

## Chairman's Award - Team 5515

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2018 - Team 5515

### Team Number

5515

### Team Name, Corporate/University Sponsors

Novelis , Inc./Autodesk, Inc./Beijing Sineva Co., Ltd./iFlyTech Co., Ltd./Maisui Maker Space Co., Ltd./Jiangsu Josun Air Conditioner Co., Ltd./Turing Robot Co., Ltd./Roboterra, Inc./Blue Lemon Trade & Business Co., Ltd./Home Think Science & Technology Co., Ltd.&High School affiliated to Shanghai Jiao Tong University&China Urban Youth Robotic Alliance&Shenzhen DADALELE Culture Communication Co., LTD

### 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 program ignites Blue Power Robotics members' passion for STEM - 100% of our graduates were enrolled in STEM majors in top U.S universities in 2017. In the preceding two years, more women have been inspired to embrace engineering and programming in the team, with 1 female captain and 4 female presidents taking charge of 5 out of 6 departments. This program also nurtures students' sense of coopertition and gracious professionalism, and therefore their awareness to mentor other rookie teams.

### 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

We set up Shanghai FRC Alliance to unite and form local teams through online Q&A, public presentations and lectures in 2016 initially with 10 members; in 2017 we extended outreach to 14 schools. Last off-season, we devoted more to our next generation by holding STEM experiential learning session for children with Only Education and tour session for international primary school students. Due to our prominent contribution, we were awarded the highest 3-star by Yangpu District Education Bureau.

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

In addition to reports by CCTV and Xinhua News Agency, we composed "The Hitchhiker's Guide to FRC", which includes a series of articles on our WeChat official account to assist Chinese FRC teams on safety, strategy and management with thousands of total pageview. In June 2017, we held robotics summer program with courses ranging from business to engineering for free, which attracted about 500 students who had just graduated from middle school in the Yangtze River Delta to apply for the program.

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

After our first 2017 regional, as our climbing mechanism performed steadily, we invited other teams' mentors to learn our design. During the competition, 5515 members would always go around to give others advice on how to improve their climbing system. Since Chinese teams generally lack experience on scouting, we had offered strategic information to teams who need help during regionals, composed a complete guide on effective scouting online, and issued strategy assistance package after kickoff.

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

In the past two years, with the supports of our sponsors, especially Dadalele, we are able to give presentations in other schools to spread FIRST messages and call on more to join the FIRST community, and as a result have helped started 13 local teams since 2016. Afterwards, we, as a pioneering team, keep sharing our experience and useful documents like Business Plan through offline and online sharing sessions with teams in Shanghai FRC Alliance to pave a smooth path for them.

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

Every year we help recruit for not only ourselves but also two FTC teams in our school with considerable efforts through online advertisement, public speech and robot display in club exhibition; around 120 students would sign up for our club, and over a third of them participate in FTC. On the other hand, our mentors have started Lego center, which attracts hundreds of kids to participate in FLL and FLL Jr.

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

We have translated FRC Game Manual into Chinese within 5 days for 3 years, published strategy assistance package for Chinese teams, helped pass messages from Lead Robot Inspector of Shenzhen Regional to the country and answered any questions raised in Chinese teams' group chat since 2017. As a leading team in Shanghai, we set up Shanghai FRC alliance to unite local teams in 2016 and held lectures to help rookie teams with their strategy and business.

**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)**

Blue Power has collaborated with 5 FTC teams (2 in the same school) to help them with recruitment and business by introducing them applicable sponsorship resources. Before FIRST Power Up, we have mentored 13 Shanghai teams on all aspects of FRC by sharing useful documents and tutorials. Moreover, some of our former team members who come from other schools would start teams in their own school after one year's experience at 5515 and apply knowledge they learned to their new team management.

**Describe your Corporate/University Sponsors**

Team 5515 has been proudly sponsored by Novelis Inc., Roboterra Inc., Only Education, Yangzhou Yangjie Electronic Technology Co Ltd., Blue Lemon, Turing Robot Co Ltd., Feature, Dadalele Co Ltd., Engineering Technology Associates, Inc (ETA), Shanghai Jiao Tong University (SJTU), and High School Affiliated to Shanghai Jiao Tong University (HSASJTU).

