



# *Chairman's Executive Summary, Essay & Pictures*

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## ***Executive Summary***

### ***Impact on Team Members***

100% of 3847 members plan to attend college

~84% of current 3847 members plan to major in a science or engineering

~ 62% of current members plan on working with FIRST as sponsors or volunteers after graduation

Members gained life skills: communication, problem solving, creative thinking skills, & the ability to work well with others

### ***Role Model Characteristics***

Coopertition - Students from rival teams created & organized one FIRST team. Share our designs on our daily blog. Our Illuminations guide assists rookie teams

Service - Build a strong community by volunteering with and supporting programs such as Habitat for Humanity & the Houston Food Bank. Volunteer at multiple robotics competitions

Communication - 3847 uses social media and online collaboration tools to communicate within the team & with FIRST teams

### ***Impact on Community***

Spectrum was a mentored rookie team at the 2011 Houston Rookie Build Day. At this year's Rookie Build Days we were able to pass on some of our experiences and knowledge to the new rookie teams by staffing the events. We also assist in running the annual Houston Scrimmage. 3847 volunteers at many Houston robotics competitions including FLL, Vex, & BEST. In the community, we volunteered at the Houston Food Bank, Habitat for Humanity, & we donated team shirts to an orphanage in El Salvador.

### ***Innovative Methods to Spread FIRST***

Spectrum gives presentations about engineering, STEM, & FIRST. We demonstrate to multiple middle schools and give tours of our lab to potential students & presentations to Boy Scout troops & Cub Scout Packs. 3847 encouraged 500+ young women to pursue STEM activities, such as FIRST robotics, by providing a hands-on robotics opportunity at the annual Houston Sally Rides Festival at Rice University.

### ***Strength of Partnership***

Spectrum was formed from the two rival engineering teams of St. Agnes Academy (all girls) and Strake Jesuit College Prep (all boys). Members of the two teams initiated the partnership so they could compete in the FRC competition. By combining the teams we saw that we could take advantage of each of our strengths and resources. 3847 maintains communication and shares information with other FRC teams. Working together all of our programs are able to succeed.

### ***Communication Methods***

Website contains team happenings & shares information with the FIRST community

A blog updated daily to share ideas and information with the FIRST community

Email list sends daily updates to members

Google docs make files available to be edited by any 3847 member on any computer

Inform schools about FIRST & 3847 via video announcements and school newspapers

Ambassadors subgroup maintains contact with rookie teams and handles communication with FIRST teams

Article in Meadows Place city newsletter

## *Other Considerations*

Spectrum builds friendships & bonds outside of the robotics season by hosting an end of season party & participating in intramural kickball as a team. Several 3847 members were inspired to be part of engineering programs outside of FIRST including the Engineering Experience at MIT, High School Aerospace Scholars, Houstonworks STEM Summer program, & Airspace.Orb Aeronautics Camp.

## *Photos*



## *Essay*

Spectrum 3847 is an impassioned team conceived from the ethos kindled by our determination and ingenuity. From an ambitious rookie to a dynamic veteran FIRST team, Spectrum continues to evolve by living out the mission to expand our own horizons, and those of others, through the encouragement of science, engineering, and mathematics. We are on a crusade to brighten the lives of others by embodying and promoting the values of service, gracious professionalism, and cooperation through volunteer efforts and communication with other teams. 3847 has learned that through these core values there are no restrictions that may inhibit our team from achieving our goals.

Spectrum evolved out of two determined teams and copious amounts of determination. We were originally the rival engineering teams of Saint Agnes Academy, an all-girls school, and Strake Jesuit College Preparatory, an all-boys school. The St. Agnes Engineering Team began 19 years ago, participating in various competitions, while the Strake Jesuit Engineering Team began in 2008. After competing against each other for 3 years in the BEST competition, we were interested in undertaking a new challenge that would test our ability to the extreme.

The students met to discuss the future of such a program individually and began discussing the possibility of creating a joint FIRST Team, which we knew would be a huge undertaking. However, we also knew that joining forces would provide an opportunity to create a team stronger than St. Agnes or Strake Jesuit could create separately. With our shared passion for robotics, we resolved our differences and began to coordinate our actions together on our first team challenge: garnering the support of sponsors and our school administrators. The joining of the two teams is a major part of Spectrum's history and defines us as a team that is willing and able to overcome any obstacle by using the many talents that each member brings.

In 2011, 3847 represented FRC at the annual Houston Sally Ride Festival at Rice University. The event introduces more than 500 5th through 8th grade girls to the practical application of science and engineering. We presented on the basics of engineering and our experiences with competitive robotics, including our involvement with BEST and FIRST. The girls gained an up-close, hands-on look into the field of robotics when we gave them the opportunity to drive two of our robots. Overall, it was an enlightening learning experience for the young women attending the festival.

As Spectrum, we recognize that the supporting of other competitive engineering programs is fundamental to the advancement of engineering-based opportunities in elementary and secondary schools. We volunteered at the 2011 Space City BEST Competition as field reset, scorekeeper, score technician, presentation timer, and presentation judge. Spectrum then went to Stafford High School and staffed the Houston VEX Tournament. Members of the team undertook roles similar to those from BEST and ensured the 70 participating teams had an exceptional experience. 3847 also volunteered at the 2011 FIRST Lego League Regional Competition in Sugar Land, Texas. These events expose engineering to students at a young age.

