

## Chairman's Award - Team 5584

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2018 - Team 5584

### Team Number

5584

### Team Name, Corporate/University Sponsors

AARNet/ADDE/BAE Systems Australia/Bendigo Bank/Current Industries/Ford Australia/Knox City Council/Macquarie University/Rockwell Automation Australia/SETEC/Stonco Construction/QMS&Neighborhood Group

### Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2017/2018 year and the preceding two to five years

FIRST gives us opportunities to impact our community, work with sponsors, and volunteer for STEM. We were even able to meet the Prime Minister and Foreign Minister of Australia. We love to demonstrate our robots and engage the local and broader communities by giving presentations, displays and running educational activities. FIRST improves our skills in engineering, management, teamwork, CAD, writing and media, equipping us to impact youth around us. This season IC has grown from 20-35 people.

### Describe the impact of the *FIRST* program on your community with special emphasis on the 2017/2018 year and the preceding two to five years

Our desire to excite future "roboteers", drives IC to find ways to reach our community. In 2017 we delivered our 'Robotics in Schools' program to 6 local schools. We also ran demonstrations at local pre-schools, Highvale and Community Kids Bayswater. Working with Rockwell, we gave a presentation to students and employees from AUS and NZ! We continue to give presentations at multiple Rotary clubs across Victoria, run Robocamps for various demographics, and run a STEM zone at Stringybark Festival.

### Team's innovative or creative method to spread the *FIRST* message

In 2017 we partnered with Knox City Council to establish our 'Robotics in Schools - Future Learning Program'. Along with providing ongoing support and a free EV3 Kit to establish FLL teams in Victoria, IC delivered the program to teachers and students in our partner schools. By training teachers, IC is empowering key leaders to create a sustainable robotics program. At the Victorian Tech Schools Summit, IC also promoted the use of FIRST in the new 'Tech Schools' initiative.

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

For 3 years, IC has volunteered at the Victorian FLL regionals. To promote progression to FRC, and to highlight the achievements of small teams, we demo our robot at FLL events, such as the FLL Regional. We act as mentors to 9 FLL teams, providing robotics support as well as advice about team organisation. To encourage other teams, we share our team and community outreach stories. During the 2018 build season, visiting FLL team, 'Little Epsilons', said they were "inspired" by the IC team.

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

Assisting high school FLL teams means we can inspire older students and their teachers to progress to FRC. We invite older students (from FLL teams and local high schools) into our weekly workshops, enabling them to develop the skills required in FRC. We also formed another robotics team, 7111 ART, as a training opportunity for new team members at the DDU competition. By former IC students pioneered the rookie team NOMAD in the USA, creating an intercontinental partnership with IC!

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

Blazing the FIRST trail across Victoria, we reach out to a wide range of education hubs. We understand that for rookie FLL teams to thrive, there needs to be a spark and enough fuel to sustain it - that's why we initiated our Robotics in Schools - Future Learning Program in 2017, providing schools with free EV3 kits and mentor support. IC has started 6 FLL teams, including Little Epsilons and Baw Baw Bots, which are both community-based like us. We also assist a further 3 FLL teams.

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

At Australian FRC events, we assist fellow teams with robot repairs, reprogramming, parts, and tools; we also provide online support to teams such as 6995, NOMAD. IC business students engage with other teams to discuss the elements and importance of a strong business team. In 2016 we assisted 2 FLL teams, both of whom reached the FIRST Championship. We also assisted FRC teams 5648 - Melbourne RoboCats and 4529 - AI Robotics during the 2016 and 2017 build seasons.

**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)**

IC started 6 and mentored 5 FLL teams, which included regular attendance at their build meetings. IC mentors also travelled to the FLL Regional with their teams, giving practical support and encouragement through the day. We assisted 2 Melbourne FLL teams by providing advice and overseeing progress. Within Victoria we serve as a point of contact for FLL teams, giving mentorship, advice about game rules, and practical hands-on guidance.

**Describe your Corporate/University Sponsors**

Sponsor Ford Australia, continues to provide mentoring support, site visits, VR and workshops, giving IC the opportunity to work with industry professionals. Partnership with Rockwell Automation, and Knox City Council, provides pathways to spread FIRST. BAE Systems and Macquarie University also sponsor IC by shipping parts and providing mentorship. We receive in-kind sponsorship from local companies Andrew Donald Design Engineering, Quality Metal Solutions, Current Industries, and Archi Sign.

