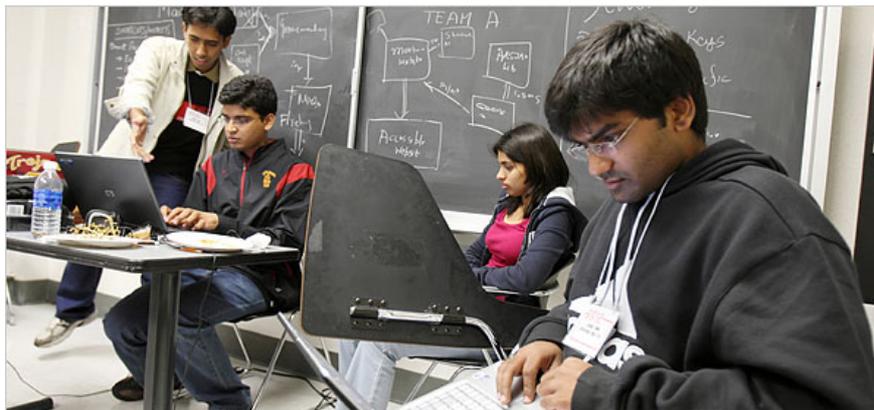


Software that opens worlds to the disabled

James Flanigan



J. Emilio Flores for The New York Times

Students at the University of Southern California are shown preparing to present their program at a competition aimed at helping disabled people expand their access to computers.

One computer program would allow vision-impaired shoppers to point their cellphones at supermarket shelves and hear descriptions of products and prices. Another would allow a physically disabled person to guide a computer mouse using brain waves and eye movements.

The two programs were among those created by eight groups of volunteers at a two-day software-writing competition this fall. The goal of the competition, sponsored by a nonprofit corporation, is to encourage new computer programs that help disabled people expand their capabilities.

The corporation, set up by computer science students and graduates at the University of Southern California, is named Project:Possibility. It grew out of an idea two years ago by Christopher Leung, then a master's degree candidate in computer science and engineering at the university, who was working on a project at NASA's Jet Propulsion Laboratory in Pasadena.

As Mr. Leung explained in a recent interview, "The project manager came to me and said: 'Chris, we have several blind students coming to work with us this summer. If you can think of anything we can do for them, let me know.' "

At the time, Mr. Leung said, he was working on a solar system visualization program. "I came up with a project called 'touch the sky' where a blind person would use a forced feedback device to feel three-dimensional reconstructions of terrain on other planets," he said.

The experience inspired him to think beyond just one group of students and one project. "It was apparent that there was a need for a larger organized effort, a community of developers and disabled persons to conceptualize projects that can help people," Mr. Leung said. "So I gathered colleagues into a room at J.P.L., pitched the idea and asked for their help. Several of them and dozens of others since then have taken on the challenge and brought Project:Possibility to where it is today."

The effort is centered at the University of Southern California and led by volunteers, including Ely Lerner, an information systems developer at Amgen Inc.; Elias Sayfi, a senior software engineer at the Jet Propulsion Laboratory; and Stanley Lam, an undergraduate business student at the university.

In 2007, they organized a competition called "Code for a Cause" in which 25 students in five teams engaged in a weekend of intense computer code-writing. The event attracted assistance from executives at Google, Amgen and the propulsion laboratory. This year, in October, the

competition expanded to 50 students in eight teams with mentors from Google, Amgen and the laboratory, as well as judges from Lockheed Martin and Amgen and encouraging words from a Microsoft executive.

The competition was won by Bar Code Reader, the program to help the visually impaired read information on grocery items. Second place went to Mind Control, which allows the physically disabled to guide a computer mouse by neural impulses. All the code, written in 12-hour sessions on a single weekend, made progress, but also left room for further development.

The Bar Code Reader team "didn't hook up a cellphone, so we used a Motorola simulator," said Michael Crowley, an associate professor of engineering practice who was the mentor for the team.

James Han, founder of ProsForPros, an Internet hosting and consulting firm for small businesses, was the mentor of the Mind Control team. "We were able to leverage open-source codes for mouse control and link to the neural actuator in the first 12 hours," Mr. Han said. "In the second 12, we created the user interface. I believe implementation of the program is currently in development with similar devices."

Project:Possibility directors have plans for more ambitious projects. First, there will be a competition in February with teams of computer science students at the University of California, Los Angeles, in hopes of multiplying the number of programs to help the disabled. The project also plans to create a worldwide open-source Web site on which disabled persons and software developers can collaborate on new ideas and add to existing programs.

"Imagine a specialist Facebook or MySpace-type social network in which users would be involved in designing the tools they want and need," said Stephen A. Lee, a British software developer who operates Fullmeasure.co.UK and is a director of Project:Possibility. "Students would talk to users and work on projects that meet needs as well as be exciting."

He estimated that "an active online community may well take six or more months to organize, as there is inertia and shyness to overcome." There will also be costs to create such an online community, he said, "for Web hosting, associated technology costs and set-up labor."

To date, Project:Possibility has operated without revenue and without pay for participants. Its programs belong to the nonprofit project and to the University of Southern California. Its sole source of financing was a \$15,000 grant in early 2008 from the Mozilla Foundation, an organization that promotes the concept of the Internet as a public resource open to everyone.

Nor does Project:Possibility intend to be a commercial venture, Mr. Leung said. "We do not plan to earn revenue through a spread of our programs. In fact," he said, "we plan to be completely open-source — our programs can be downloaded, modified and used by anyone at no cost — in hopes that similar programs will spread to other universities and around the world with or without our involvement."

But, at a project meeting early this month, the directors decided to establish a paid position. "We are looking to grow and that will require people to dedicate even more of their time to this project," Mr. Leung said. So it will be necessary to "compensate for our core positions and perhaps one day to have a full-time staff."

Mr. Leung lives and works these days in Beijing. "I'm a Chinese-American who grew up in Northern California and never spoke Chinese," he said. "So I'm learning Chinese and working here, but keeping in touch online with Project: Possibility."

To pay for staff, the project will continue to depend on grants from companies and charitable groups. At some point, it hopes to establish regular fund-raising efforts for its nonprofit operations.

“What’s great is that companies like Google and Mozilla support our projects,” Mr. Leung said. The companies gain by getting ideas on technological breakthroughs and seeing ways to adapt them to everyday products. One Project: Possibility program, for example, called Community Captioner, integrates subtitles with YouTube “so the hearing-impaired can have sound with their videos.”

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