## **VEX Robotics Girl Powered Online Challenge**

By Noël Waters and Grace Cobb

Since conception of modernisation, males have been the predominant contributors to the



field of science and engineering. However, those of us participating in Bison Legit Robotics are fighting to change and overcome this issue within our area of Birmingham, Alabama. As a result of our school being private and drastically smaller than other schools in our area, it has been quite challenging to locate diverse members for our team. Yet, after

several years of attempting, our team has been able to become more inclusive of females and is currently the only robotics team in our high school to be co-ed. At first, our team started as three

separate teams in seventh grade, two of which were populated by only males and the other solely females. The following year, those three teams condensed into two coed teams, one having two girls and the other only one. Last season, those two teams shrank further into one team, Bison Legit, having only one female member participating actively on the team. Thanks to their effort to be more inclusive, another female was inspired by and welcomed onto the team this season. Now, because of these two girls, Bison Legit is able to



compete for Excellence and Design Awards because of their complete, organized, and

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up-to-date engineering journal. In addition, our team dynamics have been drastically improved by our team mentor, who is also female, in order that we are more organized and can plan how we proceed with our robot.

In our minds, being "girl powered" is not simply having girls participating in Bison Legit Robotics, but that they work well with the guys on the team and contribute to our overall



success. While imploring women to be involved in engineering and science is a priority, it is also important to us that females know how to collaborate with males and how to perform well together. Since the majority of engineers are males, women need to know how to work with them, so that they can excel in their positions in STEM-related jobs. Throughout our many team

practices, we have discovered that our differing mindsets offer many unique solutions to our problems with our robot. Also, we have found that we inspire each other with our altering positions and that we have grown by each others' completion of their individual jobs.

This season, as a result of our increased number of females participating on Bison Legit

Robotics, we have adopted a new role model for our team, who was not only a vital figure in the space program, but also broke barriers of race and gender in order to earn her place at NASA. Mary Winston Jackson inspired the females on our team specifically because she was the first African American to work at NASA and because of her diligent efforts, was able to become an experienced aerospace engineer. Her experiments in the wind tunnels played an essential part in the era of space



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exploration. In addition to her world-changing efforts in the engineering field, Jackson also later transitioned from her position at NASA to become a human resource manager, where she assisted other African Americans proceed in their own dream careers. Because of Jackson's example, the girls at Bison Legit have endeavored to become more involved with the team and



reduce segregation in the field of engineering. Now, instead of simply working on the engineering journal or small building tasks, Grace and Noël have begun to branch out their capabilities to do more complex building and creating parts lists for the robot. Furthermore, Noël desires to learn how to program, although she has never done anything of the like

before. Our team as a whole has benefitted from this new outlook at integration. Many of the guys on our team have gone out of their way to explain how the robot works and what their thoughts are on strategies to the girls, which has greatly strengthened and improved our team. We have discovered that when we all collaborate to solve a problem, we come to a more sturdy and effective solution quicker, thus making our robot capable of accomplishing more while our drivers maximize their given time.

Each member of Bison Legit has their own individual function, which betters the team and allows us to progress in our competitions. For instance, Nathan operates as our lead driver, consistently scoring well whilst remaining calm and reasonable during matches, while Caden primarily works on building the robot when changes are necessary, yet also serving as a backup driver for Nathan. Noël functions as the engineering journal manager, while also helping with building and organizing when needed, whereas Grace exerts some her efforts to being the assistant engineering journal manager, yet also helping with building and writing parts lists for our robot. Jonathan performs as our lead programmer, writing driving telops, fifteen second

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autonomous, and skills programming, and Andrew works side-by-side with him in this, while also helping with pneumatics and building. Porter, being our team leader, assists in most things, but

mainly in building and strategizing, as well as driving and programming when we are short-handed. Lastly, our team mentor, Jodi Lunsford, keeps us on track with progress and helps us prepare for upcoming competitions. As a result of being girl powered, our team has grown astronomically and been able to break walls of segregation and build bridges of connection and companionship with each other. It is our ultimate desire that we encourage our school and city to be more welcoming and encouraging of women working in the STEM field.



# **Image Citation**

All images with multiple people will name them from left to right. Images cited from other websites will be fully cited in MLA formatting.

**Image One (Current Team):** (First row) Grace Cobb, Jonathan Sellers, Andrew Giadrosich, Caden Singleton, Nathan Duncan, Noël Waters, (Second row) Porter Lunsford, Jodi Lunsford

Image Two: Grace Cobb and Caden Singleton

Image Three: Andrew Giadrosich, Grace Cobb, and Noël Waters

- Image Four: NASA. Mary Winston Jackson. NASA, NASA, 24 June 2020, https://www.nasa.gov/press-release/nasa-names-headquarters-after-hidden-figure-maryw-jackson.
- Image Five: Cuerden, Adam. "Mary Jackson in a wind tunnel with a model at NASA Langley." *Wikipedia,* Wikimedia, 2 June 1977, https://en.wikipedia.org/wiki/Mary\_Jackson\_(engineer)#/media/File:Mary\_Jackson\_in\_a\_ wind\_tunnel\_with\_a\_model\_at\_NASA\_Langley.jpg.

Image Six: Porter Lunsford, Caden Singleton, and Noël Waters