

***FIRST* Impact Award - Team 4192**

2025 - Team 4192
Team Number
4192
Team Nickname
Jaguar Robotics
Team Location
Flower Mound, TX - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in <i>FIRST</i> programs.
Flower Mound High School (FMHS) FRC Robotics is rooted strongly in academic achievement. Each year, 4192 averages 5 of the Top 20 ranked students. 2025's Valedictorian is a 4192 member, and the team also has 5 National Merit Finalists. Most graduates attend highly rated colleges majoring in STEM, with club members being accepted into colleges such as Purdue, Stanford and MIT. 4192 has parents who are Booster Club officers, provide mentoring to 4192, and volunteer at FLL & FTC tournaments.
Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.
Flower Mound High School (FMHS) is one of five high schools in the Lewisville ISD (LISD). All high schools now offer robotics classes and compete in FTC. We are the only one with a 10+ yr running Tech Club and an FRC team. Flower Mound is a diverse, thriving suburban town, ranking in the top 0.8% of cities to live in the U.S. & top 43% in diversity. In Denton County, Flower Mound is ranked #1 best place to live, raise a family, and receive an education.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> Mission in ways that are effective, scalable, sustainable, and creative.
-Hosted annual FIRST Interest Events introducing FIRST to grades 1-8; 54 teams formed (31 FLL, 23 FTC); with education & mentoring, 80% of teams remain in FIRST Promoted FIRST and demoed FRC robot at: - Lockheed Family Day(Oct 23) - Jag Expo, our incoming freshmen night (annually) - District Women in STEM event with presenters from major corporations (e.g., FBI, Cisco, Vanguard) (Nov 22 & Apr 24) - 4192 booth at local EV Fair (23&24) - 4192 booth at Caterpillar Vendor Appreciation event(Sep 24)
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.
- Our goal is to inspire future engineers through FIRST programs & STEM education (summer camps, women, STEM nights). In the past 3 years, our efforts have spawned 54 FIRST Teams-31 FLL & 23 FTC.

-Hosted annual FIRST Interest Events promoting FLL/FTC to help students/parents form teams. We have also provided \$8100 in grants not only to the 16 new FLL teams but also to returning teams. For FTC, we have started 16 FTC teams, mentored 23 & provided \$2k in grants. Over \$10k given to FIRST teams!

What impact has your team seen from your efforts described in the above question? How does your team measure impact?

Our impact is measured through our inspiration of future engineers, and how we help them through their STEM journey. We start, mentor, and assist many FLL teams, introducing these skills to elementary school students. Most students join our FTC teams and further hone their skills by learning CAD, programming, and outreach. Most of these students pursue FRC, and after high school, degrees in STEM.

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

-Ran & hosted NTX FTC Qualifier Events (Jan 22, Feb 23 & Feb 24) -Ran and hosted FTC NTX Semi Regional Tournament(Feb 25) -Ran & hosted FIRST Interest event (annually in August) -Ran & hosted NTX FLL Tourney(Dec 22) -Ran & hosted FLL-C Innovation Project night / practice judging sessions for the FLL-C teams started & mentored(annually) -Co-hosted & volunteered at NTX/StemGals tourneys(Oct 22) -Hosted NTX FLL Coach Workshop (Oct 22) -Presented STEM topics @ Global Event: Flyset (Aug 23)

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

-Mentored rookie FRC 9088 (TARP grant); weekly meetings, donated kit bot; tournament support(23&24) -Started 16, mentored 17 and assisted 3 FLL-Challenge teams(22-24); 50% of teams won award/made Regionals -Started 1 FLL-Explore & 2 FLL-Discover, mentored 2 -Started 16 & Mentored 24 FTC teams(22-24); 1 won UIL, Won World Inspire award and represented USA at FIRST Global Challenge (FGC) -Aid middle school FTC teams w/grants, funded fields, lent our workspace and materials (annually)

What other initiatives have you created, grown, sustained, or participated in (*FIRST* or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?

