

FRC Team 2039, Rockford Robotics, located in the greater Rockford region, is a community based team which represents four private, five public, and 2 homeschools. Since our founding in 2007, we are proud to say that we have grown from a team of ten to a family of over 25. Our bot shop has transformed into a bustling, STEAM-filled hub which promotes FIRST ideals and allows for a safe environment for our current team members to foster their strengths.

OUR MEMBERS AS LEADERS

Our robotics family has worked tirelessly designing, building, and programming a competitive robot, season after season, while nurturing gracious professionalism and student growth. Our team highlights include:

- One regional Chairman's Award
- One regional championship
- Quarter finalist in the 2015 Newton division at World Championships
- One regional semi-finalist
- Three regional quarter finalists
- Two regional FIRST Dean's List award winners
- One Gracious Professionalism Award

BRINGING FIRST TO OUR LOCAL SCHOOLS

In the fall of 2013, we began a partnership with the Rockford Public Schools (RPS). This urban district serves 28,000 students in Rockford. Our long-term goal is to have a FIRST Robotics program implemented in each of the 48 schools in RPS. This is the first K-12 all-school-district robotics program planned for Illinois. Our students helped begin this process by developing a strategic plan to roll out these school-based programs and met with local manufacturing executives, the RPS superintendent, and FIRST executives to get this program started. Our vision is to have a child in Rockford begin in elementary school by joining the FIRST Lego League Jr program and seamlessly transition through high school graduation having always been a part of the FIRST family. In 2013, we partnered with Alignment Rockford, a non-profit public school support organization, and the Community Foundation of Northern Illinois to provide the funding for RPS teams to start programs in eight schools. We have now expanded our financial support to include area businesses and are working with the Rockford Chamber of Commerce and local business leaders to create a sustainable annual fundraiser.

Our initial plan was to create one team at each of the RPS schools. However, student interest was so high that several schools now have multiple teams. As of 2017, we have assisted in starting and developing a total of 22 FLL Jr. teams in eight elementary schools, 20 FLL teams in 14 elementary and middle schools, and a total of 10 FTC teams between the high schools and our community based teams over the course of the past 4 years. That is a total of 52 teams out of 79, or 65% of the teams in the surrounding area, which also covers 27 of the 48, or 56% of the schools in our overall plan. These teams both meet at school sites and are supported by events held at our shop. The types of events we host at our shop support these teams by guiding the building and programming processes to hosting a "We're Going to State" celebration for the 6 local FLL teams that qualified this past year. Rockford Robotics works with District

personnel to make sure each team has sufficient supplies and trained mentors. Alumni and current students have directly mentored some of the new teams. Recently, we have had two private schools approach us about starting FIRST programs in their school systems. We are excited to be a part of this growing program in our community and look forward to continuing to support these programs.

In 2016/17, we particularly focused on impacting our community at the individual level through both STEM and non-STEM related activities. Students on Rockford Robotics have noticed that our neighbors, friends, and community have been struggling to meet their daily needs. Kids are forced to go to bed hungry because their pantries are empty. In Winnebago county alone, over 35,000 members of our community are living in poverty. We strive to reduce hunger in our community, so we have conducted food drives in order to support various food pantries in our area.

Additionally, illiteracy is plaguing our community, both for adults and children. Illiteracy decreases the chances of an individual going to college and obtaining a career, which leads to their families in turmoil. Rockford is the 3rd least educated city in America, and because of this, Rockford Robotics has partnered with the Rockford Literacy Council in order to increase Rockford's education and literacy rate by donating books for children and adults.

Another way we reach out to our community is by increasing the quality of life for those with mental or physical disabilities. We help this aspect of our community in two ways. First by conducting a supply drive for the Goldie B. Floberg Center, which assists those with mental and physical disabilities live a productive and meaningful life. Secondly, we are building a remote-drivable car which an individual with a disability can safely sit and ride around, allowing them to experience independence. Mars Wars, who started this project, has inspired us to build our first of many cars.

Our outreach with STEM includes the following:

- We mentor FTC Team 8003. This includes sharing our shop space and using our technical expertise to help the younger students to design, build and program their robot.
- We have put in 250 hours mentoring seven FLL teams, two of which won the design award at each regional, one won the gracious professionalism award, and two advanced to state.
- We also provide educational and fun events for local FTC teams. In 2015, we jointly sponsored a kick-off event with the Rockford Public Schools, the Owl's Nest, and the Techno Tamarins teams. Attendees viewed the FTC game challenge video and a complete full size playing field while collaborating with fellow teams.
- In 2016-17, we supported all three FTC Northern Illinois League Meets for the 8 FTC teams in the Rockford area who participated in the league.
- During the 2016-2017 season, we have volunteered at both FLL Northern Regionals. We supported this venue by volunteering as field resetters and judges, allowing about 25 teams to compete in a gracious environment.

-Furthermore, we had the pleasure of doing a sponsorship presentation with General Electric, United Technologies Aerospace Systems, Women's of Today's Manufacturing, and Woodward Governor.

The result of our increased emphasis on FIRST in the schools is a robust, growing program. Our work with the public schools has sparked interest in growing programs at local private and homeschool cohorts. Rockford now boasts 22 FLL Jr teams at eight schools, 20 FLL teams at 14 schools, and 1 FTC in each of 5 high schools plus an additional 5 FTC teams in the community for a total of 10 FTC teams.

R2OC

In addition to promoting FIRST in the school community, we also share our robot enthusiasm with the community at large by working with other Northern Illinois teams on an off-season FRC competition called Rock River Offseason Competition (R2OC). We co-host this competition with surrounding teams: Metal Heads, Winnovation, Flaming Monkeys, and Stateline Robotics. This competition, running since 2013, is held annually at Rock Valley Community College. Besides working with area FRC teams, we have collaborated with the Rockford Convention and Visitors Bureau, and Rock Valley College, our local community college, to fundraise, plan, and grow our offseason event. Over the last four years, we have had over 3,000 spectators in total, and 52 teams attend from five different states. We have multiple team members on the R2OC planning board helping make wise decisions about our upcoming offseason competition. Our whole team works side-by-side with other FRC teams and community volunteers to help set up the R2OC competition site and volunteer at the event. R2OC has been a huge success and brings awareness of FIRST to our larger community in a big way.

SUPPORTING OUR COMMUNITY

Our team's history is rooted in outreach as varied as programming and electrical workshops, rookie build seasons, and dozens of robot demos. In our last four seasons alone, our outreach has touched over 39,000 people, not including the students in the RPS programs. National Engineering Week in mid-February brings a host of events to our community. We enjoy supporting these STEM activities by conducting outreach demonstrations. Our local children's museum, The Discovery Center, hosts Discover Engineering that brings close to 1,500 spectators. In addition, our local community college and area businesses host events that we attend with our robot. We do not limit our outreach to National Engineering Week. Throughout the year, we conduct robot demos, provide team information, and often give kids a chance to try driving our 'bot. Some of our 2015 and 2016 community events include STEMfest at Northern Illinois University, Discover Engineering Days at the local children's museum, Rockford's 4th of July parade, and Aviator's Baseball Manufacturers' Day. In 2014, we expanded our community outreach to include "Adopt A Road", providing litter removal for a section of roadway near our shop three times per year.

CONCLUSION

In our eleventh season, Rockford Robotics anticipates expanding our school programs, enhancing leadership among our members and continuing our community outreach and support. As our team grows, we plan to contribute even further to FIRST's mission "to transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders."