

FIRST Impact Award - Team 4788

2023 - Team 4788
Team Number
4788
Team Nickname
Can't Control
Team Location
Perth, WA - Australia
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.
Teaching young adults to Ignite, Improve and Innovate through FIRST programs, Curtin FRC is the only FIRST program in Western Australia (WA) that awards graduation credits, as it is endorsed by the WA schools authority, opening up scholarships as a direct impact of Curtin FRC. 100% of student alumni in the past 3 years have graduated from high school or entered into tertiary education early, 50% continue FRC as mentors and 83% of members are already in or planning to go into a STEM career.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Our community, WA, is 1.02 million square miles (2.64 million square km), with a uniquely isolated populace. Isolation empowers us to spread STEM to rural areas, which we've done by running Ri3D programs, engaging students up to 162 miles away. FLL has grown to 5 rural regionals, furthest being 510 miles away. Publishing Resources, eg. 'Recipe Book' (public collection of CAD models, Cost Worksheets and instructions), helped us reach teams afar and lower the skill threshold for rookie FRC teams.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
We measure success often in community participation and event sustainability. Our primary school EV3 workshop, RoboAcademy (RA), is in continuous demand with 1060 total signups in the past 3 years and over AUD115,000 earned for the team since 2016. RA is adaptable for small classrooms in rural towns and for different age groups. Our FLL Challenge events have grown from 9 to 11 over the last 3 years. We work with CU for facilities, funding, and volunteers that facilitate and support our events.
Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.
50% of our team members have volunteered at 31 FLL events over 3 years. 80% of the WARP planning committee comprised of 4788 members. We created and presented 2 seminars on CAD, mechanical,

strategy, and scouting to assist rookie and pre-rookie teams with FRC skills. We volunteered and liaised the purchasing of a basic kit for participating teams. Our students took the initiative to coach and start 12 FLL teams, all of which are continuing and expanding to more students and schools.

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

WARP has been our most effective initiative to start and develop FRC teams, for which we've started and mentored all pre-rookie teams involved. Before COVID, we started 4 FRC teams and in the past two years we've started 5 new teams in WA, continuing to assist all active WA teams. With the Department of Primary Industries and Regional Development (DPIRD) and the School Pathways Program (SPP) we've been able to provide teams financial assistance of AUD \$30,000 to \$48,000 altogether.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Presenting at events such as CU Open Day and Coogee Live, and to programs such as Girls Engineering Tomorrow (GET), Indigenous Australian Engineering School (IAES), Robocup, and RA, created opportunities for students in WA to experience and be inspired by exciting STEM pathways. Our work with kids in RA and the student involvement in FLL coaching has resulted in the elevation of STEM education for more than 180 children during the last season, inspiring kids as they hear from student leaders.

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

For WARP, we partnered with Murdoch and CU, as well as FRC teams 8613, 6524 and 7779 to organize, fund and run the event. We now involve more organizations, including SPP and DPIRD as long-term partners. We have also partnered with 11 schools and educational organisations to host FLL events for years to come, ensuring the continuation of FLL events in WA. Since 2013, CU has been the home of our team, hosting FLL events and team programs and events.

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

Our team presents at programs such as GET and IAES to promote STEM and FIRST to our community's minority groups. Over the past 3 years, we have seen an increase in non-male team participants, increasing from 10% in 2019 to 34% in 2023. Furthermore, students come to our team from 17 different schools across Perth, some traveling over 32 miles each way. Rural FLL last season was successful enough to give 54 FLL rural teams the chance to experience FIRST and develop unique STEM skills.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

By partnering with institutions and programs such as banks, schools, universities and government bodies, we ensure the long-term sustainability of our team and FIRST programs and events that we run. We work with CU to run RA, which helps fund our team and ensure our continuity. We have partnered with Bendigo Bank to sponsor an FLL regional for 3 years, the Wheatbelt Development Commission

(WDC) to start and sponsor rural FRC teams over 3 years, and recently DPIRD to ensure the longevity of WARP.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

WARP is our most recent amazing feat, which we worked closely with CU to make possible. We have also further developed our long-standing relationship with SPP to support other WA FRC teams financially aiding our team in Igniting, Improving and Innovating within our community. This year, we have recruited 6 new sponsors. We invite sponsors to events such as Launch Night, include them in our social media and end-of-year report, and they are offered the opportunity to present at events.

