BROWNCOATS
Team 7842 Engineering Notebook

OUTREACH: ENGINEERING CONNECTIONS

What:	**Space and Missile Defense Symposium**	**August 6-8, 2019**	
Where:	**Von Braun Center**	**8:00 am - 5:00 pm**	

Summary: On August 6th, 7th, and 8th, our team attended the Space and Missile Defense Symposium (SMD) for our fourth year in a row. We have always enjoyed the SMD experience in the past years, so we were excited when we were invited back again! We set up a booth with all kinds of information about our team and *FIRST* Robotics, and we set up our field to demonstrate our robot.

Brooklynn, Ian, Jalynn, Megan, Nathan, Joel T

Once the event started, we had loads of people, vendors and attendees alike, come to watch the robot. We had a lot of parents and kids come by who were interested in becoming a part of *FIRST*, and the kids had a blast driving our demo robots! A lot of the exhibitors came around to see our robot in action, and some even drove them, too!

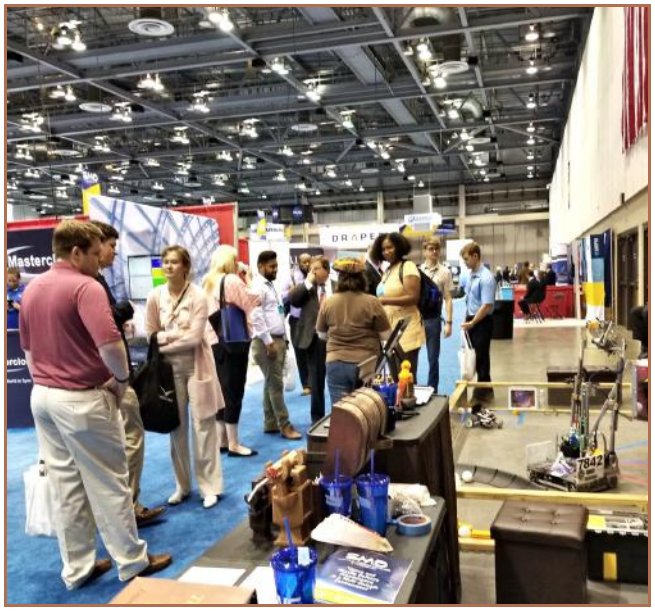
This event is always a great way to reach out and connect with our local and national engineering community. There are always some of the companies who are eager to learn about *FIRST* and even get involved. In fact, Lockheed Martin was looking for a STEM program to sponsor and contribute to and, because we'd been coming to this event consistently throughout the years, they reached out to us inquiring about a sponsorship. On the second day of the SMD, they presented us the check, and two different news stations recorded the affair and also interviewed one of our team members. This was aired on the nightly news, and it can be found on both news station's websites. As a *FIRST* Tech Challenge team, it is our goal to spread awareness of the program, and this was a fantastic way to do that!

We also had multiple people in the industry who had either mentored teams in the past and were looking to again, and some who hadn't mentored before but still wanted to help out. We gathered a list of these people so we could contact rookie FLL and FTC teams who are looking for mentors and help connect or introduce them.

Conclusion: This was a fantastic way to spread the word about *FIRST* in Alabama, to our local engineering community, and across the country!

Total Reach: 4,000 People
Team Hours: 201 hours

OUTREACH: ENGINEERING CONNECTIONS



Fellow vendors were curious about our team and *FIRST*

A young robot driver earned his license today!

Vera was the star of the show; the news crew couldn't get enough of her!

Thank you to Lockheed for their generous donation!

OUTREACH: ENGINEERING CONNECTIONS

What:	**AUVSI Pathfinder Symposium**	**August 14-15, 2019**	
Where:	**Space and Rocket Center**	**8:00 am - 5:00 pm**	

Summary: On August 14th-15th, our sponsor AUVSI Pathfinder invited us to attend their annual symposium. Several STEM companies attended this event, which allowed us to increase awareness of FTC in the local engineering community.

Becca, Ian, Jalynn, Megan, Nathan

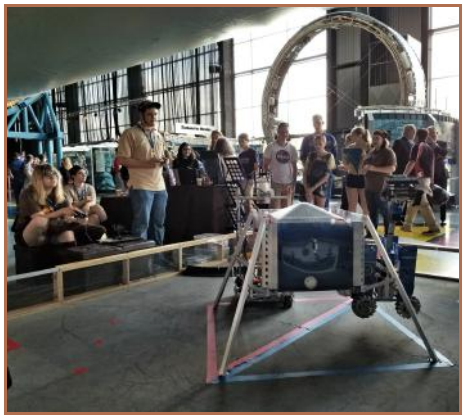
We've attended the Pathfinders Symposium before in past years, so we were excited when we were invited to attend again this year. Because this year's symposium was held at the U.S. Space and Rocket Center, we not only had a lot of kids in attendance with their families, but we also had a lot of students from the Robotics camps they were holding. We handed out the 3D printed robots we always bring to our outreach events, and we also let the groups drive our demo robots when they had time. They all enjoyed it immensely! Some were even using our robots for ideas for their next projects! We also had met quite a few *FIRST* students from other FTC or FRC teams across the country - even as far away as Alaska! It's always a great experience to talk to other people involved in *FIRST* to compare our differences, and to also learn from them.

We handed out a lot of information about all of the *FIRST* programs to people who were interested in joining teams or becoming a part of *FIRST*. We talked with dozens of people (students, parents, and teachers) about starting, joining, or mentoring a team and provided resources to aid them.

Conclusion: This event was a very successful outreach opportunity and a wonderful experience ! It was a fantastic way to promote *FIRST* in the engineering community, and to introduce a significant number of people in our community to *FIRST* programs!

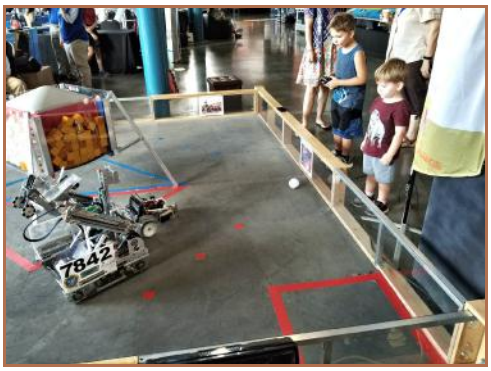
Total Reach: 400 Students and Attendees
Team Hours: 95 hours

OUTREACH: ENGINEERING CONNECTIONS



Lots of people were interested in our robot!

Space Camp attendees stopped by to drive our outreach robots!



We love our young robot drivers!

Our outreach robots saw a lot of use during this event

Look at all the robot fans!

Our team with the Time Travelers and a new robot friend

OUTREACH: COMMUNITY CONNECTIONS

What:	**Elementary School Robot Demonstration**	**May 21, 2019**	
Where:	**Goldsmith-Schiffman Elementary School**	**12:00pm-2:00pm**	

Summary: On Tuesday, May 21st, *FIRST* Lego League (FLL) Team 38374, C.R.A.B, invited our team to Goldsmith-Schiffman Elementary School to demonstrate our robot to the 5th grade class and to introduce the kids to *FIRST* Robotics and explain what the program is all about.

Megan, Ian

First, Team C.R.A.B demonstrated their robot and explained how *FIRST* Lego League works, and then we talked about transitioning from an FLL team to a *FIRST* Tech Challenge team and some of the differences between the programs.

