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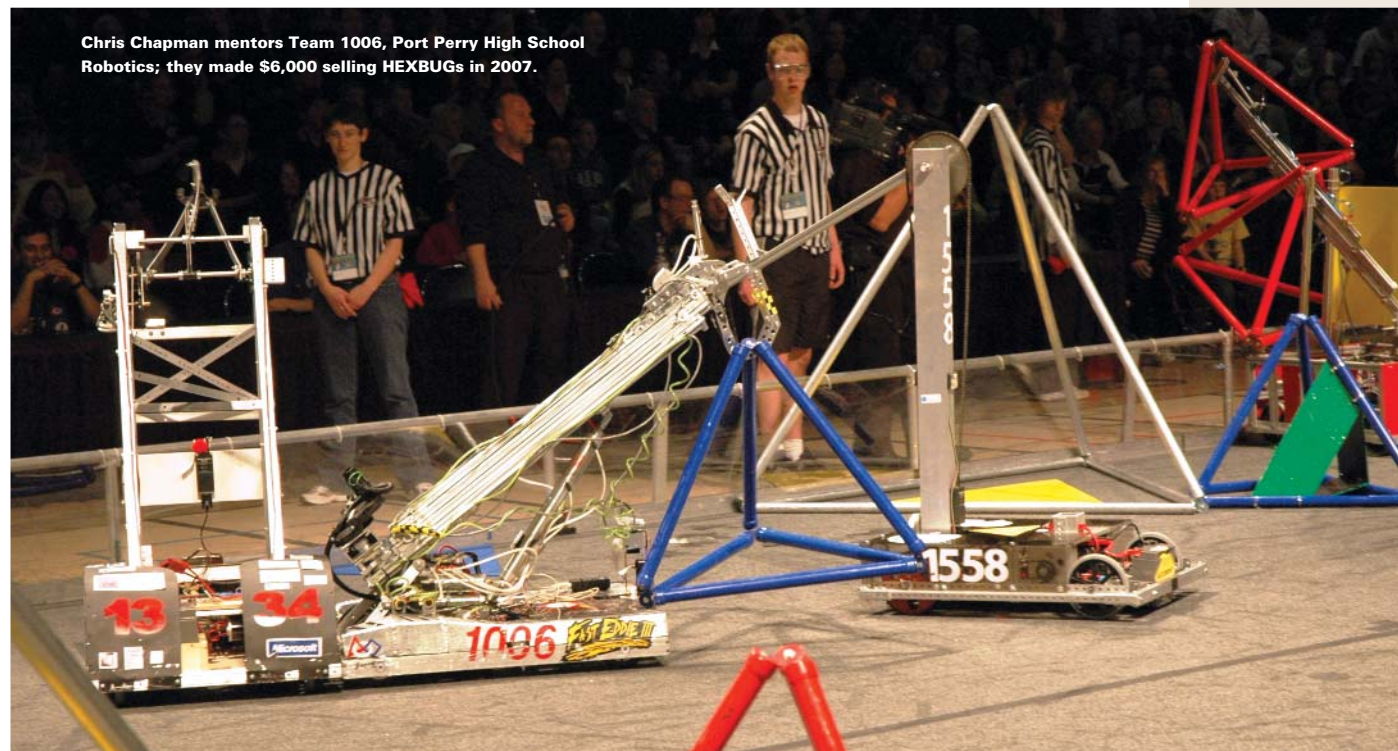
Grassroots Robotics

HEXBUG fundraising boosts robot teams nationwide

by Tom Atwood toma@botmag.com

Funding is one of the most challenging issues for student teams who are eager to compete in any of the several major robot competitions. Whether it's FIRST, VEX, FIRST LEGO League, Trinity Fire Fighting, Botball, BEST, MATE, or any of the many other exciting robotics competitions, team funding is a key to success. We are thrilled to report that Innovation First Inc. (IFI) has established a fundraising program that is significantly helping teams on a national and even global scale. IFI is generously selling teams their cute and technically fascinating original HEXBUG robots for only \$5; the recommended retail price is \$10. Teams are able to make up to \$5 per unit sold. The new Inchworm and Crab HEXBUGs can also be purchased for funding purposes (please contact IFI for details).

In only slightly more than two years, this program has led to many remarkable success stories. Here, we share some of these and describe the three HEXBUGs—all really cool and affordable robots.



Chris Chapman mentors Team 1006, Port Perry High School Robotics; they made \$6,000 selling HEXBUGs in 2007.



By selling HEXBUGs, in 2007, Gregory Christman's Team, 48 Delphi E.L.I.T.E., netted \$4,500 in profits.

