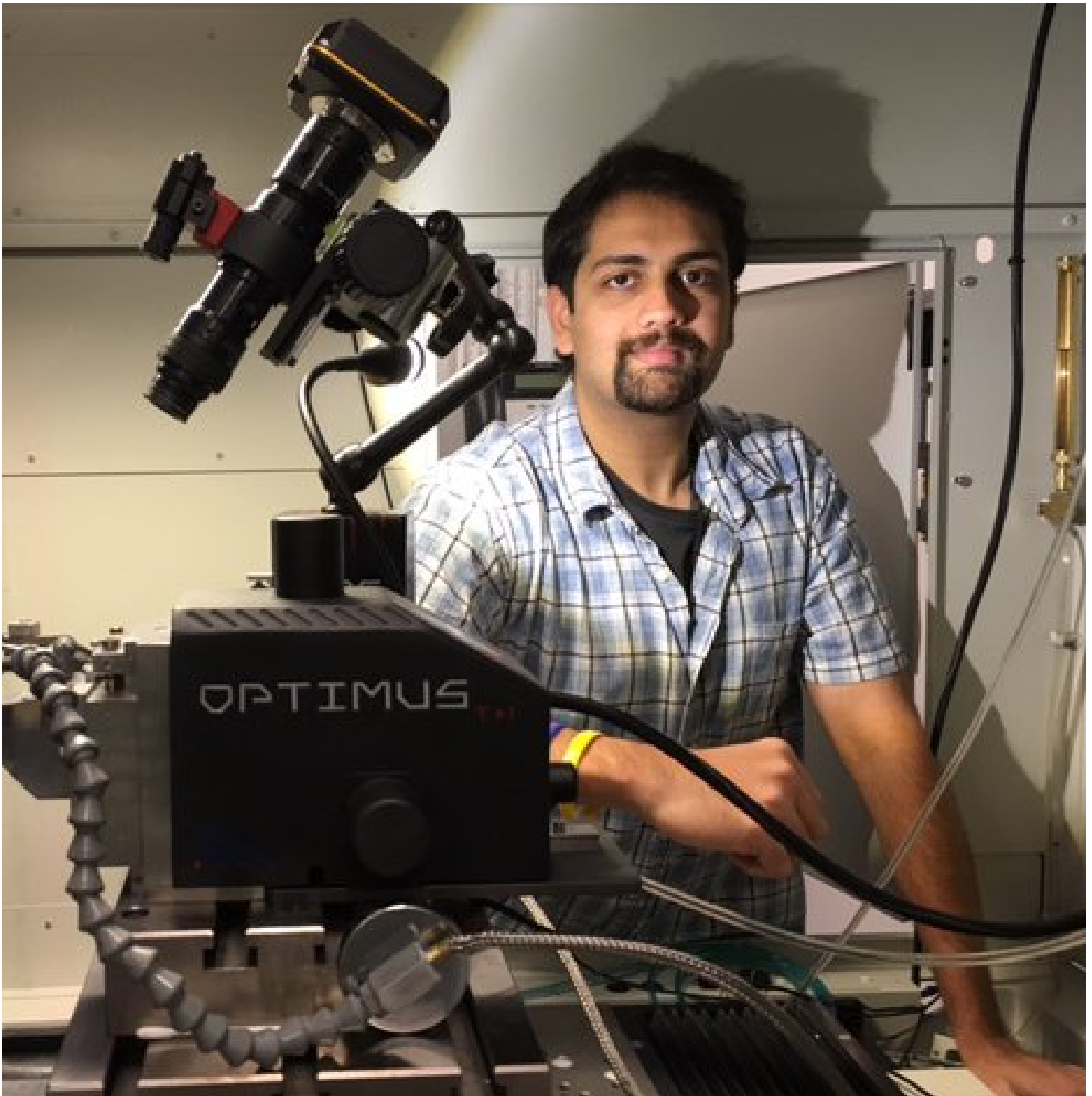
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## **Laser tool company hopes to find right fit with machine maker**

By **Tom Henderson**



Courtesy of Micro-LAM Deepak Ravindra, founder, president and CEO of Micro-LAM.