Then, we demonstrated our competition robot Vera, explained the 2018-2019 challenge to them, and went into a little more depth about what it takes to be a part of a *FIRST* Tech Challenge team. The kids were all very interested and had tons of questions for us! They wanted to know everything they could about *FIRST* Robotics.

Conclusion: This outreach event was a fantastic way to show the differences between two *FIRST* programs and to also introduce younger people to the program! We had a lot of fun, and we know the kids did too! It's always such a joy to see kids excited about what we do.

Total Reach: 45 Students
Team Hours: 10 hours

OUTREACH: COMMUNITY CONNECTIONS

FLL Team C.R.A.B. demonstrated their robot before us

Megan and Ian demonstrated Vera and told the kids about *FIRST* Tech Challenge

The kids seemed to have really enjoyed it!

OUTREACH: COMMUNITY CONNECTIONS

What:	**VBS Robot Demonstration**	**June 13, 2019**	
Where:	**First United Methodist Church**	**8:30am-1:00pm**	

Summary: On June 13th, our team attended the First United Methodist Church's Vacation Bible School. We set up most of our field so we could drive our competition robot, Vera, and demonstrate how the 2018-2019 challenge Rover Ruckus works.

Megan, Brooklynn, Becca, Joel T

Every twenty minutes, a group of kids would come to watch our robot demonstration, we'd go into a little more detail about what *FIRST* is, specifically *FIRST* Tech Challenge, who our team is, etc. We also handed out our 3D- printed robot pins and pencils. The kids were very interested in learning what they could about the program, and they all wanted to know about the building process and what it takes to program the robots.

We had about 200 kids come through in total, and each one was very excited to watch Vera preform her tasks! It was a lot of fun to see their faces light up every time her arm lifted to deposit the elements in the cargo hold.

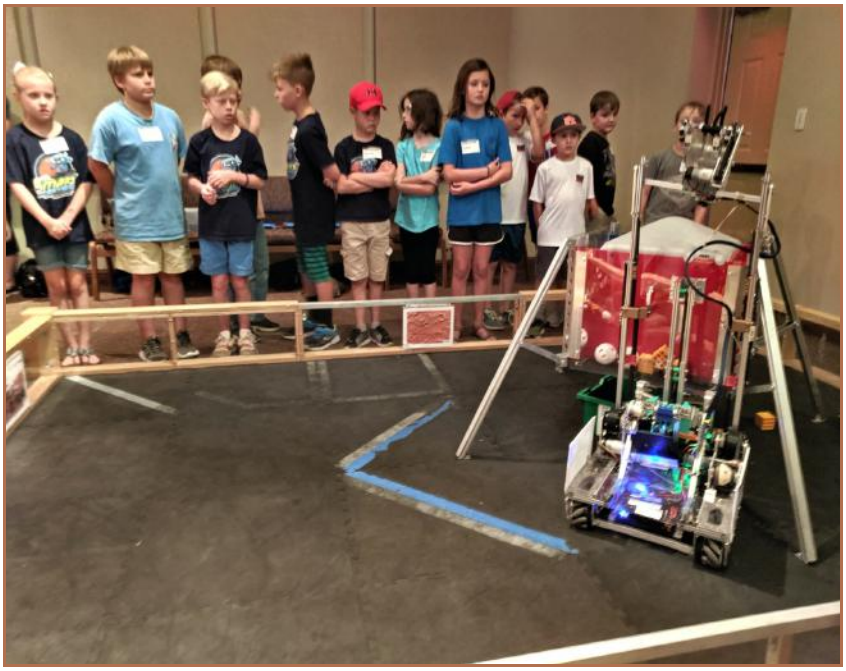
Towards the end of the day, Vera had the honor of delivering the slip of paper that announced whether the boys or girls raised more money for the causes they were fundraising for.

Conclusion: This was a great way to spread the word about *FIRST* to many different age groups in Alabama! We had a lot of positive feedback, and we couldn't be happier with how the event turned out!

Total Reach: 200 Students
Team Hours: 28 hours

OUTREACH: COMMUNITY CONNECTIONS

The kids stopped to watch the robot between their activity stations



They really enjoyed Vera!

OUTREACH: COMMUNITY CONNECTIONS

What:	**Browncoats Garage Sale and Robot Demonstration**	**June 21, 2019**	
Where:	**670 Cambridge Dr. Madison, AL**	**7:00 am -5:00 pm**	

Summary: On June 21st, we held a garage sale as a fundraiser for the upcoming season. We also brought Vera along and used the sale as an opportunity to spread the word about *FIRST* Robotics by demonstrating our robot and discussing *FIRST*.

Ian, Megan, Jalynn, Joel T, Brooklynn, Nathan

On June 21st, the Browncoats had our second garage sale. We sold all kinds of items; from books to bicycles, to electronics and computers. Not only did we have a huge turnout and sold many of our objects, we also handed out flyers about our team and *FIRST*. Many people were very interested in our robot and wanted to know all about it. (Thankfully no one tried to buy her!) We had several families come with their kids to watch and learn about the robot. Most of the kids were too young to join FTC, but we told the interested families about *FIRST* Lego League and/or *FIRST* Lego League Jr. By the end of the day, we had sold a bunch of stuff and made a decent amount of money.

Conclusion: This event was not only a way to earn some funds for this season, but it was also a wonderful opportunity to spread awareness of *FIRST* and a great team building experience. We will definitely consider doing another one, eventually!

Total Reach: 50 People
Team Hours: 99 hours

OUTREACH: COMMUNITY CONNECTIONS

We had a very successful garage sale!

People of every age came to learn about Vera

This was an opportunity, not only to start funding for the 2019-2020 Season, but continue to spread *FIRST* in our community

OUTREACH: COMMUNITY CONNECTIONS

What:	**Informational Meeting**	**July 12, 2019**	
Where:	**Madison Public Library**	**12:00 pm - 4:00 pm**	

Summary: For many years now, our team has hosted Informational Meetings at our local libraries to spread awareness of *FIRST* Robotics and STEM within our community, and to help start more FTC teams in Alabama. On July 12th, we hosted our Informational Meeting at the Madison Public Library, where we set up our field and demonstrated our competition robot, while also teaching kids how to drive our outreach robots. We also had tons of flyers and resources about *FIRST*, how to start a team or how to join one, which we handed out to everyone who came.

Megan, Joel T, Brooklynn, Jalynn

All of the kids had such a fun time driving our demo robots and learning how they work. We had a few people interested in either joining our team or, if they were too young, joining an FLL team, so we gave them resources on how to go about that.

There were a couple of people considering starting a team, and another person who had already registered his team but wanted some advice on how to go about it, or where to look for resources. We gave them all of the information we had, as well as other tips we'd picked up on throughout the years, and we gave them all of our contact information in case they ever needed any help with anything.

Conclusion: This was a great way to reach out to people in our community and spread the word about *FIRST* and provide information on how to get involved!

Total Reach: 30 People
Team Hours: 34 hours

OUTREACH: COMMUNITY CONNECTIONS

Kids visiting the library came to drive our outreach robots

The kids and even the parents enjoyed watching Vera

Our informational meetings are always a great way to get kids interested in robotics!

OUTREACH: COMMUNITY CONNECTIONS

What:	**Huntsville HamFest**	**August 17, 2019**	
Where:	**Von Braun Center**	**8:30 am - 4:00 pm**	

Summary: This year, we were excited to have been invited once again to the Huntsville HamFest! We hosted the Youth Lounge this year, where kids could come and enjoy engineering-themed activities, and drive our demo bots.

