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Chairman's Award Submission Summary

The deadline for Chairman's Award submissions is February 9, 2017 3:00 PM EST

Field (Required & Optional)	Summary	Status
Judge This Submission?	Yes.	
Team Number	1311	
Team Name	Kell Robotics / Kennesaw State University / Shaheen & Company / United Technologies / GE Volunteers / Novellis / Standridge Color / Automated Logic / Lockheed-Martin Aeronautics / University System of Georgia / Technical College System of Georgia / WIT / Best Buy / R Design Works / Kimberly-Clark / Johnnys Pizza / Nypro / Peterson Aluminum / AM Castle / Georgia Power / STEM Leadership Foundation / AIAA / Cobb EMC / Arylessence / ASME / Dow / Mercer University / Redstone Government Consulting / Technical Associates & Kell High School & Kennesaw Mountain High School & North Cobb High School & Sprayberry High School & Etowah High School	
• Impact on Team Members	FIRST has changed our lives by expanding our career choices and exposing us to new opportunities. Not only were we taught hard, technical skills that will be valuable in the workforce, but we have also learned important soft skills. We have developed our leadership, communication, and team building skills. This program has increased our confidence and encouraged us to tackle daunting problems. Many members have discovered their passion and are diligently pursuing STEM careers.	
• Impact on Community	We found that a common issue in spreading FIRST and in creating new teams is the lack of teacher support, so we created a model to bring in more teachers to coach these teams. Our model, the 21st Century Education Model, uses FIRST as a teacher development platform and as a source of new recruits to enter the technology, engineering, and teaching fields. In addition, the Georgia government has agreed to recognize FIRST as a Career & Technical Student Organization (CTSO).	
• Innovative Methods to Spread FIRST	Striving to introduce every student to FIRST, we open our doors to all who are interested throughout multiple schools and school districts (including home schoolers). In addition to school support, we showcase our robots to over 50,000 people yearly at events such as the Atlanta Science Festival, the Girl Scout STEM EXPO, and the 100 Black Men of Atlanta STEM events. Our outreach program has	

<ul style="list-style-type: none"> ● Role Model Characteristics 	<p>increased community enthusiasm for FIRST and made Georgia one of the fastest growing FIRST regions.</p>	
<ul style="list-style-type: none"> ● Starting FRC Teams 	<p>Our team focuses on bringing FIRST to every student; our guiding principle is helping others. We do this by starting FRC and FLL teams, and continuing to support them through training and identifying sponsors. In addition, we host competition tournaments, we loan out our robots for others to use, we share information and resources, and we manufacture parts for other teams. We want each team to become the best they can be, and we strive to assist them in any way possible.</p>	
<ul style="list-style-type: none"> ● Starting Other Teams 	<p>Our team has established a strong network through outreach and partnerships; with it, we've started a total of 25 FRC teams. We did this by identifying new mentors and providing support to sustain these new teams. This support includes providing website resources, finding sponsors, and training new mentors and students. Also, we have developed a series of initiatives that will transform the face of education and provide funding for FIRST teachers through the new state CTSO.</p>	
<ul style="list-style-type: none"> ● Assist Other Teams 	<p>We have started 14 FLL teams. We have increased FIRST participation of all age ranges by exhibiting at local schools and events. Also, we host FIRST boot camps for new participants. Through our partnership with Girl Scouts of Greater Atlanta, we collaborate in initiatives to expose girls to robotics and help in start up efforts and training. In addition, once our educational growth model is implemented, FIRST will be incorporated into the informal learning at every Georgia school.</p>	
<ul style="list-style-type: none"> ● Mentor Other Teams 	<p>We train returning FRC and FLL mentors and students in building and programming workshops. We lend out our robots for teams to model, and invite teams to work and learn alongside us in our workspace. In 2016 and 2017, we began hosting 2 FLL scrimmages each season. These scrimmages introduced teams to mock judging and gave them important practice to prepare for competition. Also, we provide and manufacture parts for FRC and FTC teams during our build season.</p>	
<ul style="list-style-type: none"> ● Corporate/University Sponsors 	<p>Our team has mentored 20 FLL teams (4 this year) and 18 FRC teams. We give teams advice and guidance on robot build, design, and programming. Georgia FIRST has even created a link to our website specifically to help other teams. Also, we help teams find sponsors and funding (\$25,000+ in the past 4 years) to equip them to expand FIRST. Teams are invited to use our tools to work on their robot and to learn valuable leadership, team building, and other soft skills needed to sustain a team.</p>	
<ul style="list-style-type: none"> ● Strength of Partnership 	<p>We have over 30 strong partnerships. Over 20 are corporate sponsors providing financial support. Our strategic partners include Kennesaw State University, MIT, Mercer University, the Technical College System of Georgia, and the University System of Georgia. We also partner with nonprofits such as 100 Black Men of Atlanta, and the Girl Scouts.</p>	
	<p>Our partnerships extend over a variety of leaders, including those of school districts, universities, technical colleges, and businesses. These strong partnerships have enabled us to achieve funding from the state government for teachers to coach FIRST teams (CTSO). They also brought us nearer to other critical changes in education such as STEM gyms. In addition, economic development and</p>	

Explain FIRST

educational leaders are aware of our model and are in full support to complete implementation.

