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# Chairman's Award Submission - 2013

## *FIRST* Robotics Competition

### **Kell Robotics**

**The Kell High School Robotics Team**

**FRC 1311**

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## **Chairman's Award Submission 2013**

### ***Executive Summary***

**Briefly describe the impact of the FIRST program on team participants with special emphasis on this year and the preceding two years**

Through FIRST, we are confident that we have the knowledge and skills to make a real difference in our schools, community and the world. We want to change the culture, not just build a robot! In this quest, we have learned leadership, business, and technical skills that will benefit us for the rest of our lives. We have met our Governor, U.S. Senators and Congressmen, corporate executives, and even the President because of FIRST. Most importantly, we have positively impacted multiple lives!

**Examples of role model characteristics for other teams to emulate**

We drive interest in FIRST year round by participating in over 40 events and briefings each year. We create and execute a strong business plan to keep us focused on our mission and goals. We host large FLL and FTC tournaments annually. We mentor multiple rookie and veteran teams at our Innovation Center each year, sharing our knowledge and training new mentors to grow FIRST. We have helped start 22 FRC teams, 14 in the last two years alone, and 7 FLL teams.

**Describe the impact of the FIRST program on your team and community with special emphasis on this year and the preceding two years**

FIRST has allowed us to change the culture. We now must choose which event invitations to accept rather than seek them. Our partnership support has increased each year letting us tackle larger projects like our 3,745 square foot Innovation Center to train and support other teams and mentors. Recognizing our value to STEM education, Kennesaw State University established a strategic partnership with us to incorporate FIRST programs in future STEM teacher training and certification programs.

**Team's innovative methods to spread the FIRST message**

We intentionally target diverse populations to promote FIRST. We exhibit to the African American community at 100 Black Men of America events, the Hispanic community at Fiesta Atlanta and Fiesta Georgia, and young women at Girl Scouts and Women in Technology events. We also develop and publicly demonstrate robotic solutions to real life problems. This unique approach has resulted in significant local and national media coverage and a dramatic increase in FIRST interest and support.

**Describe the strength of your partnerships with special emphasis on this year and the preceding two years**

Our outreach capability, team mentor support, and ability to grow FIRST have dramatically increased due to our strong partnerships. Our partnerships and financial support have grown each year, from 2 partners when the team started in 2004 to 40 partners today. This year, we established new strategic partnerships with Kennesaw State University, to improve future STEM teacher training, and the Girl Scouts of Greater Atlanta, to significantly increase Girl Scouts FLL teams next year.

**Team's communication methods and results**

Our team has contributed over 6,000 man-hours at over 120 events promoting FIRST in the last 3 years. We have exhibited to over 180,000 people in the last two years at major events including airshows, the Georgia State Science Olympiad, and EurekaFest. We create video content for the MIT Mentorship Initiative. We have been featured in numerous television, magazine, and newspaper features and articles, including in ASME Mechanical Engineering Magazine, Ms. Magazine, and Popular Mechanics.

**Other matters of interest to the FIRST judges, if any**

Our team has developed solutions to real life problems by applying STEM skills obtained through FIRST. The recognition we received for that effort has helped change the culture in our school and community. We received the 2010 SeaWorld/Busch Gardens Environmental Excellence Award, were selected as a 2011 Lemelson-MIT InvenTeam, and were invited to the 2012 White House Science Fair. STEM value is recognized in our school and community and it has become “cool” to be on the robotics team!

## **Essay**

### **PUBLIC OUTREACH - EXHIBITIONS**

We work year round to promote the mission of FIRST. We make a dedicated effort to reach out to a highly diverse population. We have exhibited at the Atlanta Football Classic, a HBCU (Historically Black College and University) event. Each year we partner with the 100 Black Men of Atlanta to promote FIRST to over 1,000 urban school children in Atlanta. We exhibited at the 100 Black Men of America National Conference. We also exhibited at Fiesta Atlanta and Fiesta Georgia, reaching out to over 40,000 people in the Hispanic community.

