

Business Review

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Real-World

ENTREPRENEURS

by Dave Szymanski | Tampa Bay Editor

DREAMS

Engineer, entrepreneur and teacher Stephen Sundarrao sees a common problem in engineering education and business.

“What people don’t do these days is dream,” Sundarrao says. “Sometimes we box ourselves and limit our creativity.” He tries to remedy that when he teaches a course to senior engineering students at the University of South Florida in Tampa called capstone design.

But this is no academic head-in-the-clouds exercise. Sundarrao asks his students to dream, to design something innovative that will solve a real-world problem. One of his students, whose dad uses a wheelchair, designed an off-road version with oversized, tractor-like wheels, to give people an easier way to travel rough terrain.

But that idea didn’t end in the classroom, on a computer screen. It made it to Sundarrao’s company, Rehab Ideas Inc., one of 20 startup firms at the USF business incubator on campus. Taking the leap from dream to reality is what so many creative entrepreneurs struggle with and Rehab Ideas offers lessons into making that successful jump.

Sundarrao is associate director of the Center for Rehabilitation Engineering and Technology at USF. Fifteen people report to him, including eight engineers. He is also chief executive officer of Rehab Ideas, a company formed in 2006 in collaboration with the university to commercialize innovative rehabilitation technologies.

His undergraduate and graduate education is in mechanical engineering and he has nearly 20 years experience as a rehabilitation engineer. After graduating from college in India, Sundarrao, 40, worked for a company studying walking patterns and designing prosthetics.

So he has been interested in products for people with disabilities for years. For example, Rehab Ideas has a folding tray

Engineering professor Stephen Sundarrao works with USF students to develop and patent stronger, better products for people with disabilities. Solving real problems is the key.



Stephen Sundarrao, chief executive officer of Rehab Ideas Inc. in Tampa, works with engineers and students to develop innovative mobility products.

for wheelchairs in production and is testing and tooling other concepts. It works with a

local manufacturer, Tampa Brass and Aluminum, to make its products. USF alumnus

Chris Leto runs Tampa Brass.

"There's a tremendous need for technology for people with disabilities," Sundarrao says. "It makes things convenient, but it also makes things possible. Without technology, there's no independence. Technology gives them the opportunity to participate in a lot of things."

And the style of the products is important, too. Rehab Ideas polished the edges of the tray device, making it look less industrial or hospital-like.

"We don't want the product to look more disabling," Sundarrao says. "Aesthetics are very important."

Getting started

A couple of years ago, Valerie McDevitt, who runs the licensing and patents division of the USF Research Park, approached Sundarrao about starting Rehab Ideas because manufacturers were not picking up valuable rehab product ideas being developed on campus.

"She approached manufacturers," Sun-

Making life easier

Some of the products Rehab Ideas has in development include:

- The off-road wheelchair kit is a base metal platform, with oversized wheels, powered by the wheels of a power wheelchair. It allows someone to access outdoor recreational areas such as beaches, parks and trails. No modifications to the wheelchair are needed. Preliminary retail price could be about \$5,000.
- The sideways wheelchair kit is a device for a rear-wheel-drive power wheelchair that allows it to move sideways and lets users get in and out of tight spaces.
- Trakpak, a mechanical arm that helps people in power wheelchairs reach items behind the backrest.
- The folding tray kit is an aluminum and plastic tray, about the size of a sheet of paper, that folds out from below the armrest of a wheelchair. It can be used as a tray in front or on the side of the chair, providing a built-in tilt surface for reading. It may sell for about \$700.
- A folding crutch.

darrao says. "But they were cold, or wanted a lot of information. There was a risk they would get the rights, shelve it, or get a patent and steal the idea."

So Sundarrao became an entrepreneur.

In 2006, Rehab Ideas raised \$500,000 among seven private investors, including Sundarrao and others from Florida, in its first round of financing. It is preparing to go out for a second round of capital, possibly before the end of the year.

Like many startups, it has not posted a profit, since it has been developing products and investing in equipment. It is forming a corporate board.

"It's going very well," Sundarrao says. "We have a good team."

That team for now consists of three people, including Sundarrao and Chief Operating Officer Dana Rolling.

The plan is to slowly grow the company and move out of the incubator in about a year, but have some presence on campus.

Sundarrao gets to the Rehab Ideas office about 6:30 each morning, works for part of the day there, and then heads to class to teach. Even though the company is young, word has spread. Each month, Sundarrao speaks at conferences or programs about using technology to help mobility.

The economy has actually helped the startup process, Sundarrao says.

"It might've been an advantage for us," he says. "We're able to get a better response from vendors. They respond quicker. Maybe with a better price."

Looking ahead

In the future, Sundarrao said Rehab Ideas may get more heavily involved in robotics. And he doesn't rule out selling the rights to certain products to wheelchair manufacturers, who could produce things more quickly than Rehab Ideas.

"For a lot of companies, R&D is very expensive, so our model works well," he says. "We can refine it, show a market for it. From that point, it doesn't have to be Rehab Ideas. A larger company can take it elsewhere."

Sundarrao enjoys running the company, but he's not ready to stop teaching. He sees both roles supporting each other. He also sees USF's health care relationships as an advantage for the company.

"I enjoy my life," he says. "It's quite a fortunate situation to be in. This is a very different industry. The disability population is a strong network. Locally we have the V.A. hospital and Tampa General Hospital. People are so eager to have these products. They give us their input."

That input is welcome, but Rehab Ideas

can only pursue a limited number of projects. There's initial R&D. Then making a prototype. Then testing. Then tooling, or getting tools ready to make a product. Then there's making it.

"I always tell people, it's like chasing rabbits," Sundarrao says. "We've selected seven products. We've had dozens of ideas. It just never ends."

As Rehab Ideas grows, the chief executive also doesn't rule out being replaced by a seasoned executive or filling a different role, such as founder and head of global expansion.

"With the company, at some point, I might be out of my league as CEO," Sundarrao says. "Someone who's run a business may come in. I could also envision setting up a similar model around the world. Disabilities are a global issue."

Lessons in motivation

Creating an atmosphere for dreaming and being creative is the first step in engineering solutions. Being open to ideas keeps students and staff motivated, Sundarrao says.

"I think the students, want to demonstrate their creativity," he says. "How do I encourage them? By not telling them something will or will not work."

"When I look at a product idea, I don't say, 'Oh no, we've tried that before.' Or I don't immediately ask how we'll get someone to pay for it. They look at it as a problem that needs a solution and they go full steam."

There's also a financial incentive for students. Because they are inventors, they sign a license agreement with the nonprofit USF Research Foundation, which gets royalties from the product sales. Students get about 45% of the royalty fees from a product.

Students use computer software programs to generate 3-D models for products. A rapid prototype machine at USF makes plastic versions of new products.

"I think I'm inspired by them too, by what they create in 12 to 15 weeks," Sundarrao says.

The products also appeal to the elderly, which experience vision, hearing and mobility issues as they age. Automobile companies have already embraced an engineering concept called universal design, which designs vehicles to be universally accessible to people of various abilities.

Among the CEO lessons Sundarrao has learned are the importance of selecting the right team members and picking the right products. Everyone values their ideas. "Weeding through ideas is tough," he says. "We still maintain friendships."