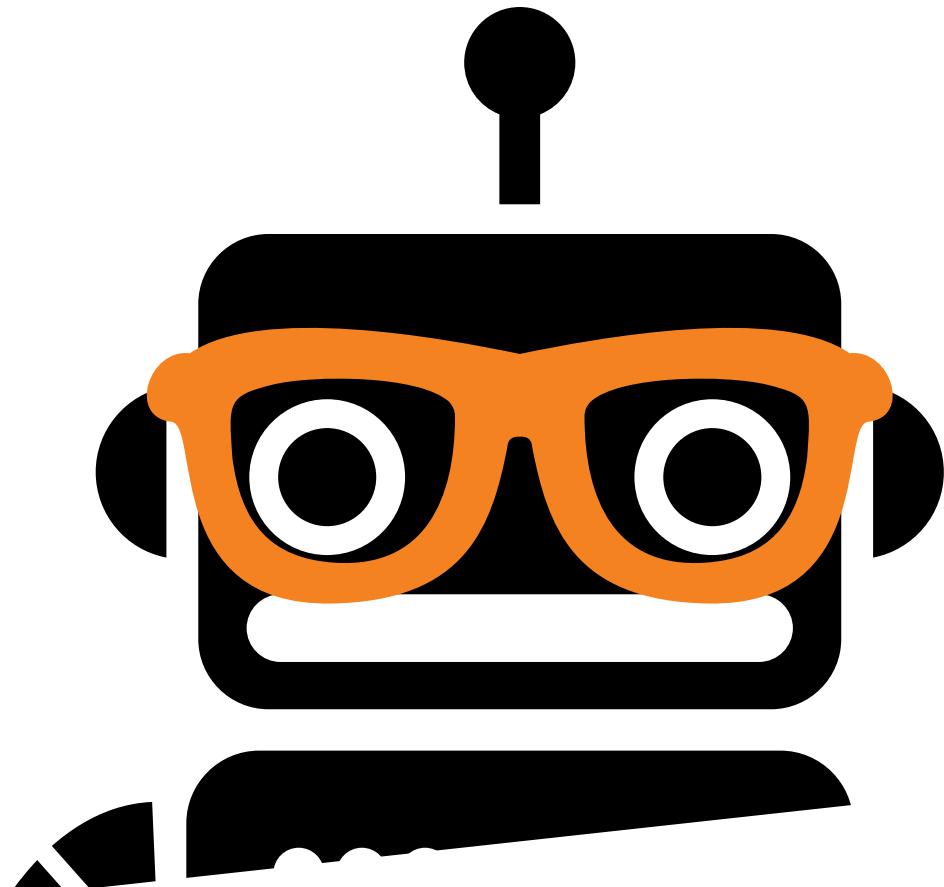
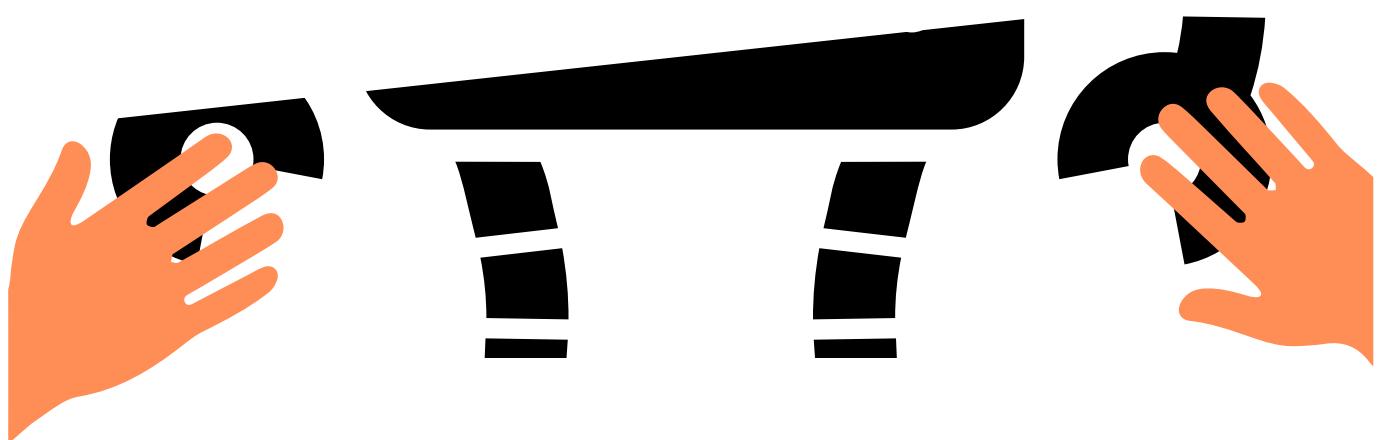


6024

MARCH 2018
ISSUE No.: 01 FREE



TEAM & ORGANISATION



MARCH, 2018
FREE FOR CIRCULATION IN FRC

In the end, it's an extra effort that separates a winner from the second place. But winning takes a lot more than that.....It starts with a complete command of the fundamentals, then it takes desire, determination, discipline and self sacrifice. And finally it takes love, fairness and respect for our fellow participants. Put all these together and even if you don't win, how can you lose?

Jesse Owens

“Believe. Achieve. Inspire.”

TEAM & ORGANISATION

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TEAM PROFILE

Our History



Our Vision & Mission



OUR VISION

To create a sustainable STEM ecosystem in our country where Science & Technology are celebrated by the various stakeholders and where the youth are encouraged to imbibe life skills and become technology leaders.

OUR MISSION

We will strive to -
Inspire the children and youth of our community and country by engaging them in STEM Programs like FIRST

- Encourage hands on learning, attitude of scientific enquiry and culture of innovation amongst the youth

- Empower the youth to explore their capabilities including self-confidence, communication and leadership

Our Core Values



Our Beliefs



Can Do Attitude



Collective Strength & Team Work



Safety & Responsibility



Clear Direction & Focus



Empower & Delegate



Nurture Youth



Respect Time & Resources



Inspire & Encourage Talent

Ms ASHA SUNDARARAJAN



Our mentor, Ms. Asha Sundararajan, has been working with us and FIRST since 2009.

She loves robots, animals, and travelling. She is willing and eager to learn more ways to accomplish a task. Her visit to Tokyo and South Korea brought her closer to technologies, while participation in the annual robotics competitions offers her a way of breaking down problems and ideas to solve a challenge. She is also the founder of our robotics centre, the Children's Technology Workshop.

Today, Ms Asha supports us from New York, where she has relocated to, and coaches FIRST Lego League teams at public school in New York.



NILESH SHAH



After being in my business of Spring manufacturing for 15 years, FIRST helped me rediscover myself. It helped me fuel my passion for Robotics & Engineering.

As my involvement with the FIRST Programs grew, I could see the transformation in myself with every role this wonderful program threw at me! Whether it was mentoring, judging or organising the FIRST Programs, I have enjoyed them all. One of my most precious moments has been when our Team India won the Zhang Heng Gold Medal for Engineering Design at the inaugural FIRST Global Challenge in Washington DC in July 2017.

Meeting Dean Kamen was like a dream come true. With 6 of my friends who believed that STEM Programs like FIRST were the way forward, we founded "WeSTEM", a free online platform to create a sustainable network of STEM stakeholders in India. With the objective of promoting, connecting and integrating STEM Programs, WeSTEM today

has managed to reach out to the corners of India and bring all those seeking to be a part of STEM network on a common platform.

My future endeavours would be to create opportunities and channelise the talent of the youth to be a part of the STEM Programs, mobilise resources to support STEM Programs in Schools and integrate STEM Programs into the main course curriculum into Schools & Universities.

My credo has been "Winning Hearts With Winning Efforts – I shall always strive to live by it!



Our Mentors

ASHWIN

 From an educator at a school in Rajkot to an entrepreneur with a team of 35+ coaches working with me in 6 years across 6 cities, my journey in the field of robotics has been no less than a roller coaster ride filled with fun, excitement, anxiety, pressure, sleepless nights with robots, losses & wins & much more with more than 150 teams coached by me in last 6 years with a single motto - "Hands On Minds On Education for students across India"! The best moment for me was the accolades on the books written by me on Robotics & STEM by TUFTS & NYU last year and of course each time I go with my team on stage with the Indian flag!

FRC had always been a dream as a mentor & I got that chance with team 6024 R-Factor. My role here is to mentor the team in electrical department - putting in my knowledge with the best of the efforts - ensuring smooth functioning of the robot with no connection loss throughout. My life goes with " Do what you love" and with this amazing year on year journey, I always feel my love with robotics & FIRST programs is never going to end!



ROHIT SEKHSARIA

 An investment banker by profession my involvement in FIRST competitions started with my 10 year old son taking part in an FLL event 6 years back. The learning for students as well as mentors in FIRST programs is something that makes me keep going in these challenging events. I believe studying technology and spreading it through outreach events is the way forward for the future generation, and hence am very keen that these programs become sustainable and successful. My endeavour as a mentor is to spread awareness, bring sustainability, and motivate students to keep pushing the bar higher and higher.



