

## Chairman's Award - Team 931

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2020 - Team 931

### Team Number

931

### Team Name, Corporate/University Sponsors

Boeing/Rockwell Automation/St. Louis Public Schools Foundation/Bayer Fund/Belleville Kiwanis/Custom Machine Works/J-KEM Scientific Inc./Shapiro Supply/Hartwig, Inc./Bates Sales/Tech Manufacturing/Saint Louis Public Schools&Gateway STEM High School

### Briefly describe the impact of the *FIRST* program on team participants within the last five years.

Team 931 Perpetual Chaos works to create not only a place for St. Louis City youth to Discover and Innovate but to also Inspire and Mentor. We work to nurture the 21st century skills of the STEM workforce by bringing out the leader, learner and thinker in all team members. In the past five years 100% of Perpetual Chaos members have either gone into the STEM workforce or post-secondary STEM education.

### Describe the impact of the *FIRST* program on your community within the last five years.

In the past five years Perpetual chaos has made an effort to improve the physical state of our community. We have a weekly litter cleanup along McRee, the street of the base school Gateway STEM and an annual Stream Clean in partnership with Great Rivers Greenway. We have begun doing GoBabyGo in partnership with the Belleville Kiwanis Club to provide mobility to children with spina bifida.

### Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

In the school Perpetual Chaos presents the robot at the Gateway STEM Pep Rallies and Engineering Fair. In partnership with the University City Public Library we run Rockin Robots where team members teach children about Ozobots, Spheros, and Lego Mindstorms and demonstrate the Perpetual Chaos robot. We recruit for the district magnet high schools to develop interest in STEM and FIRST prior to high school entrance. Our "resident pre-freshman" program creates a pipeline from FLL & FTC to FRC.

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

90% of our team members are registered FIRST Volunteers and the rest have volunteered at one of our many other events. We are establishing safety and conduct protocols that must be followed by all team members. Team members learn and display leadership and problem solving skills as we volunteer and compete. By being the flagship FIRST team of the SLPS we demonstrate core values not only to the teams of SLPS, we demonstrate through SLPS as we receive publicity.

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

While in the recent years Perpetual Chaos has not directly started any FRC teams, we have made an effort to jump-start and assist rookie teams by hosting them in our shop and sharing our knowledge to team 7746 Culture at the Blewett Alternative School(2019) and 8077 Delmar Robotics(2020). We began presenting at the St. Louis Area FRC training camp in the 2019-20 season to continue spreading our wealth of knowledge.

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

IN 2018 we ran an unofficial FLL tournament, with 16 pre-rookie teams, marking the beginning of our work to ensure a pipeline through FIRST was created. Since then there has been at least one new FLL team every year.in 2019 ,working with the superintendent of career and technical education, Team 931 has created an SLPS budget that pays for the registration for the districts 12FLLjr, 18FLL, 4FTC and 1FRC teams.

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

931 Perpetual Chaos has worked with Dr Elizabeth Bender-Associate Superintendent/College and Career Readiness in SLPS to push for a budget that would sponsor team/event registration, coaches pay, and travel for the 12FLLjr, 18FLL, 4FTC&1FRC teams in the district. We also run a 2 day coaches seminar to increase knowledge of the FIRST programs and ways form a team following startup. We also do many demonstrations to ensure the knowledge of the continuation of the progression of the FIRST pipeline.

**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)**

Team 931 annually sends student mentors (as team enrollment allows) to multiple FIRST LEGO League teams: teams Dewey Mind Control 39261(2017), Mason Masterminds 39259(2018), Peabody Eagles39350(2018). We teach techniques of problem solving and brainstorming to improve the quality of output.

**Describe your Corporate/University Sponsors**

Custom machine works does our major precision machining projects. S.L.P.S.pays for our travel and registration fees. The Belleville Kiwanis Club along with their annual \$300.00 sponsorship presents us with opportunities for community service. Shapiro Metal Supply offers reduced prices on aluminum.

**Describe the strength of your partnership with your sponsors within the last five years.**

Team 931 Perpetual Chaos works with our sponsors to perform community service and build robots. The team works to receive mentorship from sponsors and we work to grow interest in employment with our sponsors to give back. We work with Belleville Kiwanis to perform community service and with Custom Machine Works we do precision machining and create machinists.This season with SLPS we created a budget that pays for all team registration and coaches pay for all of the teams in the district.

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

FIRST is an organization that has come up with an educational design to teach and prepare students for STEM future employment using core values of inspiration, leadership, professionalism and fun to promote better business practices as workers in the STEM field. FIRST creates a way to meet people, make contacts, learn about STEM, and create your future, through competition in a fun and innovative game. The flagship FRC program offers an opportunity to give back to the community through service.

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

Over the past five years , following the 2010 departure of one of our major mentors, Richard Wallace,and the 2017 departure of our outreach mentor, Ana Barrios, Perpetual Chaos had a brief period of decay followed by strong regrowth. In the more recent years we have begun establishing management and production standards to increase the output quality of work in all fields. We also participated in a trip, led by Camdenton LASER, to MO capital to raise awareness for FIRST.

**For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.**

From inception Perpetual Chaos has worked to serve the Saint Louis Public Schools District community by providing a creative outlet and a network connecting students to mentors in their field of research. We inspired Dr. Elizabeth Bender to be our advocate for FIRST in the district following her "term" as Gateway STEM principal. We have continued to inspire the starting of teams throughout the saint louis area by being an advocate for FIRST and a source of information.