Our team has a strategic partnership with the Greater Girl Scouts of Atlanta, which serves over 45,000 girls. Each summer, we conduct a 2 day workshop at the Girl Scouts camp on Lake Allatoona. Each fall, we help conduct a STEM robotics workshop at the Girl Scouts Atlanta headquarters. We have presented FIRST to over 1,000 girls at the Girl Scouts of Greater Atlanta STEM Expo.

We exhibited to nearly 100,000 people at three air shows in the past two years. Each year we are an attraction at Atlanta's Olympic Centennial Park's Gadgets and Gizmos Day, with 5,000 attendees, and at the Georgia Science Olympiad, which draws 3,000 of the top STEM oriented students state wide. Annually, we brief political, corporate, and educational leaders. We also exhibit to students and the general public throughout Georgia at multiple events. We present over 40 exhibitions and briefings each year.

Over the past 3 years, students have contributed more than 6,000 man-hours at over 120 events to promote FIRST. In the past 2 years alone, we have exhibited at events with over 180,000 participants. We allow younger participants to drive our robots while we discuss the benefits of FIRST programs with parents and other adult participants.

### **PUBLIC OUTREACH - MEDIA**

We have been featured on NBC, CBS, Georgia Public Television, and CobbEdTV. We produced a documentary about the FIRST Robotics Competition that aired for several months on CobbEdTV in the northwest Atlanta market.

ASME Mechanical Engineering magazine has featured our team on several occasions. We also appeared in a full-page article in Ms. Magazine and in Popular Mechanics. Team activities have been covered in multiple local newspaper articles. Our team's activities have also been covered in dozens of newspapers around the world via the Associated Press.

### **POLITICAL OUTREACH**

We have worked hard to establish relationships with local, state, and federal policy makers to promote the value of FIRST. On September 30, 2010, a delegation from our team briefed the U.S. Congressional Robotics Caucus on the value of FIRST. We have briefed and developed strong relationships with Governor Nathan Deal, U.S. Congressmen Tom Price and Phil Gingrey, and U.S. Senators Johnny Isakson and Saxby Chambliss.

Our team has also created working relationships with Georgia Tech President Bud Peterson and Georgia Superintendent of Education, John Barge. All of these relationships are helping us reach our goal of institutionalizing FIRST program support. We are currently leveraging this support to address Georgia State regulations related to school extracurricular clubs and excused absences that could potentially limit the effectiveness of FIRST programs in Georgia.

## **KELL ROBOTICS INNOVATION CENTER**

In order to support the large number of Georgia rookie teams and create the infrastructure needed to help those teams become successful and self-sustaining, we opened the Kell Robotics Innovation Center (IC).

At this 3,745 square foot facility, we perform education outreach; train our team members, and, more importantly, train students, volunteers, mentors, and teachers from all around Georgia.

We train multiple rookie and veteran teams annually. We have continued to expand our repertoire, delivering training in robotics, leadership, business planning, programming, presentation skills, team building and other skills needed for success. We also provided training for new mentors.

The IC has been visited by teachers, corporate executives, school district office management, and the media.

Both rookie and struggling veteran teams bring their robots to the IC each year, where we help them with their robot build and ensure they have a rewarding experience.

## **GROWING AND SUPPORTING FIRST**

Virtually all of our team's activities are focused on enhancing our ability to expand and support FIRST programs. Our strong strategic partnerships and outreach programs are specifically focused on expanding opportunities for FIRST participation. We created the IC specifically to help us support FIRST programs and ensure FIRST growth and sustainability.

We help our mentee teams create lasting, impactful, and sustainable programs. Some of our mentee teams now host FLL events and perform community outreach at a Chairman's class level. Our work has fueled competition between schools, creating other high performing FIRST robotics programs.

Since 2007, we have assisted in the startup of 22 new FRC teams, 14 in the last 2 years alone, and 7 FLL teams. We also host large FLL and FTC tournaments each year.

