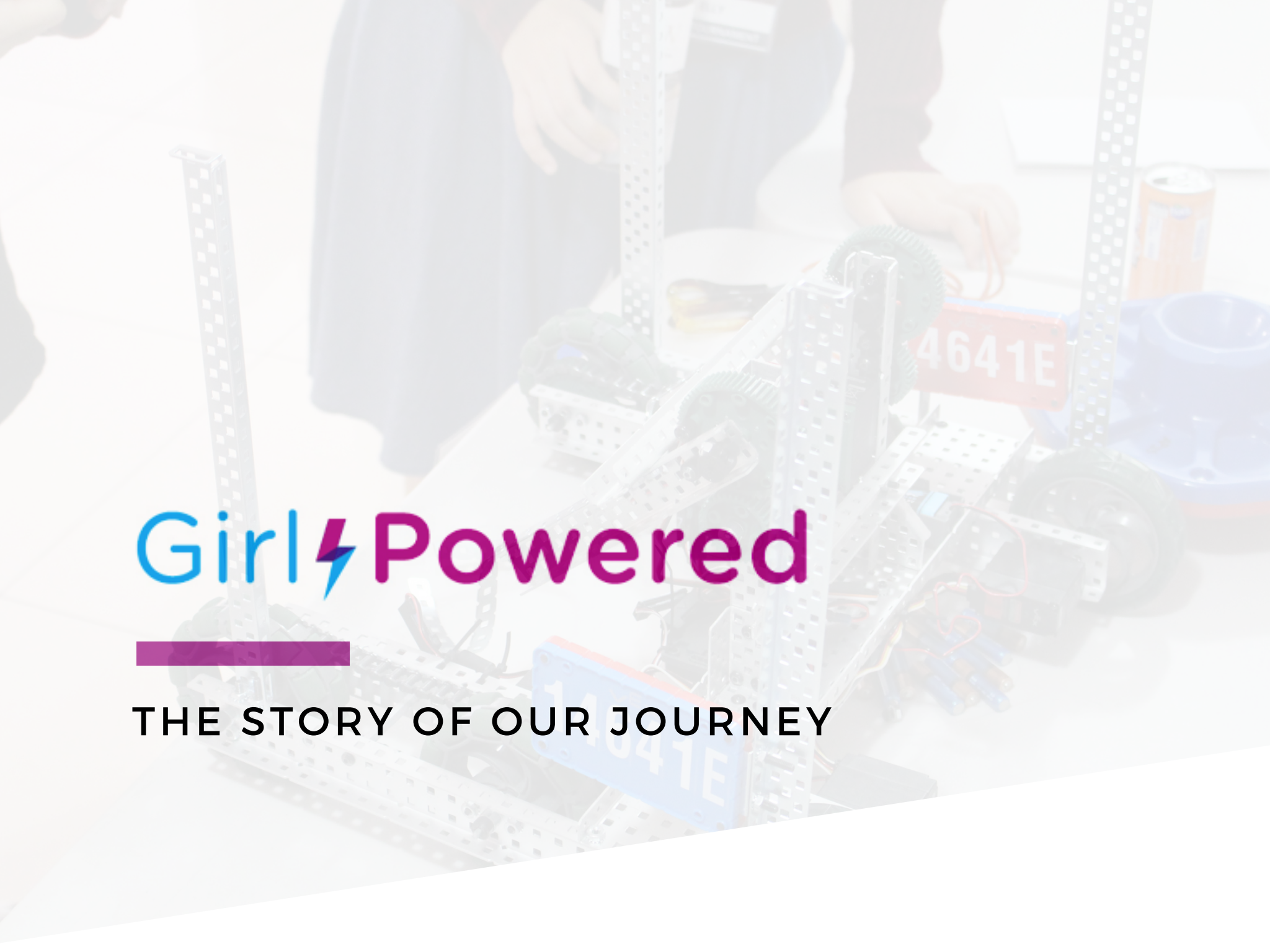