-Run summer camps (3rd-9th) annually (e.g., FLL, FTC, CAD) teaching skills needed in FLL & FTC. Many 4192 members have joined FRC as a result of summer camp. - Over the past 3 years, we have had 21 different members volunteer as FLL student mentors, growing new mentors each year by 50% - Members work on The Wonder Wagon, a district-wide mobile STEM van that visits elementary schools - Annually invited to Elementary STEM nights to showcase FTC and FRC robots; kids drive FTC starter bots

Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.

- A long-time partner, Lockheed Martin invited us to Lockheed's Family Day to demo our robot(23) to 5000+ people - New partner RTX- an FLL Coach whom's team we started & mentor got us a \$2500 RTX

grant(24) - Maintained local sponsors: The Evolvers Group and Summit Club, both volunteer with us - Showcase sponsors at annual banquet & on shirts - Lobbied Sen Tan Parker(22,24), US Rep Michael Burgess(22) - Lobbied Bobbie Mitchell, Denton County Commissioner & Judge Kerbow(24) for Robotics space	
Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.	
-4192 female member invited to facilitate a district-wide Girls in Tech panel discussion with corp women STEM leaders(Apr 24) -Hosted 3 Women in STEM Panels w/Lockheed Martin - 20% Female membership increase from last year -Raise STEM awareness at community events: Lewisville City Fair, Plano & Flower Mound's Diwali & Holi Festivals '22 -Team-wide FIRST Diversity & Inclusion Training '22 - Co-hosted NTX/Stem Gals FRC tournament '22 -Attend TRI '22 & STEMGals '22-'23 All-Girls Tourneys	
Explain how you ensure your team and the initiatives you have created will be sustainable.	
-Start and mentor FLL & FTC teams to sustain a pipeline of FIRST knowledgeable students -Host summer camps generating \$15K annually for 3rd-9th grade; Serves as pipeline of knowledge & funding as many current and former members attended camp -Showcase team at incoming freshman fair with robot demo to attract students (annually) - Held student-led CAD classes & offseason workshops to build skills - Publish team's accomplishments on school news feed and quarterly updates to district officials	
Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.	
Although our team's goals are accomplished within a timely manner, our team organization could be improved. We have annual "cleaning days" in the offseason, to reset our lab from the previous year of work and prepare for the new competition and off-season tournaments (NTX). We should devote more time to keeping our workspace clean. Another area of focus would be having more clear cut subteams within 4192, as most members are involved in multiple areas, and the lines between fields are hazy.	
Briefly describe other matters of interest to the <i>FIRST</i> Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique, particularly noteworthy, or had a large impact.	
-Invited by FIRST HQ to showcase FRC robot at Caterpillar's Vendor Appreciation event, as Caterpillar offers grants to FRC international teams, reached over 1,000 C-levels in STEM fields (including Chris Moore, CEO of FIRST) and spread FIRST awareness. We welcome ALL with members on the spectrum and those who identify differently. Outreach (22-23) - 3D printed 50 tourniquets for Ukrainian soldiers - Refurbished 15 laptops for local veterans - 3D printed 40 safety whistles and much more!	
Judge Feedback	
Out of our programs, which would you have wanted to learn more about, and which of our initiatives should we expand upon in the future because it captivated you the most?	

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

FRC Team 4192, Jaguar Robotics, takes great pride in our sustained growth in inspiring future engineers. 4192 has successfully built a strong pipeline of FIRST teams - from FLL to FTC to FRC. 4192 hosts both FIRST and STEM events to reach, educate, and mentor young engineers. Our team of 25 members are able to do all we do because of the support from our sponsors, partners and advocates.

Flower Mound High School (FMHS) We begin at home with a passionate initiative to create and nurture FIRST programs within our school, FMHS. Jaguar Robotics has built a place where STEM-minded students could flourish alongside highly successful FTC teams. To recruit members early, we take a special interest in our school's current and incoming freshmen. Every year, members of 4192 host a booth at our school's "Jag Expo", where incoming freshmen explore clubs and classes available in high school, and then again at Freshmen orientation. We demonstrate both FRC and FTC robots to incoming students and parents alike, handing out fliers and explaining ways to become involved in both robotics classes as well as join an FTC team or FRC 4192. Along with FRC, FMHS also averages 7 FTC teams each year.

