

LEADING THE FUTURE THRU FIRST

CyberBlue 234 has taken its place among Perry Meridian High School's most notable extracurricular activities. Students and staff alike consider robotics exciting and a valuable preparation for the technologies of tomorrow. The program has become a vital part of the school's fabric. Students have opportunities for Senior Internships with one sponsor and their positive relationship with this sponsor has encouraged expanded support of FIRST teams and FIRST events in the area.

IN THE COMMUNITY

What began as broken wheelchairs and hospital beds for spare parts has turned into an incredible team connection with the Timmy Foundation, a charity that distributes medical equipment to impoverished countries. In 2002, CyberBlue received broken wheelchairs, repaired them and then donated them to the Timmy Foundation. In the fall of 2004, Timmy Executive Director Scott Keller came to the school with a proposal to provide broken equipment for the team to fix and return for distribution. In a letter to our principal, he said, "I cannot tell you how appreciative we are of your students' initiative. Their willingness to share their capabilities with people in need so far away speaks volumes for these young people. I commend you and your school for encouraging these creative, capable, compassionate and generous students." For the advanced medical equipment that we cannot repair, the team has applied for a Service Learning grant to help pay for the necessary repairs.

CyberBlue is actively involved with "The Bridge Project." This project updates surplus computers from the school corporation and provides them to underprivileged families. CyberBlue team members work with other community volunteers to clean up and install new software and also teach the families how to use the computers. Michael Taylor, the coordinator for the project said, "The PMHS CyberBlue Robotics team is an integral part of the Bridge Project here in Perry Township. Their attitude is great, they have fun but they work hard. Most importantly, they demonstrate a commitment to their community."

The team helped launch the first Elementary School Lego League team in the township for the 2004 season. "It meant a lot for our students to get advice from High School students. The mentors were mature enough to help get the job done but young enough to have fun in the process," said Dave Rohl, principal and lead teacher for the team. From this success, four new township schools are planning for 2005 teams. CyberBlue is proud of the opportunity to open doors for these young students.

Project Lead The Way (PLTW) is a pre-engineering program for high school students. Due to initiatives from CyberBlue members and mentors, Indiana now has the second largest population of PLTW schools in the United States. Indiana Department of Workforce Development was an early supporter of CyberBlue. In 2002, representatives were invited to the Indiana Robotics Invitational to see the impact of FIRST. After attending the IRI, they provided grant money to support PLTW in Indiana schools. Perry Meridian's program has grown to five classes already and will be expanding in the next year.

SHARING THE FIRST MESSAGE

If a picture is worth a thousand words, then a Robot Demo must be worth a few million. The next best thing to getting someone to a FIRST competition is getting him or her to a demo. Team 234 provides several demos each year at locations such as the Children's Museum, the Indiana State Fair, local schools, service organizations, the School Board, and existing and potential sponsors.

Just before the robot ship date, the team hosts an open house for community members, sponsors, students, faculty, and School Board members to see what we do! Visitors are able to see our facilities and our working robot. The Public Relations team creates handouts about FIRST, Lego League, and CyberBlue. The event allows our sponsors to see the benefits of their donations and learn more about FIRST.

Teams 234, 393, and 45 are looking forward to collaborating again for the 2005 Indiana Robotics Invitational (IRI). Since moving the IRI to Indianapolis in 2002, attendance has increased from eighteen teams in 2002 to fifty in 2004. The 2004 IRI attracted over 800 FIRST team members as well as hundreds of spectators. Over 75 CyberBlue members, alumni and parents volunteered. Local media covered the event and explained the FIRST program to the city of Indianapolis. The registration fee included a backpack filled with school supplies for a 2nd grader to support the Rolls-Royce "Pack to School" program. Over 50 backpacks from the IRI helped the total reach over 400!

REACHING OUT AROUND THE WORLD

To make the first year easier for rookie teams, CyberBlue sends out care packages filled with snacks and a good luck note halfway through the build season. We received great responses — Team 1327 even put our number on their robot and flag!