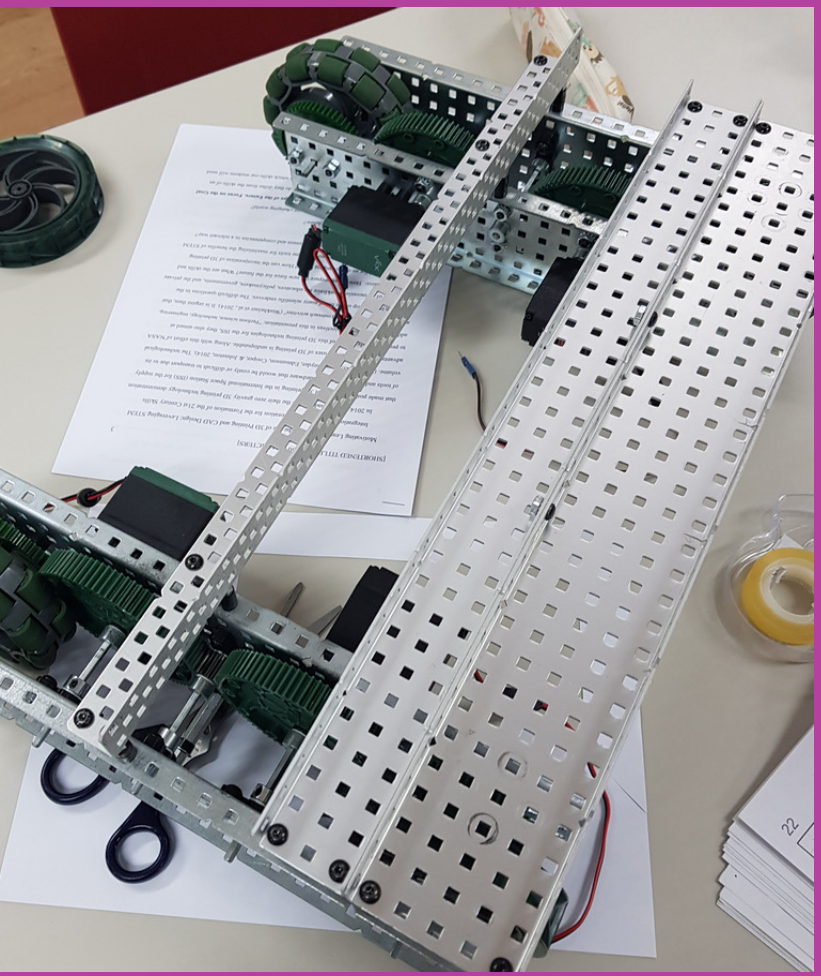

