Ketaki Desai has a Ph.D. in biomedical sciences from Texas A&M University. She has a business idea that can help American elementary students bridge the digital divide and maybe spark an interest in further STEM education.

She has a palpable passion in this idea and outside interest. She also has a student visa. And that's a problem.

The idea is LeSyn (sounds like lesson) Labs, a benefit corporation formed by Desai and three classmates that would work with schools to provide laptops for every child, plus the curriculum and customer service to support the technology. The laptops would come from the nonprofit organization One Laptop Per Child, which has similar goals but works in developing countries.

LeSyn aims to bring the technology and curriculum to the developed world, starting with the U.S., as a way to bridge the digital divide that exists, as well as put laptops and programs in front of 4- to 12-year-olds to try and interest them in STEM (science, technology, engineering and math).

“For the last year and a half, I have been putting my heart and soul into this,” Desai said. “If I could put more time into this and get the seed capital, it could have been really awesome and could have been what I wanted.”

Many discussions regarding STEM issues in the U.S., particularly those surrounding company creation and talent retention, also end up being about immigration reform. Students such as Desai — who is studying at Carnegie Mellon University and is originally from India — receive graduate degrees from American universities, but when they are done, they must leave the U.S. if they can’t find a job with a company that has the wherewithal to sponsor an H1B visa.

STEM education has been at the forefront of the domestic agenda for the past several years as companies and the government worry the U.S. could lose its innovation and technological edge as it looks for ways to boost the STEM pipeline.

In Pennsylvania alone, it is estimated that, by 2018, 314,000 more STEM workers will be needed, according to data gathered by the organization STEMConnector.

However, data gathered by the National Science Board, the policy arm of the National Science Foundation, found that foreign students are receiving STEM degrees at higher rates than U.S. students. Furthermore, the group found that 33 percent of STEM doctoral students at U.S. universities are foreign students on temporary visas, and 57 percent of U.S. post-doctoral fellows in STEM fields are here on temporary visas.

“I AM JUST STUCK”

Desai has been here for 10 years, originally as a grad student and then through post-doctoral work. Most recently, she’s held a job at the University of Pittsburgh in biomedical informatics where she was on an H1B visa, which is tightly tied to a specific company and job. When she again became a full-time student, she received a student visa that only allows her to work on campus projects.

“Right now, I am just stuck. There is very little I can do,” she said about her attempt to help launch LeSyn Labs. “I can’t be an officer once it’s no longer a campus project.”

Desai is pursuing a master’s in public management at CMU. She expects to graduate in May. Once that occurs, she isn’t sure what will happen with her at LeSyn Labs, where for now she is still listed as chief operating officer.

“It definitely throws a monkey wrench into things working smoothly,” said Reginald Cox, chief administrative officer at
INVESTMENT: Region losing entrepreneurs who create jobs, CMU officials say

LeSyn Labs. “The biggest issue is the added stress. It brings about a bunch of uncertainty in things that are well out of your control.” Like many CMU students, Desai and a team of classmates worked on the project that would become LeSyn Labs, won a global competition for it, then saw the potential for it to be its own company.

In the past several years, CMU has been encouraging its faculty and students to pursue commercialization of their work, and university startups are becoming a common sight around Pittsburgh. In 2012, CMU created 10 companies versus four in 2004. Since 2008, at least 10 companies each year have come out of the university.

ENTREPRENEURIAL SNAGS
CMU is garnering more foreign students, and a student visa can greatly complicate entrepreneurial plans.

This fall, CMU has 3,660 international students, or 29 percent of its population. The number of international students has been steadily growing for the past decade. At the graduate level this semester, 46 percent of the student body is international, according to the CMU Office of International Education.

As more foreign students come to learn and their school continues to push entrepreneurship, challenges such as Desai’s may only grow without federal reform.

“Unfortunately, we run into this constantly,” said Dave Mawhinney, co-director of the CMU Center for Innovation and Entrepreneurship, assistant teaching professor of entrepreneurship at the Tepper School of Business. “CMU is a very international university, and we attract the best and the brightest, and those students have an attraction to entrepreneurship.”

