FIRST Impact Award - Team 4788

2025 - Team 4788

Team Number

4788

Team Nickname

Can't Control

Team Location

Perth, WA - Australia

Describe the impact of the *FIRST* 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 *FIRST* programs.

4788 has lifelong impacts on students. 100% of our students achieve their high school diploma or equivalent. Of those students, 100% pursued tertiary education, 91% in STEM fields. 86% of our students have received education-related scholarships, and all of our graduated students in the last 3 years have returned to mentor our team. 68% of our team alumni and mentors are working in STEM fields. 4 of our mentors have created their own startups that have sponsored WA FRC teams.

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.

Our community, WA, spans 2.53 million square kilometres with a uniquely isolated populace. Isolation has empowered us to spread FIRST to rural areas, which we've successfully done through 9 of WA's 10 regions. Our city, Perth, is one of the most isolated cities in the world. Due to socio-economic disadvantages, many areas rely on 4788 for support, including FLL and FRC teams. We travel up to 1,200 km to provide life-changing FIRST programs enabled by our partnerships with CU, MU, and DPIRD.

Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* Mission in ways that are effective, scalable, sustainable, and creative.

4788 partnered with DPIRD to deliver a total of $192,000 in grants to teams from 2023-2026, helping over 24 low-SES schools attend WARP. In 2024, we ran 5 open workshops and an Ri3D to support 14 WA pre-rookie teams, events which other teams have since replicated. We've recently opened masterclasses to students across WA, teaching skills that they can then bring back to their teams, building sustainable hubs of FIRST in WA; we've taught 56 non-4788 students in the past three years.

Describe your team's goals and the progress you have made towards them to fulfill *FIRST's* Vision.

4788's goal is to IGNITE a passion for and IMPROVE access to STEM education, INNOVATING programs to bring FIRST to our community. 4788 has grown FLL from 7 teams in 2013 to 203 teams across WA's 2024 Regionals, supported by the 11 events we run. The epitome of our team's success has been our very own Off-season FRC competition, WARP. This has broken barriers that prevented WA from accessing FRC and has allowed 42 teams over three years to flourish and showcase their amazing efforts.

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

We've impacted 500+ high school students through FRC and 10,700+ students through FLL. 20% of the FLL Regionals we run are hosted in rural areas. We have run 28 outreach events in the past 3 years, reaching 68,800+ people in 2024, with media coverage reaching thousands more. FLL teams we've started have become self-sufficient, starting their own new teams to form local hubs. We've seen our FRC community grow, and teams support each other by replicating events we've previously run, such as RI3D.

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?

All FIRST programs in WA start with Team 4788. Over the past 3 years, 57% of our members have started and mentored independent FLL or FRC teams at their own schools. 71% of our team volunteers at events, filling key roles, and 78% engage in community STEM events. Our mentors provide year-round support for all WA FRC teams, ensuring they are competition-ready. We founded the FIRST in WA discord server, where our mentors and students provide near 24/7 support for teams, no matter their location.

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

We've assisted 646 FLL teams and started 44 across WA. Our team has run 29 FLL Regionals in WA since 2022 and has run the National Championship West at CU since 2020 - a testament to the sustained growth in WA's FIRST community. We've started 23 pre-rookie FRC teams since 2022, providing mentoring and assistance. In 2024, we started 2 FTC teams out of CU and ran an event with 5 other FTC teams. Our mentors have made 5 trips across WA to start, mentor and assist other FIRST teams.

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?

After starting WARP, we saw how restricted access to FIRST resources due to isolation hindered designs of WA pre-rookie teams. To combat this, we launched the Recipe Book in 2022 - a public library of mechanism designs that can be adapted and INNOVATED upon, which caters to locally available resources. By providing access to competitive designs, we help teams compete to the best of their abilities and have witnessed strong growth in teams' experience and confidence in constructing their robots.

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.

56% of teams attending WARP come from low-SES areas with limited STEM opportunities. Bridging this gap requires strong partnerships with DPIRD, CU and MU. These organisations believe in our mission, providing $107,500 in support of the event. We have entered a contract with the City of Albany and Rio Tinto, resulting in 151 students having competed across 20 FLL teams in Albany alone. With $22,000 of annual support since 2022, this relationship is vital in delivering FLL to rural communities.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

One of our core missions is to ensure that every student in our community has access to STEM education, regardless of circumstance. With our partners, we've expanded FIRST to low-SES and regional areas, providing disadvantaged students with teams, events, and funding. We run the Women+ in STEM breakfast at WARP, allowing students in gender minorities to meet with each other and industry experts. We have strived to build a welcoming space, with 30% of our team part of the LGBTQIA+ community.

Explain how you ensure your team and the initiatives you have created will be sustainable.

