

*February 15, 2012*

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Chairman's Award Submission

*FIRST* Robotics Competition

**The Kell High School Robotics Team**

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## **Chairman's Award Submission 2012**

### ***Executive Summary***

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

Participating in FIRST has made us confident that we can make a real difference in our school, our community and in the world. We have met the Governor, U.S. Senators, Congressmen, high ranking corporate executives, college presidents and even gone to the White House! Overcoming real world challenges to become a successful FIRST team has given us leadership, presentation, business planning, teamwork, problem solving and technical STEM skills that will benefit us all of our lives.

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

As a foundation, we build strong partner relationships resulting in increased sponsor and community support each year. Our partnerships couple with our strong business plan, which keeps us focused on FIRST core values, to ensure continued growth and sustainability. We use our year round applied robotics and outreach programs to communicate FIRST value to the public and federal, state and local policy makers. This has helped us start 17 new FRC teams, 9 this year, even in the slow economy.

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

Our team has been able to apply STEM skills obtained through the FIRST program to develop solutions to real life marine environmental problems. The recognition we received for that effort, including the 2010 SeaWorld/Busch Gardens Environmental Excellence Award, selection as a 2011 Lemelson-MIT InvenTeam, and an invitation to the 2012 White House Science Fair, has helped change the culture in our school and community. STEM value is recognized and it is "cool" to be on the robotics team!

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

We create robotic solutions to real life marine environmental problems and publicly demonstrate those solutions. Nothing gets public attention as effectively as showing what high school students can accomplish through the opportunities provided by FIRST in a way that is easily understood by the masses. The result has been significant positive national and local media coverage, dramatic increases in business, community, and political leader interest and support for FIRST programs.

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

Our strong strategic partnerships have resulted in increased team mentor support and significantly increased our outreach capability to schools, our community, business and political leaders, and the public at large. They have allowed us to increase our participation in FRC and FTC events and greatly expand our outreach activities. They have also lead us to create the 3745 sq. ft. "Kell Robotics Innovation Center" to help train and support new and existing FIRST teams and mentors.

#### **Team's communication methods and results**

Our team has contributed over 6,000 man-hours at over 110 community events promoting FIRST in the last 4 years. We have exhibited to over 100,000 people in the last 12 months alone. We create content for CobbEdTv and Marine Biz satellite broadcasts to Europe, Asia, and the Pacific and for our team YouTube channel. We have been featured on NBC, CBS affiliates and Georgia Public Broadcasting, and in multiple newspaper and magazine articles. Our website has drawn over 12,800 visits.

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

The team has worked to demonstrate FIRST value to the public by using STEM to solve real life environmental problems. The team's work was recently exhibited to President Barack Obama at the White House on February 7th, 2012.

Our new 3,745 square foot "Innovation Center" allows us to support and train rookie and veteran teams. This center has become crucial in supporting the growth and sustainability of FIRST in Georgia.

## **Essay Section**

### **SPREADING THE FIRST MESSAGE**

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, an HBCU (Historically Black College and University) event. At this event we partner with the 100 Black Men of Atlanta to promote FIRST to over 1,000 urban school children in Atlanta. This year we participated in Fiesta Atlanta and Fiesta Georgia, reaching out to 40,000 people in the Hispanic community.

Last summer, we conducted a 2 day workshop at the Girl Scout camp at Lake Allatoona and this past fall we were featured at the Girl Scouts of Greater Atlanta STEM expo, presenting FIRST to over 1,000 attendees. We also helped conduct a robotics workshop at the Girl Scout Atlanta headquarters. This Girl Scout Council serves over 45,000 girls. This relationship will allow us to conduct future workshops about FIRST.

We exhibited to over 40,000 people at the largest air show in Georgia this year. Additionally, each year we are an attraction at Atlanta's Olympic Centennial Park's Gadgets and Gizmos Day, with 5,000 attendees. Each May, we are the featured exhibitor at the Georgia Statewide Science Olympiad, which draws 3,000 of the top STEM oriented students state wide.

At most of our events, we cordon off a large area and allow children to drive our robots while we educate their parents and mentors about the benefits of FIRST.

This is just a sampling of our participation in public events. Over the past 4 years, students have contributed over 6,000 man-hours exhibiting at over 110 events to promote FIRST. In the past 12 months alone, we have exhibited in front of over 100,000 people.

### **PUBLIC POLICY – SUPPORTING FIRST**

We have worked to establish relationships with federal, state, and local 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 maintain strong relationships with Governor Nathan Deal, U.S. Congressmen Tom Price and Phil Gingrey, and U.S. Senators Johnny Isakson and Saxby Chambliss. On numerous occasions, Congressmen Gingrey has visited us to see our robotics program first hand.

We have forged working relationships with the Governor, Congressmen, Senators, Georgia Tech President Bud Peterson and Georgia Superintendent of Education, John Barge. These relationships are helping us reach our goal to institutionalize FIRST program support.

### **GROWING FIRST – SUSTAINING TEAMS**

Georgia is one of the fastest growing regions with 18 new FRC teams in 2012. Recognizing the challenge in supporting the development of these teams and the challenge of helping rookie and older teams become successful and self sustaining, we opened the Kell Robotics Innovation Center (IC) in Kennesaw, Georgia.

