

## Local startups: El Paso inventors trying to hit it big with their technology

By Vic Kolenc \ El Paso Times  
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*Lorenzo Rodriguez, CEO and founder of Senda Micro Technologies, an El Paso high-tech startup, displays a chip containing more than 100 microscopic signal switches in a lab at the University of Juarez. (Jesus Alcazar / Special to the Times)*

EL PASO -- Larry Peterson says creating forward-looking companies is the key to El Paso's economic growth.

"We're trying to create a wealth component here, and that's done through forming innovative companies," particularly high-tech companies, he said. "Innovative companies tend to spin off other innovative companies."

Peterson is chairman of competitiveness initiatives at the Innovate Texas Foundation in Austin. It is aimed at turning innovative technologies into Texas businesses.

Peterson, who built and sold two El Paso information technology companies in the 1990s, said that in recent years El Paso has begun to form the basic structure needed to nurture high-tech startups. He helped form one of the latest pieces -- the Rio Bravo Technology Entrepreneurs Council. It provides networking and mentoring for entrepreneurs.

The Trans Pecos-El Paso Regional Center of Innovation and Commercialization, which helps high-tech startups get funding from the Texas Emerging Technology Fund, recently identified 68 area inventors with 408 high-tech inventions. Ninety-seven of the inventions were made in the past year.

Some of the inventors identified in the center's survey have already formed startups, including the three companies featured in this story. The center hopes to help bring some of the other inventions to the marketplace, said Eli Velasquez, the center's executive director.

The recession has made it "incredibly hard for startups," Velasquez said. The three startups featured here face challenges, he said. But each has unusual technologies that give it a shot at success, he said.

### **Senda Micro Technologies**

Lorenzo Rodriguez is gambling that a microscopic switch can get his high-tech startup company a piece of a billion-dollar market.

Rodriguez, 47, an electrical engineer and former site manager of the Delphi Technical Center in Juárez, is founder and CEO of Senda Micro Technologies, formed in 2006.

The company's founding team of Rodriguez and four other engineers is using microelectromechanical systems technology, known as MEMS, to develop a pinhead-size switch to turn voice, video and data signals on and off in cell phones, in telecommunication systems and in automated testing equipment for laboratories and manufacturing plants.

"Basically we're looking at replacing relays and transistors now used as switches," Rodriguez said. The tiny switch, when encased in a housing, would be about the same size as a transistor but more efficient, he said. That means batteries to operate cell phones could be smaller or would last longer with the tiny switches, he said.

The switch is about 100 times smaller than a relay. That would allow automated testing equipment, which uses many relays, to be smaller and also operate more efficiently, he said.

"There's competition. Other companies are developing MEMS switches. But no one has a hold on the marketplace," Rodriguez said. Signal switches are a billion-dollar-a-year sales market, he said.

Senda Micro has one patent pending and plans to file for another patent on its switch, Rodriguez said.

Rodriguez, a Juárez native who moved to El Paso nine years ago, said he has dreamed of forming a high-tech company in this area since he graduated from Tecnológico de Monterrey in Monterrey, Mexico, with an electrical engineering degree.

He worked for the Delphi Technical Center for 12 years, including leading a development group for automotive sensors and actuators.

After leaving Delphi in 2005, Rodriguez began researching the signal switch market and talking to people in the field. He found that it was a huge market in need of a better technology. He started his company in 2006 and began forming a team in 2007.

The company has an office in Santa Teresa at the Bi-National Sustainability Lab, which incubates high-tech startups. It is developing the switch's package, or housing, at a lab at

the University of Juárez. Switch prototypes are made at a University of New Mexico lab in Albuquerque.

The company has spent about \$500,000 so far for development, he said. Finding money for that development has not been easy, he said.

Friends and families helped at the start. Money also has come from individual investors. The company received a \$200,000 grant from the Mexican government, and it has applied for a \$1 million investment from the Texas Emerging Technology Fund.

"We expect by the third quarter of this year to be ready to manufacture," Rodriguez said. "The only question is do we manufacture it ourselves, or hire a company to manufacture it for us?"

## **TXL Group**

David Nemir, 55, said owning his own company was not in his plans when he went into academics.

But in 1996 he left his job as a professor of electrical engineering at UTEP to start a company to make electrical shock protection products. That led to the formation of a second company, TXL Group, in 2006.

TXL has developed a spray-on, thermoelectric coating, which can be applied to heat exchangers, mostly in power plants and in refineries, to capture waste heat and turn it into electricity.

"It (coating) is like a printed circuit, a semi-conductor material, that's applied to a heat exchanger wall. When heat flows through the material, it excites electrons that can be harvested" to produce electricity, Nemir said. Wires are attached to the coating to send the electricity to an electrical grid, he said.

The technology will be tested in a pilot project at El Paso Electric's Rio Grande power plant, Nemir said.

The pilot project, which could start in two or three months, will be a launching board for the company's technology, he said.

"Other groups are working in this area, but primarily on smaller-scale systems," Nemir said. The cost of using the technology is competitive with solar technology, he said.

TXL has five patents pending on its technology, he said.

TXL has spent about \$1.5 million on developing its technology, Nemir said. Most of that money is from investors. It also has received about \$500,000 from the Texas Emerging Technology Fund, he said.

Nemir expects TXL to set up a factory in El Paso, possibly in two years, to produce the thermoelectric coating.

"There's no set formula" for getting a startup company going, Nemir said. "Everyone has their own journey."

## **Human Dynamo**

Mike Taggett's first invention, a cotton eyeglass cord, turned into Chums, a Utah sportswear company.

In 2001 he sold the company, which then had annual sales of about \$7 million, to work on a list of inventions he had tinkered with over the years. Chums has grown greatly since the sale.

Taggett, 54, set up Henry Works, a research and development firm in an East Side industrial building. He has one employee.

He is now focused on another invention -- the Human Dynamo, a stationary exercise bike that produces electricity as a person exercises.

A bike-mounted generator sends electricity through a cord plugged into a regular electrical outlet, reducing electric consumption by a small amount in a home or gym where it is used.

The bike's other unusual characteristic is that it has hand cranks so a person's entire body gets a workout, he said.

He's also created a group of four bikes, known as Team Dynamo, aimed at health clubs and public gyms. He sold one Team Dynamo unit to a recreation center in Colorado for about \$8,000, he said.

"Four people can make 100 watts per person per hour. In a small gym with a bunch of machines, you could make a difference," Taggett said.

He plans to begin selling the latest version of his electricity-producing bike in September over the Internet for \$1,950.

For now, he makes the bikes. If sales take off, they will be made in Taiwan, the world's bike-manufacturing center, he said.

He has spent about \$350,000 of his own money developing the Human Dynamo.

"I don't give up. I'm so far into this now, one way or another, I'll make it go," Taggett said. "An entrepreneur needs a lot of patience and determination."

Taggett moved to El Paso 3½ years ago to work on a diesel engine invention at a now defunct UTEP engine lab. He hopes to return to that invention later.

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## Other notable startups

- **Mayan Pigments:** University of Texas at El Paso startup company, which has taken characteristics of ancient Mayan pigment to create new pigments to color paint and other products. Visit [www.mayanpigments.com](http://www.mayanpigments.com).
- **Secure Origins:** El Paso startup that has developed a new cross-border transportation system using intelligent software. Visit [www.holguingroup.com](http://www.holguingroup.com).