DISHA THAKUR



Me: A chartered accountant by qualification and the CFO of Singapore based trading house by profession.

It was a very spontaneous decision to join Ishaan on the FRC project and then to join the FRC project as a mentor but it's the best decision I've taken. Not only has it given rise to a new formed bond with my son but also an immense sense of pride in the opportunity this platform has given us to engage with other talented students. The excitement in the eyes of each student and the passion with which they relentlessly pursue their desired result, drives me to put this project ahead of my work and make this a priority. Infact seeing the skills and qualities the FRC is embedding into my son Ishaan, I'm grooming my younger daughter Anya to follow suit in a few years. So, am I really a mentor?.....No, currently just a MENTOR IN THE MAKING.



AADIV SHAH



Hi! My name is Aadiv, I am a keen constructor and a mechanical engineer at heart! I am greatly inspired by LEGO and have been playing with the LEGO Sets since I was 3 years old. I believe that bright young minds like the students of FIRST, will create something magical! I would love to create a platform where people from all over the world can understand what STEM is and can gain genuine knowledge about any topic, free of cost. I believe that Organizations like FIRST who aim to spread awareness about STEM are truly inspirational. I have gained invaluable knowledge through FIRST programs, something that books can never teach me. It has not only taught me concepts of math and physics but also life and character shaping lessons. I believe this will shape me as a global citizen

The greatest and most important lesson that FIRST has taught me, is to get sensitised to the people of the world, try to understand their problems and then work relentlessly to make the world a better place!

I started my journey with FIRST back in 2011, with FLL-FOOD FACTOR, since then I have done 2 FLLs and also participated in the FIRST GLOBAL CHALLENGE, representing team INDIA.

This is my first year as a mentor and I absolutely love the environment at our workplace in these 45 days! I would love to mentor future FGC, FRC teams as this is what I love to do! This is probably the best stress buster anyone can ask for!



Team Members

ADHYYAN (Team Captain)

 Hey!! I am Adhyan and I am a very big tech enthusiast. I enjoy playing video games, football, and I love learning about new and old technology. Along with that I am deeply engrossed in programming, which merrily takes up my free time. I am currently in the 11th Grade studying at Dhirubhai Ambani International School following the IB curriculum. The past two years of FRC (Teamworks and Stronghold) have dramatically affected my life. Not only has this competition taught me a LOT of STEM skills but also other social skills needed in this era like teamwork, collaboration and gracious professionalism. I hope to continue my journey and dive deeper in robotics and STEM through FIRST and other such amazing initiatives.



AAKASH

 Hi, I am Aakash Chauhan. I am currently studying in Grade 11 at JNIS. I've been doing robotics for most of my life, but there are always things I can learn, skills I can develop, experiences I will treasure, and new teammates I will make them with.

Like most others interested in sciences and robotics, my favourite subjects are physics chemistry and math (and surprisingly enough, history). My other interests include reading and watching works of science fiction, listening to music, football, and hogging food.

This is my second year with Team R-FACTOR, and I'm looking forward to making some unforgettable memories with the team.

May the force be with us this time as well!



AARAV



Bonjour, I am Aarav Parikh and I'm currently in Grade 8 at S.V.K.M J.V. Parekh International School. I have participated in multiple robotics competitions, V.E.X and WRO are some of them, my hobbies are gaming, playing basketball and of course, robotics. I love robotics because I love problem solving and my favourite part of robotics is the problem solving part, also I love the exposure to various types of new technology. This is my 1st year in a FRC program, and I hope to learn new skills, make new friends and have a blast; looking forward to an awesome FRC season in FRC team R-FACTOR!

AARUSHI

 Hi! I'm Aarushi Majumder. I am 16 years, currently studying in Grade 11 at Dhirubhai Ambani International School. A twice-gold medalist at the prestigious Homi Bhabha Science competition, I love STEM, and in particular physics and programming. I also love theatre, am a voracious reader, a trained Hindustani classical singer and a sprinter. I have been a part of Team RFactor for three years now, and this is my third time participating in the FIRST® Robotics Competition. I am incredibly excited to be a part of this journey once more.



Team Members

AADIT

 Hi! I am Adit Lakhani. I am studying in Grade 8 at Jamnabai Narsee International School. I am passionate about robotics, chess, drones, coding, video games and overall technology. I have previously participated in different robotics competitions, like FTC, FLL, WRO and VEX IQ. I have represented India at the world championships for WRO, FTC and VEX. Robotics competitions have overall been a great experience. I am excited and curious to experience FRC for the first time.



ARMAAN

 Hi, I am Armaan Sheth. I am studying in Grade 9 at Jamnabai Narsee School. I enjoy the subjects Math and Science, I love robotics, playing video games and listening to music. I have been taking part in robotics competitions since the past 6 years now. I have participated in one FTC where we went to Australia and won the finalist alliance award. I have also participated in two FLLs, in fact my first FLL was with the original TEAM R FACTOR, where we had gone to Australia and bagged the championship. I have also taken part in a couple IROs. This is my first FRC and I am excited for all fun we will be having together.

HARSH

 Hello, my name is Harsh Savla. I am 14 years old and I am studying in grade 9 at Edubridge International School. I have been interested in STEM since the age of 5. I started my journey into robotics through Lego. My parents bought me my first Lego set when I was 5 and since then I have bought multiple lego sets including the lego mindstorms EV3. I then participated in 3 IRO's and reached the nationals twice. On my journey I learnt a lot about computers and programing. In fact as a part of my CAS activity I refurbished 3 old computer and donated them to a school for the underprivileged. This year I enrolled for my first FIRST program the FRC.



HITANSH

 Hi, I am Hitansh Doshi, currently pursuing the IBDP (Year 12) in Dhirubhai Ambani International School. My passion for robotics has made me participate in several robotic competitions such as World Robot Olympiad from Grade 8 to 12, FIRST Lego League in Grade 9 and FIRST Robotics Competition last year as a member of team R-FACTOR. My favorite subjects are Mathematics and Physics, which help me pursue my passion of robotics since the 5th Grade. Robotics has helped me grow and has also nurtured my creativity and thinking to solve issue and problems that may occur. Besides robotics, I like to do and have hobbies such as origami and web development.

Team Members



ISHAAN



Hi, I'm Ishaan and I'm currently in the 11th Grade at Oberoi International School. I've always had a passion for robotics - particularly the building and designing aspect of it. This is my 5th year participating in a robotic competition (I have participated in 3 IROs and 1 FLL in the past) and my first time participating in the First robotic competition. Physics and Mathematics are my favourite subjects. I also love listening to music, playing video games and play the drums. I'm looking forward to a fun filled season.

JAI



Hi! My name is Jai, and believe me I love robotics. I have been doing it for 5 years now and have previously participated in WRO, FLL and FRC. I am in Grade 9, studying at Jamnabai Narsee International School. I love to play the guitar and often play basketball.



KRISH



Hi! I'm Krish Mehta, Grade 11 studying at Dhirubhai Ambani International School. I had the privilege to be the member of the first Indian FRC team. I love robots, rubiks cubes, magic, video games, coding, math, and logic. I am swimmer at state level and also loves LEGO since when I was 3, I was pulled towards the WRO and FIRST programmes ever since I learnt how to use the NXT sets. FIRST programmes have taught me many life skills, from taking risks to making quick decisions. Every Lego brick, big or small, interacts with each other, a valuable lesson on how teamwork is the backbone of every success. I hope my logical mind and versatility can help my team win this competition.



MAHIR



Hi! My name is Mahir Shah and studying in Grade 8 at Jamnabai Narsee School. Robotics has been my passion since when I was eighth years old. I am very thankful to STEM for giving us this amazing exposure to numerous competitions. I have participated in many different robotics competitions like IRO, 2 VEX IQ and FLL. I am very fond of Basketball and music. Stephen Curry is my favourite basketball player! Robotics has not only taught me the skills of the robot but also about research and surely a lot of teamwork. Every competition has been a lot of fun. I too like the subjects of Physics and Mathematics. I too love meeting new people from around the globe. I have come a long way participating in various competitions and hope to do so by participating in FRC.





NANDISH



Hi! I'm Nandish. I am currently in Grade 9, studying at Oberoi International School following the IG curriculum. I'm really interested in exploring new technology and passionate about programming and hope to learn and explore about it. Apart from this I am an avid badminton player and love to play chess. I have done robotics for 3 years now, and have taken part in 2 IRO's, Robosoccer, where we won third place in nationals and FLL, where we came up with a project to clean up beaches by giving incentives to the people who help out in the cause. I'm extremely glad that I have been part of these various competitions because it has helped me in realising and discovering new problems and solutions to solve social issues which have developed my logical thinking skills. Not only this, these years have greatly developed my interpersonal skills, helped me learn many new concepts of physics and also develop my construction and programming skills. I really look forward to my first season of FRC to dig deeper and enrich my learning on robotics.