Brooklynn, Ian, Jalynn, Joel H

This was our fourth year of helping run the Youth Lounge. We had hundreds of kids stop by to drive our outreach robots, and we also demonstrated our competition robot, Vera. The team also ran 3D printers and soldering stations, along with other activities, to introduce and teach the kids about manufacturing and electronics. The kids loved watching Vera intaking the minerals and hanging, and the activities definitely got the kids more excited about robotics and programing than before!

We had older kids and adults come by as well to ask questions about the robots and the *FIRST* program. We even had some who were considering joining our team, so we're excited at the prospect of potential new team members! Also in attendance were school teachers who were interested in introducing their students to *FIRST* Robotics. We discussed the basics of starting a team and gave them lots of resources and materials to get them started.

Conclusion: This was a fantastic opportunity to reach out to people across the country and introduce them to *FIRST* Robotics and STEM!

Total Reach: 5,000 People
Team Hours: 84 hours

OUTREACH: COMMUNITY CONNECTIONS

The Browncoats hosted the Youth Lounge at the Huntsville HamFest with fun STEM-related activities!

We also had our field set up where kids could drive our outreach robots and we could hold robot demonstrations with Vera

The kids couldn't get enough of Vera!

Look at these young robot drivers!

OUTREACH: COMMUNITY CONNECTIONS

What:	**Skystone Kickoff and Open House**	**September 7, 2019**	
Where:	**Huntsville Christian Academy**	**9:30 am - 2:00 pm**	

Summary: On September 7th, the moment we've been waiting for had finally arrived: the 2019-2020 Skystone Kickoff! This event was held by team 13808 Time Travelers. Nine of the fourteen FTC teams in Alabama were in attendance, along with two FLL teams and two FRC teams. Once the game was revealed, the event was opened to the public as an Open House to help introduce *FIRST* Robotics to our community, have teams hand out information, and give people a small look at what being on a team is like.

Ian, Becca, Brooklynn, Joel T, Joel H, Jalynn, Megan, John Paul, Nathan

We had a lot of fun participating in the activities beforehand and socializing with other teams. Throughout the event, Browncoat team members and mentors also had chances to speak to the public who attended the Open House and tell them about *FIRST* Tech Challenge. We were all pretty excited when we saw a rubberband- shooting game among the activities provided before the reveal because Mr. Jeff had given us rubberband-shooting lessons last year and seemed they would finally pay off! As a result of the game, we won a REV Robotics gift certificate! After the games, we connected into the livestream to watch the game reveal and the field was uncovered. Lunch was served and, while we ate, we started brainstorming and measuring the field. We all had lots of ideas, and we took advantage of the field being there to get some initial ideas on strategy and scoring. Later, we went to AvaLAN and continued to brainstorm.

Conclusion: We always have a fun time getting together with other teams, and this was no exception! We had a fantastic time, and we can't wait to see where the 2019-2020 season takes us!

Total Reach: 100 People
Team Hours: 65 hours

OUTREACH: COMMUNITY CONNECTIONS

The Browncoats participated in fun games and activities before the reveal

After the reveal, we got to work on brainstorming

The team discussing the stones on the new game field

Showing our robot to visitors at the Open House

OUTREACH: COMMUNITY CONNECTIONS

What:	**Madison Street Festival**	**October 5, 2019**	
Where:	**Downtown Madison**	**8:00 am - 4:00 pm**	

Summary: On October 5th, our team attended the Madison Street Festival. We were set up in the Teen Zone, a relatively new addition the festival, where we had our 2018/2019 field and we demonstrated our competition robot. People of all ages came to see our robot in action and drive our demo bots! We had flyers and booklets about *FIRST* for all of the people interested in joining a team, starting a team, or volunteering at an event. We also gave away lots of our 3D printed robots!

Ian, Megan, Jalynn, Brooklynn, Joel T, Becca, Joel H, Nathan

Once the event opened to the public, it was a never-ending flood of attenders. There were several people interested in becoming involved with *FIRST*, and many who already were or previously had been. We met a woman and her daughter who are part of an FLL team and are looking for mentors, so we're going to contact one of the engineers we met at the Space and Missile Defense Symposium who was interested in mentoring FLL teams and get him in touch with them.

We heard a lot of positive feedback from this event! Many people thanked us for coming out, and one person even mentioned on the news that there was a really cool robotics team in attendance that hadn't been there last year. We had countless visitors asking about *FIRST* programs over the course of the day and we were very excited to pass the knowledge of *FIRST* and STEM onto them!

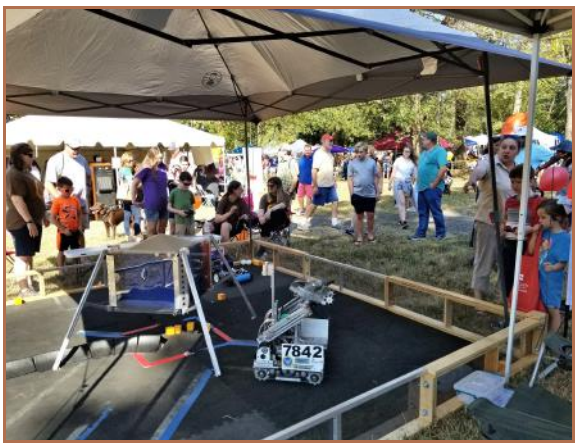
We had some people involved in FLL come by and drive our robots, and they were enthusiastic to learn about FTC for them to graduate into when they're old enough. We also had an FRC team member come by asking for tips on outreach, so we helped him how we could and we discussed all of our goals for reaching out to the community. It's always a lot of fun to talk with other people involved with *FIRST* to compare similarities but also differences and to learn from one another.

Conclusion: Overall, the Madison Street Festival was a very successful and fun experience, and with approximately 50,000 people in attendance, was a fantastic way to reach out to people in our community that we might not have before and introduce them to *FIRST* Robotics!

Total Reach: 50,000 People
Total Hours: 91 Hours

OUTREACH: COMMUNITY CONNECTIONS

The kids *really* enjoyed driving our demo bots!



We had huge crowds come all day

Curious festival attenders came to hear about our 2018-2019 robot, Vere 6.0

They also came to watch Vera at work during our demonstrations

We had so much fun and can't wait to come back next year!

OUTREACH: GIVING BACK TO FIRST

What:	**2nd Rocket City FTC Invitational**	**May 4, 2019**	
Where:	**Huntsville Christian Academy**	**8:00 am - 5:00 pm**	

Summary: On May 4th, FTC Browncoats held our second annual Rocket City FTC Invitational, where we invited teams to compete in matches and participate in fun events throughout the day. We hosted our first Rocket City Invitational last year and it was a huge success, so we were excited to host a second for the Rover Ruckus season! Our goal was to give teams one more chance to get their robot on the field in a fun, low-stress environment – especially to those who only got to participate in one competition. Teams from Alabama, Tennessee, Georgia, Mississippi, and even Florida attended!

Ian, Megan, Jalynn, Kye, Nathan

During the day's events, we held regular qualification matches as well as finals, where the top two teams selected one other team to be on their final alliance, and then they played a best two out of three to decide the champion of the event. Ian and Megan competed for the Browncoats while the rest of the team performed other tasks such as scouting and field resetting. All the teams did really well and the competition went relatively smoothly, even finishing a bit early!