RA teaches students aged 8-15 robotics, providing a pathway for many to join FIRST programs or continue with further STEM education. We've run 25 RA classes in the past 3 years, providing $11,000/year of funding to 4788, ensuring sustainability of our team. Our WARP planning committee, started by 4788, ensures effective event organisation. We have strong relationships with our WARP sponsors, actively developing stronger partnerships and ensuring future financial and operational stability.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

Despite our inclusive team culture, 4788 still under-represents marginalised groups, such as non-males and Indigenous Australians, with only 26% of our team identifying as non-male. In 2024, we ran the first-ever Women+ in STEM breakfast at WARP, with 50 participants. In 2022 and 2023, we reached over 100 people at the Indigenous Australian Engineering School, where we plan to present again in 2025. Through our work with CU, we continue to support events that advance STEM to marginalised groups.

Briefly describe other matters of interest to the *FIRST* 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.

4788 encourages our students to seek the highest education possible. By partnering with the School Curriculum and Standards Authority (SCSA), Curtin FRC has become an accredited program. This provides our students with a passing grade towards their WA Certificate of Education (WACE), reducing barriers to tertiary education. Students involved with 4788 during high school are eligible for the $3000 Performance Engagement scholarship, further supporting our students in pursuing tertiary education.

Judge Feedback

How can we make our presentation and submitted work more engaging?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

We are Team 4788 - Can't Control, located in Perth, Western Australia (WA), one of the most isolated cities in the world. WA, our community, spans 2.53 million square km, creating the unique challenge of providing FIRST equitably throughout our home.

Our team consists of 32 students from 11 different schools and educational backgrounds, all united under the ethos of FIRST. Our mission is using FIRST to IGNITE a passion for STEM throughout our community, IMPROVE access to education in STEM fields, and INNOVATE our programs to overcome social and physical barriers - a goal we've strived to achieve since our inception 12 years ago. FRC Our team began in 2013 as just 15 students and 7 mentors. With the closest team over 2,500km away and only 7 other teams on the continent, the FIRST Robotics Competition (FRC) in Australia was still in its infancy. As the first FRC team in WA, we are proud to see our efforts come to fruition, with 26 active FRC teams, both official and pre-rookie, including the 19 that we've personally started over the past 3 years.

Through our partnership with the Department of Primary Industries and Regional Development (DPIRD), Murdoch University (MU), and Curtin University (CU), we've provided $109,000 in team support over the past 3 years. This funding is used to supply parts for pre-rookie teams and allows 4788 mentors to assist teams in rural areas, which

make up 15% of WARP teams. This partnership has secured a further $83,000 of funding for WA teams for the 2025 and 2026 seasons.

We run year-round events, including open-workshops and scrimmages. These events support teams with limited access to resources and provide safe environments for teams to modify and test their robots.

We support mentors with Professional Development (PD) sessions. Going to their schools, we present the basics of robotics, effective team organisation, and season management. These sessions provide teachers the opportunity to ask questions and get to know the community.

We also aim to IMPROVE access to essential resources for other teams. Due to our isolation, teams in our community typically receive game pieces and the Kit of Parts (KOP) late into the season, hindering local teams. To fix this issue, we host an officially recognised Satellite Kickoff to ensure kits arrive on time for the season.

CODE LIBRARIES 4788 has always recognised the value of sharing resources. Our team created GradleRIO in 2015, a tool for FRC teams to build and deploy their code. This was officially adopted by FIRST in 2019. Since 2023, our team actively maintains the library along with WPILib, used by 94.2% of FRC teams worldwide. We've also made significant contributions to Choreo, adding tank drive support. This reduces the barrier to entry of competitive coding practices for inexperienced teams.

WARP During the COVID-19 pandemic, we were unable to attend the nearest official FRC Regional, which is over 3,900km away in Sydney, disrupting our competition season for 3 consecutive years. So, in 2021 we introduced the West Australian Robotics Playoffs (WARP), WA's own Off-season FRC event, INNOVATING STEM in our community.

WARP bridges geographical and socioeconomic gaps by bringing FRC to our community supporting teams' growth. As travelling to Sydney is unattainable for most WA teams, WARP removed the financial hurdle of interstate travel and allowed 24 teams from low-socioeconomic status (low-SES) areas to engage in FRC.

In 2021, WARP launched with just 13 teams, expanding to 26 teams in 2024. The Australian Government's 2024 National Robotics Strategy documented this ongoing development and recognised WARP as a case study in developing creative and critical thinking skills. Due to WARP's growing impact and scale, 4788 formed the WARP Committee in 2021. This volunteer body manages WARP funding, logistics, and public relations, ensuring sustainability.

The event wouldn't be possible without the ongoing support of our sponsors and partners, particularly DPIRD, MU, and CU. These organisations support our mission, providing $107,500 in funding over the past 3 years and committing $74,000 for the next 2 years.