FIRST PROGRAMS AND EVENTS Not only do we bring FIRST to students enrolled in FMHS, but also to students throughout our entire school district, Lewisville ISD (LISD). Annually, our team hosts FIRST Interest Events for 1st-8th graders from all 10 of our feeder middle/elementary schools as well as other neighboring cities. Each year we have 200 parents and kids come and learn about FLL and FTC programs, inviting them to participate in robotics at a young age. As a result of the past three years, our efforts have spawned 54 FIRST Teams - 31 FLL teams and 23 FTC teams.

FIRST LEGO League (FLL) Of those 31 FLL teams (28 FLL-Challenge, 2 FLL-Discover and 1 FLL-Explore), 4192 provided \$8,100 in grant money to 22 teams. With our education and funding, we are proud to have started 19 FLL teams (16 FLL-C, 1 FLL-Explore, 1 FLL-Discover). Most importantly, over the past 3 years, 85% of FLL-Challenge (FLL-C) teams returned or moved on to form new FTC teams. Each FLL team is offered a student mentor. Over the past 3 years, we have had 21 different FLL student mentors (growing new mentors at a 50% rate) have mentored 17 FLL-C teams and assisted another 3. We hosted a North Texas FLL Coaches workshop to help the coaches of our newly formed teams to explain the season and set expectations. Annually, we also host an Innovation Project Show-off Night to connect these teams with industry experts and adults with FLL experience. This practice judging session provides the team with improvement feedback and confidence going into the competition. Two years ago, we also were honored to be able to host and run an NTX FLL Tournament.

FIRST Tech Challenge (FTC) Our FIRST Interest Events have also allowed us to sprout numerous FTC teams. With the FIRST foundation we have laid, 10% of our FLL-C teams transition into FTC teams which we continue to mentor and guide. In fact this year, one FLL-C team birthed two new FTC teams, allowing us to build at another feeder middle school. In the past 3 years, we have started 16 FTC teams and mentored a total of 23 FTC teams from our high school and feeder middle schools. Additionally, we have provided \$2,000 in grants. In 2024, there are 14 active FTC teams of which 80% of teams are returning for a second year. In 2022, we bought a field for a middle school robotics program to practice on, and every year we allow teams to visit and use our fields and tools. We continued our support by providing parts and mentorship to an 8th grade FTC team encouraging cross-school collaboration. Over

the past 3 years, we've hosted and run the Last Call Qualifier, and this year we hosted and ran the FTC North Texas Semi-Regional Tournament. Last season one of our FTC teams, 12791 Iterative Intentions—with our support—won the Inspire Award, the most prestigious award in FTC, at all five judged events, including Worlds. As a result, team 12791 represented the United States at the FIRST Global Challenge (FGC) in Athens, Greece. At FGC, Team USA won three awards and finished ranked 18 out of 170 in the world, competing in the sixth alliance. This year, 5 of our 8 FTC teams qualified for the North Texas Regionals—the most in our 13-year history.

FIRST Robotics Competition(FRC) In 2023, we partnered with rookie team 9088 Mark Infinity, promoting the Texas Active Rookie Partnership Grant (TARP). During their rookie offseason, we provided a complete kit bot with electronics. We invited them to practice with our game pieces and provided tools, materials, and weekly guidance to equip them for success. We also dedicated 2 of our members to shepherd 9088 at their first tournament, to aid their inspection and assist throughout the competition.

STEM EDUCATION Aside from growing our FIRST teams, we also coach our community towards greater STEM knowledge.

