



The Supernova Experience

Every great dream begins with a dreamer.

Always remember, you have within you the patience, and the passion to reach for the stars to change the world.” -Harriet Tubman

This is the story of six girls who dared to dream and change their world.



Rachel

Starting a robotics team has been an emotional roller coaster for me. I was offered funding to start an all-girls robotics team from a sponsor of my First Robotics Competition (FRC) team, Burns & McDonnell. I was ecstatic over this opportunity but was challenged when I discovered the donation had to be tax deductible, which required me to find a 501(c)3 organization. Two months later, I overcame that hurdle and was told that the funds would be available very soon.

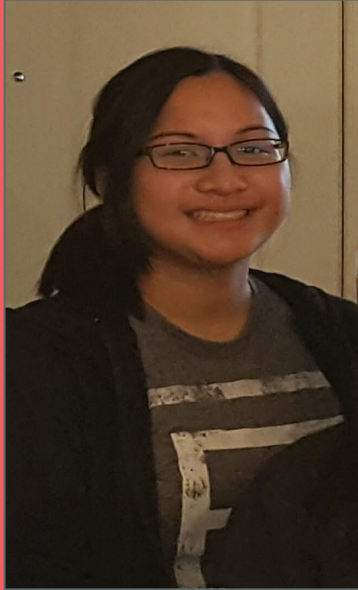
Analisa

When Rachel contacted me about joining I said yes right away. It is a well known fact that Rachel is one of my best friends. We took a lot of classes together, in addition to working together on various things for our FRC team, so I knew it would be a fun experience. And while I love FRC, it was a large team with many mentors, and I wanted to be able to work on something more student led. Team Supernova, 24000Z, was definitely the opportunity I had been looking for.



Ari

My mother forced me to join because of my sister. I was kind of not happy. At all. I didn't think I was going to enjoy it. I didn't like STEM at all....



Kamryn

I received an email from Analisa asking me if I wanted to join a new all-girls VEX team. I was half and half on this. I wanted to join because I thought it would be a great idea to help start something new and start a new experience. At the same time though, I already had a lot on my plate. I already had some experience with robotics from my FRC team, but I only worked with wood on field elements, so I didn't have too much experience with the actual robot.

I honestly never felt like I would fit in with people whenever I first meet them or become part of a team. I've never been great with my social skills. When people see me loud and trying to be funny, it's honestly my slight anxiety kicking in. But I knew the other girls on my FRC team and I felt comfortable around them. It was a new opportunity and I could try to engage more than I did on my other team. If you don't go out there and try new things, life is just going to be boring and you'll regret it. That's what I decided to do.

Rachel

Finding girls interested in robotics was challenging as many girls weren't interested or had prior commitments. Meanwhile, I applied for multiple grants to cover the remaining expenses as some of the girls I spoke with were interested but having a team fee would create a financial hardship for them. Eventually, we received a Girl Powered, grant which allowed all the girls to participate. As we began designing our robot, I continued to reach out to other people and eventually found two additional girls, Colleen and Ruthanne.



Colleen

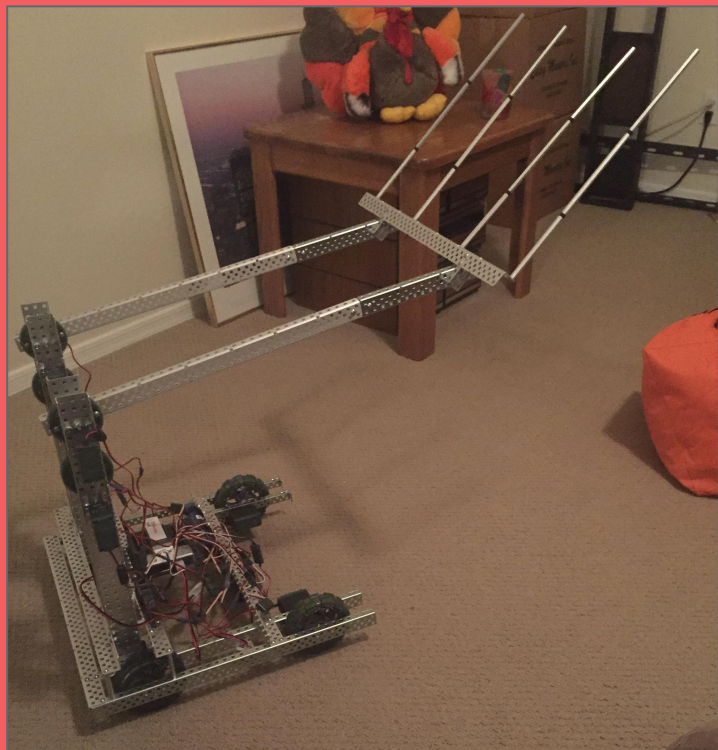
When I read the email from Rachel, I was shocked. An excited “Yes!” came out of my mouth almost before I had fully understood. This was the opportunity I didn’t realize I had been waiting for.

