

TEAM

97101 W

girl-powered

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fremont, california



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As technology plays an ever-increasing role in people's lives, gender inequality continues to be a major issue that has had little to no improvements. This idea of males being the superior gender often stems from a young age. For instance, girls learn that their education is not a priority and have heavy household responsibilities, whereas boys are encouraged to go to school to get an education, and this allows them to head out into the workforce ([savethechildren.org](http://savethechildren.org)). This misconception of the limited expected roles of women is a common occurrence around the world, ranging from India to Mexico to our very home, California. Determined to make a difference in our community, Thing Two is an all-girls robotics team that focuses on supporting and empowering girls so that they will gain the confidence to follow their dreams. We hope that this will help others realize the importance of valuing people based on their personality, intelligence, and physical ability rather than their gender.





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"girl powered"

When I think of "Girl Powered," I think of women fueling the world. Women engineers, women thinkers, and women leaders uniting as one. But most of all, I think of the community we've built as Thing Two. Our team consists of 10 brilliant girls who collaborate and innovate in an environment where each and every idea is valued. Our team emphasizes on providing this atmosphere majorly due to the other STEM workspaces at our school, where girls are often overlooked and overshadowed by their counterparts. As we approach robotics, we value building each other up and taking the time to introduce newer members to unfamiliar parts of robotics. Every member of our team is involved from the start to the finish, whether that be through building, designing, or programming. As we empower one another, we become a unified force—one that fuels both our peers as well as our robot.



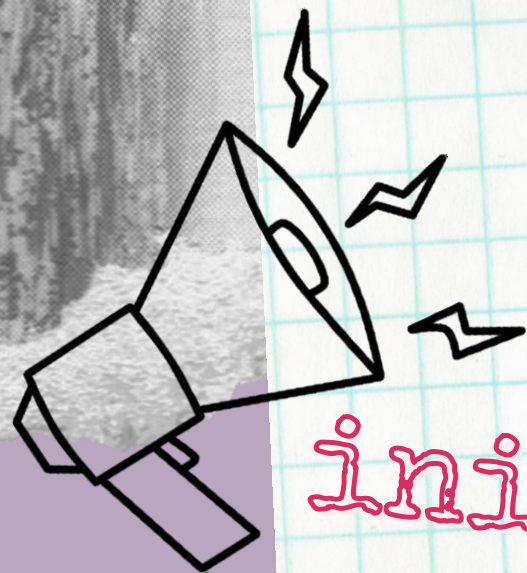
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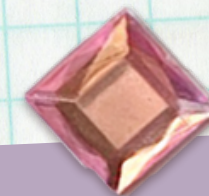


inclusivity

Prior to 2 years ago, the only robotics team at our school was an FTC team, primarily composed of males. Being based in the Bay Area, admission into the team was very competitive and was primarily offered to those who had previous experience in the field of robotics. But what about the girls who were looking to hone their engineering skills? And what about the girls who never had the opportunity to learn about robotics beforehand? Our school's two sister vex teams were formed as a solution to that problem. We got in touch with an engineering teacher at our school, Mrs. Wheaton, who is an avid proponent of women's inclusivity in STEM. With her help, we were able to move forth with our vision of providing an inclusive environment for girls at our school. Regardless of prior experience, our team strives to provide that first opportunity or exposure to robotics, creating an atmosphere to foster the future women engineers of our world. Our team consists of ten girls, varying from diverse cultural and social backgrounds. With this in mind, we garner interest from a wide array of people by building our team's social media presence. Diversity is a quality that runs deeper to each and every one of us; we believe the more diverse our ideas are, the stronger our team comes out to be.



initiative



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experience

Once recruited onto the team, new recruits are taught the basics of robot design and CAD through a series of on-shape tutorials and assignments that allow them to get a good grasp of previous vex challenges and popular mechanisms that work well in competition. From that point on, all members are taught the basics of build and programming and work through both areas, given increasingly harder tasks as time progresses. For instance, we had the recruits work on building a double reverse four bar after they were acquainted with the basic mechanisms for build. From there, we had them also work on coding different sensors, such as the shaft encoder. Once given a challenge, recruits build a good perception of what they are stronger at and what they enjoy more.

Additionally, we have subteams to work on online challenges and other minor assignments, such as building an intake or writing the code for the vision sensor. In these subteams, we assign certain members to be the "lead" once comfortable without a captain, training recruits to take initiative and possess the skills and management attributes of a leader. However, members are not restricted to the roles that they selected. For instance, if an individual is a builder and wanted to try programming, they would be able to help with the coding of the autonomous period. Team members are able to gain experience with the different divisions of our team, acquiring a greater skill set and different approaches to our team's obstacles.

opportunity



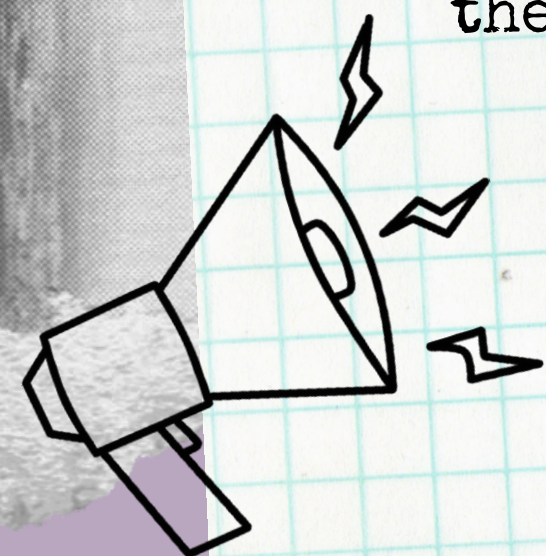




## perspective

Our robot qualified for states not by the ideas of one person—nor was it the ideas of a pair or trio. It was a robot that gathered contributions from each and every member of our 10 person team. Our robot has gone through many potential designs and revamps, changing the whole mechanism a few days before competitions and working on perfecting the bot until hours before we arrive at a tournament.

Everyone on the team has a passion for VEX. That passion can be seen when members join brainstorm meets eager to show the ring intake they sketched the night before. That passion can be seen when a programmer texts the solution for debugging a code error we couldn't seem to solve at that day's program meeting. Our passion for VEX drives us to learn more and improve our bot and team's skills as we progress along the season. This motivation to do better allows for members to pitch in their different perspectives, whether those perspectives are rooted in the principles they learned in their intro to engineering class at school or from youtube robots revealing videos they binged that Sunday night.



## diversity



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inspirations

My STEM role model is Timnit Gebru. Working in a high position at Google as an AI practitioner, her position was rescinded once she released a touchstone research paper that depicted how facial recognition technologies are disproportionately less accurate for darker individuals and females. Rather than removing her name from the credentials of this paper, she prioritized the ethics of AI over her position and took the opportunity to delve more into algorithmic bias to help with some of today's moral concerns in AI.



Timnit Gebru



Katherine Johnson

I am inspired by Katherine Johnson, Dorothy Vaughan, and Mary Jackson- the three black women depicted in Hidden Figures, known for their extraordinary contributions in math and science to guide missions that would send astronauts to space. Regardless of being constantly overshadowed by their white male counterparts in their job, their passion for STEM and their love for their subjects motivated them to go to work every day and work countless hours overcoming the numerous obstacles thrown their way.



Dorothy Vaughan



Mary Jackson



role models