FIRST is an international non-profit organization that provides opportunities for K-12 students. These students learn to apply STEM problem-solving skills by designing, building, and programming competition robots. Students learn highly beneficial soft skills unparalleled by any other activity and essential in the workforce, while also exposing them to new career options and scholarship opportunities. FIRST is creating the next generation of problem solvers and leaders.

Other Considerations

Over the past 9 years, our team has been featured 12 times on local news stations, 7 times in national press articles, numerous times in newspapers, and once internationally. A group of our students published *The STEM Pipeline is Broken* this past summer, which outlines the efforts that are being done to improve engineering in Georgia. We have also written the *FIRST in Georgia Factbook*, which explains the FIRST mission in Georgia.

• Main Essay**OUR MISSION:**

Our mission is to extend FIRST opportunities and STEM education to every student in order to inspire the next generation of Scientists, Technologists, Engineers, Mathematicians, and Leaders. We will accomplish our mission by changing the STEM education process through outreach, formulating public policy, nurturing STEM learning, creating infrastructure, and building partnerships.

OUR METHODS:

The following methods are used to Establish Public Value, Build Strong Partnerships, Create Infrastructure that needed to accomplish our goal.

Outreach –

Over the past twelve years, we have exhibited at over 276 events, 25 this year. Examples include events such as the Girl Scouts EXPO, Atlanta Science Festival, Six Flags, White Water, 100 Black Men of Atlanta, Tellus Museum, the State Science Olympiad, school STEM nights, and corporate and tradeshow exhibitions. Our outreach efforts support diverse audiences through events such as Fiesta Atlanta, Jack & Jill fairs, and Historically Black Colleges & Universities (HCBU) STEM expositions.

Media –

Over the past eleven years, we have been featured in 6 national magazines, 13 regional press articles, and one international broadcast. We have also appeared in 13 television segments, demonstrating our robots and creating awareness for FIRST. These television segments ranged from 2 minutes to 15 minutes of prime-time news and information shows. These broadcasts are on GPB (Georgia Public Television), CBS, NBC, and ABC affiliates in Georgia and South Carolina.

Partnerships –

Our infrastructure is provided and supported by our strong partnerships. Each year, we expand our partners as well as expanding partnerships for other teams. Our financial sponsors provide the funding we need to build our program. Strategic partners are various local state agencies, including University System of Georgia (USG) and Technical College of Georgia (TCSG), that work with us to implement policies.

FIRST Growth & Support –

We have utilized our Kell Robotics Innovation Center to help start and develop FIRST teams and expand STEM learning initiatives. We also work with political and educational leaders here by creating recommendations for STEM educational programs.

From the support of our partners and the infrastructure we have utilized, we have been able to start 25 FRC teams. Of those 25 teams, 21 were started in the past 6 years (as confirmed by those teams). 88% of the teams we have started still exist today.

We have committed to support and grow FIRST by running and hosting FIRST competitions throughout the year. Since 2009, we have hosted and run FLL regional and state super regional competitions. We have also hosted and run FTC regional competitions within the past eight years. During the 2016 District events in Georgia, we helped Georgia FIRST with extensive event planning support. Because of our effort, the GeorgiaFIRST district system is fully supported by universities and technical college systems.

Advocacy –

We have worked with political and educational leaders to further advance our mission and goals. Our advocacy started in 2009 with visits to local, state, and federal leaders. In 2010 we directly briefed the U.S. Congressional Robotics Caucus, at the request of the Caucus Co-Chair. Every year since then, without interruption, we have given briefings to leaders including U.S. Congressmen and Senators, and State leaders in the office of the Governor, Lt. Governor, House, and Senate. These long-term efforts in educating leaders about STEM learning and FIRST initiatives have been instrumental in building the foundation needed to accomplish goals, such as those described in the next section.

KEY ACCOMPLISHMENTS FOR THIS YEAR – 2016 / 2017

Implementing the methods above on a long term, consistent basis done by multiple generations of students enables us to move our agenda forward. Here are some of the significant accomplishments we have made this year.