## **MENTORSHIP**

The Kell Robotics Production Group created "The MIT Mentorship Initiative" video in support of the MIT-FIRST Strategic Alliance whose goal is to recruit thousands of new mentors. We have produced 16 videos for the MIT Mentorship Initiative. Over 3 hours of video is available online for use in inspiring mentors. Clips from one of the videos were shown during the 2011 FRC kickoff event.

We have provided video content to Time-Warner Cable so that they can recruit mentors nationally.

Each year we host one of the Mentor Advisory Conferences for our region where our and other teams' mentors give lectures to help mentors improve their teams' performance, growth, and sustainability. We also train rookie mentors for Georgia teams at the IC each year.

## **STRENGTH OF OUR PARTNERSHIPS**

Our numerous strong partnerships are the lynch pin of our success. We have 40 partners supporting our team. Our Innovation Center and outreach programs would not be possible without the support of our partners.

We have strong partnerships with our school district and our numerous corporate sponsors including General Electric, Kimberly Clark, United Technologies, and Lockheed Martin.

Instructors from our partner, the Georgia Tech Research Institute, provide OSHA training where participants, including team members, earn Safety Certification. We have conducted this training program for the last 6 years.

The Women in Technology Foundation of Atlanta is one of our strategic partners in promoting young women in STEM programs. We partner with the Georgia Aquarium for our annual 3<sup>rd</sup> grade robotics art contest and with MIT on the MIT Mentorship initiative.

This year, we also established new strategic partnerships with Kennesaw State University to improve future STEM teacher training by incorporating FIRST programs into pre-service teacher certification and training and with the Girl Scouts of Greater Atlanta to significantly increase Girl Scout FLL teams next year.

## **IMPACT ON STUDENTS, SCHOOL, AND COMMUNITY**

FIRST has allowed us to change the culture in our school and community. Contacts from organizations requesting our attendance at their events have continued to increase. We now have to choose which event invitations to accept rather than seek them out.

The increased impact of our team on our school and community is evidenced by the increase in the number of our partnerships and level of support provided to us each year. We have used this support to tackle larger projects, like our Innovation Center to train and support other teams and mentors, and to greatly expand our outreach programs. In recognition of the value we provide to STEM education, Kennesaw State University has formed a strategic partnership with us to incorporate FIRST programs in future STEM teacher training and certification programs.

We influence students, not only on our team, but all over the state. Students with no prior inclination consistently choose STEM careers after exposure to our team. Team membership provides challenges encouraging intense focus, creative thinking, and in-depth study of current topics imperative to success; not just in robotics, but in life. Team participation results in increases in marked self-esteem and confidence. The number of students wanting to join our team continues to grow each year as we spread our enthusiasm for FIRST. STEM value is recognized in our school and community and it has become “cool” to be on the robotics team!

## **"BEYOND FIRST: AFTER THE COMPETITION"**

In the off-season, we work to apply the skills we have developed through FIRST to develop robotics solutions to real life problems. Those solutions form an exceptional vehicle to communicate the value of engineering and FIRST to the public. Nothing gets public attention as effectively as showing what high school students can accomplish through FIRST programs. We have been nationally recognized for our innovative solutions to marine sustainability issues, public education efforts, and educating and inspiring young children.

We received the 2010 SeaWorld/Busch Gardens Environmental Excellence Award for our marine ROV to collect trash from ponds. We were selected as a 2011 Lemelson-MIT InvenTeam for our program to invent an oil skimming robot, ORCA (Oil Recovery & Capture) in response to the 2010 Deepwater Horizon disaster. The White House invited us to exhibit ORCA at the 2012 White House Science Fair, where we showcased ORCA to the President, Chief Technology Officer of the United States, heads of the EPA, NOAA, and NASA, and Bill Nye the Science Guy.

## **Epilogue**

On our tenth anniversary, we wish to thank all of the mentors, teachers, students and partners, past and present, who make us successful. We stand on the shoulders of giants!

Thank you for your consideration.