After this, it was time for some games! First was the relay race, where each team was timed to see which robot could drive across the gym the fastest, switch controls with the second driver, and then complete the course a second time. Following this game was the mentor driving challenge, where a mentor or coach got to drive the robot through an obstacle course and then knock off a beacon on top of a stack of glyphs. Each challenge was a blast and everyone had so much fun!

We handed out many awards during this event, including the Finalist and Winning Alliance Captain, both driving challenges, as well as the "Heaviest" and "Lightest" robot, and the best marker where teams cast their votes for their favorite. A local FLL team, 39374 C.R.A.B, volunteered to help us decide the best pit and best marker!

Conclusion: The event was a huge success! It was a great way to meet and talk to other FTC teams. We learned a lot while talking to everyone and it was fantastic having some friendly, stress-free competition with our fellow FTC teams! We're thankful to all of our volunteers for making the event run as smoothly as possible, and we hope everyone had as much fun as we did!

Total Reach: 300 Team members, Mentors, and Volunteers
Team Hours: 119 hours

OUTREACH: GIVING BACK TO FIRST

The Invitational is about giving teams one more chance to run their robots in a fun, stress-free environment

We had fun activities as well, including a drag race...

... And the fan-favorite, mentor driving challenge!

OUTREACH: GIVING BACK TO FIRST

The Browncoats donated supplies to a Florida FLL team who needed it after Hurricane Michael

On Sat, May 4, 2019, 7:25 PM Small Town Robotics <smalltownrobotics@gmail.com> wrote:

Thank you!!!!!!! Thank you!!!!!! Thank you!!!!!! What a super fun day at your Invitational today. We had a great time and really appreciate all your hard work on the event. Thanks again!!!!!

Sincerely,
Nancy Jo Thompson
Small Town Robotics Team 14291

Nancy Jo Sent from my iPhone

OUTREACH: GIVING BACK TO FIRST

Adam Kelly <t.adam.kelly@gmail.com> 10:52 AM (4 hours ago)
to Kendyl, Jeff, FTC, Brian

Jeff,
A very big thanks for including our team in the invitational this weekend. A long drive but even after 14 hours in a car over two days the Squirrels voted to come back again! This was despite the robot not behaving. They had stood down the week before because of End of Course exams and finals coming up... so they missed some preparation. But they competed with what they had and they had fun. They are a rookie team and it is all growth for the future.

You have a great fun event there, so I hope you can keep it going. We might be able to bring some more teams North with us in the future if you would want that! The drag races were cool, because it was not what the teams typically design for.

The donations were awesome. We heard from a couple of others there about other donations. We have to collect donations from south Florida teams as well, so the stash is growing. We have FLL jnr and FLL events 21st and 24th of this month in Bay county. For the FLL event 100 kids signed up to participate. So hopefully that gives momentum to participating in FLL next season. The Squirrels will be on hand to demo the FTC robot and act as mentors.

Again thanks for the donations, hospitality and event.

Adam and the Squirrels.

We had such a great turnout this year and we can't wait until our 3rd annual Invitational next year!

OUTREACH: GIVING BACK TO FIRST

What:	**STEAMWorks**	**August 15, 2019**	
Where:	**Lowe Mill**	**5:45 pm - 8:00 pm**	

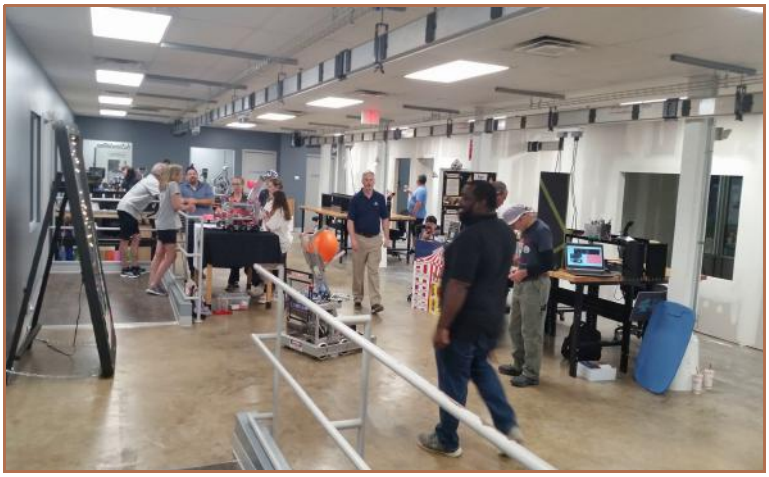
Summary: We attended the Huntsville STEAMWorks Robotics Open House with three *FIRST* Tech Challenge teams, one *FIRST* Lego League team, and one *FIRST* Robotics Competition team! This event was primarily a networking event, allowing us to connect with *FIRST* teams in northern Alabama.

Brooklynn, Ian, Joel T.

We demonstrated our robot to other FTC teams as well as gave tips and recommendations (primarily software and fundraising) to help them get up and running once the season starts. Additionally, we briefly toured the STEAMWorks facilities, which have been significantly upgraded and renovated since we last visited.

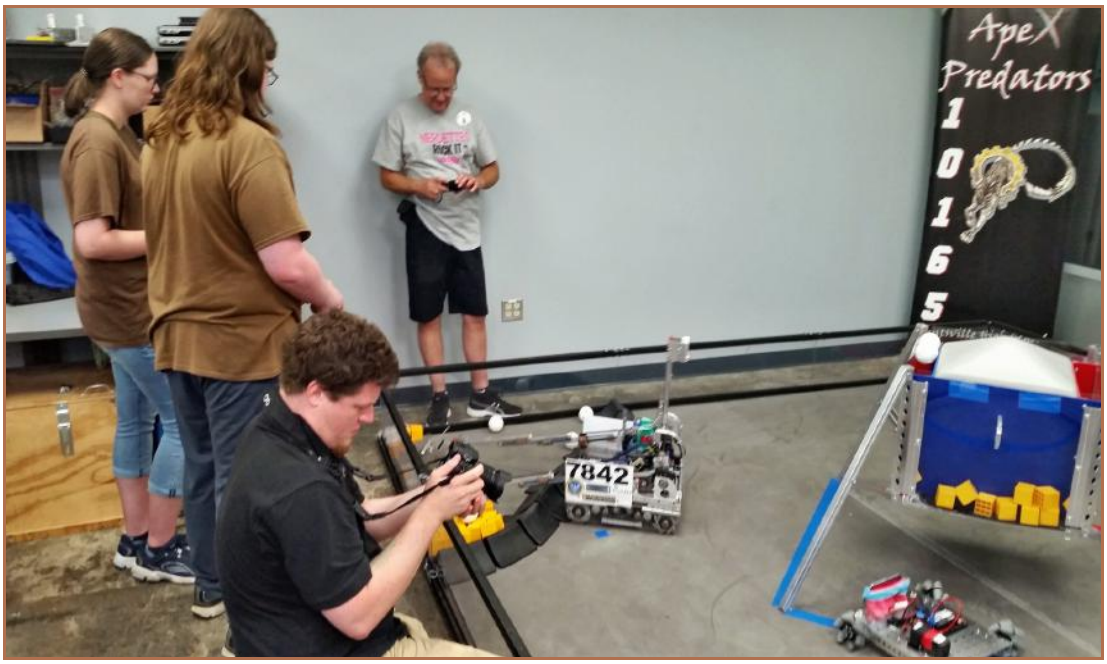
Conclusion: This was a fantastic way for us to network with other teams from three of the four levels of *FIRST,* learn from each other, and also meet Alabama's new *FIRST* Senior Mentor!