Teacher Support & Extended Day Pay –

One of our main accomplishments this year has been persuading the

Georgia state government and the Career & Technical Student Organization (CTSO) to accept FIRST into the CTSO program. Now, Georgia FIRST receives funding to pay teacher coaches. Because of our actions, the State Dept. of Education is pending a \$3M increase in this funding, which will be decided by the General Assembly in the spring of 2017. Our next goal is to advance this to the federal level, enabling support in every state.

"Kell Robotics have demonstrated an exemplary model for engaging students and their community. I am proud of both - the work being done each day through the efforts of students, faculty advisors, and community members - and the long-term achievements of Kell Robotics, which have been instrumental in achieving CTSO implementation. I strongly support this team, and their application to be recognized with the Chairman's Award." - Lt. Governor Casey Cagle

Teacher Training –

This year, the team released a publication entitled “The STEM Pipeline is Broken: Addressing the Teacher Supply Crisis for Technology, Engineering, & Computer Science.” It has been published on www.issuu.com and has, so far, had over 1,200 reads. This report establishes a new method for creating the next generation of K-12 technology, engineering, and computer science teachers. The method incorporates FIRST programs as part of the teacher development system and recruits FIRST alumni to the teaching profession. Our model is being seriously considered by universities in Georgia, South Carolina, and California.

Infrastructure–

On March 21, 2017, the Cobb County SPLOST (Special Local Option Sales Tax) V budget will be voted on and, if passed, creating STEM robotics labs in every school will be incorporated into the education budget. Kell Robotics has worked directly with the government and was the key influencer in the district’s decision to introduce FIRST Robotics initiatives into this budget.

In 2015, we worked with Kennesaw State University (KSU) to create a manufacturing support center, which included purchasing a waterjet. This year, the effort was expanded by adding Novelis into this network. This year, our team expanded this manufacturing support system by creating a partnership between KSU, Novelis, GeorgiaFIRST and Kell Robotics, for the benefit of GeorgiaFIRST teams. On the initiative that we developed this year, Novelis donated \$154,000 of aluminum sheet metal to Georgia FIRST, helping all teams across the state.

Community Partnerships –

A specific partnership of interest is the Cobb Workforce Partnership (CWP), which is an initiative created by the Cobb Chamber of Commerce. “ The Cobb Workforce Partnership is a coalition of both Cobb County and Marietta City Schools, Kennesaw State University, Chattahoochee Technical College, Georgia Highlands College, Life University, CobbWorks, and over 30 Cobb businesses—as a unified

commitment to identify and address the workforce needs of our business community and to establish a pipeline of job-ready workers in Cobb” (CWP website).

Rob Garcia, Project Manager of the CWP as stated “The Cobb Workforce Partnership is actively looking to empower hands-on, informal, team-oriented and project-based learning opportunities for students in our community, and Kell Robotics has shown that FIRST shares that vision and creates those opportunities in our local schools. We will look to continue supporting and expanding the role that FIRST and other similar efforts play in how we approach educating the next generation workforce in Cobb.”

Girl Scouts –

Our long-term partnership with the Girl Scouts of Greater Atlanta, representing over 45,000 Girl Scouts, continues to grow and mature. This year, in collaboration with Lemelson-MIT Inventteams, Kell Robotics has developed three new badges related to the engineering, invention, and entrepreneurial process. Along with this new series of badges, the team has implemented a periodic training program for girls to support the growth of this effort.

"For several years, Kell Robotics has been instrumental in providing support to our growing Robotics program. They have been a strategic partner in developing our programs, providing training and interacting directly with girls at events we sponsor. The support from Kell Robotics has allowed our council to expand our Robotics programs, for all Girl Scout teams. The ability to have new coaches trained through Kell has been key in that growth. " Beth Messer, Senior Director, Girl Scouts of Greater Atlanta

Symposium –

The GeorgiaFIRST Symposium is an annual statewide conference of workshops and training classes. At this year’s symposium, our team conducted classes in design for manufacturability, vision processing, advanced programming, and advanced control systems.

FIRST in Georgia Factbook –

We created the Georgia FIRST factbook. This book was designed to educate sponsors, policy makers, and the public about FIRST in Georgia. It also gives them information on how they can contribute and participate in the program. Through this publication, we hope to expand the growth of FIRST.

BROADER IMPACTS:

After these efforts, have been fully implemented within Georgia, we hope to expand our efforts to other states throughout the country. We believe our efforts could serve as a potential model for others seeking to change their communities and grow support for FIRST.

Since our inception in 2002, we have increased community respect for FIRST and its leaders. We strive to extend beyond typical advocacy

Impact from Inception Essay

and recognition by creating a solid, stable range of outreach events that we consistently support each year and by working diligently to implement our 21st Century Education Model. Through this, we have been able to connect our community, K-12, university, and political leaders to strengthen and incorporate FIRST into the education system.

• **Certified By**
Video

Danielle Newman



http://www.kellrobotics.org/chairmans_video

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