RADHIKA



Hello, I am Radhika Sekhsaria and I am studying in Grade 9 at Oberoi International School. Unlike everyone else in the team, I am not the biggest fan of math and science but I surely am very enthusiastic about creating and learning something new every single day. I love engaging myself with activities like, dancing, playing badminton, painting, being creative, graphic designing, watching netflix, and surfing through instagram 24-7. I have been surrounded by robotics from the past 5 - 6 years as my brother has always been taking part in different competitions and creating models at home while my father is also very passionate about the same. This is the first time I am a part of a robotics team and I can not wait to learn so many new skills, engross myself into various activities and make so many new friends all across the world.

RAHESH

 My name is Rahesh Saraf. I am in 10 Grade, studying at Jamnabai Narsee International School. My favourite subjects are maths and physics. My hobbies lay in badminton and robotics and like listening to music in my free time. I'm very passionate about robotics and have been taking part in competitions for the past 6 years. These competitions have taught me the importance of team work and have made me sensitised towards the community.



RIYAAN

 Hi I'm Riyaan! I'm 15 and I'm currently studying in Grade 10 at Dhirubhai Ambani International Schools. I was part of team FRC 6024 R-Factor in 2017. I am a frequent participant in Robot Olympiads, and I've won at the state level multiple times. I've also twice been a member of teams that won runner-up in international FLL tournaments held in Pampalona, Spain and Razorback, Arkansas. I am a competent programmer in Python, Java, and C++, and a proficient 3D animator and Video Editor using 3Ds Max, Adobe Illustrator, After Effects, Photoshop, etc. I'm passionate about Computer Science, Physics, and Maths.

SHIV

 Hello! My name is Shiv, and I'm studying in Grade 8 at the Dhirubhai Ambani International School. Robotics has a special place in my life, and to imagine a life without it would be impossible. I have participated in 2 IROs, and have been doing robotics for well over a year and a half now. Arduino projects and 3D designing models and prototypes fill my time. I am really looking forward to learning so many more concepts related to engineering, construction and programming during FRC. Apart from robotics, I am an international level chess player and love playing tennis. The logical side of things appeal to me, and my favorite subjects are math, physics and computer science. I am really looking forward to FRC.



SOHAM

 Hi! I'm Soham. Currently studying in 9th at Vagad Pace Global School. I have been doing robotics since the 4th standard. It's all thanks to STEM and exposure to the robotics field that I am always innovative and love creating. Not only has it taught me to do something new but also not to be let down with the failure and keep giving your best. I also play chess, tennis and karate. My favorite subjects is physics and I love construction. FRC has taught me that we can do great things with robotics, teamwork and help society in various ways. This is my second FRC season and hope that it is a blast.

TANAY

 Hi, I'm Tanay. I'm in grade 9 at DAIS, and I've been doing robotics for 4 years now, but there's still a lot to learn about it. I think, I still haven't seen a syllabus booklet. Anyway, my favorite subjects are computer science, maths and physics. I love photography (Note to self: insert link to my Instagram account here: @tanaynistala) and doodling. I also loves videography, cartoons, drones, webcomics, video games, tech & making websites, coding, and Star Wars and couple of things I forgot to mention. This is my second year in the FRC, and I'm really looking forward to this season!



UCHIT

 Hola! The name's Uchit Raj Shriyan and currently, I am pursuing Mechatronics in NMIMS' Mukesh Patel School of Technology Management & Engineering. This is my second year in the FIRST Robotics Competition. My hobbies include dancing, playing video games and football. Electronics is something that I indulge myself in and love to learn a lot in that field. Also, creating models on CAD is one of the things that I started to love since I started in FRC. The aim is to learn and evolve each and every day and the goal is to spread the message of FIRST and STEM. Robotics is love, robotics is life.



VANSH

 Hello, I am Vansh Diora. I am studying in Grade 8 at S.V.K.M international school. I have been pursuing robotics since the last three years but there is a lot to learn yet. My hobbies include robotics, football, chess, and video games. I am really interested in new technologies and want to explore and gain more. This is my first year in FIRST robotics competition and I really look forward to it. These years of participating in vex and FRC has completely changed my thinking of robotics. As we all know that the world could be taken over by robots, I am really enthusiastic to learn in depth about it.



VEDANSHI

 I am Vedanshi Shah studying at Edubridge International School in Grade 11. My greatest hobby is learning and exploring. Flourishing in all types of fields, maths, physics, technology and sports spark my curiosity the most. Currently, I am doing Diploma in Multimedia and Animation, participating in adventure sports like Paragliding, Scuba Diving, Skiing, Surfing and I am a state level Baseball and Softball player. Technology is very important to me and the future. This is my first year doing FRC. I enjoy exploring the field of robotics and see it as a platform for me to understand a small drop of the vast depths of technology.



VYOM



Hi, I am Vyom Shah and I am studying in Grade 8 at Jamnabai Narsee school. I loves playing sports as well as doing robotics. I also loves coding, flying drones and loves playing video games. My journey in the world of robotics began when I did my first robotics competition which was Vex, and we qualified for the international round which was held in the USA. As we all know that robots are going to take over the world i am very keen to learn in depth about robotics and i feel that the FRC competition would be the ideal way to get a hands on knowledge of robotics.



VATSIN



I am Vatsin Suchak from Ecole Mondiale World School, aged 17, and studying in 12th grade. My robotics journey began way back in 2009 and has continued into my final high school years. Along the way, I became an avid reader of science fiction, a passionate learner of mathematics, and, most importantly, a (mostly) reliable teammate. I've grown under the mentorship of so many coaches into an innovative thinker, something I hope to keep for life.



YASHVI



Hi, I am Yashvi Jaju! I'm currently in Grade 11, studying the IBDP course at Oberoi International School. Since I was a little kid, I've been fascinated by robots - I remember playing with lego at the tender age of five, constructing enormous cars and trucks from the lego kits I owned, and I guess that fascination was what propelled me to push myself and go beyond. With growing interest and exposure in this field, I participated in the IRO a few years back, securing the second position during the regionals. This achievement served only to motivate me to continue my endeavours in the fields of STEM, and hence leading me to now participate in the FRC. I couldn't be more excited to work alongside students and mentors of similar passion - as they say, surround yourself with passion and dedication, and the most challenging "work" will become all fun and play!



Organization Structure

Lead Mentors Asha Sundararajan / Nilesh Shah		
ROLE	ADULT MENTOR	STUDENT HEAD
Design & Mechanical	Nilesh Shah	Rahesh
Electrical	Ashwin Shah	Uchit
Programming		Adhyyan
Web Designing	Talent Home	Hitansh
Animation	Frameboxx	Tanay / Jai
CAD	Aditya Subramniam	Hitansh
Outreach & Marketing	Meenal Majumder	Aarushi
Sponsorship	Rohit Sekhsaria	Adhyyan
Safety	Aadiv Shah	Yashi
Quality	Aadiv Shah	Rahesh
Journal	Disha Thakur	Ishaan / Vansh
Strategy & Alliance	Nilesh Shah	Krish
Social Media	Rohit Sekhsaria	Radhika
Awards	Meenal Majumder	Aarushi
Events	Anuradha Saraf / Toshiba	
Project Manager	Rohit Sekhsaria	

AWARDS TEAM 6024

2016 SYDNEY REGIONAL

Entrepreneurship Award sponsored by Kleiner Perkins Caufield & Byers

This award celebrates the entrepreneurial spirit and recognizes a team which has developed a comprehensive business plan in order to define, manage and achieve the team's objectives. This team displays entrepreneurial enthusiasm and the vital business skills to ensure a self-sustaining program.



2017 First Global Challenge, Washington DC

GOLD for Zhang Heng Engineering Design Award

BRONZE for Global Challenge Match Points

TWO Awards (both Quantitative & Qualitative)

2017 New York Tech Valley Regional, Troy

Quality Award Sponsored by Motorola Solutions Foundation.

Celebrates machine robustness in concept and fabrication.



2018

Runner-up for Safety Animation Award Sponsored by UL Sydney Regional.

Recognizes the team that submits a short animated film that best promotes the current season's team safety focus.

Awards Submitted - Chairman's Award



CHAIRMAN'S AWARD APPLICATION

BELIEVE. ACHIEVE. INSPIRE.

Team Number: 6024

Team Name/Nickname: Team R Factor



Briefly describe the impact of the FIRST program on team participants with special emphasis on the current season and the preceding two to five years

Thanks to FIRST, students of team 6024 are sensitized to global problems and use STEM to solve them. Some members have filed patents on their FLL research projects. They have discovered a passion for STEM and won 44 national and international STEM awards of which 18 are from FIRST. 100% team alumni are pursuing STEM in reputed colleges. Team members display a "Can do" attitude, confidence, perseverance, communication and time management skills. They have been felicitated by their schools for their roles in FRC.



Describe the impact of the FIRST program on your community with special emphasis on the current season and the preceding two to five years

We displayed our robots at 50+ schools inspiring 30,000+ students to pursue STEM. Our FLL projects were endorsed by industry heads, municipal corporations. We started 3 FLL teams – 1 all girls team and 2 teams of underprivileged students this year, one of which reached the FLL nationals. Our inter-school competition won a STEM scholarship for a student from the slums and took a blind student to the WRO. Some members implemented impactful waste and water management projects in their community.