When visa challenges occur, Mawhinney said some people give up, whereas others find ways to work within the system. One such way is through the EB-5 investment, where a foreign investor can get a conditional green card. The individual commits to investing at least $1 million in a business that will benefit the U.S. economy or create at least 10 jobs.

Or, students will take jobs with companies to get their green cards sponsored and work on an entrepreneurial project on the side, Mawhinney said.

“But that is not a win-win situation for anyone,” he said.

STEM GOES INTERNATIONAL
Lenore Blum, the other co-director of the CMU Center for Innovation and Entrepreneurship and distinguished career professor of computer science, described immigration challenges such as Desai’s as “incomprehensible,” since these students are coming here and benefiting from the education system, and many are coming in for STEM education. She estimated that at least half of the computer science doctoral students were international.

“There is a dearth of students wanting to study computer science in the U.S.,” Blum said.

According to an April report from the Congressional Joint Economic Committee Chair Rep. Steve Daines, the share of master’s degrees awarded in STEM fields in the U.S. peaked in 1985 at 24 percent. By 2009, it was 18 percent. The share of master’s degrees in STEM fields was 18 percent in 1985 and by 2009 was 14 percent. The number of doctoral degrees remained steady, at just below 40 percent, but the share of those degrees going to American students dropped from 74 percent in 1985 to 54 percent in 2006, according to the report.

“Students come into the program in computer science and we support all our grad students. (Whether) it’s grants or stipends or research, they are here for four, five, six years, and as soon as they graduate and get the Ph.D., we supported them for, we say, ‘sorry, you can’t stay.’” Blum said, unless they get a job with a company that can secure an H1B visa. But, they can’t start their own company.

Blum, who founded the Project Olympus incubator, said the organization held a session in June to educate students on the complexities of trying to start a company while here on a student visa, and 150 showed up.

“It’s really crazy. We could have 70 new companies in June if we let them stay,” she said. “How many students would like to do a startup and may be dissuaded because they know they can’t stay?”

In research conducted by Vivek Wadhwa, an entrepreneurship and immigration advocate, immigrant-founded tech companies in 2005 generated $32 billion in revenue and 450,090 jobs. In a 2009 estimated by Wadhwa, reviewing 144 immigrant entrepreneurs and found that 52 percent came to the U.S. to study and not start companies.

SEEKING A BETTER PATH
In Desai’s case, she is looking for a clear path that will let her stay and work on LeSyn Labs. The best, she said, would be obtaining a green card, but there is no telling how long that process will take and if she is unable to apply as a student visa holder.

Once she graduates, she will have to become a dependent on her husband’s visa, and, as such, will not be allowed to work at all. He also is from India and works at the University of Pittsburgh. He has been in the green card application process for the past eight years.

For now, she is still evaluating her options.

There is a gap between the different types of visas and availability, said Robert Whitehill, an immigration attorney at the law firm Fox Rothschild. He noted there are only 65,000 H1B visas available nationwide each year, and they go quickly. Applications this year opened April 1, and the cap was hit by June.

“This leaves a lot of budding entrepreneurs without employment authorization or without many opportunities to continue their work in the U.S.,” Whitehill said.

“Clearly, a better path is needed.”

Whitehill said stymied student entrepreneurs are a common sight, and all the top-ranked schools have the same problem, not just local schools like CMU or University of Pittsburgh. Whitehill said who has worked in immigration law for 30 years, said every few years there is a reform effort.

The STEM Jobs Act focuses on people in the country earning advanced degrees. The House of Representatives passed the bill, which would allocate up to 55,000 green cards to people receiving advanced degrees in STEM fields. However, the act is not supported by the White House and isn’t expected to pass the Senate because it eliminated another program that gave legal residency to people from countries with historically low immigration rates. Another bill still in play in Congress is the Startup Visa Act, which focuses on people with advanced degrees starting companies in the U.S.

“This is legal immigration,” Whitehill said. “There is nothing illegal about any of this. These are not criminals. These are law-abiding individuals who bring entrepreneurial and intellectual vitality to our community.”