There are customers, and then there are customers.

**Micro-Laser Assisted Machining Technologies LLC** (Micro-LAM), a spinoff from **Western Michigan University** that makes retrofitted laser-based tools to improve machining for ceramics, silicon and metal, has landed a crucial first customer, the kind that needs to be italicized.

It's the kind, says Deepak Ravindra, Micro-LAM's founder, president and CEO, that will make it easier to finish the funding round of up to \$700,000 he is raising.

The customer is **AMETEK Precitech Inc.**, a maker of large, ultraprecision machining equipment in Keene, N.H., that had one of Micro-LAM's systems installed on a machine earlier this month.

Mike Tanniru is Precitech's business director. He said he didn't buy the system to do any machining, per se, but to show customers how well Micro-LAM's technology works, and how it can extend the life of cutting tools.

And by showing customers and would-be customers a way to do better, faster and cheaper precision machining, he hopes his company can sell more of the big machines that Micro-LAM's retrofit laser tools bolt on to.

The lasers generate heat of about 1,800 degrees Fahrenheit at a tiny point a tenth the width of a human hair, softening the target and greatly reduce cutting time and decreasing cutting tool wear.

Tanniru said he first came into contact with Ravindra about two years ago when Ravindra called him looking for a used machining tool he could buy for his headquarters and lab in Battle Creek, a building owned by **Battle Creek Unlimited**, a nonprofit economic development organization.

Battle Creek Unlimited loaned Ravindra the \$150,000 he needed from its investment fund to eventually buy a used machine.

"Deepak is such a motivated entrepreneur, it makes it easy to support him," said Marie Briganti, president and CEO of Battle Creek Unlimited. "His business really is world class. He's a poster child for us."

Briganti said her organization will also be an investor in his current funding round.

Precitech makes what it describes as multi-axis diamond turning, grinding, grooving and milling machines for industry. It was crucial for Ravindra to have a machine to experiment with as he refined his prototypes.

Tanniru didn't have a used machine to sell him but stayed in touch and watched Micro-LAM's progress. And he said he followed industry reaction as Ravindra networked and showcased what he was trying to do.

Finally, he said it was time to buy one of Ravindra's systems.

"It's our longtime customers who are at the cutting edge of technology, and that they were impressed by Micro-LAM was critical for us," he said. "This has the potential to be a game-changer in this industry, but it still needs some development, and it needs early adapters.

"Silicon is very big for our customers, and there's a potential for Micro-LAM to extend the life of devices that machine silicon. We want to show his technology and to open the door to using lasers to other manufacturing processes," said Tanniru.

"One other reason we decided to buy from Deepak is he's very knowledgeable, very passionate. We wanted to help him out as an entrepreneur."

Ravindra has purchase orders for two more laser devices that he'll be installing soon. He says his systems cost between \$150,000 and \$170,000, depending on the customization customers need.

He said his systems bolt on in 30 minutes and require only half a day of training, a limited down time for machine owners.

Micro-LAM turned from R&D project in the College of Engineering at WMU into a business in 2012, when Ravindra licensed the technology and took space in Battle Creek.

Early that year, he was accepted in the **National Science Foundation's** I-Corps program at **Stanford University**, which came with a grant of \$50,000 to do customer validation.

"I talked to 127 prospective customers in three months," said Ravindra. "If I didn't see a viable business at that point, I would at least have had someone pay me to see I had a failing idea."

The company has received \$1.1 million in grant funding, including an NSF phase 1 Small Business Innovation Research grant of \$150,000 in 2012 and a phase 2 SBIR grant of \$650,000 from the NSF in 2013.

It also received \$150,000 from the **Michigan Emerging Technology Fund**. In 2014, Micro-LAM won \$2,000 for the best new business idea at the annual **Great Lakes Entrepreneur's Quest's** ACE event in Livonia.

At last November's annual Accelerate Michigan Innovation competition in Detroit, Micro-LAM, which has two full-time and five part-time employees, won \$25,000 for winning the next-generation-manufacturing category.

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