GREGORY CHRISTMAN, WARREN HARDING HIGH SCHOOL

Greg Christman is one motivated robotics team leader. Last year, his team netted \$4,500 in cash by selling HEXBUGs. We asked him to give us some background. "I teach high school, grades nine through 12. This is my 37th year. I've been teaching part of our robotics team for 10 years. This is my fourth year as project

SAMPLE TEAM EARNINGS, 2007	NET PROFIT
American Academy Robotics, 300 units	\$1,500
Grosse Pointe South HS, 300 units	\$1,500
Herndon High School, 2,100 units	\$10,500
Port Perry High School, 1,200 units	\$4,200
Warren Harding High School, 900 units	\$4,500
Warren Robotics, 600 units	\$3,000
Westlake High School, 20 Cases, 600 units	\$3,000
Xaverian High School, 10 Cases, 300 units	\$1,500

HEXBUG ROBOT FAMILY

QUICK SPECS

ROBOT HEXBUG

MOTOR DC brushed

BATTERIES 1.5V alkaline (button cell)

SENSORS Original, 2 (mechanical touch & sound); Crab 2 (sound & digital light); Inchworm, no sensors

CPU Analog Logic

SOFTWARE Custom-specific to product

UNITS SOLD Original, 1.5 million plus; Crab & Inchworm, new products

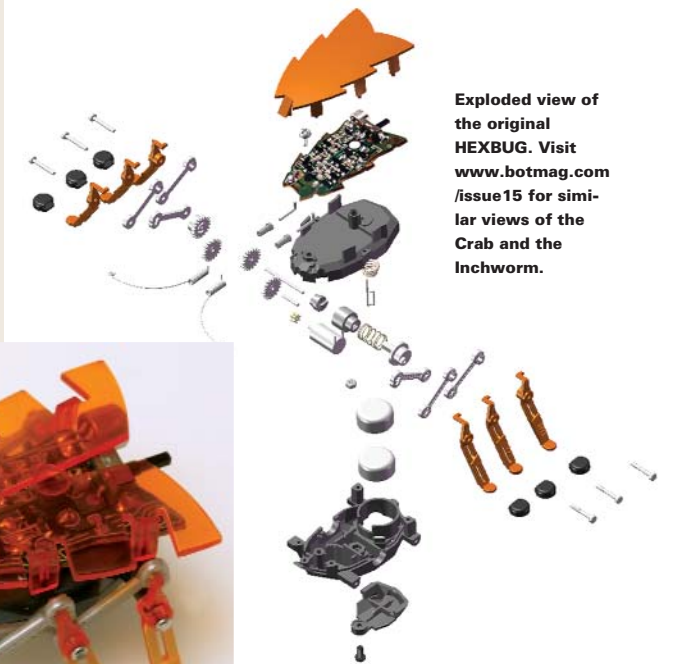
The original HEXBUG is a robotic micro-“creature” that feels its way around sensing objects with antenna-like bumper sensors; it recoils and changes direction when you clap your hands or rap on a tabletop so that you can control its path. It costs \$10 at RadioShack and can be purchased from Innovation First Inc. (IFI) at www.hexbug.com by robot teams in any competition category for just \$5.

The HEXBUG Inchworm can be controlled by a tiny infrared controller that has two channels, A and B, so that two can be driven independently on the same surface. It offers omni-directional control, so you can steer it to any location. Price: \$16.99

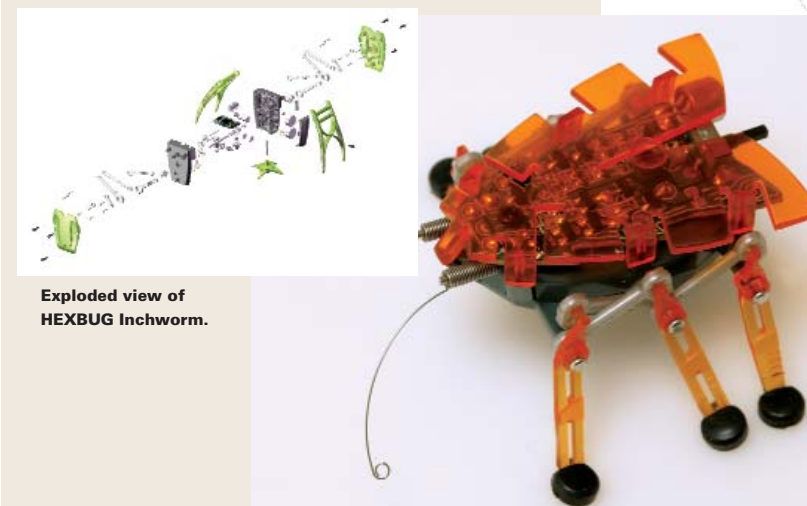
The HEXBUG Crab, also available at RadioShack, uses its light and sound sensors to run and hide in the dark. Make a loud sound and it pivots and proceeds in a different direction. Price: \$14.99



HEXBUG Crab (foreground) and Inchworm are the latest in this series and are part of IFI's robot team fundraising program.



Exploded view of the original HEXBUG. Visit www.botmag.com/issue15 for similar views of the Crab and the Inchworm.



Exploded view of HEXBUG Inchworm.