Describe the team's innovative or creative method to spread the FIRST message

We hosted 8 FLL kickoffs to showcase FIRST, with 20+ schools at each event. We run after school robotics programs in 31 schools across India, reaching 7000+ students. We will be displaying our robot and playfield at Kidzania (daily footfalls of over 1000). Through Maker Faire and IIT Techfest we reached an audience of 50000+. We displayed our robots to industry leaders, scientists and elected officials. We received aid from 200+ donors via crowd funding. We have an active social media presence.



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

A team member, who learnt coding on the FRC robot itself, is now amongst the top 10 coders of India and mentors our team in coding. Our students are role models for gracious professionalism. We inspired 3 other girls to join our team and formed 2 all-girls FLL teams. The admission of our alumni in top US universities, with full scholarships, inspired many to follow FIRST. Our team members regularly work with children from the slums, teaching them math and science, and raising funds for them.



Team's initiatives to help start or form other FIRST Robotics Competition teams

We motivated the American School of Bombay to start FRC team 6813. We are currently mentoring them, in all technical and logistical aspects of FRC. Of the over 50 + schools we made presentations to, 3 have pledged that they would start FRC teams next year. We are actively assisting rookie team 7272 in their FRC journey. We aspire to be a resource for rookie teams for which we are organizing rookie nights and have documented our technical, fundraising and outreach processes.



Awards Submitted - Chairman's Award



Describe the team's initiatives to help start or form other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

We hosted, managed and sponsored 3 FLL regionals across the country, several FLL kickoffs, interschool competitions and forming new FLL teams. To overcome a shortage of mentors, we trained 9 engineering students for FLL so that they could travel across Mumbai city to mentor students. We have an online FLL manual to help new teams. We mentored 8 FLL teams- 2 of which were from underprivileged schools, and 2 all-girls teams, funded by us.



Describe the team's initiatives on assisting other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge) with progressing through the FIRST program

Our team provides ongoing assistance to 8 FLL, 2 FTC and 1 FRC teams. We have led multiple sessions with Team 6813, the rookie team we started, on mechanical, electrical and safety aspects. Further, we have opened our practice field to them. Mentors trained by us have travelled across Mumbai to train rookie FLL teams. We have recruited 11 FLL/ FTC students into our FRC team this season thus providing them progression through the FIRST program.



Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

In collaboration with team 6813, we held an FLL kickoff at the American School of Bombay, attended by 40+ school teams and 2 underprivileged ones. We mentored 8 FLL & 2 FTC teams this year. They help these teams right from project selection to robot design in FLL & adaption to construction with metal pieces to drilling, cutting & coding with android studio in FTC. Our mentors have written simplified books for STEM and robotics application, which have received appreciation from TUFTS and NYU.



Describe your Corporate/University Sponsors

Our lead sponsor is Infosys, the pioneer of technology business in India with a market cap of USD 50bn. The other sponsors are Parle Products, world's largest selling biscuit brand, Larsen & Toubro, India's largest engineering and construction company with a market cap of USD 30bn, Narotam Sekhsaria, Chairman of India's second largest cement maker, ENAM and JM Financial, the 2 most reputed investment bankers and Axis Bank and Yes Bank which are among the top 10 banks in India.



Describe the strength of your partnership with your sponsors with special emphasis on the current season and the preceding two to five years

This is our third year at FRC and our previous years' sponsors continue to sponsor us. Infosys invited our team for the Infosys Prize ceremony (much like the Nobel prize) on the Infosys Science foundation day, where our team members had an opportunity to interact with Nobel Laureate Dr. Kip Thorne. Parle Products gave us a space to build the robot. MESCO Springs helps the team on our requirement for springs and other components.



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

FIRST is a journey – allowing us to explore, celebrate and enjoy STEM, while incorporating the core values of gracious professionalism and competition, always. FIRST, through its hands-on experiences, empowers us to transform lives. We have learnt to work in teams to build, code, create, think, communicate, inspire, innovate and aspire to be future leaders.



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

We have reached out to and received support for FIRST awareness from the Chief Minister of Maharashtra, several Members of the Parliament and several business leaders including the regional Chairman of the Confederation of Indian Industries. We have established idea exchange platforms with 20+ teams participating with us at the Sydney regionals. Team 6024 has become a close-knit family with 42 people from India travelling to Sydney to cheer us. Our Sydney embassy has assured assistance to us.



Awards Submitted - Chairman's Award



"IT'S KIND OF FUN TO DO THE IMPOSSIBLE" – WALT DISNEY

We were on an airplane, travelling back 10,000 kilometres from Sydney after attending our first FRC Regional Championship, when the amazement of it all sunk in. At first, all we saw were disjointed pieces of a puzzle: the **pre-season** where we learnt to communicate confidently with sponsors and how to influence people through our outreach; the long build hours during the season where we learnt new skills, met new people, and forged friendships for life; and the competition itself – the blinding lights and cheering crowds, acceptance and support, the electric atmosphere that lets you be part of something so much bigger than yourself. It was when these pieces came together that they formed a picture and blew us away. **We knew that our lives had been forever changed by FIRST.**

Two years later, we - 25 students from 9 schools in Mumbai, India and our mentors are an evergrowing family.

```
public static void flashpoint (int opportunity, int friendship, int fun, int learning)  
int frc_for_life = fun*friendship;  
int achievement = opportunity + learning;
```

Our year starts off with weekend training sessions from August to December. As the senior team members graduate, new students from younger grades take their place. Our team functions like a well-run organization. The broad tasks are categorized into two main functions- Engineering and Operations. These are further sub divided into construction, electrical, programming, safety and strategy; and marketing, outreach, animation, web designing, social media, sponsorship and finance, respectively. The team members choose one or more teams from these tasks thereby getting trained on the different aspects of FIRST. Being a part of both the Engineering and Operations streams, team members develop key skills that they use throughout their life. During the season, we meet post school every day to work on our robot; we bond over late night pizza and jokes; making hilarious STEM parodies of songs. As a student led, student run organization, we develop leadership, time management, financial and public speaking skills. We have a common passion, a common dream, and we realize it every day as ambassadors of FIRST in India.

Every single member on our team has, completely and irrevocably, fallen in love with robotics and FIRST. The Team members, among themselves have over 44 international and national awards in STEM. 4 of our students presented at the Intel Science Fair in the USA and several have received awards at the Indian and World Robotics Olympiads (IRO and WRO). One of our students learnt programming on our FRC robot and is now among the top 10 programmers in India. 100% of our alumni pursue STEM degrees. Our alumni attend prestigious schools such as Stanford, UC Berkeley, Princeton, Yale, USC etc. Each year our alumni return to visit us, volunteer at competitions, and even mentor the team. FIRST has made us entrepreneurs, innovators and leaders. With accomplishments ranging from being captains of the school, to receiving the Young Entrepreneur Award, introducing coding clubs in schools and making an impact with their patents, our team members are leaving their indelible mark on our community.

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public static void growth (boolean passion, double lives_touched)  
If passiON == true  
lives_touched = 30,000+;
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Our endeavour is to share our learnings and experience with as many people as we can. We have displayed our robots at 50+ schools and to over 30000 students to cultivate an appreciation for STEM in schools and in our community. As a result of these efforts, we now run an in-school and after school robotics program in 31 schools across India (in cities like Mumbai, Ahmedabad, Rajkot, Surat, Chennai etc.) giving STEM education to over 7000 students a year. The Nehru Science Centre, a Government body and the largest interactive science centre in India, invited us to display our robot at the National Science Day. This event was attended by students from over 70 schools across Mumbai.



Awards Submitted - Chairman's Award

To make the FIRST ecosystem sustainable,

- We started with getting children interested in Jr. FLL and FLL and then scale them up to FRC.
- We offered a workshop for over 20 FLL and robotics program coaches from across Maharashtra and Gujarat (2 of the biggest states in India), communicating strategies on how to manifest successful learning experiences for FIRST.
- Along with our coaches, our team then held 8 FLL kick-offs at schools and apartment societies in Mumbai.
- One of the biggest FLL kick-offs was held at the American School of Bombay. We had over 200 kids participating in this, of which around 8 teams registered for the FLL regionals.
- Mentors trained by us coached these teams. These mentors travelled across Mumbai to help these FLL teams in a hub and spoke model.
- We have created an easy to follow FLL manual online to help new FLL teams.
- We conducted a FLL kick-off season in Rajkot (a prominent city in Gujarat) along with the Rajkot Municipal Corporation, where we got 100 children to pledge participation in FLL for the next season.
- Totally, we started 3 FLL teams and mentored 8 FLL teams, 10 Jr. FLL teams and 2 FTC teams this season.
- Our team hosted and assisted 3 FLL regional competitions, the FTC national competition and the FLL national competition across India, serving as judges, referees and timekeepers as well as building field models.