Through discussions with teams outside of the USA., Team 234 learned of the additional challenges facing international teams. Difficulties with finding game materials, delays in deliveries due to customs issues, and the challenges of making travel arrangements to another country are just a few of them. To help, Team 234 created FIPS (FIRST International Partners). Team 234 contacts teams outside of the U.S. to determine their needs and regional travel plans, and then pairs them with U.S. teams. Some teams have helped by ordering spare parts and taking them to a regional site, having meals together, trading team shirts and providing hotel information and tours. Two partners were even part of the winning alliance at the NYC Regional in 2004.

Team 234 helps other teams plan for their Chairman's entry by co-leading a forum presentation and 'mock interview' about the process. We have helped other teams with their write-ups and openly share our entries each year.

PROFESSIONALISM

Successful engineers do more than design parts. They must understand the processes and procedures that drive continuous improvement, be open to the reviews and critiques of others, and be able to work as a team member.

Team 234 and its corporate partners have implemented several professional processes over the past years. Through these processes, team members have learned more about engineering and project careers and team performance has increased each year as knowledge is put into action. The team has been able to assist others in FIRST by sharing information and publishing documents.

The Design Reviews process has grown to incorporate a Technical Advisory Committee (TAC) and multiple ‘gate’ reviews. The TAC is a group of experienced engineering managers from the teams sponsors. The TAC meets with the team during kick-off and then for Concept,

Critical Design, and Production Reviews. Students lead the reviews and collect comments and suggestions to be turned into actions. The team has implemented Risk Reviews and incorporated risk management into the design and build process.

New for 2005, the team completed an extensive Root Cause and Corrective Action process to evaluate the 2004 season. The team asked the question “Why did we not compete as well as we wanted?” and used methodology from Six-Sigma (Zero-Defects) and Process Excellence programs. A Rolls-Royce Six-Sigma Black Belt provided an introduction and explanation of the process. The team used the Ishikawa diagram (“fishbone”) to identify and categorize issues. Over 90 actions were identified, ranging from issues including materials, scheduling and basic skills.

Team 234 has also taken advantage of professional training. Rolls-Royce offered four different classes in the summer of 2004 with twelve members participating. Based on the success of this offering, more classes will be offered in 2005. The team will present the FIRST program to an ASME meeting this spring and participate in a Robotics Festival at Rolls-Royce.

CLOSING THE LOOP

Team 234 is also learning the value of its sponsors, stakeholders and how to continually improve those relationships. The team works to continually “Close the Loop” by giving back as well as receiving. Rolls-Royce provides engineering internships for high school seniors and CyberBlue students are eager participants in the program. The students work with engineers and gain insight into career possibilities while Rolls-Royce builds a relationship with promising young students.

Collin Fultz, a spring 2004 intern, moved into a full Co-Op position the following summer. He said, “My internship at Rolls-Royce solidified my desire to become an aeronautical engineer. Without the close relationship of CyberBlue and its sponsors, my internship wouldn’t have been possible.”

Rolls-Royce also offers Co-Op opportunities for college students. FIRST robotics students may begin as Co-Ops right after high school (a year early) as an indication of the value the company places on FIRST experience. Since 1999, Team 234 has directed 7 students to the Co-Op program; two of these students are now full time employees.

Perry Meridian High School and Rolls-Royce have also expanded their relationship to include science fair judges and participation in the school's Finance Academy. Team 234 is heavily involved with the Boilermaker Regional for 2005. Four TAC members have volunteered to serve as judges, one mentor is on the Regional Planning Committee, and our team parents and grads have volunteered for the event. Student volunteers were excited to be VIP guides at three of the 2004 competitions and are anxious for the opportunity in 2005.

CyberBlue is benefiting from their close partnership with Rolls-Royce and Allison Transmission by modeling team processes after these successful engineering companies. The team continues to use the knowledge and insight gained from their FIRST experiences to execute engineering driven community service.