



Girls in STEM-Rambot 3327F

How our team worked to create an inclusive environment

The Beginning of our Journey

When the seven of us (Aragya, Riya, Arnav, Mikayla, Kate, Maitri, and Gursirat) joined the robotics club at our school in our freshman year, there was no budget to add another team. The girl-powered grant allowed us to become a team because five (over 50%) of us were girls. We started as a group of all freshmen that had absolutely no experience. Initially, I (Riya) was hesitant about joining robotics even though I was really interested. This was because I was worried what my friends would say. Many times when I told someone I was in Robotics, they would laugh or say “You joined robotics?”. A lot of people still thought that it was weird for girls to be in robotics.



Our Journey Cont.

When we were first placed in a team together, we hardly knew each other and were complete strangers. Over the last one and a half seasons, we have become much closer and now consider ourselves a small family. Despite facing many obstacles and setbacks in our first year, we won the Judges award and qualified for States. Over the span of just one year, we are now one of the top teams at our school and not only learned about building and designing a functioning robot, but how to communicate and work together as a team.



This is a picture of us winning the Judges Award



Here is our robot from last year. A simple clawbot that could only complete one of the tasks-- Flipping the caps

V.S.



This is our robot from this year. We now are able to complete each of the tasks and have a complex 4-Bar Lift

Our Team Role Model

Our team's supervisor is Ms. Flynn, the computer science teacher at our school. Because so few females are involved in STEM fields, it is really encouraging having a strong female role model in our club. She is really invested in helping students learn and do well. This makes Ms. Flynn a huge inspiration for not only the girls, but everyone in our team.

Our Team Role Model

Our team's role model is Sally Ride. She was the first woman to go to space and worked on a robotic arm to put satellites into space. Sally Ride means a lot to our team because not only was she a genius, she persevered through all sorts of prejudice and sexism. The girls on our robotics team do not face much discrimination as we are equally valued as the boys and are encouraged to share our ideas. This is largely possible because of the hard work and perseverance of Sally Ride and innumerable other inspirational women who paved the way for us and all the girls in the future.

This is an image of
Sally Ride in space



Sally Ride

Sally Ride worked with girls in science and engineering. She looked for ways to help more women get involved with these subjects. Sally Ride also created EarthKAM: a NASA program that allows students to see real satellite pictures from space to get them involved. Each of our team members remember using EarthKAM in middle school as one of the most memorable activities and all of this is due to Sally Ride



Overcoming discrimination

At one of our first robotics competition, our team faced subtle but clear discrimination. Maitri and I were planning for our next match and interviewing the next team we were assigned to partner with. The team consisted of just boys and the two of us went to ask them about their robots features to strategize. Each of the boys immediately shared a look that clearly showed how surprised they were that we had a team comprising of more than just one girl. In a sarcastic tone, one of the boys replied “You guys can take defense, we’ll handle the rest.”

Overcoming discrimination cont.

We were obviously discouraged and shocked that people actually believed that girls shouldn't be in robotics. However, we continued onto the match and their robot ended up malfunctioning and our team had to complete all the tasks. We ended up winning the match only because of our robot. This event was a huge motivating force for the girls on our team especially. We still remember this small interaction as encouraging our team to work harder and make it normal for girls to be on robotics teams. We talked to the incoming freshmen class this year and explained how valuable joining robotics is and we were able to get a large number of new girls to join this year.

Girl Power

Like any team, we have had multiple disagreements over our robot and were often divided by gender. At the beginning of our season this year, we were divided on what kind of intake to use for our robot. The boys thought we should build a cage intake, but the girls believed that a tray bot would be more efficient and precise. We made a list of pros and cons for each type of intake and realized neither one really worked very well with the design we were hoping to achieve. We started brainstorming and came to a mutual agreement that using a claw intake would be the best for our robot. This is one of the reasons it is important to have a balance in every team dynamic.

Girl Power

So what does girl power mean to us?



Each person brings a new perspective to the group and contributes differently. Even though it may seem like a common stereotype, we have noted multiple instances where the male part of our team jumped to quick, rash decisions in the face of adversity while the females sought possible solutions before taking action. For our team, girl-powered does not mean encouraging girls to join STEM so much that boys are left out. Instead, we believe there should be equality and no one should have to face bias.

Team Roles

Due to our teams large size, we needed to work to have everyone involved and contributing to the team. Therefore, our team has a plethora of roles including designer, builder, notebook manager, driver, scouter, programmer, and strategist. Each of us tried each of these roles to allow us to find a role that fits us best. For example, I am the most artistically advanced and organized, so I worked in the notebook where I make drawings and record our design process. Furthermore, Aragya had experience in programming, so he learned a little outside of robotics and was able to program our robot. No one was given a role that they weren't interested in or good at.

Credits

Riya Shah-Notebook Manager

Aragya Goyal-Strategist, Programmer

Maitri Patel-Scouter

Mikayla Keenan-Build Manager

Arnav Gupta- Builder

Gursirat Kaur- Designer

Kate Vossen- Builder

School Name: Spring-Ford HS

Team Number: 3327F

Entry Title: Moving towards gender equality in robotics.