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

We work collaboratively with our sponsors and build a mutually beneficial relationship with them by involving them in our strategy sessions and robot design. For instance, last year, we designed our climbing mechanism with Turing Robot successfully. During off-season, we cooperate with our sponsor Only Education to organize tutoring program with tens of participants aging from 12 to 17 to complete a mini-project. Dadalele also offered us platforms to promote FIRST programs together.

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

FIRST is a non-profit organization that means more than just building robots. It provides high school students opportunities to not only gain hands-on teamwork experience and problem-solving skills in robotics in a time-pressured environment but also foster their values of Gracious Professionalism and Coopertition. It is about igniting students' and communities' passion for STEM and spreading the messages of inspiration and recognition of science and technology to all corners of the world.

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

We have a mature management system, which divides about 60 members into 6 departments, under constitution and plan that allows us to carry out projects with efficiency and passion. Freshmen are retained and inspired through our FRC course syllabus, a set of guidelines with topics ranging from engineering to business. We have set up STEM courses in the campus with sponsors and were awarded nationally in 2017. All our graduates stay in the FIRST community as mentors to inspire future generations.

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

Baoyan Ye

## Essay

"Bluers aren't blue, Power is power." With a decade's history inherited from FLL, FTC and VEX Robotics, Blue Power has been progressing with FRC since 2014. Whenever we make an introduction about ourselves, the statement stays the same — FIRST is MORE than robots and so is Blue Power. Through our involvement in FRC, members of Team 5515 have been forged into constant seekers of the best versions of themselves, aspiring innovators with genuine passion for STEAM, and persistent inspirers of communities across the whole country.

Starting within our team, we have ensured that every student receives equally enough opportunities to pursue their own quest and acts as role models for other Chinese teams. A mature team management system, which divides about 60 members into 6 departments, has been developed, along with team constitution and annual plan, after communications with experienced foreign teams such as Team 694 and Team 525. Other Chinese teams, like Team 6967 and Team 5823, has improved their organizational structure by learning from ours through online interactions and file sharing. On the other hand, to retain, educate, and inspire freshmen members to discover their own personal goals and embrace STEAM, we designed FRC Course Syllabus, a set of guidelines on tutoring covering 16 topics ranging from safety to business across 6 fields, as well as a package of teaching materials, which include materials translated from foreign sources like CMU Robotics.

By being a member of Team 5515, students' talents are recognized and FIRST programs have paved their ways towards a promising future. 100% of team graduates pursue higher education, with many attending prestigious universities like UC. Berkeley, Cornell, and Rice, and moreover, stay in the FIRST community as mentors to keep inspiring future generations. Our sponsor Roboterra offered members with internship opportunities to further ignite both members' and sponsors' passion for STEM. We are also glad to see that women have been played increasing vital roles in our team, with the fact that 5 out of 6 departments are led by female members this year.

To inspire other students inside our high school, we have set up STEM selective courses taught by our mentor with the assistance of our sponsor Roboterra on every Tuesday for all campus students to choose from. Many students who have taken this course became presidents of other school clubs including Odyssey of the Mind club, architecture club, FTC and VEX teams. Witnessing students' excitement, we invited our sponsors such as Autodesk and Roboterra to deliver more tutorials. In 2017, after this course was awarded the first prize within the city, it became the finalist of national course competition (the final result has not been released). Being recognized as the most prominent school club for years, we have represented school clubs to deliver speeches with robot demonstrations to over 600 Grade-9 applicants who attend campus open day in the preceding two years together with VEX and FTC teams. Due to our continuously outstanding performance, Blue Power was awarded 3-star, the highest school club award level, by Yangpu District Education Bureau.

Our impact extends widely outside the school as well. 3 years ago, we set up our WeChat and Facebook official account, and website. By tweeting our personal stories and photos, we have successfully spread FIRST messages to thousands of visitors, telling them that robotics is not a rocket science. In the same year, a team member initiated a Mooc program titled "STEM Research Method: 'Black' Discussion", influencing 2709 middle and high school students across Shanghai with 670 comments. In July 2016, we worked with JoffreLab, a well-known educational organization, to plan TEGAJOY, an event for students and parents to experience cutting-edge technology, and invited Team 5839 to play an authentic FRC field match with our robots and delivered a speech about FIRST values.