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

Ethan Henning

## Essay

Our team of scientists and engineers have determined that with our robot, and all the robots from the FIRST community we will be able to protect FIRST City from the approaching asteroids. This is why we have diverted some of our attention and resources to helping build and grow our city. More St. Louis Public Schools (SLPS) engineers are being shaped by the day, and it is our mission to guide our future engineers to realizing their full potential and help them become the best they could possibly be to bring about a robotics renaissance (a robotaisance if you will) that can help them build the future of our first city.

Our team, 931, Perpetual Chaos, always ventures to bring our community together. For example, the annual hosting of our team's pancake dinner, inviting former team members and beloved friends and family to come together and support the team. We welcome students from other schools with open arms quickly developing professional and personal relationships. Team 931 has always reached out to the high schools within the district to grow our team. This year we have students from McKinley Middle and Metro Classical High School. We welcome them to our team as equal collaborators and value their unique perspectives and solutions.

In collaboration with the district leadership we have been working with elementary schools to develop a robust First Lego League. If we develop a love of STEM early then we will have a larger pool of talent to draw from in the coming years, and the students will be better prepared to succeed and tackle the problems of their community in the future. We have started mentoring a few teams including Dewey and Mason Elementary, and hope to grow the program. For the past three years we hosted and assisted at an FLL qualifying competition at Gateway STEM High School. Team members serve as referees, judges, presentation and match queuers, volunteer coordinators, announcers, and scorers. The City Shaper projects for the 2020 season showed how important it is to help our community through FIRST. Several of the teams at the SLPS qualifier created projects concerning gun violence and the lack of playgrounds. Our goal is to create a renaissance in our community by applying innovation and STEM. As Dean Kamen said, we want students to "leave (FIRST) even after the first season with a vision, with confidence, and with a sense that they can create their own future."

Though our work with FLL is vital for the future, we continue to help FRC teams to affect change in the present. In the past two seasons we have assisted our district's rookie teams 7746 Culture from the district's Blewitt Alternative School and 8077 DREAM based at the Magic House Annex, led by the Mentors In Motion. Working with team 7746 in the 2019 season brought up many challenges, as they could not visit our school per district policy. We worked hard with almost daily mentor visits to Blewitt School to ensure they had a working robot for competition. After "bag" day we lent them our practice robot for their drives and operators to practice with. We met with Team 8077 DREAM mentors and students during the preseason to help with team organization and recruiting. Then at kickoff, we paired with them off site to help inventory their kit of parts and begin the process of learning the game and developing a winning strategy. After the meeting several students from each team continued the socializing at Starbucks and The World Chess Hall of Fame. This continues with regular meetings including our weekend potlucks to socialize, develop a sense of team, and share parts and ideas.

Working with FIRST within our district will guarantee that our influence will be felt in the community beyond the walls of the schools. Our circle of influence keeps growing, but the very first step was out the front doors of our building to keep the surrounding streets clean. We have organized several clean up days for our campus. Taking pride in our city is the next step in solving our bigger problems. This year we expanded our cleanup efforts to work with Great Rivers Greenways during their fall Trash Bash, picking up over 50 pounds of trash along the River Des Peres. Sometimes the solution to a problem is as easy as putting on a pair of work gloves and bagging trash.

For several years we have honored our nation's veterans by participating in the Veteran's Day Parade, alongside our robot airplane float. Our team recognizes that any attempt to improve our community is a team effort and we want to acknowledge the hard work and sacrifice of everyone involved in making our home a better place to live.

To promote the core values of FIRST, our team uses our robots as ambassadors to the community. Our robot attended the 2019-20 SLPS foundation fundraiser at the Dennis & Judith Visitor & Education Center in Forest Park, the June SLPS board meeting to support a budget increase for the districts 12 FLL jr, 18 FLL, 4 FTC and 1 FRC teams, and our annual pancake dinner fundraiser with friends and family. Two years ago with the support of SLPS and Rockin Robots we worked in conjunction with the University City Public Library to offer summer programs for students. To inspire a preschool class down the street from Gateway we presented our trashbot to the kids as well as talking about FIRST.

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In order to sustain our mission of spreading the message of FIRST we must ensure that there are coaches and mentors to support the teams. To do so in the 2019 off-season we began hosting a training seminar at the 2019 SLPS Technology Fair that introduces SLPS teachers and leaders to FIRST. We displayed the multitude of FIRST programs and offered our services as mentors to the teachers in attendance. Over the summer of 2019 we created a display at the downtown SLPS headquarters where people could look at our robot and read about our team as well as the FIRST competitions we attended in 2018-2019. Through this work we hope to maintain the STEM renaissance and let young people and adults know that through technology, innovation and hard work we can create the future.

To help create a part of that future this fall we partnered with the Belleville Kiwanis Club for our inaugural Go Baby Go event customizing seven cars so children with muscular disorders such as spina bifida, cerebral palsy and DiGeorge syndrome could operate the vehicles and experience a new level of mobility. We provided the technical expertise to develop specialized kits to modify the ride-in car for each child and lead volunteers to modify and fit the cars at Belleville West High School last October. Circumstances led to three of the seven children to have their car customized at our school or Children's Hospital instead. This first Go Baby Go event for us was so successful, and the apparent needs so great, that we're already planning a second event strengthening the bonds with our teams' longest sponsor the Belleville Kiwanis Club.

We maintain the Kiwanis sponsorship and others through support of our alumni and mentors. Through mentorship we urge alumni to pursue either a STEM post-secondary education or employment with one of our sponsors. Many alumni have gone on to be leaders in their communities to ensure that this renaissance is followed by continued growth. From the youngest FLL team members in our district who just want a safe place to play to our most senior mentor who continues to support and expand our team everyday Team 931 Perpetual Chaos will continue to help and inspire the renaissance in our community so that the future will be better for all.