Total Reach: 50 People, Team members, and Mentors
Team Hours: 13 hours

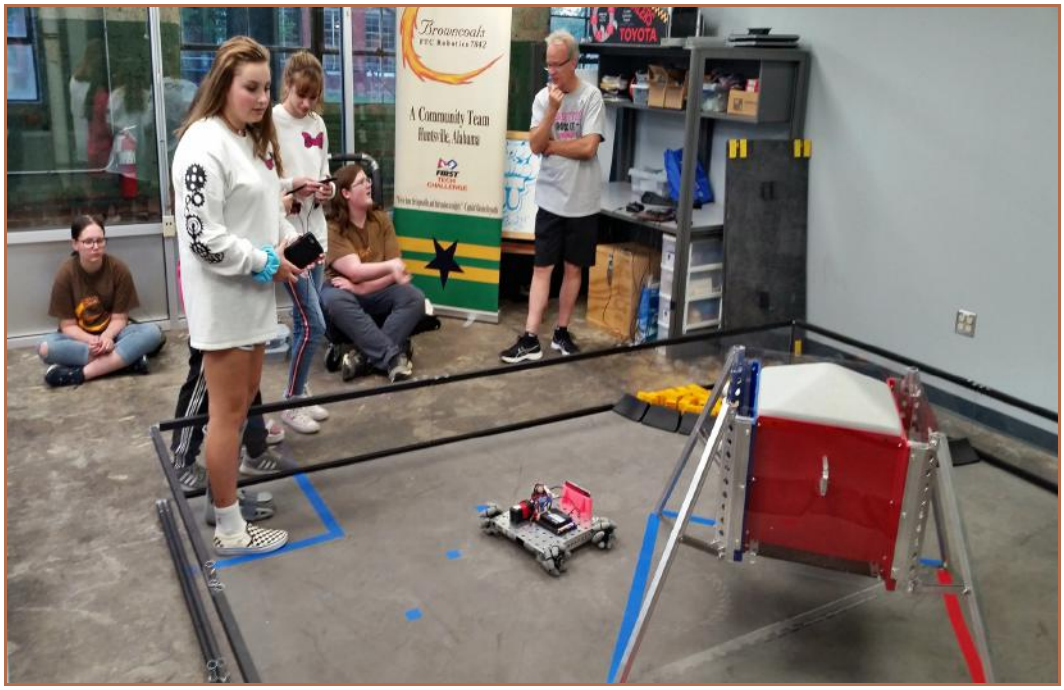


The world of STEM

OUTREACH: GIVING BACK TO FIRST



What a great experience!



We had members of other teams come to demonstrate their robots

OUTREACH: GIVING BACK TO FIRST

What:	**Game Manual 0**	**Summer 2019**	
Where:	**Ian's Home**		

Summary: Game Manual 0 is a guide written by FTC alumni and veterans, including our Co-Captain, Ian! They wrote this guide to help more students get a grasp on the program, allowing them to focus more on building robots.

Ian

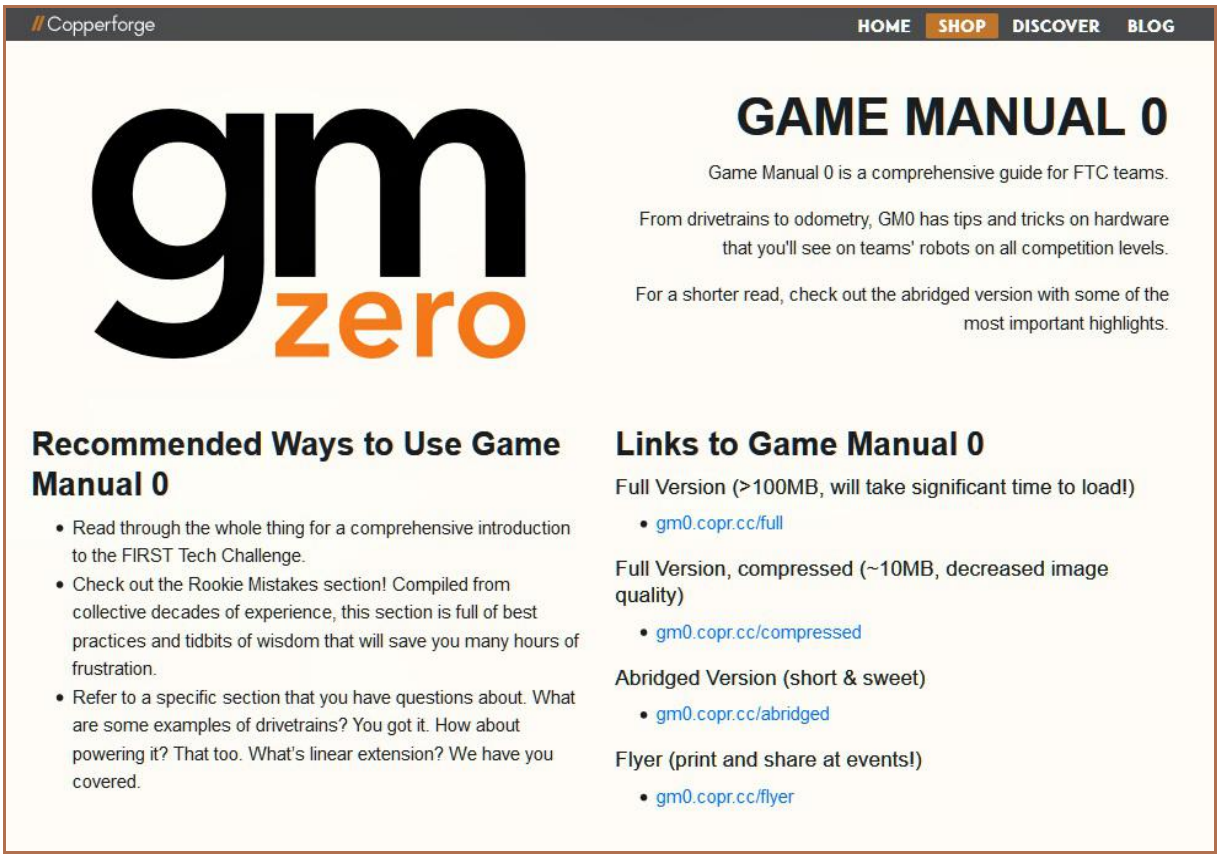
Game Manual 0 is a guide written by FTC alumni and veterans, including myself! The full version contains nearly 250 pages of information about a variety of topics related to FTC, including an enormous number of mechanical topics (drive trains, kit options, linear slides, intakes, and more), as well as a very in depth wiring guide and an overview of software topics. There's an absolute wealth of information here, which has been formed by our dozens of years of combined experience (we made mistakes to prevent you from making the same ones!). Our goal with this guide was to provide a comprehensive source of information for FTC rookie teams. We all learned through mistakes, conversing with others, and searching for scattered bits and pieces of information. Thus, we decided to write this guide to help more students get a grasp on the program, allowing them to focus more on building robots. It's been in the works since shortly after the Houston and Detroit Championships of this year, and it was only recently finished (shortly before kickoff). I'd recommend everyone to read through this, because there's so much valuable information within.

http://gm0.copperforge.cc/

Conclusion: This guide is a fantastic way for rookie teams or new members on veteran teams to learn about different subjects and then accomplish them for themselves!