In the past year, we've completed 2000+ hours of community service through teaching elementary school teams, running robotics events, teaching Math and Science in schools for the underprivileged. We have started 3 FLL teams - 1 all girls team and 2 teams for the underprivileged – that we fully sponsored to take part in FLL competitions. The Candlelight Project, a team of underprivileged children, started by us got the best project award for their innovative idea at the FLL regionals and reached the FLL nationals this year. Additionally, our team raised over \$20,000 for the education of underprivileged children and girls in particular. Our team has successfully implemented solid waste management programs in various housing societies thereby reducing solid waste going to the landfills.

We also held four theme-based robotics competitions across Mumbai - STIR (Science Technology Innovation and Robotics), WiSTEM (Women in STEM), CFC (Children for Change), and MindSplash, where we taught children who had never seen robots before to build robots and fly drones. At these competitions we also held Ideathons – events where the students could create innovative solutions to any problem of their choice around sustainability. We demonstrated our robot at schools for the underprivileged and the hearing impaired students. The competitions held at these places allowed two underprivileged students to win STEM scholarships, and took a blind student to the World Robot Olympiads.

Over the past two years, we have been trying to set up more FRC teams. Our presentations at schools have got both the school boards and children enthusiastic about FRC. We managed to convince the American School of Bombay to start their FRC team (Team 6813) this season and have three teams that have pledged to start FRC next season. Mentoring Team 6813 through the design, construction, programming and electrical aspects has been a wonderful learning experience for us. We also share our play field with Team 6813 and look forward to having them with us at the Sydney regional championship. We meticulously document our processes, fundraising, outreach, time management and sourcing, which can be emulated by other teams. We assisted rookie Team 7272 with their electricals and skyped with Team 6619 to both learn from and help them. We already have friends in the Sydney regionals thanks to our skype sessions - in fact Team 3008 from Australia has invited us to have lunch with them during upcoming Sydney FRC Regional championship.

public static boolean impact (int commitment, double perseverance)

while (commitment == 100%)

{horizons expand, ripples spread, we make a difference;}

Awards Submitted - Chairman's Award

To ensure that we create a larger movement, we met several elected officials and business leaders including the Chief Minister of Maharashtra, Members of Parliament and the regional Chairman of Confederation of Indian Industries (CII). Post our interactions, they realised how life-changing FIRST robotics could be and have offered us support and a platform where we could reach out to a wider audience.

Over the years, **Team 6024** has been covered by various media. We have featured in various newspapers as a role model team. We have also shared our story live on FM radio. We have a strong social media presence - our website, Facebook and Instagram accounts allow us to connect with other teams from all over the world. We have already established regular contact with teams 457, 3008, 3390, 3739, 6429, 5846, 6449, 3940 and 1721, whom we expect to meet in Sydney. We have received donations of over US\$15,000 via crowd funding from friends who want to see us succeed.

Our lead sponsor, **Infosys**, a global leader in technology services & consulting has been associated with us for past two years. Our team is inspired and motivated by interactions with the Infosys Founder, Mr Narayan Murthy, whose message for the team is to keep going, no matter how many hurdles we are faced with. Infosys Foundation invited our team on its Foundation Day this year to interact with 2017 Nobel Laureate Dr. Kip Thorne. This was a dream fulfilled for many of us. Dr. Thorne impressed upon us the importance and scope of science and learning. Continued support from the other sponsors like the Parle Group – a large FMCG Company and Axis Bank – one of India's largest private sector banks has helped us significantly in our journey.

"Anything is possible, you only have to try."

Three years ago, when we started our FRC journey, we couldn't have even imagined we would come this far. Overcoming the challenges we faced with determination and hard work has made each one of confident. This program has given us a direction and it is our endeavour to sustain it. We are determined more than ever to continue our mission of inspiring STEM by adhering to FIRST values and providing new opportunities to future teams of FIRST students. Being a successful robotics team is important to us, but equally important is paying it forward so others can have the same learning experience. When we started, we never realized the team we would become. Now, we're looking forward to seeing the team we WILL become. We have promises to keep and miles to go before we sleep!

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Awards Submitted - Entrepreneurship Award

Team Mission Statement

Please briefly indicate what you believe to be the "driving engine" of your team. Your mission should be clear and concise. It should represent to any reader exactly what your business plan strives to accomplish.

Mission

We strive to:

- 1) Inspire the children and youth of our community and country by engaging them in STEM Programs like FIRST.
- 2) Encourage hands on learning, attitude of scientific enquiry and culture of innovation amongst the youth.
- 3) Empower the youth to explore their capabilities including self-confidence, communication and leadership.

Our manifesto is four-fold

- 1) Continuously experiment and grow in knowledge and become a self-sustaining team.
- 2) Develop modular methods and standard operating procedures that can be emulated by other teams.
- 3) Add as many new sponsors as possible year after year.
- 4) Focus on every outreach opportunity and never miss an opportunity to help.

The driving force behind our mission are our 2 founder mentors, who push us to the limits to achieve our mission. The passion and energy of the mentors is very infectious, who motivate us to raise the bar every time. Our sponsors viz., Infosys and Parle have given us the resources to achieve our goals, our parents have provided us with the required support services, and our mentors lead us from the front to achieve greater heights.

Team Origin



Please provide the date that your team formed, the location of your team, the current number of team members (highlighting any growth over past years) and describe the challenges the team had to overcome in order to participate in FIRST events.

Team R Factor began in the FLL Senior solutions season of October 2012 in Mumbai, India under the leadership of our chief mentor, Ms. Asha Sundararajan. Since then, with the combination of alumni and new recruits, our team today has 50+ students and mentors. This is our 3rd year of participation in FRC. The current students are from 9 different schools, grades 8th to 12th, and 4 girls amongst the 25, up from 1 girl in the previous year. 51% of FRC students have participated in FTC and/or FLL. 100% alumni have gone to study engineering. We engaged professionals to train our students in animation, web designing and CAD.

Our challenges

- 1) The biggest challenge in the city of Mumbai is to find adequate space, as rentals are very high. After struggling for almost 2 months, a corporate who was impressed by the program's benefits to the society gave us a large space in their premise in the centre of the city.
- 2) It is very difficult to find specialised and standardised parts in India under one roof. Hence, we had to keep ordering parts from USA which is costly as well leads to delay in work.
- 3) Though FIRST events have been happening in the country for over 6 years now, the awareness and penetration is very low.
- 4) Since we have students from 9 different schools, managing their schedules was very challenging.



Awards Submitted - Entrepreneurship Award



Organization Structure



Please detail how the team is structured to

- 1) Raise funds;
- 2) Ensure funds are properly spent;
- 3) Find and engage sponsors;
- 4) Recruit team members/mentors for current & future seasons;
- 5) Ensure FIRST principles remain core to the team's efforts.

Lead Mentors

Asha Sundararajan / Nilesh Shah

ROLE	ADULT MENTOR	STUDENT HEAD
Design & Mechanical	Nilesh Shah	Rahesh
Electrical	Ashwin Shah	Uchit
Programming		Adhyan
Web Designing	Talent Home	Hitansh
Animation	Frameboxx	Tanay / Jai
CAD	Aditya Subramniam	Hitansh
Outreach & Marketing	Meenal Majumder	Aarushi
Sponsorship	Rohit Sekhsaria	Adhyan
Safety	Aadiv Shah	Yashi
Quality	Aadiv Shah	Rahesh
Journal	Disha Thakur	Ishaan
Strategy & Alliance	Nilesh Shah	Krish
Social Media	Rohit Sekhsaria	Radhika
Awards	Meenal Majumder	Aarushi
Events	Anuradha Saraf / Toshiba	
Project Manager	Rohit Sekhsaria	



Awards Submitted - Entrepreneurship Award

Relationships



Please detail team efforts to specifically engage, inspire, educate and retain

1) Team members;

2) Mentors;

3) Sponsors/Community.

Our team engages, inspires, educates and retains members, mentors and sponsors while encouraging FIRST's mission in our community. Our Organizational Structure includes student sub-team leaders who educate new members in all aspects of the programme. Because of the team's dedication and enthusiasm, our mentors stay with the team and inspire us in ways nothing else can. 3 of our mentors are parents managing all logistics and organisational matters. We have 2 committed founder mentors who are our role models. Showcasing our robots at the outreach activities and articulating its benefits motivated new students, as well as helped retain most of our last years students. It is heartening to see enthusiastic new students from the 8th and 9th grades keen to join the programme. We got the schools to felicitate our team members for the work done by them. We trained 7 students for animation and 5 for web designing at specialist institutes resulting in the safety animation award.

Sponsor and community outreach are essential to our team. We visit our sponsor sites to demonstrate our accomplishments and keep them updated regularly. This year we added 6 new sponsors. We have participated in various community fund raisers to engage community members to take part in FIRST and STEM. We have made presentations to elected leaders to emphasize the importance of STEM for the community. We hosted the WRO and FLL Mumbai regionals, 8 FLL kick off events, a FRC kick off event, demonstrated at 50+ schools. Our hearts swell with pride each time we showcase our work.

Deployment of Resources



Please detail how the resources of your team (Financial or otherwise) have been deployed to

1) Engage the community to spread the message of **FIRST**;

2) Inspire others to get involved so that **FIRST** continues to grow;

3) Ensure all team members get the most out of their **FIRST** experience.