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

We strive to improve engagement and recruitment of sponsors, aiming to develop meaningful partnerships. We recently redeveloped a sponsorship package to recruit sponsors and define our partnerships, resulting in our total sponsors more than doubling (125% increase). For WARP we invited sponsors to host stalls, further developing our engagement. We're now continuing by arranging open sessions to improve sponsor and partner engagement with students and the program itself.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

Our mission, Ignite, Improve, and Innovate, aligns with the mission of FIRST, encouraging our students to lead STEM in WA by igniting passion, improving programs, and innovating for future opportunities. We have inspired 67% of our team to mentor FIRST teams in WA, providing skills and confidence to inspire youth through our student mentoring programs, volunteering at FLL events, assisting other FIRST teams, leading RA workshops, running Ri3D for rural teams and presenting at events.

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 or particularly noteworthy.

Quiz nights during Build Season are our way of engaging all team members in 4788 and FIRST history as well as common robot and outreach knowledge. We've also improved our team culture over the years, after we went from 3 teams to 1 team in 2020. By removing the competition between students, we have worked hard to develop a strong team spirit. The change has been accompanied by a steady growth in non-male representation on the team due to a more accepting team culture.

Essay

A decade of memories.

2013: The Beginning Our team's journey began with 15 students and 7 mentors. Project 215 was the start of countless 4788 supporters - students, mentors, alumni, stakeholders, and community members, all committed to celebrating STEM in the youth of our community; Western Australia (WA). Over the years we've evolved, adding teams 5333 and 5663, expanding our community influence and adapting with the developing landscape of WA. We've created programs for all ages and grown the impact of FIRST in our community, including starting our own offseason event, the WA Robotics Playoffs (WARP), in order to continue to create opportunities for even more people. Now, as Team 4788 - Can't Control from Curtin University (CU), we continue to Ignite, Improve, and Innovate in the STEM industry, creating opportunities in our community and giving every student access to resources necessary for success.

MISSION Ignite, Improve, Innovate. This is our motto and our mission. We strive to ignite a passion for STEM in WA's youth, improve the reach in our community, and innovate our methods to succeed in inspiring and preparing students to be future leaders in STEM.

IGNITE The spark that starts a flame is just as integral as the flame itself. Igniting that spark of curiosity and passion in the youth of WA through exposure to creative and unique programs has been one of our core values since inception.

2014: Introducing Preseason We have dedicated ourselves to creating opportunities for students to access robotics and learn vital skills, adapting Preseason in an evolving climate over time. In 2020 we opened our Preseason to all high school students, popularizing it beyond our FRC community, igniting passion across WA. Specialization fields were introduced in 2021, which developed students' skills in media production, CAD, C++ programming, and engineering methodology. This built on the basic skills taught within the school curriculum and enabled students to find passion in specific fields. Preseason ends with our Robot in 3 Days (Ri3D), when our mentors present us with a previous year's challenge for which we design, build and program a robot in the 3 days before Build Season starts.

2016: Presenting STEM through FIRST One of our enduring initiatives has been presenting at schools, local events, and CU-based programs. Solely in the past 3 years, we've gained 24 students at 7 different events. We have presented at programs such as Girls Engineering Tomorrow, a program to expose female and non-binary high school students to engineering opportunities and ignite an enthusiasm for STEM pathways, and the Indigenous Australian Engineering School, an initiative that creates STEM opportunities for Aboriginal and Torres Strait Islander students. Targeting programs and events like these has helped us progress the STEM community within underrepresented groups.

2021: The Reinterpretation of Ri3D In 2021, we worked with team 8876 from Lynwood Senior High School to expand our Ri3D Preseason program and mentorship beyond ourselves to assist teams in preparation for WARP, igniting the growth of FRC across WA. We've worked with 10 different teams from various locations up to 300 miles away. Through this collaboration, we collectively facilitated the cooperative build sessions, thus helping many students and mentors understand and develop skills for Build Season in a short period of time. Working with teams far and wide, we've been able to create a wider FIRST community and expand the availability of resources throughout geographically isolated areas of WA.

IMPROVE Once a spark has been ignited, tending to that flame is essential. By continuing to run pre-

existing events and assisting established teams, we nurture and improve the growing love for STEM and FIRST within our community.