Total Reach: 3,600
Team Hours: 20

OUTREACH: GIVING BACK TO FIRST



Game Manual 0 will be a great starting point for those who are just entering the world of *FIRST*

OUTREACH: GIVING BACK TO FIRST

What:	**Build Day**	**October 12, 2019**	
Where:	**First United Methodist Church**	**9:00 am - 4:00 pm**	

Summary: On October 12th, the Browncoats hosted a build day event at the First United Methodist Church. While attendance at the build day itself was disappointing (Lesson Learned: Don't schedule a Build Day or Scrimmage during Fall Break), we did get to help out at least one rookie team (Team 16783, Redneck Wrenches, via mentor Tom Rogers) and hung out with our *FIRST* in Alabama/FTC Affiliate Partner Brian Pappas.

Ian, Joel T, Brooklynn, Joel H, John

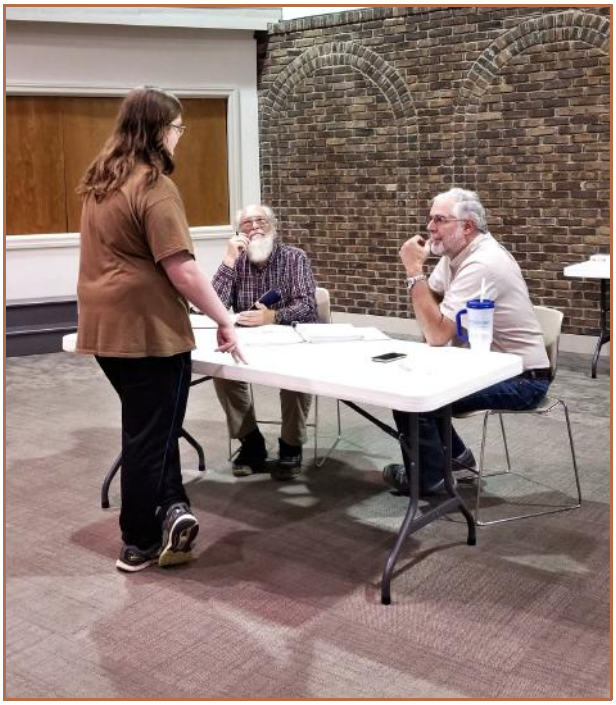
Mr. Rogers asked some interesting questions. He has been an FRC team mentor for many years, and his questions were unusual in that they came from an FRC viewpoint and focused on many of the differences between FTC and FRC. For instance, he asked how we kept track of what we spent on the robot--we don't, but it is apparently tracked very closely and is the subject of serious audits in the FRC world.

Another question focused on what FTC teams build their robots out of, and he appeared to be pleased to learn that many FTC teams work with erector-set like, bolt together parts, something that he apparently felt would be much easier for his team of rookies to deal with, rather than the custom-designed parts he was used to dealing with in FRC. Mr Rogers also spent some time looking our engineering notebook over, and was happy to learn that our notebook from last season was posted on our web site so that his team could use it as an example.

Conclusion: The Browncoats, at least, took advantage of the build day and made some good progress on drive train assembly and foundation catch design. The software team worked on configuring and updating their software development environments and they learned how to setup, start, and drive the demo bots. Photos were cleaned-up and readied for the Engineering Notebook, the results of the tuned mass damper investigation and POP was worked on, and alliance markers were modeled in SolidWorks. All in all, a very productive day.

Total Reach: 1
Team Hours: 53

OUTREACH: GIVING BACK TO FIRST



The Browncoats gave valuable advice to a rookie team's mentor

While Build Day didn't go as planned, overall it was rewarding and beneficial

OUTREACH: GIVING BACK TO FIRST

What:	**FLL Qualifier**	**November 16, 2019**	
Where:	**University of Alabama at Huntsville**	**6:45 am - 4:30 pm**	

Summary: On November 16th, two of our team members and two of our mentors volunteered at the University of Huntsville in Alabama's FIRST Lego League Qualifier, hosted by the Society of Women in Engineering. We assisted in various areas over the course of the competition and gave our very best effort to help the event go smoothly for everyone involved.

Megan, Jalynn

We helped out with a number of things, from robot game queuing to judging assistant, registration, judging, and anything else they needed from us. We all had a lot of fun with all of our different jobs and learning about the parts of FLL that are different from FTC.

Part of our goal with reaching out to the FLL community is to inspire teams to join or create a FIRST Tech Challenge team when they're older, so we can help sustain the programs in Alabama for a long time. It is our hope to get kids excited about engineering and STEM and pursue it as a career in the future.

Conclusion: We had an amazing day! It's always a pleasure to be able to work with such talented kids, and today was no exception. We're just glad we were able to help out and we can't wait to do it again!

Total Reach: 200
Total Hours: 36

OUTREACH: GIVING BACK TO FIRST

Making sure all the teams know where to be

Having fun at Registration

Getting ready for judging

OUTREACH: GIVING BACK TO FIRST

What:	**Columbia FLL Qualifier**	**December 14, 2019**	
Where:	**Columbia High School**	**8:00 am - 3:00 pm**	

Summary: On December 14th, our team volunteered at the Columbia High School *FIRST* Lego League Qualifier. Our jobs included: judge, judging assistant, head judge queuer, pit admin, and practice table assistant. We all had so much fun with our jobs, and we're so glad we got this opportunity!

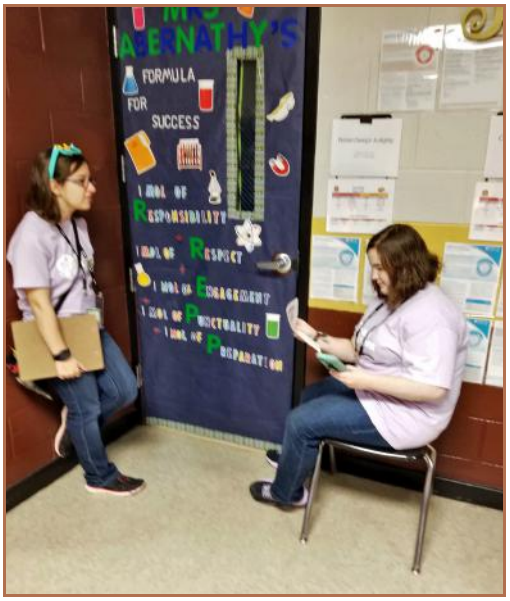
Megan, Ian

Throughout the day, we got to converse with the FLL teams and other volunteers. A couple of people mentioned how their teams would be graduating out of FLL soon, so we mentioned *FIRST* Tech Challenge, some of the differences, some of the advantages, and how they could go about transitioning. Some of the volunteers had never even heard of FTC before, so we told them all about it, and we talked about some of the differences between all four *FIRST* programs.

Conclusion: We all had a fantastic time volunteering! We love reaching out to the FLL community, working with them, and learning from them. Every time we volunteer, we always learn so much and we can't wait till the FLL Alabama State Championship where we'll be volunteering and demoing our robot!