At the retail level, the original \$10 HEXBUG has been a terrific seller; teams can earn up to \$5 for every HEXBUG sold, and some teams have made as much as \$10,000.



coordinator; I run the team. Right now, we have 69 students on Team 48 Delphi E.L.I.T.E. [Encouraging Learning in Technology and Engineering]. We have been fairly successful. In our second year competing in the FRC division of FIRST, we won the national championship. In two of the last three years, we were in the regional finals at the national championship. I learned about HEXBUGs two years ago, but I didn't find the time to look into the fundraising program until this last year.

"We passed them out to our students on the honor system; they got a box of five, to be sold at \$10 apiece. Many of the students and even some of their parents took this to heart and they sold quite a few. Our supporting engineers at Delphi took them to their own jobs, and they sold quite a few there. Last year, we sold 900 units and made \$4,500 doing this. We've already ordered 600 this year—\$3,000 worth. This is just the beginning. We plan to order 300 more. We are also starting three FIRST Lego League teams this year and will give the HEXBUGs to them as fundraisers. They can use the funds to purchase their shirts and also have some travel money.

"We started an FTC team and will give some to them to help support their efforts. We keep a dollar or so to help cover our expenses. Once the FTC team gets up and running and its members are able to support themselves, they will very likely purchase their own. As is the case with any team, we always need money. If you do well enough, you may be able to add still another robot competition to the roster. We are hoping to make another \$4,500 this year, and we are also looking at the new HEXBUG Crabs. It's a little more money and we will try a few cases to see how the fundraising goes.

"Personally, I was surprised that we have surpassed many other teams in purchasing HEXBUGs, but they sell themselves; they are so neat. Parents take them to work, students walk around with them, and other students want to buy them. They take them to their churches, and it just goes on and on. It really is a wonderful fundraiser. Sometimes, you get tired of some of the other fundraising activity where you work all day—wind up tired and make only \$100 by the end of the day. You may work just as hard selling HEXBUGs, but the profit is often much better."

**JOSHUA ENCE,
HERNDON HIGH SCHOOL**

Josh Ence teaches honors physics to juniors at Herndon High, which is about 20 miles west of Washington, D.C. Last year Herndon made an amazing \$10,500 selling HEXBUGs. Josh comments: "When I started working here, I replaced a teacher who had started a FIRST team. Our 116 Epsilon Delta team has been around for 13 years, and we incorporate some of this robotics activity into science courses, but we don't have the material to build a curriculum around it per se. I work with the robotics team mainly as an extracurricular activity, and I have for the last four years. We have a group of mentors who are engineers, but I handle admin stuff like fundraising, so I've been involved in the HEXBUG program.

"I take care of finances and field trips and have mentors from the community who take care of designing and building robots. We get our budget primarily from a NASA grant, and they are very generous; our grant is about \$30,000 a year. About a third of this goes toward building the robot, a third toward registering in competitions

and the rest toward competition-related expenses.

"We don't usually do a lot of fundraisers because the NASA grant is so big, but last year, it seemed like a really cool project, and it works really well as an outreach activity. We ordered several hundred HEXBUGs at the fundraiser rate, and sold them for \$10, earning a little less than \$5 a bug—a really great thing. It turned out to be a great fundraising program. Last year, we won the competition in New York City and were invited to attend the national championship, and having the extra money from selling HEXBUGs truly helped us out. The icing on the cake was that a couple of kids joined our team because they found out about the team owing to the HEXBUG sales!"

CHRIS CHAPMAN, MENTOR, AGS AUTOMOTIVE SYSTEMS

Chris Chapman, an absolutely dedicated mentor in Ontario, Canada, cannot say enough good things about the HEXBUG fundraising program. Last year, his FIRST team made \$6,000 selling HEXBUGs. Chris notes that the Canadian regional in early March is the biggest one in North America, and his typically 40-member team, Team 1006, Port Perry High School Robotics, went to Atlanta.

How do you raise funds? "We have several standard activities—sponsorships and fundraising activities in the community. We sell coffee and the HEXBUG. We have a few local sponsors, including a company that manufactures jackets for automotive racing teams; we sell their product in a one-day blitz in the high school. We are also the elves for Santa; we maintain the Santa Claus float in our community—nine reindeer and a big sleigh for Santa. We generate \$3,000 to \$5,000 a year from the Chamber of Commerce in this kind of service for the community. We develop new things for the float—lights, etc.; it's about a five-week effort.

"We started selling HEXBUGs last year and first ordered 50. It went really well; we sold them through our student team members. Each member takes between five and 30 BUGs home and brings the money back to the team. HEXBUGs are sold for \$10 Canadian apiece—the recommended price from IFI. We pay \$5 U.S. and we pay our shipping to the border and duties and taxes, so we lose a dollar and a half per bug, and we make about \$3.50, but it is well worth the effort. This year, we ordered 1,020, and to date, we have sold 850. We plan to order more depending on how sales finish, and I think we will do better this year than last."



Herndon High School's 116 Epsilon Delta team earned over \$10,000 selling HEXBUGs in 2007.

Links
HEXBUGS, www.hexbugs.com

Innovation First (IFI), www.vexrobotics.com, (903) 453-0800

Robot events Web portal, www.robotevents.com, (903) 453-0800

For more information, please see our source guide on page ____.