This 3,745 square foot facility was made possible by a partnership between Kell Robotics and Shaheen & Co, an Atlanta area commercial real estate developer. Additional support comes from the friends and partners of the Kell Team.

The IC is designed to perform public education outreach, train our team members, and, most importantly, train students, volunteers, mentors, and teachers from all around Georgia in innovation, robotics, invention, leadership, business planning, and other skills needed to be successful.

During this 2012 FRC build season, we have trained students from four 4-H, two Boys and Girls Clubs, two Future Seekers (inner city), a rural rookie team, and four veteran teams.

The IC also serves as a marshalling yard for our public and community outreach efforts, allowing us to stage our “road show”. Additionally, we use the facility to conduct ‘invention’ workshops for Girl Scouts and Boy Scouts to promote STEM and encourage them to participate in STEM activities.

### **SUPPORTING FIRST**

We support the growth of FIRST by hosting FIRST LEGO League and FIRST Tech Challenge tournaments each year. We also provide tour guides and ambassadors for FRC events we attend at the regional and championship level. Since 2007, we have successfully aided in the development of 17 new FRC teams and FLL and FTC sustainability in Georgia.

### **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.

The 8 minute video about mentorship features many well known FIRST mentors including Dr. Woodie Flowers. Clips of this video were shown during the 2011 FRC kickoff event.

This past year, we created a new version of the video for 100 Black Men of Atlanta. This video has the same message, but was geared for presentation to the 100 Black Men of America, who met and viewed the production at the 100 Black Men of America National Convention in San Francisco.

Each year we host one of the Mentor Advisory Conferences for our region. This event is where mentors from our team and other teams give lectures to mentors to help them improve their teams’ performance, growth, and sustainability. We record and post these lectures on the internet for public use.

### **“BEYOND FIRST: AFTER THE COMPETITION” - APPLIED ROBOTICS FOR MARINE SUSTAINABILITY (ARMS)**

In the off season, we work to apply FIRST skills to the problem of marine sustainability. This program allows us to apply the knowledge and skills developed from FIRST competitions to solve real life environmental problems. These 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, our public education efforts, and educating and inspiring young children.

We received the 2010 SeaWorld/Busch Gardens Environmental Excellence Award, which included a \$10,000 prize to continue our work. We were then selected as a 2011 Lemelson-MIT InvenTeam, receiving \$ 10,000 to use the knowledge, skills, and abilities gained from FIRST to invent an oil skimming robot, ORCA (Oil Recovery & Capture), we proposed in response to the 2010 Deepwater Horizon disaster.

In 2010, we exhibited this project at I/ITSEC, the world’s largest Modeling and Simulation Conference, held annually in Orlando, Florida. We took 1<sup>st</sup> place in the student competition, confirming the value of FIRST programs to our national defense.

This year, we were invited to exhibit at the White House as a Lemelson-MIT InvenTeam. There, we showcased ORCA to the Chief Technology Officer of the United States, the Heads of the EPA, NOAA, and NASA, as well as Bill Nye the Science Guy.

### **COMMUNICATING WITH THE WORLD**

We have been featured on several television outlets, including Georgia Public Television, Marine Biz TV, CobbEdTV, WXIA NBC Atlanta, WGCL CBS Atlanta, and WMAZ CBS Macon. We produced a documentary about the FIRST Robotics Competition designed to run in a standard PBS Red Book style 30 minute time slot 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. Team activities have been covered in multiple local newspaper articles. Our ARMS program

activities have been covered around the world in dozens, if not hundreds, of newspapers via the Associated Press. Our website has drawn over 12,800 visits.

### **STRENGTH OF OUR PARTNERSHIPS**

Our numerous corporate and foundation partners, along with the students, parents, teachers, and mentors form a strong partnership that make all of our success possible. Our Innovation Center is clear evidence of the strength of our partnerships and how we have convinced the public that what FIRST does and how it impacts the community is significant.

Since our inception, General Electric has partnered with us to provide mentor and financial support. Last year, we took on a new sponsor, United Technologies. This year, we persuaded them to provide funding and mentors, not only to our team, but 3 other teams in the county.

Each fall, instructors from our partner, the Georgia Tech Research Institute, provide OSHA training where participants earn the OSHA 10 Hour Safety Certification. We have conducted this training program for the last five years, training students from over a dozen FIRST teams.

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

We consistently transform students with no prior inclination towards engineering careers. Team membership provides challenges encouraging intense focus, innovative thinking, and in-depth study of current topics imperative to success. Self-esteem increases resulting from team participation are easy to see. We continue to see significant increases in the number of students wanting to join our team as we spread our enthusiasm for FIRST.

We help our mentee teams create lasting, impactful, and sustainable programs. 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.

District-wide school principals and leadership are really paying attention to our efforts. The community as a whole views the Kell FIRST Robotics Program with respect and admiration. There has been a major positive shift in FIRST program acceptance. More and more organizations are requesting our participation in their events and asking to get involved with FIRST. The number of our sponsors and level of their support continues to increase, ensuring the sustainability of our team and programs.

### **COMMUNITY SERVICE**

Our students regularly participate in variety of community service events. Most recently, we participated in Shop with a Longhorn (a Christmas shopping event for disadvantaged youth), the annual Lake Allatoona cleanup, and ran a clothing drive for 1,200 children in El Salvador.