I had recently decided to join a class that incorporated STEM community service projects. However, I have realized the necessity of being selective and analytical about how I spend my time and energy. As an extrovert who loves to be busy, I find myself often overcommitted and exhausted, especially with the pressure of building the “perfect” resume for college and my future career. As with all my clubs and activities, I reflected on whether STEM was something I was genuinely interested in, or if I was needlessly straining myself with more work to prepare for a career I would never pursue. To answer this question, I wanted to explore the field in a hands-on, student-led environment. This was the perfect solution.

Ruthanne

Growing up, engineering has always been a huge part of my family. Yet, whenever I thought about robotics and STEM in general, it always frightened me was not “my thing.” I could never imagine myself solving problems, building a robot, and actually making it move. Throughout my life, I have always enjoyed anything academic, but I had always felt the need to hide my true academic self from my friends in fear of what they would think of me. I felt that adding robotics would only estrange me further. But then I met Rachel and Analisa who were smarter than I was and so kind and including that I felt comfortable being myself around them. When Rachel asked me to be on a girls-only team, I was about to say that I would not fit in a robotics team, but then I realized I would love to be around like-minded girls my age more often. So I said yes, and thus began my new life.





Rachel

Although I have also been involved in FRC, VEX gave me a much more holistic view of the process of building a robot. It was a bit intimidating for me to start an all girls robotics team since I had never done VEX before. Thankfully, we have an amazing mentor who guided us through the process of strategizing, designing, and building our own robot.

We were thrilled when we received parts and excitedly began building the robot as we were already several months behind many veteran teams. Our hectic schedules forced us to cut back on our meeting times to once a week. Consequently, we determined our mentor's availability and committed to meeting most days over the holiday break. Through our determination and enthusiasm, we have transformed a pile of parts into a competitively designed robot over the past two months.

Here's our journey:

Prototyping:

Analisa

Once we had all our members, we began prototyping. I was stoked, but that didn't last long. I get joint pain in my fingers and wrists. I thought that maybe since vex robots were smaller, it wouldn't be a problem. Unfortunately, my joint pain got worse with each meeting. I was so slow and weak, I felt useless.

But my team refused to see me that way. They let me rest when I needed to, as well as helping without complaint. I ended up working on the drive train, gears, and motors. It meant the world to me because although our team got a late start in the season, they didn't consider leaving me out even though I was slower.



Building the Robot:

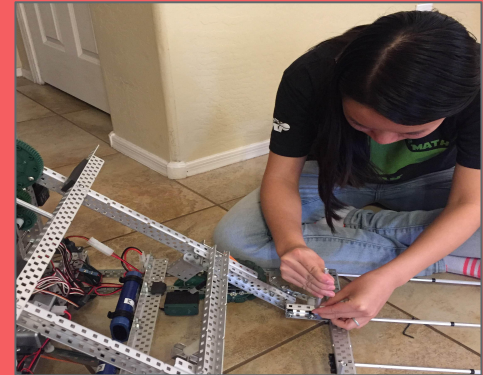


Ruthanne

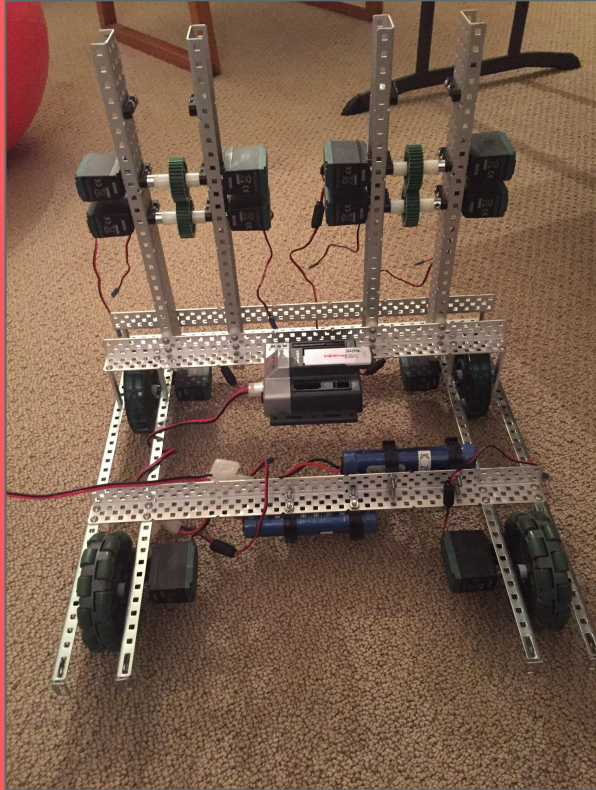
Even though I had agreed to join, I still had hesitations about it. Building didn't seem like something I could do since I had never done it before. And wherever I go, I am forced to drag around my shy personality, the fear of not being wanted, of being excluded, and the lack of confidence. But as soon as I got there, everyone put me to ease. They genuinely wanted me there and they took the time to explain how VEX works. Once we started building the robot, I didn't feel out of place anymore. I found that I loved building and solving problems, both skills I never knew I had. I loved the feeling of looking at a problem and being able to figure out a solution. Each time I helped solve a problem, I gained a new confidence in myself, a feeling that I was needed and appreciated.

Kamryn

This year at school has definitely been stressful and hectic. The time I have gone to the meetings I've had an amazing time talking with the others and team bonding. I'm glad I learned more about robots and the parts that go into it.. I was scared since I thought that I would screw something up or look like an imbecile in front of the others. But it wasn't like that at all and they answered every question I asked. I had to push myself through and I'm glad I did.



Improving the Robot:



Colleen

As someone new to robotics, I found myself overwhelmed. I was so thankful for our knowledgeable mentor and experienced teammates, but couldn't help feeling a useless when I compared my non-existent skills to theirs. I wanted to give up and was plagued with guilt about leaving all the work to my teammates and wasting time instead of helping or making an effort to understand what was going on. I was reaching a breaking point.

Finally, I shared with Rachel how I was feeling. She assured me that the team was there for me and would help get me get on track and contribute more. As soon as my first project after this conversation, changing the gears in our motors, I was already feeling more comfortable asking clarifying questions. Later, Ari and I were able to place a limit switch, and a structure to hit the switch, almost on our own. I had come from not understanding instructions to being able to plan and execute my own ideas using knowledge of how the systems worked.

Drive Team:

Ruthanne:

When I was asked to be on the drive team, I could not believe how excited I was! I could not have imagined myself building a robot, let alone drive it. Call me a boring 15-year-old teenager, but I had never operated a remote control, not for an X-box or a remote-controlled helicopter or anything. Regardless, I wanted to challenge myself and try something new, even if all the other drivers already knew how to drive a bot.

Manipulating the arm, I quickly learned to make small movements on the remote control. I learned the best way to carry the stars around, to catapult the stars over the fence, and to gently release the arm and let it fall to the ground. I learned that the PTC would trip if we tried to hold three stars at once. I learned that our robot had a tendency to lose bits and pieces of itself every once in awhile. All these things we would not only fix but get to the root of the problem, find out why we could not pick up a cube for example, and then fix that. All those problems could have seemed discouraging at times, but ultimately, we were an underdog team who were determined to try our best against all odds.

