



## BROWNCOATS Team 7842 Engineering Notebook



### About Us

The Browncoats are a community *FIRST* Tech Challenge robotics team from the Huntsville, Alabama area. Currently, the team is made up of six students - ranging from 7<sup>th</sup> to 12<sup>th</sup> grade. Between them, these students represent public, private, and home schools from across the North Alabama area.

The Browncoats evolved from the *FIRST* Tech Challenge team, 12-Volt Ninjas, which was formed in 2011. In 2013, members from the *FIRST* Lego League team, Acronym, were brought in, and the team name was changed to Browncoats after our favorite science fiction television series, *Firefly*.

This is our eighth year competing as a *FIRST* Tech Challenge Team. We are very excited for this year's challenge and cannot wait to see where it takes us! Every year is a learning experience for us, and we love applying what we learn to our next season. As a team, we strive to embody *FIRST* and expand the program in our community and throughout the country. Through our outreach events, we hope to inspire others to start their own team or participate with *FIRST*.

Our 2019-2020 season was our most successful season to date! With the generous help of our sponsors, we were able to travel to more competitions which helped us to better prepare, and it gave us more learning experiences. We advanced to the World Championship for the third time in our team's history. Unfortunately, due to Covid-19, the World Championship was cancelled.



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### Engineering the Robot

Over the past several seasons, the Browncoats have employed an engineering process that features brainstorming, subsystem partitioning, and a divide-and-conquer approach to conceive, design, build, and program the robot while utilizing the talents and skills of each team member. In addition to robot building, students also collaborate to document their journey in an Engineering Notebook and on social media.

### Outreach

Connecting with the local community through outreach has always been very important to our team. In a normal year, we would attend many events such as the Space and Missile Defense Symposium, the Madison Street Festival, the Huntsville Hamfest, the AUVSI Pathfinders Symposium, and entertain patients and staff from Huntsville's Women's and Children's Hospital and St. Jude's Hospital with robotics demonstrations.

We have also, in the past, volunteered at many *FIRST* Lego League (FLL) qualifiers and state championships to reach out to the FLL community and inspire them to eventually join or create a *FIRST* Tech Challenge team. We hope we will be able to volunteer where needed this year. We also hope we can continue to host build days and scrimmages for area teams.

Though our outreach has been limited this year, we have been able to continue with some community service projects, such as 3D printing face shield frames and stress relief ear straps and sewing cloth face masks, and by helping collect clothes and blankets for Huntsville Downtown Rescue Mission.



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### TEAM BIOGRAPHIES

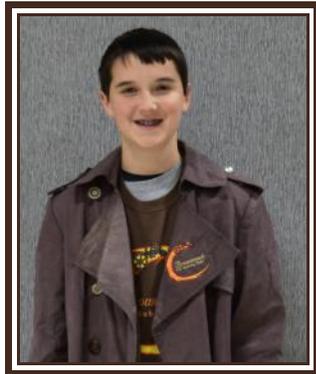


#### **Jalynn**

*Business Sub-Team: Engineering Notebook*

*Software Sub-Team: Strategy*

My name is Jalynn, and I'm a home-schooled senior. This is my third year on the team, and I do the Engineering Notebook. I did *FIRST* Lego League in fifth grade and instantly fell in love with robotics, but scheduling problems prevented me from joining another team until learning about the Browncoats in 10<sup>th</sup> grade. I am willing to help in any area needed on the Browncoats. I'm interested in the Engineering Notebook, building, and possibly programming. During my free time I like reading, writing, listening to music, and talking (or hanging out) with my friends.



#### **Joel**

*Software Sub-Team: Programming*

*Mechanical Sub-Team: Builder, CAD*

My name is Joel, and I am 13 years old. This is my second year on the team and with *FIRST*. My roles on the team have been photographer, videographer, and a builder. This season, I want to do more CAD, programming, and helping with building the robot. Some of my favorite things to do include Minecraft, photography, and soldering together helpful gadgets of my own creation.



#### **Nathan**

*Mechanical Sub-Team: Builder*

*Drive Sub-Team: Human Player*

My name is Nathan, and I'm 12 years old and home-schooled. This is my second year on the team. I'm a builder and a Human Player. I'm excited to learn more and make new friends on the team.



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### Ellie

*Business Sub-Team: Engineering Notebook*

*Mechanical Sub-Team: Builder*

*Software Sub-Team: Strategy*

My name is Ellie, and I am in 10<sup>th</sup> grade at Providence Classical School. This is my first year on the team. I love reading and writing, so I was excited when Jalynn invited me to the team to come work on the Engineering Notebook. This year I want to work on the Engineering Notebook, but I am also excited to learn new skills.



### Jaxon

*Mechanical Sub-Team: Builder*

*Drive Sub-Team: Driver*

My name is Jaxon, I am in 8th grade, and this is my first year on the team. I love to learn about science and history. I got interested in the team when I was at the library and saw this team demonstrating their robots. I really hope to learn the basics of building a robot, Java, and CAD.