Summer Camp Our team develops over 100 children's STEM skills through our annual summer camp, which is tailored to forge skills elsewhere untaught in our community. We offer introductory classes for FLL and FTC in addition to advanced CAD design and FLL concepts. Children work in small groups, instilling teamwork and collaboration into our community's future. Many camp-goers join FLL, FTC, and, eventually, 4192. Our camp raises \$15k annually, fabricating the infrastructure required to grant around 20% of camp revenue into starting new FLL and FTC teams.

Women in STEM 4192 bolsters STEM equity and inclusion in our community. Over the past 3 years, we expanded our encouragement of women in STEM. In 2022, we hosted Women in STEM panels—amassing over 250 attendees—and featuring 8 professionals, including UT Austin FIRST alumni and employees from one of our long time sponsors - Lockheed Martin. From there, we co-hosted an all-girls FRC tournament in October 2022, leading to a new female driver. In December 2022, we attended a district-wide event where we demonstrated our FRC robot, presenting alongside tech professionals from Cisco, Vanguard and the FBI. The LISD Career and Tech Education (CTE) leaders were impressed and invited 4192 to the next district-wide Girls in Tech event last April. There, a 4192 female leader facilitated a dynamic panel discussion of STEM professionals.

STEM Outreach We participated in the Wonder Wagon Team, a district-wide STEM learning vehicle, which travelled to elementary schools lacking STEM programs. We also engage at local elementary schools' Science and Technology nights, where we discuss the importance of STEM to both children and adults and demonstrate our robots. The kids LOVE to drive the FTC starter bots! Our members also showcase our robots at local Diwali and Holi festivals and discuss FIRST at EV Fairs. These outreach events allow us to better connect with our nearby communities and spread awareness of STEM and FIRST.

PARTNERSHIPS In September 2024, FIRST HQ invited us to showcase our robot at Caterpillar's Supplier Excellence Recognition event. Caterpillar offers grants to FRC teams in several countries, investing heavily in STEM education. Over 1,000 Caterpillar suppliers attended, alongside FIRST Chief Executive Officer Chris Moore. Also In Sept 2024, we partnered with RTX receiving \$2500 in needed grant money through one of our FLL Coaches whose team we started and mentor. Lockheed Martin, a

longtime FIRST sponsor, invited 4192 to their family day event in Oct 2023, which only occurs every 5 years. There, we discussed FIRST's mission with Lockheed families and demonstrated our FTC and FRC robots to over 5,000 people. We also work with local organizations: a local service club, The Summit Club, assists with hosting FTC tournaments and other outreach opportunities, and a local company, The Evolvers Group, has supported our efforts and community outreach. Additionally, the REEFSCAPE season sponsor, Gene Haas, had provided us grants worth \$2750, as did our faithful sponsor, the Texas Workforce Commission.

ADVOCACY To advocate for STEM funding, we met with Senator Tan Parker multiple times (22 & 24) to request Mr. Parker maintain state funding for the Texas Workforce Commission, which gives \$700,000 in grants to FIRST teams in Texas. Mr. Parker drove one of our FTC robots and tweeted, "It was the most fun I had for a Saturday community event." Back in March 2022, we also met with US Rep. Michael Burgess regarding HR 6521: STEM Opportunities Act. As a result, the bill was introduced to congress in March of 2022. In July 2024, team members met with Honorable Bobbie Mitchell, our Denton County Commissioner and Judge James Kerbow to petition their support for Robotics space in Denton County.

COMMUNITY OUTREACH We make it a point to use our presence to improve our non-technology community. We 3D-printed 40 safety whistles for Emily's Place, a local women's shelter, that integrated them into the residents' safety plans. In addition to this, we've refurbished 15 donated laptops and distributed them to local veterans, collected 75 animal toys for a local animal shelter and 50 books for a local literacy center. Work in one's own community is important, but 4192 strives to extend our reach to people everywhere in the world. In Feb 2023, we shipped 50 3D-printed tourniquets to Ukraine for their soldiers.

Each year, 4192 finds new ways to continue to influence and inspire future generations of STEM leaders, and we are honored to be able to be stewards of our community to promote STEM and FIRST.;

