

Chairman's Award - Team 5847

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2019 - Team 5847

Team Number

5847

Team Name, Corporate/University Sponsors

Nucor Steel/Shoup Manufacturing/Motorola Solutions Foundation/Millipore Sigma/BBCHS Academic Foundation/Kankakee Community Foundation/CSL Behring/Valley Glass/Chicago Dough Pizza Company/e2i, Inc.&Bradley-Bourbonnais C High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

In 3 years, 26 grads have been offered \$5,777,441 in scholarships, 100% of grads attended college. Allison, the 1st female to get the Frima Lukatskaya Scholarship in Comp Sci for 60k at U of I, was lead coder. 8 grads receive free tuition plus 1 masters degree. Passionate and dedicated students become leaders; 6/11 subteam leads and 1 of 2 captains are female. We charge no dues so the 42.6% of BBCHS that gets free/reduced lunch can join.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

Ironclad loves outreach, including demoing robots and STEAM at festivals, teaching robotics/coding classes and working with special ed students and girl/boy scouts. For 3 years we've set up a booth at a festival attended by 75k patrons. In our 10 library events, we've taught code, robotics and hands-on STEAM activities. Before 5847, there was 1 FIRST team in our county for 12 years. Now there are 10, 6 started by us, 2 at BBCHS. In 4 years, 5847 has had 76 outreach events.

Team's innovative or creative method to spread the *FIRST* message

Ironclad hosted the 1ST EVER FTC Kankakee League Meet! We had 150 visitors and 5847 and 2 FLL teams demoed. We provided the DJ and majority of volunteers at 3 FTC meets. Using our T-Shirt launcher robot on 2018's homecoming parade float, we won an award for the 3rd time and impacted 4 elementary schools. We had the privilege of teaching the first ever coding class at the Clifton library in a neighboring county. We've distributed member-created safety coloring books at outreach events.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

Coder Drake is our 1st Dean's List finalist. His LabVIEW tutorials were shared with 3 FRC teams so they could improve their coding. All members volunteer at every regional doing teardown and more. We provide FLL and FTC mentors who are role models to teams they work with. Our safety program has generated curiosity from many teams. FRC 4292 and 4241 demoed with us at Pause for Patriotism at our invitation.

Describe the team's initiatives to help start or form other FRC teams

We have not started any FRC teams, but we've discussed the possibility with student and adult representatives at 5 high schools. We've secured 2 sponsors for starting a team in Momence HS and are currently looking for adult mentors.

Describe the team's initiatives to help start or form other FIRST teams (including Jr.FLL, FLL, & FTC)

Ironclad has started and funded 2 FTC teams and 3 FLL teams, only 1 in our school. We provided 3 sets of Lego Mindstorms and 2 FTC \$500 grants. Each year, we've received a grant for \$1,500 that we used specifically to fund and work towards starting other FIRST teams; none of the money was used for 5847. We provide \$5000 for FTC 12868 every year. Pending board approval, we will start an FLL team at Quisqueya Christian School in Haiti with a mentor there.

Describe the team's initiatives on assisting other FIRST teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the FIRST program

At FRC competitions we've shared our scouting forms and data with 10 teams, including 5934, we helped choose their alliance selection that progressed them to champs. We assisted 2338 with Chairman's, critiquing their essay and presentation. We have 3 alumni mentoring FIRST teams. Progressing through FIRST, 1 student from an FLL team we started is now on FTC 12868 and will join 5847 next year. We've had 7 members come from FTC 12868.

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (includes Jr.FLL, FLL, FTC, & FRC teams)

We mentor every team we start. We have 7 FLL mentors that meet with 2 FLL teams twice a week, helping with strategy, project and build. Ironclad hosted 2 FTC kickoffs at BBCHS where 6 FTC teams watched the game animation, studied game manual, strategized, and prototyped. We fed them all. FTC 12868 alumni created a game and manual for incoming 12868 to build robots and compete. We've twice organized an annual CAD, coding, strategy and scouting workshops for FTC.

Describe your Corporate/University Sponsors

Ironclad is sponsored by Motorola Solutions, Shoup Manufacturing, Nucor, BBCHS Academic Foundation, Kankakee Community Foundation, Millipore Sigma, e2i Inc, CSL Behring, Olivet Nazarene University, Chicago Dough Pizza, BAE Systems, Valley Glass Company, Bear Machine Tool & Die. We've never lost a sponsor. Our strongest relationships are with Shoup, Nucor and e2i who we've partnered with in safety, outreach, providing employees and internships.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

e2i created internships for 5847, taken by 8 people. Women in Nucor and 5847 met to discuss their roles as female leaders in STEM. Thanking Nucor, volunteers helped to dispose toxic waste safely in their Tox Drop. Because of our safety dedication, Nucor invited us to Steel School. CSL Behring and our principle attended our practice and toured our workshop. Growing Shoup while helping students, we invited them to set up a table in BBCHS where students learned about Shoup and applied for jobs.