In 2022, 7 News approached our team regarding WARP, providing us with the opportunity to reach the community through news broadcasts, drawing attention to our programs and the opportunities we offer.

WARP allowed us to host the Women+ in STEM Breakfast. This networking event allows us to celebrate the contributions of non-male people in STEM and is a great chance for students to meet new people, make friends, and hear inspiring talks from STEM role models.

MASTERCLASS & ROBOACADEMY Since 2014, the mentors of 4788 have been hosting preseason Masterclass courses. These courses are open to any student eager to boost their STEM skills. Passing down our experiences, students gain the opportunity to get hands-on with CAD, manufacturing, and programming. In 2024, 34 students representing 8 teams attended masterclasses, not only upskilling these teams but also allowing students to network and build strong connections.

Since 2016, our students and mentors have regularly run RoboAcademy (RA), a program dedicated to IMPROVING STEM skills in younger students. RA ensures our team's financial sustainability, raising $33,500 in revenue over the past 3 years. Focusing on the basics of robotics and programming using Lego Spike Prime kits, these 2-day classes use the same robots as FLL and provide a smooth transition into FIRST competition.

PRESENTATIONS Our team strives to IGNITE interest in FIRST by presenting at schools, local events, and STEM programs. In the past 3 years, we've presented at 28 different outreach events. Our presentations assist schools promote their FIRST teams.

As part of our partnership with DPIRD, we present at the Perth Royal Show whilst advertising FIRST programs. Here, attendees can get hands-on FRC robot driving experience. Similarly, we've presented at a wide range of CU events, aiming to IGNITE interest in local teams among high school students.

Over the past few years, we've showcased our robot to the Federal Minister for Industry and Science. In 2023, we collaborated with MU to advocate for support of their STEM programs, which successfully resulted in increased funding, partly directed towards WARP. In 2024, we presented for additional funding to expand outreach facilities on CU Campus.

FTC Recently, our team has dedicated efforts to REIGNITE interest in the FIRST Tech Challenge (FTC), which has been severely underdeveloped within WA. Teams have been operating unofficially for years without the opportunity to participate in official events. In 2024, we ran an official FTC event while creating 2 unofficial FTC teams at CU to allow the event to run.

By providing core volunteers and technical support to teams, we have created a way for these students to progress to national competitions. While there is still much work needed to further IMPROVE on FTC in WA, we are excited to continuously bridge the gaps in FIRST programs within our community.

FLL FIRST Lego League (FLL) is an inseparable part of our team's identity and community. In 4788's first year, we ran a single Regional event, which has since grown to 10 Regionals per year, as well as hosting and running the National Championship West (NCW) since 2020. Our efforts have allowed over 180 different schools in the past three years to participate.

With WA's isolating geographical scale, we found a clear disparity in access to STEM programs. Our team has a heavy focus on providing rural communities with access to FLL, running 13 rural Regionals over the past three years. We've now established FLL in 8 of the 10 regions of WA.

Furthermore, we've partnered with the City of Albany and Rio Tinto to IGNITE rural FLL. In 2022, the Albany Regional alone brought together 151 students from 11 schools, expanding to 14 schools in 2024. The contract provides $22,000 annually to run this event and support Albany teams, ensuring that rural FLL is a staple of FIRST in WA.

In the past 3 years, we've assisted 646 FLL teams across WA, starting and mentoring 44. Of these, 143 teams are from rural areas and 213 from low-SES communities. We also provide crucial volunteer support, supplying event staff and essential materials statewide, making competitions possible for teams that would otherwise struggle to compete.

To empower mentors and coaches, we host PD programs such as the Mentor Hackathon, a day dedicated to FLL teachers/mentors gaining experience with the FLL board, working with robots, and getting familiar with the game.

Since 2021, all FLL events in WA have used team management and scoring software developed by 4788 mentors. By streamlining match times, the volunteers can direct their efforts towards assisting students.

In 2022, Wynnonah Bush, the former Director of FIRST Australia, attended the NCW at CU for the first time and recognised our efforts as “pivotal to the growth of FIRST in [WA],” being “blown away by the team’s commitment to excellence, which was clear and evident in the professionalism and FUN that was on display when they hosted the [NCW] at Curtin University.” She commended it as “an overall example of a World Class event,” saying the “smiles on every face certainly supported [her] observation.”

OUR FUTURE Moving forward, Team 4788 - Can’t Control is determined to continue our mission of IGNITING, IMPROVING, and INNOVATING STEM in Western Australia. With a team of 32 students and 18 mentors, we’ve accomplished so much more than we could have imagined.

Our success has been driven by our unwavering dedication, hard work, and the incredible support we have received from our sponsors and community. Planning ahead, we’ve begun laying the groundwork to officialise WARP, will continue to expand the FTC event, and will sustain our FLL community. Our commitment ensures that Team 4788 will remain at the forefront of driving FIRST in WA.;