**Describe the strength of your partnership with your sponsors with special emphasis on the 2017/2018 year and the preceding two to five years**

Collaborating with Rockwell Automation, we established an FLL team in 2017, which led to additional sponsorship. Working with Knox City Council we run interactive STEM zones and our pilot robotics program, we have given our community opportunities to see STEM in a new light - an exciting, engaging field. Over 3 years, our relationship with Ford Australia has grown. We have run robot demos at several Ford events. This build season, we created a blog to keep our sponsors updated with our progress.

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

FIRST is an organisation which enables students to "get behind the spanner", and design real robots. Students become engineers, sharing this experience with hundreds of teams worldwide. FIRST allows for progress from FLL to FRC, making the competition accessible to all ages. The nurturing FIRST environment, provides the next generation of STEM leaders with strong skills and values. Mentors, students, parents, and sponsors alike consider FIRST an opportunity that they will never regret.

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

IC understands the importance of women in STEM related jobs. In the 2018 offseason, we will be running girls only Robocamps, aiming to inspire the next generation of women in STEM. Through our relationship with Knox City Council, we have had the opportunity to share our knowledge of FIRST at the Stringybark Festival, for three consecutive years. This has enabled IC to spread the FIRST message to hundreds of people, an incredible achievement for a team of only 35 students and mentors!

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

Ben Jessett

## Essay

A light bulb may be small; yet Thomas Edison still used it to change the world we know today. With the light it generates it can impact a room, a house, or a community. But one light bulb was just the beginning for Edison. The light bulb embodies the spirit of ICRobotics. We have seized the chance to share the power behind our 'lightbulb', the power of robotics. Let's use it to change the community!

ICRobotics believes that sharing this 'light' with future generations is vital. Consequently, we search for ways to reach our community, to excite the "robo-teers" of the future, and to engage with parents and teachers. That is why for the past three years we have been running Robocamps in our local libraries, giving robot demonstrations to local pre-schools, and inviting students into our workshop.

Since joining FIRST, we have become aware that many local schools lack the access and the funding to purchase the materials needed to run an exciting STEM program. In 2017, we decided to act; we applied for, and were awarded with a grant from Knox City Council, to deliver a "Robotics in Schools - Future Learning Program" to multiple schools with diverse demographics. With this grant, students from IC were able to empower teachers with the skills and knowledge required to run robotics within their classes. IC is training key leaders in schools to sustain a robotics program. We also provided each school with an EV3 kit and mentor support to begin their journey.

But schools are merely the beginning; we take our lightbulb and share it with the young and the old, engaging and exciting hundreds about STEM. Our team members engage with children at neighbourhood pre-schools by running demonstrations. Presenting at multiple Rotary Club meetings across Victoria, we have been able to reach out to over 400 people. In 2016 we ran a FIRST presentation to over 150 year five students at Billanook College. We were then invited back to run a workshop for their Chinese exchange students.

Every year, IC members engage the community by running Robocamp workshops in local libraries, helping students learn building and programming skills. Last season we expanded our outreach by connecting with a greater number of library networks. Drawing on the skills of IC members, we have been able to expand our Robocamp program to include kinder-aged kids. Our team has also taken the initiative to run 'girls only' Robocamps in Victoria, as we recognise the need for girls to become leaders in STEM. This will provide the opportunity for girls to learn from other girls and become the next generation of women in STEM!

In order for our light to burn brightly, we first need an abundant source of power. Our power is generated by our incredible sponsors. Our strong relationship with Knox City Council, has enabled us to spread FIRST for three years running at the Stringybark Festival. Our involvement with the festival is a fantastic opportunity for our business team to collaborate with the local council and community. In the lead up to the event we liaised with the council's event committee, holding meetings to discuss the logistics and organization of our zone at the festival. We ran a 6 by 12 square metre interactive STEM zone, where we engaged with people of all ages to promote FIRST, STEM and our team. Each year, ICRobotics seizes the chance to share FIRST with hundreds, who attend the festival. This feat is such a brilliant opportunity for ICRobotics to promote STEM and FIRST to the next generation.

Rockwell Automation have been generous with their financial support, and in return we have shared our knowledge of and enthusiasm for FIRST with their Australian and New Zealand employees, through a student led presentation. Together with Rockwell, we aim to inspire the next generation of innovators. 'Little Epsilons', the FLL team we started in partnership with Rockwell, is based at the Eastern Melbourne Rockwell Headquarters. The teams is off to a strong start, and we enjoy welcoming their students to our workshop, both giving and gaining mentorship.