Girl Powered
THE STORY OF OUR JOURNEY

# THE BEGINNING OF A JOURNEY

The story of our journey as a team begins from Elly, our team leader, who was the only female member in the first year of the APIS Robotics Team. Although Elly was a thriving student, especially in the STEM-related disciplines, she was not confident if she would be welcomed as a female member in the STEM field. Later, through attending the first Girls in Engineering, Mathematics, and Science (GEMS) conference in her community, she realized that women can also take a significant role in broad areas of STEM. As she finally recognized herself as a proud member of GEMS, she started to promote GEMS throughout her community. Elly incessantly attempted to transform and expand people's perspectives towards the STEM field, and as a result, Jiwon, Jenny, and I joined the robotics club this season.

# FEELING LOST IN ROBOTICS

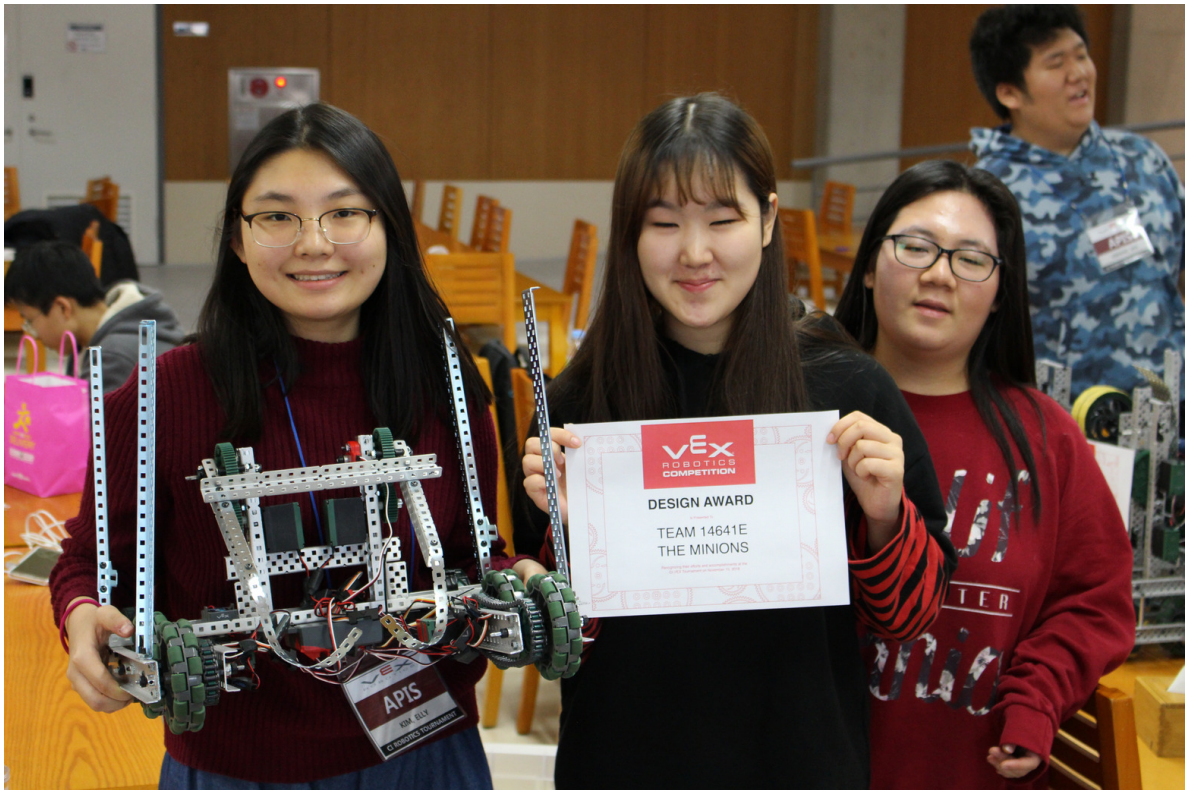


As starters in robotics, Jiwon, Jenny, and I were full of excitement and worries at the same time. We proudly embarked on our journey by naming our team “The Minions”, characters that best represent our team’s energy, eagerness, and creativity. However, the reality in robotics was more than disparate from what we had imagined; as everything of the engineering process--from designing, building, coding, and even driving the robot--was completely new to us, we felt like we were infants being newly introduced to the world. As a result, our first few weeks of robotics were full of confusion and struggles. We were overwhelmed by all the new information that we learned and were discouraged by the endless failures we faced building the chassis, the basis of our robot.