We held the FLL Mumbai regionals, held 8 FLL kick offs with a total of 300+ students participating, sponsored and volunteered at FTC nationals, held the WRO regionals, held demos at over 50+ schools, sponsored all expenses of 2 FLL teams from the underprivileged schools and volunteered and sponsored the FLL nationals. We also ran mentor training classes for FLL. The total amount spent on these activities was about USD 10 k which was approx. 14% of our total expenses.

Felicitations of past and existing students by schools, community and sponsors is one of the best ways to inspire new students. We have gone to each and every school of our students and got them to felicitate our team members. We held events where we asked leaders of our community and from the government to congratulate and felicitate the team. We also held an event for the FRC kick off day which was attended by 200+ people. All these events have started a new wave of awareness of FIRST programs.

To ensure that all team members are involved in the programme we spent on training 7 students for animation, 5 on web page designing, 4 on CAD, hand held students on social media management and programming, and our in house mentors trained students on mechanicals and electricals. A few students expressed an interest to colour the playfield parts, and funds were spent on painting the playfield, which is like a show case product now. The team is so proud of their creativity, outreach events, and the robot, that now we are in the process of inviting a zillion people to showcase or work.



Awards Submitted - Entrepreneurship Award



Future Plans

 Please indicate specific plans the team has for the next 3 years in regards to sponsorship, team and community outreach (including helping FIRST grow) and detail how you expect to be able to accomplish these goals.

We now have set standard operating procedures for the future. Our goal is to maintain a team of 20 to 30 students. Many people from our sponsors have shown interest to become mentors for the next year. As soon as we are able identify fully committed mentors, we would initiate new teams, and divide the entire resources between all teams. The budget for each successive team would keep reducing as we would be able to share a lot of our resources. We intend to collect 50% from team members as fees and 50% from sponsors. As of now we have a good pool of sponsors, which are growing every year, and hence as of now we don't see funds as a challenge. The SOP for outreach events is that each year we will hold 2 FLL kick offs, 1 FRC kick off, 1 WRO regional, 2 FLL regionals, sponsor 2 underprivileged teams for FLL, and visit 20+ schools each year. We piloted a FLL mentor training programme for engineering students. We are happy with the results and plan to multiply this in a big way to get more students to take part in FLL and Jr.FLL. We have 2 high aspirations. One is to start a FRC regional in India. This year we got one more school from Mumbai to make an FRC team, and a promise from 3 more for the next year. At this rate we should be able to reach 20 teams in 4 / 5 years and once critical mass is reached, the flow should become a flood. Second high aspiration is to create an organisation - FIRST INDIA, similar to FIRST AUSTRALIA. Our team looks up to FIRST AUSTRALIA for the work done by them. We understand that this will require commitment from sponsors, and we are exploring it.

Financial Statement

 Please include information on team finances (include financial statement detailing income and expenditures). Uploading an image of your team financial plan below, will also satisfy this requirement.

Revenues	In INR	In USD
Fees from Students	2500000	38500
Sponsorship	2175000	33500
Total Revenues	4675000	72000

Expenses	In INR	In USD
Mentor Fees & Travel	1150000	17700
Parts	870000	13500
Outreach	650000	1000
Registration	585000	9000
Uniform	250000	4000
Carpenter	200000	3000
Training	200000	3000
Printing	100000	1500
Souvenirs	100000	1500
Miscellaneous	300000	4700
Total Expense	4605000	70900
Surplus	70000	1100



Awards Submitted - Entrepreneurship Award

Risk Analysis



Please describe the team's risk mitigation plan. Present a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis or narrative that describes the team plan to identify and respond to sustainability threats.

Sustainability of the team is a serious challenge which we cannot deny nor ignore, the main cause being the absence of a regional in India, leading to high travel costs. The team survives due to the passion of current students and mentors. We see a great learning in this programme and are trying our best to form other teams, which once reaches critical mass could lead to a regional being held in India. To increase the number of teams we need to have a FIRST India chapter, which will look to grow all FIRST products. We are currently exploring the idea with our lead sponsor.

It is not a challenge to get students into a team, but the right mentors are always a challenge. Our current mentors are the shining light of the team. In case any mentor opts out of the team for whatever reason, then we have a serious sustainability issue. As the awareness grows, a lot of people have come forward to join as mentors. We are hopeful that by next year we should have multiple mentors as India has a vast pool of engineers just waiting to be tapped, mitigating risks to a certain extent.

Another challenge is the place of work. For 3 years in a row we have been able to find sponsors to give us space to work. Getting lucky every year is not something that we can rely on. We need to find a sponsor who could give us space for a longer duration.

The opportunity to create more teams is a no brainer primarily because of the high population. We need to get a few popular schools to adapt FIRST programs and India could become the largest market for FIRST products. Awareness is slowly gathering pace.

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Awards Submitted - Entrepreneurship Award



Other Considerations



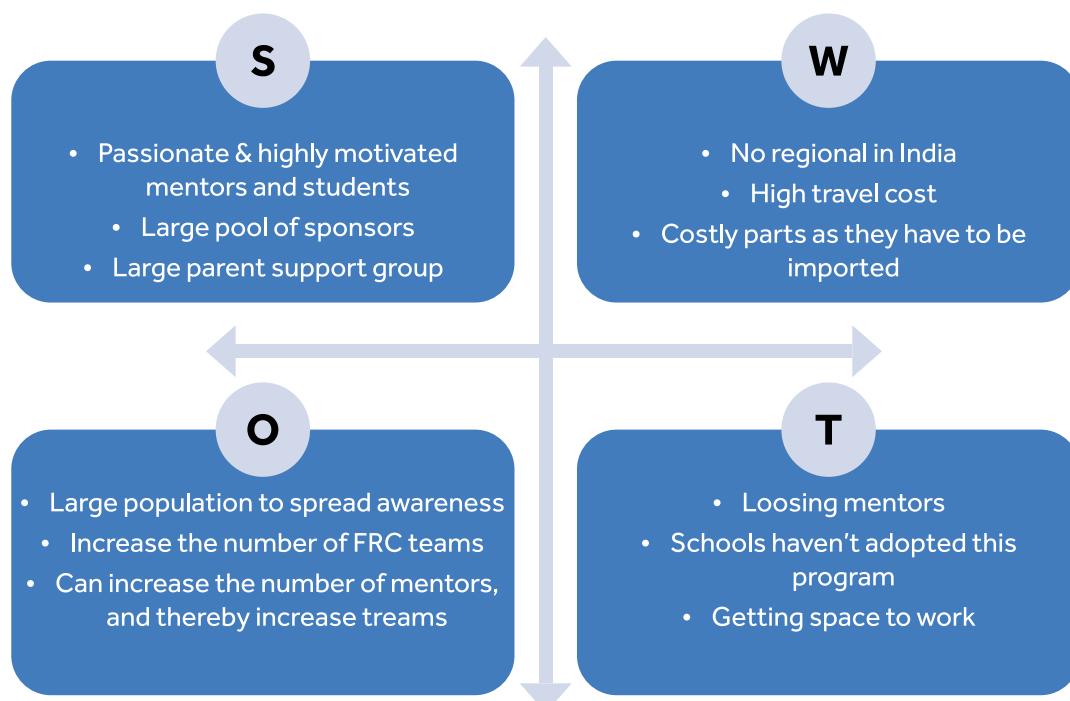
Briefly describe other matters of interest to the FIRST judges, if any

The team's senior members have spent considerable time trying to figure out sustainability issues. We have come to the conclusion that the only viable solution for the long term is that the programme be adopted by schools. To achieve that we have visited many schools to spread awareness of FIRST and their benefits. We were able to start one FRC team from American School of Bombay, and have excited a few more schools for the next year. We were able to start new FLL teams as well as sponsor 2 teams from underprivileged schools. It was one of the best moments of our journey to see the excitement of the team when they were selected for the national event.

Through the journey our animation team won the runners up for the safety animation video. This has raised the bar and motivation of the entire team.

When our lead sponsor invited us for an interactive session with Nobel Laureate Kip Thorne, it made the students believe in themselves, and brought in a new kind of spirit in the team.

We were invited by the largest student's science centre of the country to show case our robot. The President of the National Academy of Sciences and a Member of Parliament came to visit our workshop to see our work. Over 1000 students, family members have already visited our place of work, encouraging our work. We are super proud of our work and are thankful to our sponsors, parents and mentors for facilitating our beautiful journey.