2013: The Beginning of a Lego Empire Bringing FIRST to all ages, we have assisted the growth of FLL in our community, expanding from 1 qualifying event in 2013 to 2 FLL Explore events, 10 qualifying events (including 5 rural events) and a National District Championship (NDC) in 2022. Expanding FLL has helped provide STEM knowledge to many students in both primary and secondary school, preparing them for future career paths and challenges. 15 students from 4788 started and mentored 5 FLL teams in 2021, increasing to 12 in 2022, demonstrating our passion for improving the influence of STEM within WA. The teams are based at local community centers and schools (Burrendah Primary School and Perth Modern High School), broadening the reach of FLL and its positive impacts on the learning and development of children. In 2022, Wynonah Bush, Director of FIRST Australia, attended the NDC at CU for the first time, and recognized our efforts as “pivotal to the growth of FIRST in Western Australia”, 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 National Championship West 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.”

2015: Creating Community Kickoffs We annually run our local WA Kickoff event to improve WA teams’ passion and interest in FRC. Kickoff has been our exciting start to FRC seasons for years, improving the team’s bond and connections through midnight games and strategy before the Build Season starts. As of this season, our Kickoff has grown to be recognized as an official local Kickoff, making the experience accessible to more teams while helping teams get the KOP in time for the season. It improves and highlights our existing passion for FIRST and engineering by sparking discussion and exploration to achieve common goals.

2016: A Thrilling Initiation to Robots Since 2016, RoboAcademy (RA) has been a regularly running program dedicated to improving an appreciation for robotics in children aged 8-15. RA is run by our team at CU using LEGO Mindstorm robots to teach kids basic programming skills. Aiming to establish and improve on a beginner’s understanding of the basics of programming and engineering processes, the 2-day workshop provides foundation for future FIRST endeavors, including FLL and FRC, igniting curiosity in learning new skills for the future through experience. RA provides children with the chance to develop a long-term involvement and love for STEM and has also contributed to the development of confidence and leadership within members of our team.

INNOVATE To keep a flame burning effectively, the techniques involved need to be innovated upon. To keep growing the passion for STEM, we needed to innovate our process to continue spreading the message, finding new ways to reach our community.

2021: Connecting our Community The ‘FIRST in WA’ Discord server was started to give the local FIRST community a space to communicate and share a passion for FIRST. This innovative creation, proposed by our students, provides a space for WA FRC teams, increasing collaboration amongst students and coaches, providing a forum to discuss, strategize, share information, and find support. The server has effectively brought geographically isolated FRC teams closer and resulted in more coopertition within our community. We’ve now got 101 members ranging from mentors to students and alumni of WA teams and have been able to share resources amongst our growing rookie and pre-rookie teams.

2021: A Brand New Offseason Event FRC in WA flourished during COVID, with WARP being the root cause. Our innovative offseason event has run at CU for 2 seasons now, with 31 teams competing over these 2 years, 6 of which have since registered as official FRC teams. The offseason event requires copious effort, coordination, and resources to make it a reality. Partnering with Murdoch University and CU, we engaged with our long-term sponsor, School Pathways Program, and a new sponsor, the Department of Primary Industries and Regional Development, to provide additional support to teams in financial, technical, and social aspects, expanding our local FRC community for years ahead. Teams compete on a wooden field remodeled by our planning committee with a custom FMS created to suit our specific needs. Initially an innovative solution to COVID-19 preventing us from competing, WARP has now grown to create more accessible opportunities for competing, like 3132's offseason did for us, and has been widely celebrated with media posts and coverage. We are continually innovating and expanding WARP for future seasons, striving to continue increasing FRC teams within our community and create more opportunities for students to learn skills useful for future STEM careers.

2022: Cooking up a Recipe Book Innovative teachers who start FRC in their schools often become overwhelmed by the countless skills required to start a team from scratch. We aim to lower the skill threshold for new teams, whilst enabling them to build competitive robots, leading to the launch of the innovative 'Recipe Book' project. Recipe Book is a published collection of CAD models, Cost Accounting Worksheets and instructions for a variety of mechanisms that can be used separately, improved and innovated upon, or combined into various different robot configurations. All designs are competitive and modular, allowing teams to easily build the robot they desire. In 2022 alone, we assisted 13 teams with their robot designs and are further innovating and endeavoring to spread to more teams every season.

We, Team 4788 - Can't Control, a team of 39 students and 30 mentors, are full of endless possibilities, dedicated to Igniting, Improving, and Innovating a passion for STEM here in WA. Through hard work, amazing support, and some good luck, we have accomplished more than we ever thought we could. To continue a future of expanding opportunities here in WA, we will continue to learn from our decade of memories.;