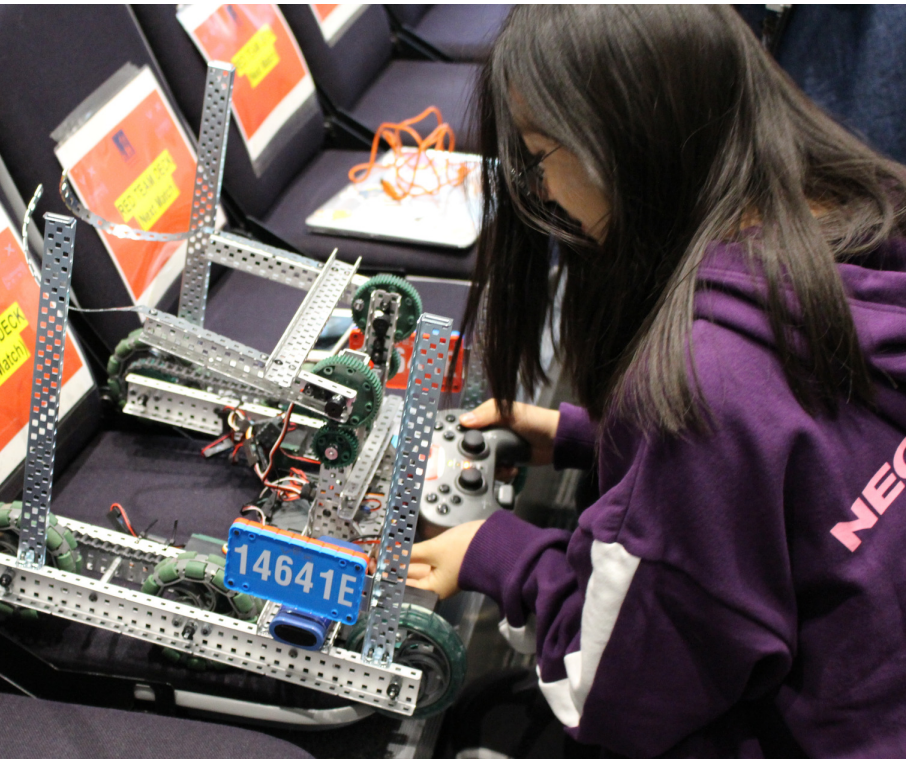
Nevertheless, the story of our journey in robotics does not end like this. While we were nervous by the upcoming competition date and feeling dissatisfied by our slow building progress, our leader, Elly,  transformed our perspective towards the tough road that is the engineering process. Whenever our robot did not function up to our expectations, she reminded us that we should not fear facing failures as we can learn invaluable lessons through overcoming them. Even our robotics coach, Mr. Jones, always emphasizes that “It will never work the first time!” and the process of building a robot takes a long chain of trials-and-errors.

# ESTABLISHING OUR VALUES

Through the advice of our robotics mentors and the priceless experience of going through many triumphs-and-tragedies in developing our robot, all of our team members were able to open their eyes to the true essence of conquering failures and even established their own values in robotics. Finally, after collaborating and cooperating for countless numbers of hours to fix and develop our chassis, lifting mechanism, and autonomous code, we made a significant accomplishment in our second local competition: winning the VEX design award!