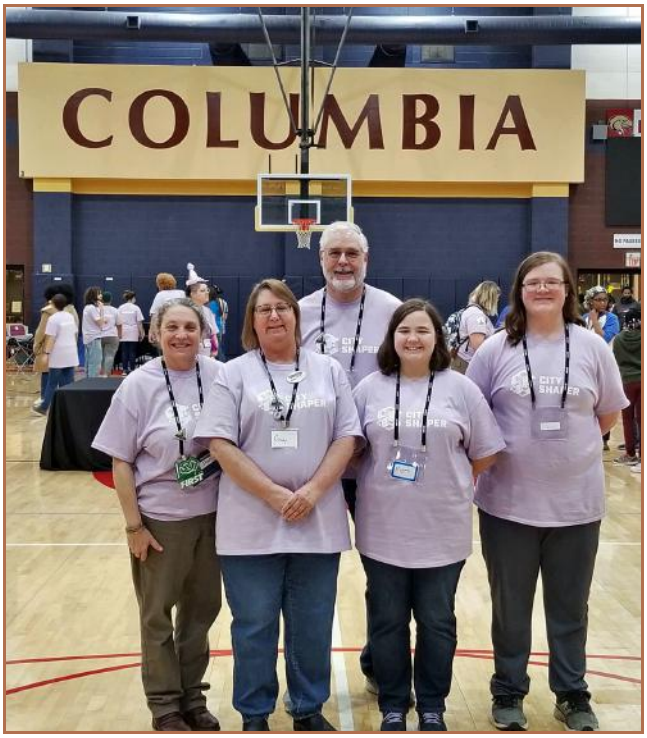
Total Reach: 300
Total Hours: 42

OUTREACH: GIVING BACK TO FIRST



The Browncoats got to help at our second FLL qualifier this season!

Everyone enjoyed the roles they got to play



We're so glad we got this opportunity to help!

OUTREACH: GIVING BACK TO FIRST

What:	Social Media	**Various**	
Where:		**Various**	

Summary: Ever since the end of the 2016/2017 season, the Browncoats have been working to expand our social media presence. In doing so, we went from 100 followers on Instagram, to 1,300+, and on Twitter, we have 1,500+ followers. We have social media across Instagram, Twitter, Facebook, YouTube, and we have our own website.

Everyone

Our goal with expanding our presence was to reach more people across the world to spread the word about FIRST Robotics and STEM, and to educate more people about the program. Since then, we have inspired others to join the program or volunteer with FIRST, andwe've had several FTC teams contact us asking for help or guidance. We've also been able to connect with other FIRST teams over social media, which has been a fantastic learning experience for us as we've learned so much from other teams.
Because of social media, we were able to help a team from North Carolina with some programming issues after they contacted us through Instagram, and another team from Florida messaged us on Twitter asking for tips on drive trains. We also had a team from Colorado emailus with questions about outreach, specifically our ratio of different events targeting varying categories.

We post our past season's engineering notebook on our website for anyone to access, so teams can see an example of a complete notebook and hopefully help structure their own notebook. Many rookie FTC teams in Alabama have referred to our notebook, and we're so glad we were able to help!

Conclusion: All in all, social media has been a fantastic addition for the team, and we hope to continue expanding our presence throughout upcoming seasons.

OUTREACH: GIVING BACK TO FIRST

OUTREACH: GIVING BACK TO FIRST

What:	**FLL Competition Robot Demo**	**January 25, 2020**	
Where:	**Hampton Cove**	**11:00-11:30am**	

Summary: On January 31st, the Browncoats were invited to do a robot demonstration at the FLL State Competition to showcase some of the differences between the two levels of *FIRST*.

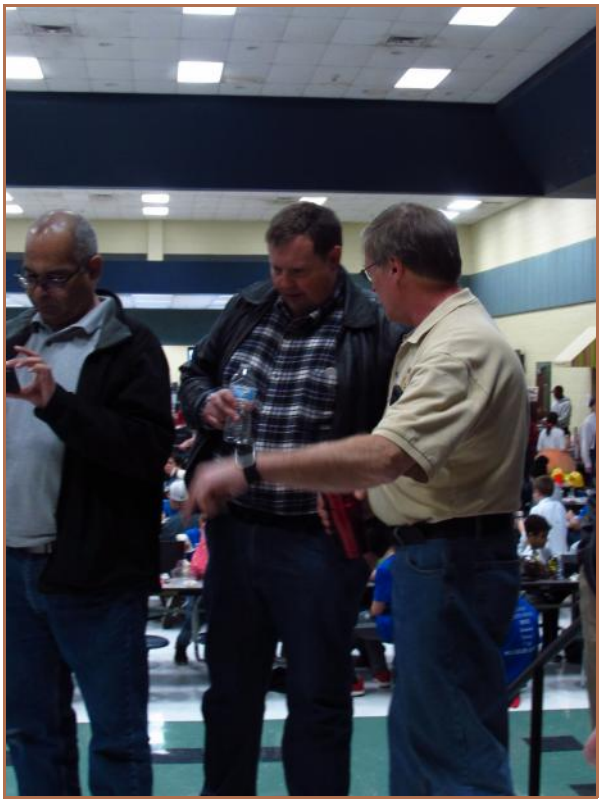
Ian, Jalynn, Joel

We set up our 2019-2020 robot on the stage during the lunch break. We brought field elements from the Skystone game to demonstrate hoe the challenge and our robot works. All of the kids were so excited to see Vera function, and they were particularly impressed with the intake. The students and the coaches had tons of questions about our robot and about FTC.

Conclusion: We had so much fun connecting with the FLL teams! Our goal is to sustain both programs in Alabama by making sure they know there's another option once they graduate out of FLL, and this was a fantastic way to do that!

Total Reach: 300 Students and Mentors
Team Hours: 3 Hours

OUTREACH: GIVING BACK TO FIRST



OUTREACH: GIVING BACK TO FIRST

What:	**February Scrimmage**	**February 1, 2020**	
Where:	**First Methodist Church**	**8:00am- 5:00pm**	

Summary: On February 1st, the Browncoats hosted a Skystone scrimmage for all FTC teams with the goal of teams testing their robots in a competition-like setting before their state competitions.

Ian, Megan, Jalynn, John, Nathan, Joel

We had five teams in attendance, and we ran matches throughout the day when teams weren't practicing. Many of the teams didn't own a field, and this was their first time seeing one after kickoff, so most of the day was spent tuning robots to fit the field dimensions.

Most of the teams were also rookie teams, so we got to help lots of them out in different ways. Some were interested in our robot design and how we came up with it, what kinds of parts we used, how we machined them, what kind of CAD program we use, etc. We were able to give them tips about problems we'd discovered and how they can avoid them, and we also discussed programming with several of the teams.

Conclusion: Today was a fantastic way to reach out to other FTC teams and practice together before the Alabama State Championship! Thank you to FTC in Alabama for attending and running live scoring so all of the teams could experience it beforehand! One of our goals as a team is to grow and sustain *FIRST* Tech Challenge in our state for many years, and by bringing all of the FTC teams together for build days, scrimmages, and our Rocket City Invitational, we're creating a friendly and open environment for teams that will hopefully encourage them to keep participating for years to come!

Total Reach: 65 Students and Mentors
Team Hours: 83 Hours

OUTREACH: GIVING BACK TO FIRST

BROWNCOATS
Team 7842 Engineering Notebook

OUTREACH: COMMUNITY SERVICE

What:	**Stand Down Together Presentation**	**September 27, 2019**	
Where:	**AvaLan Wireless**	**4:00 - 4:30 p.m.**	

Summary: On September 27th, our team was visited by Mr. Art Wikle from the Stand Down Together Group in Huntsville. Our team is collecting winter clothes and canned foods for their organization to help benefit homeless veterans, so he came to talk to us about the mission of their group and everything we're doing to help.

