Minnesota engineer takes on climate control giants

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Deepinder Singh, a Minnesota entrepreneur born in India, met the girl he would marry on a school bus in Punjab Province about 30 years ago.

Singh, 40, a computer scientist, followed his wife, Dr. Manpreet Kanwar, to her medical residency in Detroit. In 2003, they moved to Mankato, Minn., where Kanwar took a position as a cardiologist at the Mankato Clinic.

The couple have two daughters, age 8 and 6.

And that's also where Singh's award-winning small business, 75F, was born.

"We moved into this big house in Mankato and we had a newborn baby, our first," Singh recalled. "The problem was the thermostat was not in her room. Her blanket would come off, and the room would get cool and she would cry. Once I figured it out, I put a temperature sensor in there. And I noticed it was much cooler in that room.

"As a self-respecting engineer, I had to form a company to solve the problem."

Singh had worked on network systems for the huge likes of AT&T and Verizon. He started in with a friend on the software for a new kind of residential temperature-control system.

Their efforts won an "eco-imagination" award from General Electric in 2011, but they concluded, after talking to reluctant retailers, that it would be tough to compete against the likes of Honeywell and other big players in that market.

"My friend went back to his small business in India," Singh recalled. "And I started pivoting toward the small-building commercial market."

Singh's market research showed the residential market and large commercial buildings were amply served by many competitors when it came to conservation and energy controls.

He turned his attention to smaller commercial buildings,

In the past year, 75F, which employs 15 people in Minnesota and six programmers in Bangalore, India, has focused on commercial buildings of less than 25,000 square feet.

"That's 90 percent of commercial buildings, about 5 million buildings in the United States," Singh said last week. "We see about 20 million potential systems, with about four operating systems installed in each. Each system is about $5,000 installed. It costs an average of $2.50 to $3 per square foot.

"And we (tell customers) to expect a payback within three to five years."

75F is about halfway toward an initial equity capital raise of about $750,000. It is still a small business, at least for now. Singh expects revenue of about $1.5 million this year.

But he has big aspirations.

And 75F, named for the higher temperature to which the United Nations

moved its New York headquarters summertime temperature in 2008, has gotten hot lately.

75F over the past year has collected about $300,000 in prize money and taken top entrepreneurial awards at the Minnesota Cup, Midwest Cleantech Open and Cleantech Open Global Forum in San Francisco.

It also won a $100,000 investment from Steve Case, the billionaire technology entrepreneur whose Midwest road tour last fall sought to stimulate new business ventures outside oversold Silicon Valley.

"The more I got to know Deepinder, the more I liked him and I really liked the opportunity," said Jay Schrankler, who was 75F's first individual investor last year and part of the $750,000 "angel" equity fundraising that Singh expects to precede a several-million raise of venture capital.

Schrankler runs the University of Minnesota technology-commercialization office and once ran Honeywell's big heating-and-cooling controls business.

"Deepinder self-funded most of 75F's development work and did a lot of the work himself," Schrankler said. "He inspired me. And I have a passion for this kind of energy-saving technology.

"Home automation is starting to get popular through companies like Nest and SmartThings. And the competition is really tough in residential and large commercial. There's a lot of potential in small commercial."

Singh foresees sales approaching $60 million and employment of 100 people within five years.

Energy prices have dropped markedly over the past year, but history

suggests that won't last.

The 75F system relies on wireless controllers that monitor temperature in each zone of the building and uses sensors to limit outside air intake. The software and sensors also limit the use of fans and other motorized equipment that suck energy.

It's controlled by a central unit that incorporates the outside temperature, solar exposure and the weather forecast to create a "thermal model" of the building that predicts the next day's energy requirements and sets the "smart dampers" and other controls to the most efficient settings.

The energy savings can be 25 percent or more with no less comfort, the company says.

"In the U.S. most people don't take energy efficiency that far," Singh said. "It's kind of like a bitter pill. It seems to always involve turning down a thermostat, or doing the laundry (during off-peak times) at night. We sugarcoat the bitter pill. We sell the comfort aspects. People don't notice. That is the key to making it more palatable."

Said Scott Litman, a co-founder of the Minnesota Cup, last fall: "75F demonstrated a well-thought-out business plan, superior presentation skills and an unmatched vision for the future. We're looking forward to seeing and hearing big things from this entrepreneurial enterprise down the road."