WITH ONE VOICE - A TEAM OF DETERMINED UB ENGINEERING STUDENTS CREATES A COMPUTER THAT SIMULATES SPEECH FOR A LOCAL MAN INCAPACITATED BY A STROKE

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By: By PAULA VOELL - News Staff Reporter

Illustration: Photos by SHARON CANTILLON/Buffalo News
Stroke victim David Jauch, 43, right, has a better way to communicate thanks to some UB students who developed a computer program that can speak for him. Students Chris Bierl, seated, Matt Sweeney and Andrea Schmitz get feedback from Jauch for fine tuning. They were three of the students who worked on the project for their software engineering class.

Using a stylus to hit one letter after another, David Jauch types a reply to a question about whether he'll observe the planet Mars during its close encounter with Earth.

"If I can get past the bed police," answers Jauch, who once built a telescope, attached a camera and mounted it to a rotor.

That project was more than 20 years ago when Jauch could do what he wanted, when he wanted. It was during his young adulthood -- when he was "Soggy Pants," a professional clown who visited nursing homes and entertained children. When he built log homes in Georgian Bay and rebuilt cars; when he ran and cross-country skied, when he ice-skated and swam and tried out for a rowing team.

That part of his life ended, in a moment, at age 24 when he suffered a brain stem stroke because of weakened arteries.

"He was at a roller skating party for clowns," said his father, Bob Jauch. "And he went right down."

The stroke left him without speech, in a wheelchair and with movement limited to his left hand.

It's that ability, slight as it is, that University at Buffalo computer and

engineering students want to capitalize on so that Jauch, with his lively mind, can stay connected to the world around him.

The endeavor began more than a year ago when teachers Michael Buckley and Kris D. Schindler decided to find a class project that would have an immediate and practical return, both for students and the recipient.

When Schindler asked his mother for ideas, she suggested that they create an augmentative speaking device for Jauch so that he could "say" what he needs and have a better shot at conversation.

"I thought anything would be better than that piece of paper he was using," said Pat Schindler, in-service coordinator at Elderwood Health Care at Oakwood, referring to a frayed, Scotch-taped sheet of paper with words and phrases that Jauch used as a communication aid.

Jauch's father said he's tried other high-tech devices, but they proved too heavy and cumbersome to use.

The idea here was to create something both high-tech and personal. Jauch visited UB, meeting with 65 teachers and students, so that they could find out what he needed and what he could do.

Beginning about 15 months ago, 120 students formed 14 teams. "We came up with that many solutions," said Buckley, a UB lecturer in computer science and engineering. "Each of them was better than what's available commercially. So we folded all the best ideas together."

Dubbed the UB Talker, the device uses an off-the-shelf PC tablet, which Microsoft donated, and software the students created, bringing the cost well below the $8,000 to $10,000 for commercially created devices.

It has a screen with a standard keyboard, as well as icons for "food," "needs,""greetings," "activities" and "common phrases." One of the requests is "I need a shave, please" so that Jauch doesn't have to laboriously type out each letter of that frequent request.

It remembers his last remark and even responds to time of day, day of theweek, holiday seasons. So, for example, each morning, it brings up requests related to breakfast. And, on Monday nights, it will ask for the Monday night football game.

"That's part of the intelligence behind the scenes," said Matthew Sweeney, graduate student in Computer Science and English, who admits that glitches still remain.

For example, when Jauch got the Talker, everyone realized rather quickly that he was unable to double click, so Sweeney modified that command. Also, the lap-top still needs to be mounted to a secure base, at an angle that doesn't create glare on the screen because Jauch also has vision problems.

And Andrea Schmitz is determined to fix the robotic-sounding synthesized voice that delivers messages when Jauch hits the "speak" icon.

"It should be more human, have more emotion," said the enthusiastic electrical engineering senior.

Buckley and Schindler are delighted with the outcome, especially since students have stuck with it so faithfully, even returning after graduation.

"I've really enjoyed this project because you see the kind of magic it makes," said Chris Bierl, a recent computer science graduate.

Now, as the UB Tech Group, they continue modifying the prototype to make it usable for children and those with other handicaps. They've begun working with the Center for Handicapped Children, where Michael Buckley's daughter, Jackie, 18, is a student. She has cerebral palsy and is unable to speak.

Seeing how Jauch has benefited has kept them engaged, students say.

"Other school projects didn't have application to a human experience the way this one does," Sweeney said. "Here, we've been involved with a real person, with real needs."

They've seen its practical uses, as well as the joy it has created.

Bob Jauch, for one, got a surprise phone call shortly after his son got the Talker and heard his son ask: "Hi, what are you up to? How are the cats?"

"Now, this is a guy who hasn't talked on the phone for 20 years," said

Buckley, obviously proud to have helped make this happen.

Besides that, the staff understands more easily what Jauch wants.

"It was frustrating and hard to follow (when he spelled everything out) because you'd get diverted and have to ask him to start over," said Pat Schindler. "Now he converses more and it makes it so much easier. Besides that this adds a social aspect."

Like the day he got the Talker when Jauch was able to say "good evening" to a fellow passenger on an elevator at Elderwood, where he's lived since 1986.

Because of Jauch's continuing interest in electronics -- he remains in touch with people all over the world through a ham radio set-up -- he continues to offer suggestions as students fine-tune the Talker.

"One of the first things he asked me was whether this would be able to help other people," said Kris Schindler.

e-mail: pvoell@buffnews.com