Over the past three years, we have worked alongside Ford Australia, giving robot demos at several of their events. Ford have provided mentoring support, site visits, virtual reality demos and workshops. IC visited the Ford Victoria site and gave a presentation to employees, exposing them to FIRST and our achievements as a Victorian team. In turn, Ford provides mentorship and financial support. We value our partnership with Ford highly, and continue to build our relationship with them.

Much of our success is due to the continual support from our in-kind sponsors; Quality Metal Solutions, Current Industries and Andrew Donald Design Engineering (ADDE). These sponsors supply parts and we gain invaluable practical experiences at their factories. We were also able to use ADDE's facility to give a robot demo to a 20 strong group of local Scouts. In addition, one of our major sponsors, BAE Systems, has given our team financial support over the past three FRC seasons, and continues to partner with us to 'power up' our team.

This build season we created a blog to keep our sponsors updated with our progress on the robot. This informs not only our sponsors, but also friends and family with the progress of the team during build season. Weekly updates on the IC blog, allow sponsors to stay connected with our team, and gives them a clear picture of the impact they are having on a day to day basis.

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These relationships built with sponsors 'power us' to inspire and impact other young people. Events, presentations, demos and community engagement would not be possible if it were not for our sponsors' and their commitment to our team, and to FIRST.

FIRST creates innovators, raises up leaders, and provides a welcoming, nurturing environment. It is an organisation which goes beyond building robots, to creating business opportunities and unforgettable life skills. FIRST embraces everybody's unique skill sets, and provides a platform for students to speak, and share their excitement about STEM. IC greatly appreciates these FIRST values, and continually endeavors to put back into the ultimate robotics power source. The FIRST vision is the same as ours. We want to create a community where science and technology are celebrated - where STEM can be discovered in a new and exciting way.

We also see the vital importance of mentorship. Mentors not only support and develop skills amongst their own team, but help to "light up" other teams. IC mentors and students continue to pour themselves into this mission. We work to develop STEM and FIRST at a grassroots level, providing mentorship to FLL and FRC teams.

At Australian FRC events, we help fellow teams with robot repairs, reprogramming, parts and tools. We have assisted teams such as 5648 - Melbourne RoboCats and 4529 - AL Robotics. IC's business students engage with other teams to promote the importance of 'more than robots'. One of our favourite ways to inspire other teams, is sharing our team and community outreach stories. We inspire teams by sharing our news on our team website. We also post information on our software and mechanical findings to help fellow FRC students and mentors.

IC sees the need for growth amongst the FIRST community in Victoria, because of this we assist three FLL teams, and mentor five Melbourne FLL teams. Two of which progressed through to the FIRST Championship. For the past three years, IC has volunteered at Victorian FLL and FRC events and other STEM events, as well as driving to Sydney to collect the Kit of Parts for all FRC teams down in Victoria. We demo our FTC and FRC robots at FLL events to inspire progression through the FIRST program.

IC members also travel to the FLL Regional, giving practical support and encouragement throughout the day. We enjoy assisting high school FLL teams, as it inspires the older students in FLL and their teachers, to progress to FRC. One powerful way we do this is by inviting older students from both local high schools and FLL teams, to our weekly workshops. This enables them to experience and develop hands-on skills required in FRC, such as programming, engineering, and CAD, as well as business skills and team management. IC formed an FRC team in 2017 for the DDU competition. The team, 7111 ART, was formed to give new members training and hands-on experience in the lead up and during the competition. It served as a fantastic opportunity for IC members to become physically involved in coaching other FRC students. Former IC members, Jonah and Emily pioneered an FRC team, 6995 NOMAD, in America. This gave us the opportunity to work intercontinentally with other FRC teams. We have also started six FLL teams, including Little Epsilons and Baw Baw Bots, both of which are community based teams.

FIRST enables us to gain indispensable skills in engineering, CAD, robot design, programming, leadership, writing, media and management. IC has always been a community based team, with members coming from across Victoria. This season IC has grown from 20 to 35 people, with the business team doubling in size!

Every light bulb, no matter how small, radiates light. We are shining our light, powered by FIRST and industry leaders, to share our knowledge with the next generation. It's getting brighter every year. Growing FIRST in Victoria has been a priority for IC since we were formed four years ago, and to this day we have developed new ways to engage our neighbours, our community, our city and our state. FIRST must grow in Victoria, and ICRobotics is going to grow with it, supporting FIRST and paving the way. One light bulb was just the beginning for ICRobotics. The lightbulb has come to represent who we are. We are ICRobotics. Impacting our community. Creating opportunity. Radiating our light. Let's use it to change the world!