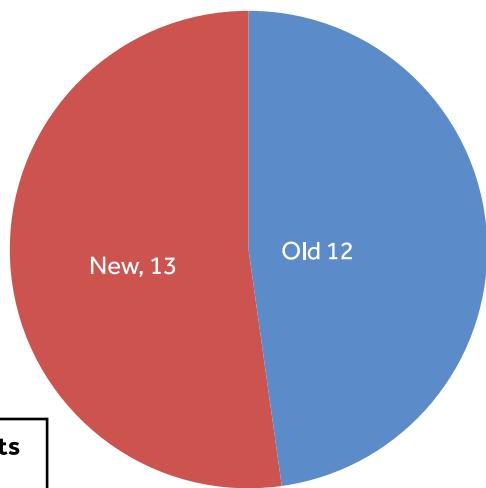
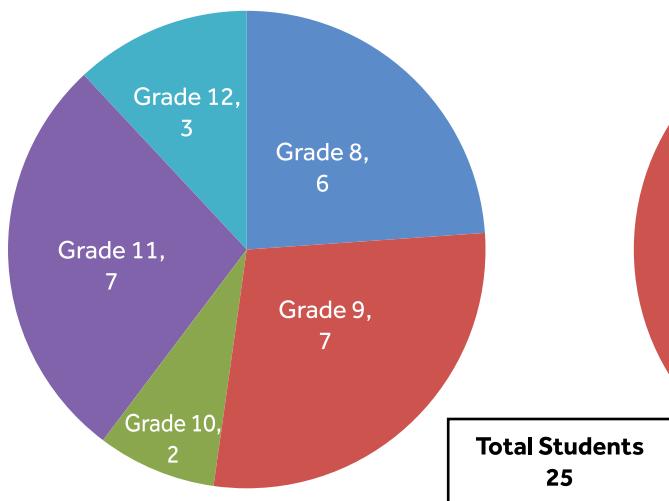
Team R Factor's Sponsors



NAROTAM
SEKHSARIA



Students



Awards Submitted - Woodie Flowers Award



WOODIE FLOWERS AWARD

It is simply impossible not to be fired up by his passion for STEM. Be it patiently listening to all our ideas or explaining complex concepts so that even the youngest of us can understand, Mr. Shah has been an inspiring mentor for Team 6024. An engineer by heart and spirit, he firmly believes that engineering can solve any problem.

He encourages us to think of ideas from the farthest reaches of our imagination, ideas that border on impossible and then hone them, with perseverance until what emerges is a creation that's purely our own. He strives to ensure that team members are challenged to do things they are best at. In India, gender roles are rigid – boys solve elaborate mathematical and scientific problems and build robots, girls...do not. But he taught me how to use a power-tool, how to use a drill, the correct technique to file metal. Basically, how to break every single stereotype without second thought.

His interactions with us are thought provoking – be it brainstorming in areas from physics concepts like motor torque to designing mechanisms in robot construction, modularity of design elements, standardization of components or using 5 S for housekeeping. The past three seasons we have moved beyond science and technology and learnt to integrate time management and operations skills. Thanks to him the team functions like a cohesive family unit where creativity is all about intelligence having fun.

When he is not helping us build the robot, Mr Shah is a FIRST evangelist. Inspired by his son who participated in FLL six years ago, he has been on a mission of promoting STEM and FIRST. His passion for FIRST is contagious and has motivated many of our parents to become our mentors. He has essayed various roles in the FIRST system viz. FLL, FTC and FRC mentor, FLL head judge and organizer, FTC and FGC head coach. His efforts to train FLL coaches were lauded by the India STEM Foundation. His endeavor is to integrate STEM programs into the lives of children. To make the FIRST ecosystem sustainable he has selflessly dedicated his time and effort to promote FLL kickoffs, bring in sponsorships and rope in schools to take up FIRST programs. One of his proudest moments was when our team started 2 FLL teams of lesser privileged children. His "Yes we can" attitude and ethos of "winning hearts with winning efforts" has resulted in our team reaching out to over 30,000 students.

We are eternally grateful to be touched by your fire. Compassionate and knowledgeable, you have taught us not just about science but imparted life lessons too. Above all, the greatest contribution you made to our lives is you made each one of us believe that we have potential just waiting to be tapped. Tomorrow, we may become leaders, innovators and geniuses in the eyes of others, but no matter what we achieve, we will always be a reflection of your undying faith in us and winning hearts with winning efforts!



Awards Submitted - Deans List Award

Rahesh's Dean List Application

Rahesh is FIRST!

He needs oxygen to breathe, but he needs FIRST to live!!

He has been involved in FIRST Programs for more than half of his life now!!!

And I can assure you that he will remain involved forever.

He started very young and is the only one who I know has been involved in all FIRST Programs – FLL Jr., FLL, FTC, FGC and FRC. I have had the opportunity of mentoring him since his very first FIRST Program. He was the youngest member of the Indian FLL Team RoboSapiens. He found a FIRST family and was hooked on to it since then. He is a completely hands-on student – he has consciously made attempts to use all the available tools as he would use his books. He has made friends with every construction kit that came his way – right from the LEGO Mindstorms to Tetrix to Rev Robotics to AndyMark! His love for mechanical construction has enriched his knowledge of many Physics principles. His understanding of the mechanisms has grown with every FIRST Program that he undertook. He has been feeding himself of FIRST program with an insatiable appetite and has enhanced his hands-on experiences.

Rahesh prefers to let his work and accolades speak for him. In spite of not being an extrovert, he is a FIRST Champion in his school and a role model for children in his school, community and neighborhood. His consistent successes at international FIRST tournaments speak volumes of his commitment to STEM. He has helped a student with disability participate in a STEM project. Every year he helps first time FLL participants put together their robot. His greatest achievement along with TEAM INDIA was helping out the all-girls TEAM JORDAN to put together their Robot at the inaugural FIRST Global Championship in Washington DC last year. TEAM INDIA won the coveted Gold Medal for Engineering Design and a Bronze Medal for overall Robot Performance amongst the 163 Teams that participated all across the globe. One his proudest moment was when he interacted with Dean Kamen at the FIRST Global Championship.

His efforts as a part of the FLL Team RoboSapiens were recognised by the Confederation of Indian Industries by awarding them the "Youngest Innovators" in the country. Their innovation has been granted a provisional patent. This achievement has inspired many aspiring FLL Teams to come up with innovative solutions. He and the team travelled to many innovation festivals across the country to promote FLL and STEM. This spurred a number of new FLL Teams in many parts of the country.

This season he has added Solid Works to his construction skills giving him an added advantage of choosing mechanisms from multiple options. All our Team members look up to him for his dedication, hard work and never-say-die attitude. His tenacity was at its peak in the FRC Sydney Regional in 2016 when our bumpers ran into problems on the practice day. He had saved his best for this day and went hungry till the bumpers were fixed even if it meant that our team had to forgo the practice sessions. Along with the Robot construction, he lends himself very easily to numerous technical writing and presentation for the Chairman's Award. He selflessly chooses to remain in the Pit to ensure the maintenance of the Robot is done in the most efficient way possible. He is the most sought after member for any team ...making him an instant power house full of experience and ideas.

Embracing FIRST's mission of inspiring others in STEM, Rahesh has participated enthusiastically in several of our team community activities like the FLL kick-offs and the robot demonstrations we had at schools. A true team leader from the build space to outreach events, he has brought FIRST to people of every age.

Rahesh wants to pursue a career in mechanical engineering. You ask him which University he wishes to join and he has a very simple answer to this: "I shall join any University that allows me to be involved in FIRST". I can assure you that Rahesh will be a lifelong proud member of FIRST.

Aarushi Dean List Application

Aarushi lives to change the culture of the World, and believes that she can achieve this through FIRST! Ever since Aarushi joined India's first FRC team 6024, 3 years ago, she has been integral to all the endeavours of the team. In fact, she drives the team to take up challenging initiatives to spread FIRST in a land where no one had heard of it 3 years ago.

Aarushi has benefited from FIRST's immeasurable opportunities and diligently works to promote the culture of FIRST across her school and community. Her warm and cheerful personality has made her team 6024's spokesperson and the captain for all the marketing and outreach initiatives. Her style of getting work done is the reverberating buzz in the team. She enthusiastically led our team in organising 8 FLL kicks offs and 50+ school demonstrations this year. She convinced her local community to host a STEM workshop from where 50+ excited children registered for the FLL Kick Off. She inspired 8 young girls to form 2 all girls team that participated in the FLL competition. She is a perfect STEM role model and has taken the onus on herself to get more girls involved in STEM. This year, our team has 4 girls thanks to her. She has set herself the ambitious goal of getting at least 10 girls to be a part of our team next year.

Aarushi has made it her mission to reach out to as many STEM stakeholders as possible. Her belief is that FIRST empowers children of her generation. She has written about FIRST to the Prime Minister of India, Members of Parliament, scientists and corporate leaders and has received responses from as many as 25 pioneers to visit us to see our robot.

Using her trailblazer attitude effectively, she has involved herself in all aspects of the Robot – Mechanical, Construction, Control Systems and Programming – and has a strong grasp not only on all the technical aspects of building the robot but also on the physics principles that go behind it. She enjoys being a part of the programming team and contributes to it a logical and clearheaded approach to solving any problem. Her love for programming resulted in her founding the coding club in her school. She passionately mentors young students from grades 8 – 10 in programming. As a lead planner for the coding club activities, she plans to host the FLL kick off at her school later this year.