### David

*Mechanical-Sub Team: Builder*

*Drive Sub-Team: Driver*

My name is David and I am a freshman at James Clemens High School. This is my first year on the team, and I am a builder. I work on lots of motorized vehicles like dirt bikes and go-karts, so when a friend mentioned this team to me, I was already interested. I really hope to learn something new while on the team.



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### MENTOR BIOGRAPHIES



#### Jeff

Current Position: Coach  
Years with the Team: 6

Jeff has served as the Coach to FTC team, #7842 The Browncoats, for six seasons. He has been introducing the team to some of the principles of engineering project management, including project bounding, requirements generation, partitioning, and project scheduling. In addition, he is mentoring the build team and has taken a special interest in the 3-D modeling and printing activities.

Jeff received a B.S. in Electrical Engineering from the University of Arkansas in 1985. Since then, he has worked as a Software Engineer at Texas Instruments, Raytheon, and SAIC serving in both technical and team leadership roles. He enjoys tinkering with a never-ending list of home improvement projects, wood working, flying (he holds a private pilot's certificate and at one time owned his own airplane), and reading science fiction.



#### Monte

Current Position: Coach  
Years with the Team: 8

Monte has mentored the Browncoats and their predecessor, the 12V Ninjas, for 10 years. His 2 sons were members on those teams. He has been helping them work through the design process and to help them quickly assess and prioritize their multitude great ideas for design.

Monte earned a Ph.D. in Physics from the University of Oklahoma. He has taught physics, weather, and engineering for 30 years. His specialty is instrumentation design under tight constraints, which serves well in FTC. He has created large systems, both hardware and software, doing lightning research at NASA. Monte's main job with the Browncoats is to ask, "But what about....?"



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### Jean

Current Position: Administrator, Scouting  
Years with the Team: 8

Jean graduated from The University of Oklahoma with a Bachelors degree in Clinical Laboratory Science. She worked in the health care field for 16 yrs. Including 9 years at Oklahoma Memorial hospital, where she helped teach and train students from The University of Oklahoma Medical School / Health Science Center.

Her background includes medical microbiology, toxicology, chemistry, hematology and biology. She has taught elementary, middle and high school science classes to home-school students for the last 12 years.

Jean has been a part of *FIRST* for 11 years. Helping with 2 FLL teams before joining FTC. She has been with associated with FTC for 8 years and the Browncoats for 6 years. Her main job is fund-raising, managing the 501c3 and purchasing robot parts for the team. Favorite line from the team is “ Ms. Jean do we have money to buy.....”.



### Cindy

Current Position: Engineering Notebook, Fundraising,  
Travel Agent, Scouting  
Years with the Team: 7

Cindy’s background is in the legal field, having worked as an administrative assistant/paralegal at law firms for many years. Her main role on the team is the Engineering Notebook mentor.

She also helps with fund-raising, the team’s travel plans, and scouting at competitions. This is her seventh season being involved in *FIRST* robotics and the Browncoats, and she loves being part of the team. She enjoys the excitement of competition and watching how the students grow in skill, character, and confidence.



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### John

Current Position: Mentor  
Years with the Team: 8

This is my third year functioning as a mentor. I was the head builder and team captain for the Browncoats 2016-2017 season, helping lead our team to Worlds. I have participated in FLL for 3 years and 4 years in FTC. The experience I gained participating in *FIRST* help determine my future path. I am currently attending the University of Alabama-Birmingham pursuing a degree in Biomedical Engineering. I am looking forward to working with the team and helping the Browncoats continue in their journey of building robots.



### Ryan

Current Position: Mentor  
Years with the Team: 7

I am a student at University of Alabama in Huntsville and am studying mechanical engineering and computer science. This is my fifth year as a Student Mentor, having spent two years with *FIRST* Tech Challenge and the Browncoats. I was one of the builders and drivers on the team and am involved with CAD and 3D printing. Besides robotics, I enjoy playing video games.



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## Megan

Current Position: Mentor

Years with the Team: 4

My name is Megan, and this is my first year mentoring the Browncoats. For the past three years, I was a member on the team with varying roles such as co-captain, head builder, driver, engineering notebook, and social media. My time on the team was a lot of fun and I learned so much from the experience. I can't wait to see what the new members of Browncoats achieve! Outside of robotics, I'm a graphic designer and an author, I love listening to music and reading, and I act in plays and musicals. I hope to stay involved with FIRST for many years to come!



## Ian

Current Position: Mentor

Years with the Team: 5

My name is Ian, and this is my first year mentoring the Browncoats. For the past four years, I was a member on the team with varying roles such as co-captain, head programmer, team CAD expert, builder, and driver. My time on the team and with the FTC program allowed me to pursue and develop my interests, as well as exposing me to new ones. I am currently attending the University of Alabama Huntsville and am studying mechanical engineering. I love designing projects, machining, programming, playing video games, and PC building in my spare time.