Ari

When we started the build, I had no clue what we were doing. The mechanical stuff was new, and it seemed like I couldn't screw anything in properly. The experienced members were really great in showing me how to do things. It's cool being on the team and I enjoy it now. I'm getting excited for the competition. I like working with the girls and my sister.



Impact on Life:

Ruthanne

When I joined Supernovas, I could never have imagined that it would be the best thing I had ever done. I could not have anticipated the friendships I would make, the excitement of hanging out with girls as techy as me, the skills I would learn, the new experiences I would have, and the thrill that comes with building and driving our robot, Stardust. I could never have imagined that stepping out of my comfort zone would help me find confidence. I realized that I didn't have to be shy about who I was. I have finally found my place, my interests, and my passion.

Because of STEM, I am even more excited to become a doctor where the skills I found through STEM will be put to good use. Now I want to tell other girls about STEM and get them interested in it the way I was. More than all that though, I look forward to challenging myself in new ways and areas I might never be able to imagine.

Colleen

From the moment I received the invitation to join, the idea of an all-girls team has struck a chord with me. Understanding and challenging how often subversive cultural forces shape the way girls see themselves and their potential is very important to me. I thrive on exploring possibilities, and thought of girls being limited, even unconsciously, by erroneous expectations and pressures, makes me want to speak up for those who don't have a voice. I hope to be a trailblazer and encourager for other girls to explore possibilities and unlock their potential, and I hope that this team and others like it will accomplish this for our local community and our society as a whole.

I've learned through my experience that I, as well as many other girls, are specially talented and equipped to succeed in STEM careers. Now I can see an even wider field of options available to me as I continue in my journey to find what career path is right for me. I want to help other girls realize and unlock their potential, so that they can use their talents to do what they are passionate about, in every field.

Kamryn

Looking back and really thinking about it, it slowly has changed me and I'm glad I joined in the end. It's helped me manage my time more and help me find myself a bit more. I've enjoyed hanging out with other people and doing so has relieved stress from me when I'm around them. I hope this experience will help me with finding a good engineering job I find fun just like Supernovas.

Ari

I'm on my sister's FRC team now, and I actually know what's going on! My sister says that since I've been a Supernova I've been more vocal about my ideas. And I'm happy I made new friends. I don't really know what I want for the future. I feel like there's still more for me to explore in engineering. Before I was a Supernova, I would have never even considered going into engineering.

Rachel

While I thoroughly enjoy many things in robotics, I'm currently planning on pursuing a chemical engineering degree as I continue to explore other areas of interest in STEM. Although I'm not sure exactly where life will take me, I know the experience of starting a team and seeing the impact it has had on each of us, will stay with me. I want to thank Burns & McDonnell and Girl Powered for giving me this experience. I look forward to continuing this team and reaching girls who may lack the confidence to become involved in STEM.

When I first created the team, it felt like it was one struggle after another and there were many times when I was wondering if the team would come together, let alone build a robot. We're a student led, rookie team that had a couple of months to reach our goal, but through hard work and determination our robot came together, just like our team.

Analisa

Being on this team helped me see that there's no shame in being a girl in STEM. I realized that even though there's more men than women in STEM fields, that doesn't mean we aren't leaving an impact.

After this semester, I'll graduate high school and go on to major in biomedical engineering at Arizona State University. I want to specialize in neural engineering. It's going to be hard to leave the team after everything we've been through, but I know I'll always cherish my time as a Supernova.

Name of entrants:

Analisa Benites

Ariana Benites

Colleen Clauss

Kamryn Chan

Rachel Fisher

Ruthanne Teo

Registered team number: 24000Z

Name of storybook: The Supernova Experience

None of this would be possible without our sponsors Burns & McDonnell and Girl Powered. We are incredibly grateful to them for their donations and grants as none of these lives would have been impacted without them.