Spectrum realizes that helping your neighbors is just as important as encouraging science and engineering so we strive to improve the condition of the impoverished. Our team worked with Habitat for Humanity to build a house and also volunteered at the Houston Food Bank by sorting donated food and boxing care packages for the holiday season. We continued our community work by donating our team shirts to the Saint Vincent DePaul Orphanage in San Salvador, El Salvador.

FIRST team 3847 helps rookie teams learn important organizational skills through support and communication. We can offer a unique perspective because we were rookies last year and understand the hardships and confusion that rookies are going through. We have helped facilitate the growth of other teams at Rookie Build Days. At two Rookie Build Days this season we assisted teams 4155, 4295, 4328, 3833, 4346, and 3666. They struggled particularly in the areas of FRC rules, basic strategies, design axioms, the planning of build season, and tools; we provided explanation and told them of our experiences. 3847 made sure to stress communication, as most rookie teams cannot recognize it as a fundamental aspect of successful engineering teams. We elaborated on needed tools, the kit of parts, motors, safety, wiring, and where to purchase supplies. Spectrum was also able to help the rookie teams with the building of their drive trains, mechanism designs, and wiring of the control system.

Spectrum is also mentoring teams, providing support and stability during the hectic FIRST season. We are teaching teams 3666, 3999, & 4280 through shop visits, daily phone calls, video chatting, or emails where we discuss designs and solutions to problems. Spectrum continues to aid teams by sending out informative and encouraging letters. In an effort to enlighten novice teams, we wrote and distributed Illuminations, a guide to the creation of competitive FRC teams. This guide provides teams with information about the build season, competition strategies, design basics, various resources, and communication within a team. Illuminations also covered fundamental mechanical and electrical

knowledge necessary for a successful FRC team: tools, key-ways, screws and bolts, and wiring. We are one of the teams that is hosting the 2012 Houston Pre-Bag Scrimmage. This event provides rookie teams with a final chance to seek assistance and veteran teams the opportunity to compete against each other before their regional competitions.

As FIRST Team Spectrum, we realize that we would not be able to help all these teams without the support of the larger robotics community. This is evident in our cooperation with FRC Teams 57, 2587, and 3103 to support the Rookie Build Days. We participated in discussions and sharing of designs with team 2587. We are also working with teams 441 and 2587 to host the Houston Scrimmage. This cooperation between teams and team members is essential and is achieved through strong communication methods.

Spectrum employs many methods of communication within our own team, with other teams, and with the public. FIRST Team 3847 promotes team enlightenment and involvement through daily emails, Google docs, team calendars, and build blogs. Google Docs allows us the collaborative editing of team documents. We also share designs and knowledge through our website, blog, Facebook, Twitter, and YouTube page. Our Ambassador subgroup maintains contact between other FRC teams, bridging the communication gap that once existed.

We wish to connect Spectrum to our student bodies. Our team promotes awareness about engineering and FRC by cooperating with our school video crews, journalism staff, and allowing documents to be released. We also held Lunch Expos where we displayed the robot and allowed students to test drive it. During these expositions, led by our Media and Ambassadors subgroups, we explained basic principles of engineering, our team, and FRC.

In order to spread the message of FIRST, 3847 expresses our love of engineering through brochures, newspaper articles, school programs, and school visits. To bring the joys of science and engineering to future generations, we are publishing a children's brochure, which explains the basics of engineering, FRC, our team, and the fun of it all. Our team visited middle schools to explain the engineering life through presentations. We explained the basics of robotics, the creation of a robot, the duties of our team, and the engineering process, after which we would let the students drive our past robots for a firsthand experience. Spectrum exhibited our engineering labs at St. Agnes and Strake Jesuit to visiting 8th graders, we explained the same concepts as we did during the middle school presentations, while also incorporating the topics of lab safety and robot construction. We felt compelled to convey the potential life-changing impact of FIRST and engineering.

Spectrum's team members take the initiative and hold of their future through applying for scholarships, participating in college programs, and other engineering experiences. Our team members apply the knowledge and values gained in FIRST to other programs they participate in including the Engineering Experience at MIT, High School Aerospace Scholars, Houstonworks STEM Summer program, and Airspace.Orb Aeronautics Camp.

The characteristics that define us as a FIRST team, as Spectrum 3847, are ingenuity, determination, communication, principle, safety, service, cooperation, competition, gracious professionalism, and friendship. Our supporters and mentors have instilled these values within the team while the unwavering students of our team represent them. We as a FIRST team have a strong sense of family and bonding. 3847, with these concrete values in place, plans to expand and expedite our goals for the future.

Spectrum plans to expand the minds of future generations through greater efforts to aid the destitute and more programs to help FRC teams. We also will continue to educate students by participating in more school visits, lab visits, and expositions. We plan to spread the message of FIRST to Boy Scouts by offering an engineering merit badge in an effort to promote scouting troops.

Our team has become something to respect and look up to, as we represent the values of FIRST and our own credo. In one short year, we have morphed from an ambitious rookie team into one that is committed to self-improvement and the support of others. We have become the team we are today through the cooperation of our schools, mentors, and students. Throughout this journey between our students and engineering we have come out enlightened, inspired, and eager to support others.