Describe how your team would explain what FIRST is to someone who has never heard of it

FIRST develops leaders while promoting STEM by using student built robots in worldwide competitions, shaping young minds towards new technologies alongside professional mentors in communities with emphasis on impoverished areas. They use Coopertition to forge camaraderie between teams so everyone excels. Striving to make STEM role models and their worldwide impact known through youth, they provide opportunities for exploration of futures in STEAM. FIRST changes the world for the better.

Briefly describe other matters of interest to the FIRST judges, if any

Each year we end with more money in the bank. Superintendent wrote about modeling BBCHS students after us. Racial minorities are 26.4%. Won 3 consecutive Industrial Safety Awards of 4 we were eligible for. Rookies are 30.2%. All members plan on attending college, 80% in STEAM. We don't meet on Wednesday or Sunday to prioritize school and family.. Estimated 250k people impacted through outreach. Had 77 total outreach events.

Team Captain/Student Representative that has double-checked this submission.

Chaitaniya Masrani

Essay

On national television, David Letterman razed the Kankakee metropolitan area as the worst place to live in 1999. Bradley-Bourbonnais Community HS, home of Ironclad 5847, resides in that area. Negating that reputation, 5847 impacts our county for generations to come, transforming BBCHS and surrounding communities for the better with the help of FIRST.

BBCHS's superintendent wrote to staff on the district's goals, "One particular area I am very excited about is the 'Portrait of a Graduate'. This profile describes the expectations our district believes are required of successful leaders who graduate from BBCHS, in order to be college, career, and life ready. A perfect example of how these skills are authentically demonstrated is our robotics team. Ironclad has fostered leaders and teammates that fosters growth in each of these areas. Our challenge will be to continue seeking opportunities through our curriculum, fine arts, clubs, activities, sports, and our school culture to develop these traits in all our students." Our principal attended MWR and bragged about us to the school board with video he took. We helped BBCHS create an AP Computer Science class taken by 89 students in 3 years, 34 on 5847. Taught by our coach, students code with Java, gaining skill with a subject students are interested in and 5 grads have pursued degrees. Members are devoted to their academics, 67% have a 3.8+ cumulative GPA and 38 have been Illinois State Scholars in 4 years. Of BBCHS's Illinois State Scholars, the percentage on 5847 increases yearly, from 7% to 29%.

Each year that 5847 had a float in BBCHS's Homecoming Parade we've won an award, 3 total, including Best Float Related to a Club or Activity after showing our summer project, a robot that launched balls as we passed 4 schools, showcasing the impact of FIRST. Next year, it'll launch shirts at home games, linking athletics and academics. We built a light-up hammer and presented it to our school mascot, becoming the 1st and only academic team mentioned at the homecoming assembly in school history. Joining an athletic tradition, we paint our school's rock annually with FIRST's logo, making it loud. We reach out to Best Buddies, a special needs community, promoting inclusivity and acceptance. We demoed our robot to Buddies who drove it. In 4 years, 12 teammates have had physical and/or cognitive disabilities. With special needs, it's hard for students to find somewhere they belong; 5847 is that place.

Ironclad and NHS hosted a blood drive at BBCHS, donating 53 pints of blood and plasma to American Red Cross. Ironclad teamed up with Tri-M and donated 612 pieces of winter apparel for 2 years and 30 STEM toys to Salvation Army. Ironclad helped poor and homeless people at a food pantry.

BBCHS activities need to be sustainable and successful for 2 years before being funded by BBCHS, but at the start of 5847, 6 students asked for funding and received it. BBCHS pays all our transportation and stipends. Initially, 3 mentors were paid, now 5 earn stipends. We've never lost a sponsor and end each season with money in the bank, each year with more than the last, ending 17-18 with \$17458.88, \$9653.02 more than 16-17.

In 4 years, Ironclad has had 77 outreach events, 21 this season.

We're present at community events because we receive outstanding community support. We had booths at the Friendship Festival in Bourbonnais attended by 75k 3 times, inspiring kids to partake in STEAM with robots and through science and safety demos. We engaged in a Veteran's event, Pause for Patriotism, 3 times. We helped with parking and organized a booth shared with FRC 4292 and 4241 and FTC 12868, showing 4 robots and safety and STEM activities. Over 3 years, 5000 patrons interacted with us and FIRST. For 4 years, at the Farmer's Market we've demoed our robot, activities, and safety. This year, Millipore Sigma asked us to join them and their Curiosity Cube, a mobile science lab allowing people to see possibilities of science and discuss STEM futures. At e2i's request, Ironclad and FTC 10421 joined forces to give a presentation to Kankakee Chamber of Commerce to present technology in our county, featuring our robots. The Kankakee Community Foundation was present, leading them to increase our sponsorship.