Through her activities and responsibilities with the team, she has become an adept communicator and has developed leadership skills rarely found in a high school student. She has addressed and inspired young audiences at all our STEM initiatives like "Children for Change", "Women In Stem" and "Mindsplash". She has been leading our team's Chairman's Award submissions and loves writing the essay and making the presentation. She is the team's "Ms. Dependable" when it comes to maintaining our journals. As a lead member of our sponsorship team, she has made innumerable presentations to sponsors and added new sponsors.

Aarushi teaches STEM to 7th grade children in Dharavi a slum in Mumbai. She has fundraised over USD 17000 to ensure after class meals and since then, attendance of girls has gone up by 40%.

A power house of talent, Aarushi excels in all the endeavours she undertakes. She has a stellar academic record and is a Duke TIP Scholar, twice Gold medal winner in "Homi Bhabha Science Competition", Gold medallist for the National Genius Scholarship Exam, besides excelling in Maths & Science. She is a trained hindustani classical vocalist winning national & international singing competitions, and is a Gold volunteer for RUR a waste management company- where she collaborated to reduce waste to landfills by 20% from the local community."

I can assure you that FIRST is in her Future. She plans to pursue a career in engineering and looks forward to mentoring on FIRST programs when in college. Her ultimate dream is to sponsor FIRST teams and offer every child in India the same opportunities that she has been offered thanks to FIRST.

In early November, 2017, the animators of the Safety Animation video took a 200 hour training session at Frameboxx, Andheri, Mumbai, to learn the fundamentals of 3DS Max, the software that we would be using to make this animation, as many of the animators were new to animation, and were first timers. 3DS Max is an application developed by Autodesk, and we chose this application because it allows us to make 3D objects and figures. The course lasted until late November, and we began creating the animation. Since this year's theme was 'Power Up', we wanted the video to be a scene from a video game, and at the same time, convey the message of safety effectively. We spent a lot of time training for this. The members of this team were Radhika Sekhsaria, Jai Jariwala, Tanay Nistala, Aadit Lakhani, Vansh Diora, Vedanshi Shah and Shiv Kampani.

Everyone was extremely enthusiastic and all 7 of us pitched in our ideas. Eventually we shortlisted two ideas for the storyline, one being a Donkey-Kong style arcade game, where the player had to collect safety apparatus, and the other was about a malfunctioning robot, that needed to be switched off, and the builder of the robot, would protect himself from the robot's attacks by using 'safety power ups'. We stuck with the latter idea, after lots of debate, and a vote.

We spent 200 hours altogether for training, and nearly 50 hours of combined effort making the video. Rendering and designing characters took quite some time. We paid a lot of attention to minor details including the background, which was quite well decorated and designed. We also spent nearly 10 hours finalizing the plot, the types of characters and how much time we'd use for each scene.

Since this year's theme was 'power up', we decided to display safety apparatus in a unique way, as power ups. The Boss, to protect him from the malfunctioning robot, used these during the video. We felt that this would go a long way in drilling this message into people's minds.

How we felt when we won:

Winning the runners up prize in the Safety Animation Video sponsored by UL was a proud moment, not only for the animators, but also, for the entire Team 6024. This was the first time in our history in the competition, that we had won an animation award. To be honest, all of us were a little surprised when we won the award, and couldn't even believe it. We were extremely proud and happy, as we had already won an award, before the start of the build season. Apart from making us joyous, it also acted as a motivation for the entire team; it renewed our energy, and confidence, and gave us the perfect 'power up' that we needed before the build season began.



A group picture of all the animators from our team, along with Mr. Nilesh Shah (far right), who is the mentor of Team 6024.

Awards Submitted - Digital Animation Award



This year, the challenge for the digital animation award was power up. We started thinking about the ideas and after brainstorming, we came up with a solution. India is a country where a lot of villages do not have electricity and electricity can turn into a major power up.

We designed the characters with the help of textures from the internet and many designs drawn by our team members. We decided three characters that would be made with simple boxes as making different shapes would take up a lot of render time. We tried with different shapes and objects but it did not turn out to be great as the boning would always turn into an obstacle.

The basic story line was decided at the start but after some time, there were a few changes depending onto the time constraints. We decided to have two backgrounds: One in a village and the other in the city. The contrast between the electricity usage was planned to be shown. In villages, we planned to have one light bulb at the ground surrounded by three villagers in a hut. And in the city, we had a room with many devices taking up a lot of electricity like fans, air conditioners, chargers and light bulbs switched on even when not needed. All the work was divided into groups like one would do the designing while the other would animate.



In the village, we decided to make the light bulb flicker indicating that there is shortage of electricity and one person going and hitting the light bulb and it starts to work again. While in the city, we showed one person typing, later the camera would zoom into the screen and message would be shown about saving electricity. Almost all the team members were new to this software- 3ds max, and did not have a lot of experience to this software. Because of this, there were a lot of obstacles in our way. For example, the lighting did not work after rendering while it worked in the construction.

After a lot of work in the animation and designing, we

had the video to render in different parts as one full render would take a lot of time and would heat up our computers also. After the render, we got to the studio for recording and compiled everything using final cut pro.

And thus, our animation was created. While we didn't win the award for this, it surely was a great learning experience for each one of us!



We would like to express our sincere gratitude to all our supporters who have made a significant contribution to our journey over the last 3 years. It was only because of their encouragement, enthusiasm and initiative that this journey has been enriching!

A very big thank you to all our supporters!

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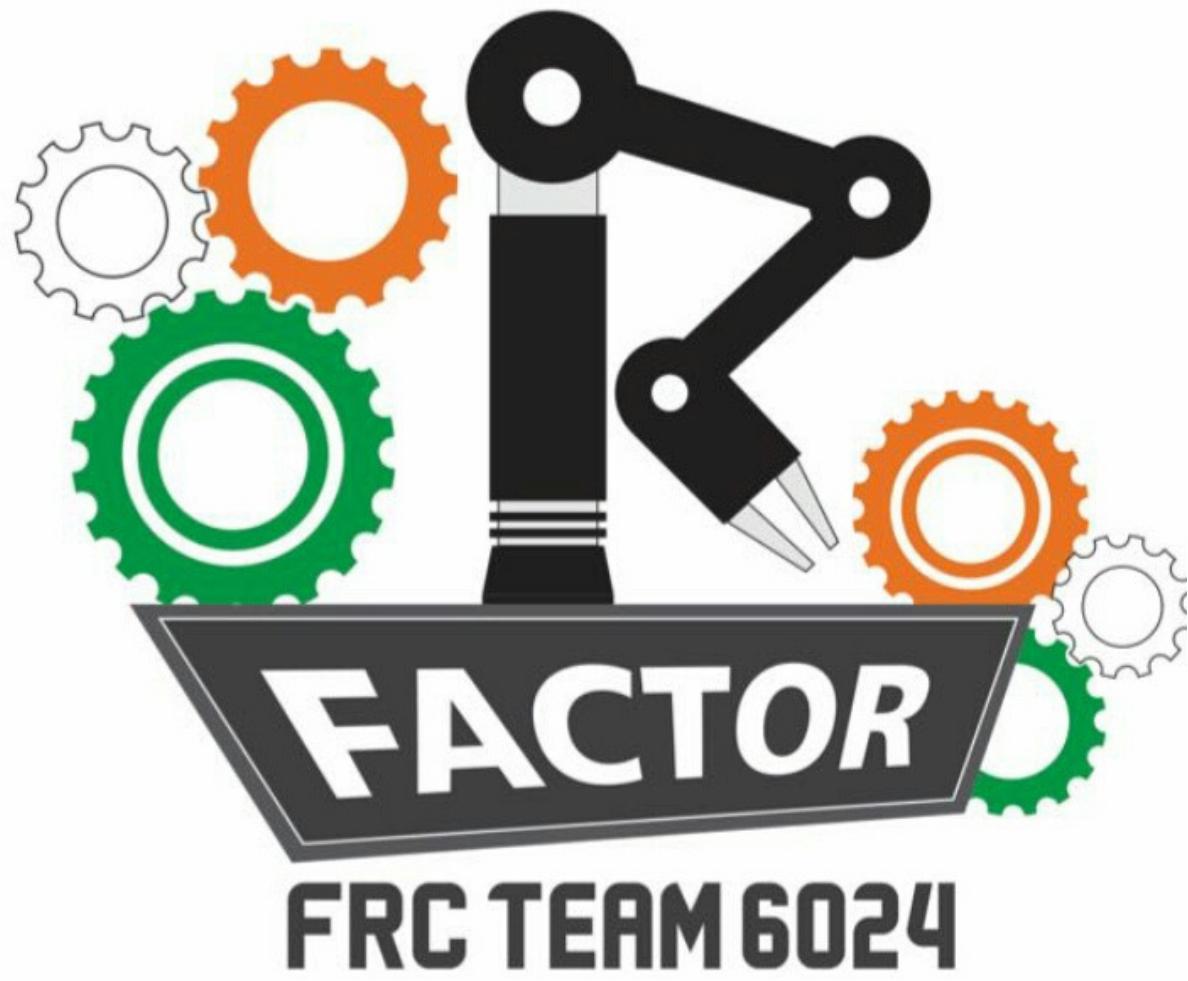
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