



FOR IMMEDIATE RELEASE

## **Students in Sparta Build Submarine they're 'Not Supposed to Know How to Build'**

With Help from Corporate Sponsors, Tech School Teens Win  
'First Place in Innovation' at International Submarine Races in Maryland

**East Hanover, NJ – January 23, 2008** – It's a challenge that would sink most other high school students: design and build a human-powered submarine from scratch, and then race it in a 22-foot deep, 100-meter long waterway against other submarines, most of which are built by students in college-level engineering programs.

"A high school is not supposed to be able to do this!" says Chris Land, a teacher at Sussex County Technical School in Sparta, NJ. But a group of his students did just that at the ninth International Submarine Races in Bethesda, MD, and went on to win first place in the Innovation category. Many other schools competed against them, including teams from Virginia Tech, the University of Michigan and even the United States Merchant Marine Academy.

"The reason we won in the Innovation category was because we were the first team ever to incorporate both the upper body strength *and* lower body strength of a single person," says Land, who was also the faculty project manager for the Sussex County Tech team. The students at Sussex County Tech, according to Land, always prove to be remarkably innovative and since 2003 have been entering the biannual race. Furthermore, they have won awards in various categories every time they have entered.

Several corporate sponsors donated parts for the Sussex County Tech submarine, dubbed UmptySquatch 3.2. Control Products, Inc. (CPI) of East Hanover, NJ, a manufacturer of high-quality waterproof and thermal switches, donated waterproof switches that proved to be critical for the submarine's success.

“The International Submarine Race is a fantastic event that motivates young people to explore the field of engineering,” says Mac Stuhler, vice president of CPI. “Taking part in something that helps develop the engineers of the future means a great deal to us.”

The students at Sussex County Tech spent a whirlwind year designing, building and preparing UmptySquatch 3.2.

“I make the students take three to four weeks to convince me that they want to compete again, because it's not the kind of project I can drag them through,” Land explains. But Sussex County Tech students always rise to the challenge with enthusiasm and dedication. One of this year's submarine pilots, sophomore Chelsea Shupe, gave up her school softball career in order to obtain her SCUBA certification, help design and build the sub and, ultimately, compete in the race.

While most of the submarine designs used in the race have a bicycle pedal or rotary system that utilizes only the pilot's leg power, the Sparta students decided it was important to increase the power to the propeller, prompting them to study exercise machines that work the entire body. The result was their own invention of a propulsion system unlike anything conceived previously for a similar submarine project.

To compensate for the constant motion of the pilot's arms and legs, which compromises steering and depth control, the students designed a computer-controlled system based on sonar inputs. They also needed a manual override since they wouldn't be able to test the complex computerized system until the race. That's where the CPI switches came in.

The total cost of building UmptySquatch 3.2 would have exceeded \$62,000 had the school been required to foot the entire bill. As a result of corporate sponsors like CPI, the final cost to the school was barely more than \$3,000.

School and race officials say that a project like this encourages students to consider engineering as a profession, which is always in the best interest of America's technological leadership and ingenuity. Almost every senior who has been a part of the Sussex Tech submarine team over the last few years has gone on to study engineering in college.

### **About Sussex County Technical School**

The Sussex County Technical School (<http://www.sussex.tec.nj.us/>), in partnership with family, community, business, industry and institutions of higher learning, empowers secondary and adult students to become self-directed learners and active participants in their community by providing a competitive advantage to pursue any career opportunity.

### **About Control Products, Inc.**

Control Products, Inc. ([www.cpi-nj.com](http://www.cpi-nj.com)) has been manufacturing a broad line of high quality waterproof and thermal switches since 1946. The company specializes in addressing OEM-specific switching challenges. In effect, the company acts as an extension of its customers' engineering departments. CPI waterproof switches are designed to operate reliably when exposed to water, oil, humidity, sand, dirt, vibration and shock. A building block system of basic switches, mounting brackets and actuators provides a broad array of application solutions.

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Written by Joel Samberg for CPI