We partnered with 8 FIRST teams at 3 libraries in various combinations in 10 library events. This doesn't include when we hosted 8 robotics classes at Bradley's Makerspace where kids worked with Lego Mindstorm robots, solar robot kits, Arduino controllers and C based coding. At Code Club, we hosted 8 coding classes teaching kids code using Scratch. We hosted a class at the Park District at their request and worked to teach kids about robotics. This consisted of building Tetrix robot kits used in a series of competitions. We taught the 1st ever coding class to middle and high schoolers in a nearby county library using Finch robots and discussed starting an FRC and/or FTC team with a high school teacher. We hosted an event in The Forge (our workshop) for Girl Scouts, introducing robots to 5 girls. We invited Girl Scouts, who plan to attend MWR, to our practice where they experimented with technology, allowing them to earn a robotics badge. At a Boy Scout fest we shared the FIRST message with kids and adults introducing STEM to 75 boys with our robots. We joined Boy Scouts at their camp to demo robots and assist with their Eagle Scout Project. We showed our robots and STEM activities to 100 Scouts at their awards ceremony, impacting 300.

We pay our sponsors forward. We volunteered at Nucor's Tox Drop where we disposed of toxic waste for 450 people. At Steel School, Nucor took 35 students to their building for a tour and class on steel production. At Women in STEM event planned by a student leader, female members sat with a panel of Nucor women who reviewed their experiences as leaders in STEM and then answered questions, giving 3 hours of their time. We arranged for Shoup to recruit workers at BBCHS for a new afternoon shift.

In 4 years, we've started 5 teams - 2 FTC (12868, 13296) and 3 FLL (26143, 28582, 34225). We've mentored and funded all of them. The only one in BBCHS is 12868.

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After establishing the FTC Kankakee League because of growth in our area, we hosted and live streamed the 1st league meet. With 150 visitors 9 teams competed. While the main focus of this event was FTC, 5847 and FLL 28582 and 34255 demoed their robots. At this meet, 14 members volunteered in roles including field and robot inspectors, DJ and pit officials. Over 100 5847 members have volunteered at 12 FIRST events.

On 5847, everyone keeps everyone safe. Because it is a core value, we've earned 3 safety awards in a row. We consistently present safety during outreach, like dehydration labs and sunscreen demos. We give a safety presentation every year and test everyone on it before they can enter the Forge or go to competition. We reach past our community to spread safety. To aid with Hurricane Irma devastation, we partnered with FTC 13296 and a church, donating a semi truck full of supplies. We supplied 30 safety kits and necessities for victims. We donated first aid supplies to 2 affected teams in North Carolina.

In 2 years, we've given \$8,500 to FTC 12868, being their main source of funding. We've paid the starting fee for FTC 13296 and a total of \$1,650 between FLL 26143, 28582 and 34225 for Lego Mindstorms kits. We gave \$60 for 26143's FLL Jumpstart. Collectively, we've given \$10,790 to FIRST teams.

We met with members from 4 nearby FTC teams twice, discussing progress and planning outreach. As a result, we united to host 2 Library STEM Nights, where ours and 5 FTC robots were demoed to 120 patrons who participated in hands-on activities. Not only did we assist FTC teams, we helped with FRC success. Last year, we met with FRC 4292 in their workplace to create a marketing platform and give them a guide for a business plan. We maintain contact with them. Our business and safety plans were shared with 5934. We support robotics outside of FIRST. We arranged an underwater robotics team use BBCHS's pool so they could practice before competition. We watched their practice and asked questions on how the robot functioned and how their game operated, helping them practice presenting.

A church invited us to demo at their Vacation Bible School. Students and adults were excited, paving the way for us to start FTC 13296. We're proud of the accomplishments of the teams we start; 4 of the 5 have won an award. We had 7 teammates come from 12868 and 4 members mentor them. Whenever 5847 has a business presentation or outreach event, we bring 12868. Our FLL Mentoring team meets with 2 FLL teams to teach code, help with their project, and assist with solutions to ideas.

With 53 members and 10 mentors, 5847 is inclusive; racial minorities are 26.4%. Proving women belong in STEM, 4 mentors and 21 members are female, 42.9% work on the robot and 6 lead. We encourage students with low household incomes to join. In our Title One school where 42.6% of students get free/reduced federal lunch, members don't pay dues to join 5847 or attend competition: fees are covered, giving everyone equal opportunity. We don't disfavor the less privileged.

With 13 leadership positions, we build leaders. We included 28 students on a free 2-day leadership retreat. We engaged in team building activities, played games, established 5847's goals and strengthened the trust between us. Teammates led activities, discussions and set goals with minimal involvement from mentors.

An internship was made due to 5847's existence where we assisted e2i on building electrical panels and reading blueprints. Taken by 6 teammates and 2 students, this internship was later made available to the public. Internships were staffed by 11 of us at 6 STEM related companies, including Fermilab.

As FIRST changes us, Ironclad is changing Kankakee county for the better.