Team 8838E Eclipse

Orchard Hills Middle School

“Girl Power” in Robotics

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Oxford Language's definition of the phrase "girl power" is:

(n.) used in reference to an attitude of independence, confidence, and empowerment among young women

We agree with the definition, but we believe that the phrase "girl power" is much more than that.

To introduce ourselves, we are the female members of team 8838E, Eclipse. Our team consists of Srinath Krishnan (the driver), Jon Suh (main builder), Nathan Kim (notebook manager), Sophia Wong (programmer), Melody Fang(main builder), and Nyah Lin (team leader).

Team 8838E group picture

Our team has ensured that everyone on our team has had an equal share and had a say in the different decisions we make. We also made sure that everyone was able to interact with the robot during the season and contribute to the building process. However, getting to this point of collaboration was challenging.

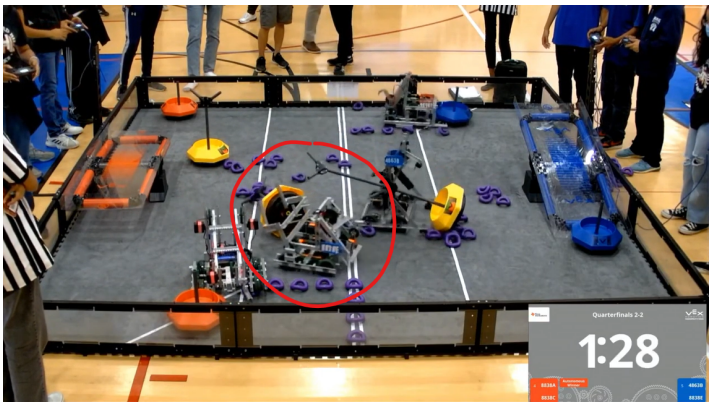
The phrase "Girl Powered" is commonly ridiculed by the males in the STEM field. They think that they are superior. They insist that we're given unfair advantages because we are girls. This means they also think that our tasks are easier than theirs. The male members on our team originally believed that too, until we proved them wrong with perseverance.

The main problem we faced, striving as the female members on Team 8838E, was the fact that some of the male figures on the team started to dominate conversations and excluded us from sharing ideas. Not to mention that they made a few of us cry multiple times due to the harsh

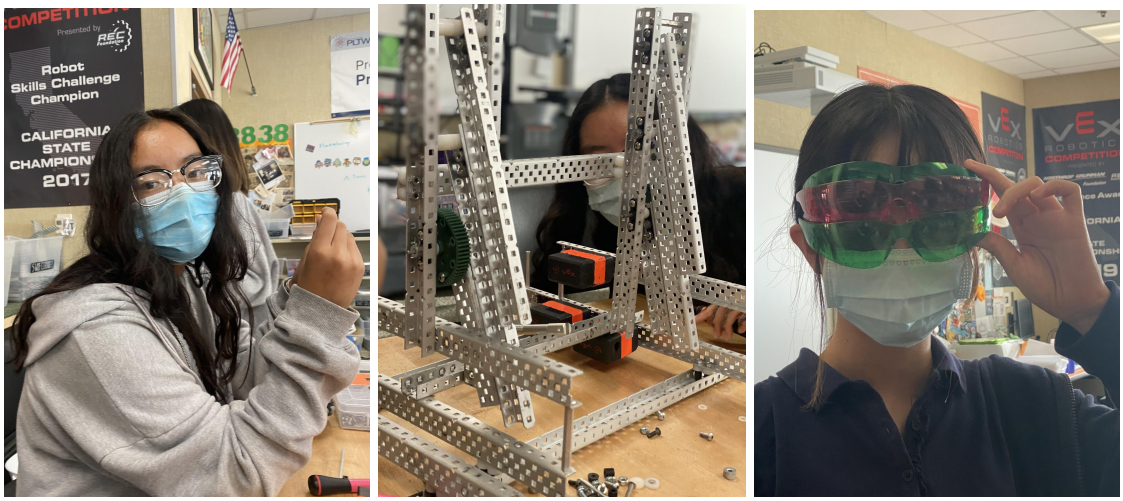
insults. For a while, our team could not collaborate due to the arguments, but we girls were determined to establish equality within the team.

Jon and Nathan working on the robot right before our first tournament/ Melody finally getting to build the object manipulator

Two weeks before our first tournament, we didn't have a functional chassis because the male members insisted on doing *all* the building, without listening to the suggestions from Nyah. Getting even closer to the competition, they finally let Nyah and Melody help with constructing the chassis and we had a working drivetrain after only one practice. This proved to everyone on the team that we worked more efficiently together. During the tournament, we made it to the semifinals with a barely functioning robot. We, as a whole team, figured that if we spent our practices working together instead of bickering, we could have a fully functional robot and do much better than we did at the first competition. After the first tournament, every person on the team agreed to start creating a respectful and safe environment so we could strive towards success. Nathan, Srinath, and Jon have been putting effort into making our team more inclusive by asking for inputs and suggestions from others. As we were coming up with new robot designs, everyone was included in the discussions for choosing the final design. With a few more perspectives the second time



going through the decision matrix, our team was more confident in the design we chose to replicate. All of us had an equal opportunity to contribute. Diversity of perspective has strongly improved our team's chemistry and ability to succeed.