In 2017, we focused more on our future generations: cooperating with school Research and Development Center (RDC), we organized summer robotics program with 4 courses on engineering, programming, strategy and designing, and business and publicity for free, which attracted about 500 applicants from Yangtze River Delta who had just graduated from middle school; with the help of the principal of our school's IB center, we successfully invited the Western International School of Shanghai (WISS) students to visit our base, try to drive our robot, and learn basic engineering skills; together with Team 6967, we held a experiential learning session, sponsored by Only Education, providing opportunities for tens of students aging from 11 to 17 to engage with mini-projects and learn English.

Our achievements have also been recognized by multiple news agencies, including national news media like the Xinhua News Agency (2016, 1 report, pageview: 15427; 2017, 2 reports, total pageview: 1505714, excluding pageview from forwarding by over 30 other news media), and CCTV (2 videos from Live News Room; on average, about 17 million people watch this program at the same time), as well as dozens of WeChat official account. During 2017 Western Canada Regional, local Chinese organization from Calgary filmed a 23-minute long documentary for us, influencing thousands of audiences.

As we concentrate on promoting STEM education, we also helped initiate other FIRST teams. With our team members' efforts on posters, club exhibition and online advertisement, we help recruit for 2 FTC teams in our school every year; around 120 students sign up for our club yearly, and over a third of them participate in FTC. In the hope of inspiring future engineers, since 2015, we have assisted 3 FTC teams overall on technical and financial aspects, and some of them made many accomplishments, such as winning Innovation and Communication Award. Furthermore, in 2017, our mentor set up a Lego center to provide tutoring for children participating in FLL and FLL Jr.

**Essay - page 2**

As a pioneering team, we have always strived to be helpful and inspiring to ensure that any team can benefit. In CRC 2015, with the supports of our sponsor Dadalele and many experienced teams such as Team 1538 and Team 987, we made FIRST loud in China for the first time, assisting 4 Rookie Chinese FRC teams on their mechanism in Shenzhen and won Rookie Inspiration Award for our leading performances. Since 2016, by visiting their campuses, presenting introductions about FIRST and our team and demonstrating our robots with the help of Dadalele, we have successfully motivated 11 out of 13 schools to join the FIRST community. Afterwards, we kept sharing our experience for start-ups and providing corresponding support on basic programming and mechanism for FIRST Stronghold.

With the vision of uniting all local teams, in 2016, we set up Shanghai FRC Alliance to associate students across the city, and that functions more beyond our imagination. As the leader of the alliance, we keep sharing our FRC teaching materials and regularly conduct gathers to deliver our experiences, opinions and expertise, with the hope that someday, they will inspire others just like we used to inspire them. With the supports of Dadalele, we invited Team 2974 from Atlanta to exchange experience on publicity and finance. Last year, due to the considerable number of FRC teams started by us in Shanghai, a new regional will be set up in 2018 in this city, where 4 years ago, there was only 1 team called Blue Power.

Apart from local efforts, we have persistently made profound influence to all Chinese FRC teams from various aspects. To break down language barriers, we have translated FRC Game Manual into Chinese since 2016 within 5 days after kickoff, and our versions were recognized as the official Chinese versions, supporting over 50 teams across China, as well as helped translating messages from Lead Robot Inspector of both Shenzhen Regional and Shanghai Regional to the whole country and provided assistance for field translations in the regional. On the other hand, realizing the fact that Chinese teams generally lack the expertise on scouting and strategizing, our department of strategy has issued strategy package with materials on priority lists and summaries of important rules and figures for 2 years within 24 hours after kickoff.

'The Hitchhiker's guide to FRC' is another far-reaching resource for all Chinese teams to progress throughout the season more smoothly. Based on our FRC course syllabus, the guide consists of a series of articles and tweets aiming at offering effective information to help teams during the Build Season. The topics have covered 'Know Safety — no pain' (information on how to be safe in engineering work), 'Time management — Time is, time was, and time has passed' (guide on planning and time management), 'How to strategize in FRC' (a complete guide on how to scout, analyze and give effective strategies and sharing of strategy documents), etc..

"Every time we pass over a mountain, we make a huge step forward for who we are." The experiences, values and principles of FIRST programs have unfolded a world with the splendor of science and technology, and Blue Power would like to lead others to explore this inspirational world. The world of science and technology is waiting for a revolution, and that is what we take as our FIRST mission: to keep sparking the beauty of science and technology wherever we go.