Ian, Megan, Joel T, Jalynn, Becca, Nathan, Joel H, John

On October 17th - 20th, the Stand Down Together Group is housing homeless veterans in cots and feeding them and clothing them, and everything we donate will contribute to this. Some of our team members are planning on volunteering on one of these days to help serve breakfast or lunch to the veterans.

https://www.standdownhsv.org/#

Conclusion: We're all very excited to be helping those in need, though we were saddened by the amount of people currently on the streets in Huntsville. We're just glad to be doing anything we can to help!

OUTREACH: COMMUNITY SERVICE

Mr. Art Wikle of Stand Down Together Huntsville talked to us about their food and clothing drive for homeless veterans.

OUTREACH: COMMUNITY SERVICE

What:	**Winterfest Clothing and Canned Food Drive**	**October**	
Where:	**Various Locations**	**Various Times**	

Summary: Throughout the month of October, our team collected winter clothes, blankets, canned food, and more by handing out flyers and reaching out to our community. Our main reason for this was to provide warmth and food for homeless veterans, and to do this we partnered with Stand Down Together Huntsville. They came to one of our meetings to discuss what we would be doing and how we would be helping, and then we got to work on collecting items.

Ian, Megan, Joel T, Jalynn, Becca, Nathan, Joel H, John

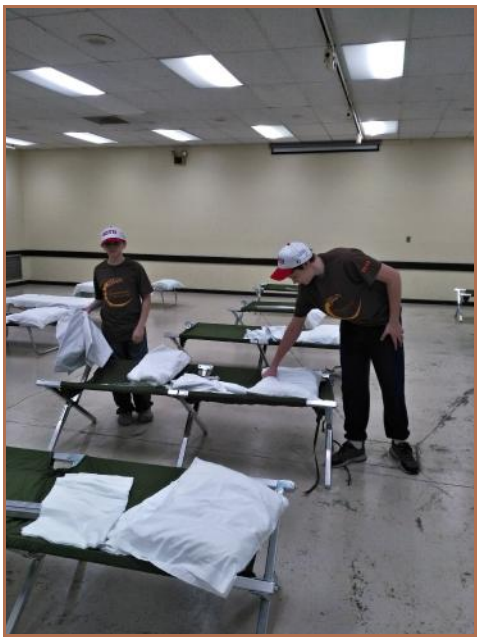
We were able to collect many items to benefit the veterans, and once we had them all, on October 17th, we delivered them to the Stand Down Together group, who thanked us heavily for our donations. They said we were a great help, and we couldn't be more thankful for this opportunity to provide to those less fortunate.

Stand Down Together was putting on a three day event where they used the donations given to them to feed and clothe the homeless veterans and provide cots for them to sleep in. On the 18th of October, our team participated with their breakfast and helped to serve for the veterans. We also helped set up the cots and bring in items they were loading in. It was a great experience, and we're so glad we were able to help.

Conclusion: Our goal was to keep as many people clothed and fed as possible this winter, and we're thrilled we were able to help, even a little.

OUTREACH: COMMUNITY SERVICE

The Browncoats were glad to have give donations and our time to help the homeless veterans in our community



Some of us helped prepare cots for the veterans to sleep in

While others assisted in bagging and handing out meals

OUTREACH: COMMUNITY SERVICE

What:	**Huntsville Women's & Children's Hospital**	**November 27, 2019**	
Where:	**Huntsville Hospital**	**2:00 - 3:00 p.m.**	

Summary: On Wednesday November 27th, our team visited the Huntsville Hospital for Women and Children. We set up our 2018-2019 robot in the activity room, and then a group of four kids of varying ages who were staying in the hospital were brought in.

Ian, Megan, Jalynn

First we demonstrated our robot and we explained how the challenge works and what *FIRST* Robotics is. Then, each kid took a turn driving one of our demo bots, which they had a blast with! They were quite good at it, too!

After that, we helped them build race cars that they could decorate, and then once they put in the battery pack, they could drive around. Once they tested them, they had a few races to see which car was the fastest. They all had so much fun making these, and they were so excited to learn that they could keep them.

We all had a lot of fun working with the kids, and it was so nice to see smiles on their faces! Our goal was to bring some happiness to them during the holiday season and we're so glad we were able to do that!

The hospital staff was very grateful and thrilled with the outcome, and asked that we not only come back to the Women and Children's hospital again, but see if we could go to the St. Jude's Clinic eventually as well!

Conclusion: We really enjoyed this experience, it made us happy to see the kids smiling and laughing; we couldn't be happier to be sharing our love for robotics with more people and hopefully bringing some joy to those who could use it! We can't wait to come back again soon and hopefully be able to do something similar at St. Jude's as well in the near future!

OUTREACH: COMMUNITY SERVICE

We setted up our 2018-2019 robot and our other activities in one of the activity rooms

The hospital staff and the kids really enjoyed our visit!

We are so glad we got to do this and we hope this will become a regular occurrence for our team!

OUTREACH: COMMUNITY SERVICE

What:	**Huntsville Downtown Rescue Mission**	December 13, 2019	
Where:	**Huntsville, AL**		

Summary: After the team collected clothes and donated them to Stand Down Together, there were still quite a few clothes left over that Stand Down didn't need.

Ian, Megan, Jalynn, Becca, John, Joel, Nathan

We also still had people giving us clothes that they wanted to donate, so we pooled all of these together, sorted through them, and then we took them to the Huntsville Downtown Rescue Mission to donate. This would help to keep even more people warm and clothed for the winter, which was our goal from the start.

Conclusion: We're very happy we were able to help, and we can't wait to do this again next year!

OUTREACH: COMMUNITY SERVICE

OUTREACH: COMMUNITY SERVICE

What:	**St. Jude Clinic Visit**	**January 31, 2020**	
Where:	**St. Jude Clinic**	**11:00am-12:00pm**	

Summary: On January 31st, our team visited the Huntsville Hospital's St. Jude's Clinic. The staff invited us to visit them after we'd visited the Women and Children's clinic, which was a big hit. We brought our 2019-2020 robot and field elements from the game, as well as the demo bot for the kids to drive. We also brought back the kits that they could build into cars, which they loved last time.

Ian, Megan, Jalynn

We had three kids in attendance, who were all really excited to learn about the robots. They enjoyed driving the demo bot and learning how it worked. They were all very impressed with Vera and loved watching her move and stack stones. Their favorite part, however, was decorating the boxes for their cars! We'd brought stickers and markers for them to use, and they were so creative in their decorating, and they had so much fun! Once they were all finished building and decorating, they got to test their cars to see whose was the fastest.

The nurses also loved watching Vera run! They were all fascinated by how the robot worked and had tons of questions about how we built it. One of the nurses even inquired about how her son could go about joining something like this, so we pointed her in the direction of *FIRST* Lego League because of his age, which she said he'd love participating in.

Conclusion: We had a fantastic time, and we're so glad we were able to help keep the kids happy. It was so heartwarming to see the smiles on their faces and how much fun they were having, and we're so glad we were able to help in any way. The staff asked us to come again after our state competitions to the pediatric clinic, and we're so excited to come back!

OUTREACH: COMMUNITY SERVICE