

Back in high-school, if someone would have invited me to join the Robotics Club I'd have immediately demurred citing my utter lack of mechanical aptitude and a near-phobia of anything technical. Then I surely would have changed the subject to something far less intimidating than building a robot. So, perhaps it is fortunate that my high school did not have a Robotics Club or I might be kicking myself far into adulthood for missing out on the opportunity to get involved with a group that is about so much more than robots.



I recently had the opportunity to sit down with Linda Sattell, who serves as a mentor for the [Arrowhead Robotics Team](#). “The first thing you need to know about the Arrowhead Robotics Team”, she said, “is that it is not all about Robots, and really, it is not even just for tech-minded people”. Formed about 8 years ago, this group of almost 40 high-schoolers participates in what Linda calls a “full-life experience”. Yes, the group’s goal is to build a robot that will dominate at national and perhaps even international FIRST competitions, and yes, it is important to have kids who can design a schematic and turn a wrench, but who is going to pay for the materials? Who is going to ensure

the safety of the participants? What about marketing and PR? In the case of the Arrowhead ‘Cyberhawks’ (as the group is known on the competitive circuit), the students do it all! As current student Team Co-Leader, David Sternaman, explained, “I often compare our team to a small manufacturing company. We are known for our product, the robot, but like a manufacturing company, there still needs to be people to advertise, find clients, and keep the company organized”. Like a small company, the team is comprised of several sub-groups (think departments) that oversee programming, design, safety, fundraising, advertising, marketing, videography, outreach, and even finance. As with a business, each department plays a critical role in achieving a viable product—a competitive robot.

The premise of the international [FIRST Robotics Competition](#) model is simple, teams of students from around the world work with mentors to solve a common problem. Structured as a competitive yet collaborative sport, various teams form alliances and work together during competitions. At the beginning of the calendar year each team receives a standard kit full of core components that comprise the basis for the team’s robot. Included with the kit is the ‘challenge’, or the common problem that every team’s robot must be designed to tackle. Armed with a box of parts, computer software and some basic guidelines the teams only have 6 weeks to build their robots from start to finish. Last year the theme was ‘Recycling Rush’ and the Arrowhead team built a robot that could grab, carry and stack plastic totes or a trash container. The competitions centered around stacking totes and disposing of ‘litter’. After winning awards for Creativity and Quality in regional competitions, the Cyberhawks

advanced to the FIRST World Championship in St. Louis.

While the intense robot design and build period and the competitive season are certainly highlights for most participants, the Team works year-round to ensure its sustainability. In recent years, members have discovered that building relationships outside of the school with the surrounding community is a critical component to their success. Last year the fundraising team set a goal of raising \$20,000 and, with little guidance from the adult mentors, immediately set out to meet with local business leaders. By the end of the campaign they had smashed their goal by raising an astonishing \$40,000. Team Co-Leader Jake Schraufnagel initially joined the Robotics Team because he was great at math and science but he lists this fundraising achievement as his greatest accomplishment thus far, partly because he “enjoyed the marketing side of the team dearly and loved communicating with our supporters”. Perhaps even more important than the dollars raised were the relationships the students established with the owners and leaders of local manufacturing companies, some of which led to invaluable internship opportunities for Robotics Team members.



The outreach arm of the group regularly seeks out community service opportunities and team members have even volunteered on several Ice Age Trail projects including working with the Lapham Mobile Skills Team to build new trails at Lapham Peak, clearing Buckthorn along the trail in Hartland, and providing crucial muscle for a new bridge by hauling hundreds of pounds of material in Eagle off Hwy 67. For Jake and David, the community service is an important component in their drive to make the world a better place. “Anything permanent in this world demands hard work”, Jake asserted. And hard work can be very rewarding, they found, which is a great lesson in itself. “After it was all completed and we took a step back to look at what we accomplished, we were amazed at how much we really did”, David marveled. But they aren’t slowing down just yet. In January a new ‘build’ period begins and then come the competitions. This is the busiest time for the Cyberhawks, and while building the ultimate robot is everyone’s goal, they never lose sight of the fact that the group’s mission is so much bigger than a robot. “We want to change the world”, Jake declared. And why not? A group of 40 intelligent, motivated and compassionate young people with diverse skillsets and interests working toward a common goal? That sounds precisely like a small business owner’s dream team to me.

Arrowhead Robotics Team (The Cyberhawks)

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