Nyah helping out with attaching the lift/ Sophia wearing safety goggles used for filing VEX pieces

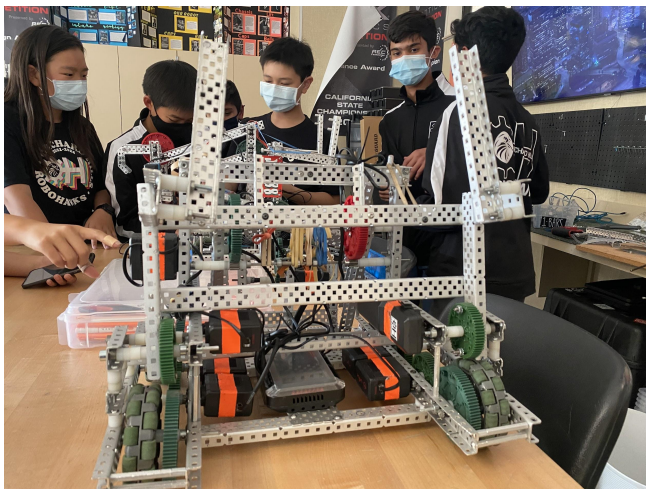
Along with a more inclusive environment, we, the girls of 8838E, have attempted other roles on the team to get a grasp of what we're best at individually. Melody assisted Jon and Nathan in building the robot and worked on leading our team. Her attentive personality ensured that everyone had a task to do and stayed focused. Meanwhile, Nyah worked with Srinath to improve the quality of our notebook. She helped change the format of our daily entries. Instead of making a daily entry for every change we made to the robot, she categorized the headings into robot subsystems. She would title the entries "New 4-Bar" or "New Chassis" Without her perspective and previous experience with the notebook, our team would have never thought of making our notebook more organized and easier to update. Similarly, along with figuring out how to program a 6-motor drivetrain and pneumatics in VEXcode Pro, Sophia tried to make sure everyone evenly contributed to noting down changes in the notebook. Through these experiences, we expanded our knowledge and figured out that we could succeed in anything we put our minds to as females in the STEM field.

```
void usercontrol(void) {
  // User control code here, inside the loop
  while (1) {

    int l_joy = abs(Controller1.Axis2.value())>THRESH ? Controller1.Axis3.value() : 0;
    int r_joy = abs(Controller1.Axis2.value())>THRESH ? Controller1.Axis2.value() : 0;
    set_tank(l_joy, r_joy);
    // This is the main execution loop for the user control program.
    // Each time through the loop your program should update motor + servo
    // values based on feedback from the joysticks.

    //
```

This snippet of code (discovered by Sophia) lets Srinath control the 6-motor drivetrain with joysticks instead of buttons (VEXcode does not allow joystick control of drivetrains without 2 or 4 motors)




Robotics members getting along after the tournament/ Melody and Nathan working together

As girls in the robotics field, all of us have a figure in our life that we look up to as STEM role models. For instance, Sophia looks up to her ACSL (American Computer Science League) competition instructor, Jean Liu. Mrs. Liu generally stays up late at night to find practice problems and resources for her students. Because of her support, Sophia received a full score in the first contest of ACSL's Junior Division. Furthermore, Mrs. Liu always considers every approach to a coding problem suggested by her students, no matter how inefficient the solutions may seem. Sophia's role model always encourages her to work hard towards her goal and inspires her to become an approachable teammate. A female figure that influenced Nyah's approach to robotics would be her former robotics coach, Mrs. Chung. She taught Nyah the basics of robotics when Nyah first showed interest in it and loved it ever since. Robotics became amusing and something Nyah always looked forward to at the end of the school day. Mrs. Chung impels Nyah to create an inclusive robotics program because she always reminded her to be kind and collaborative with her teammates and other teams she may meet at competitions. As for Melody, the person who drives her to maintain a cooperative environment in robotics is Mrs. Williams, our school district's robotics coach. Although she is extremely busy, she still makes time to host after-school practices for our robotics teams. Mrs.Williams has helped everyone in robotics to participate evenly and she encourages respect among teammates. She has taught Melody so many things and has broadened Melody's view in robotics, which is why Mrs. Williams is Melody's STEM role model. Over the past few months of trying to create an inclusive and welcoming

robotics team, the inspiration we obtained from these role models kept us from giving up.

Our team filming an appreciation video for Mrs. Williams

To conclude, the phrase “Girl Power” is the foundation of our teamwork abilities. It powered us to create a respectful robotics environment that attracted a diverse group of students, positively influenced our overall approach to documenting and building, and improved our potential to succeed as a team.

Our definition of “girl power” is:

(n.) “girl-powered” represents the fact that women can accomplish the things men can do, if not better