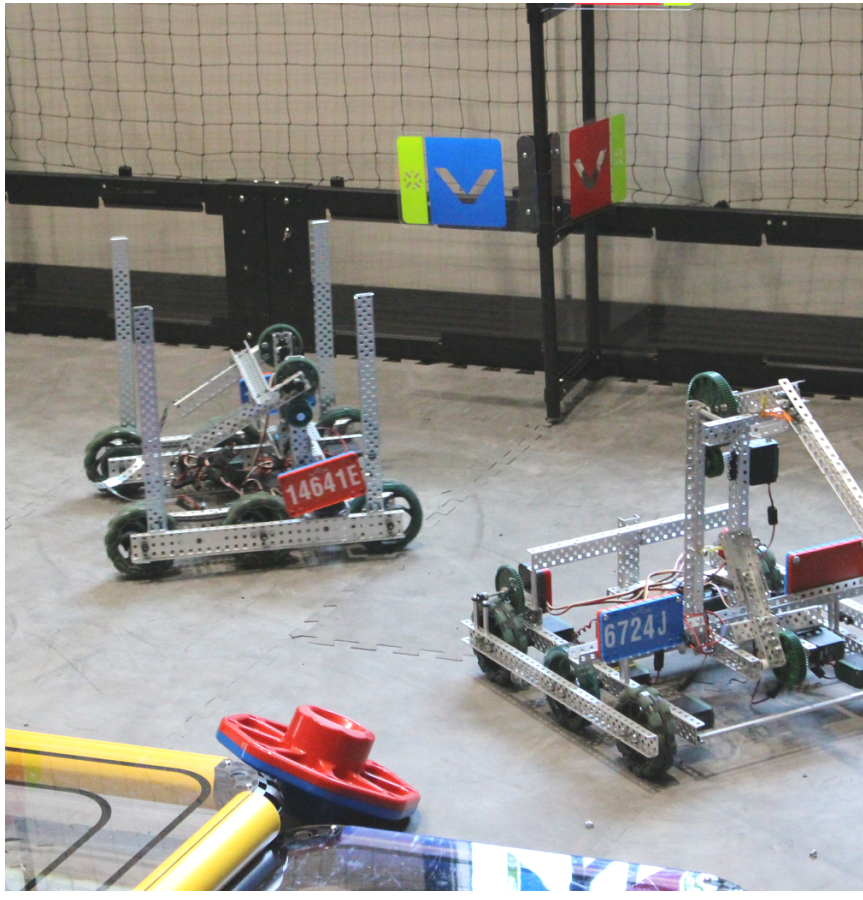
# STRUCK HARD BY REALITY



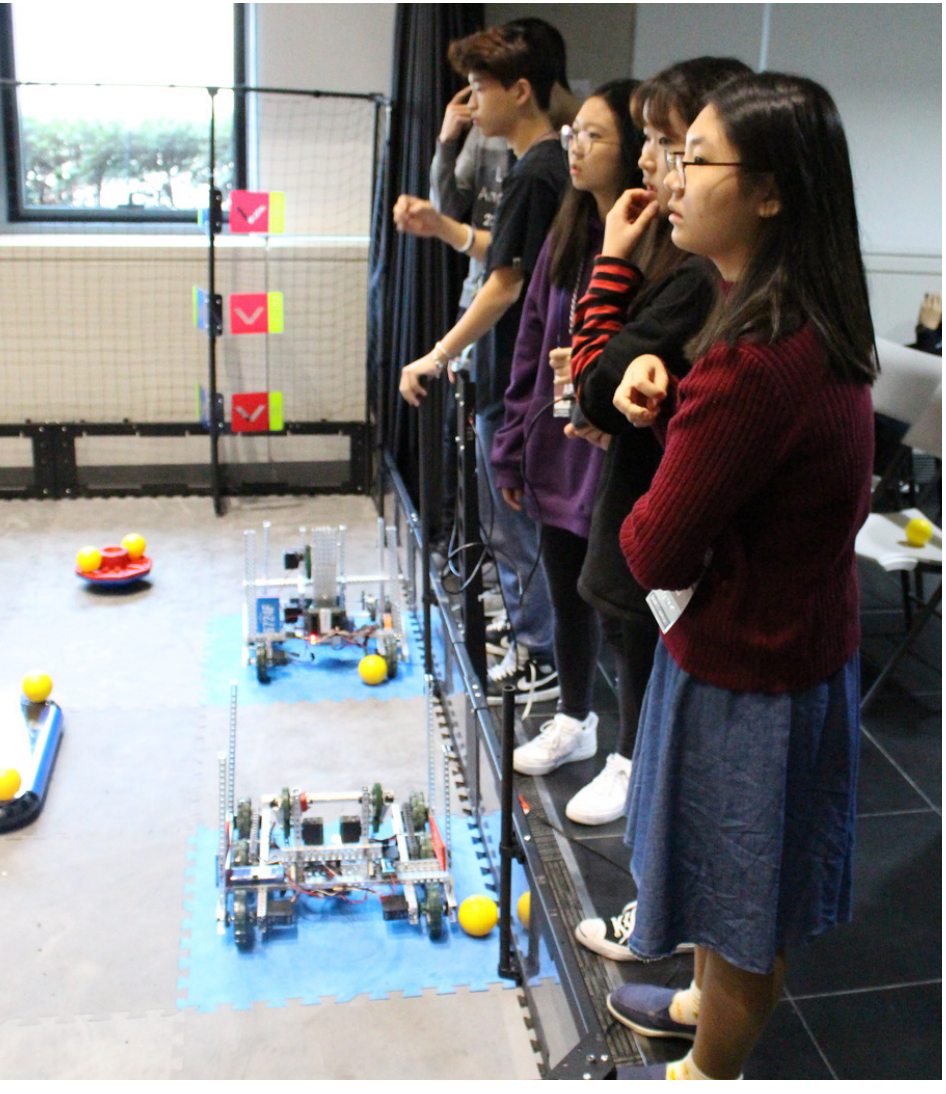

It was not until one day that the gender inequality in the STEM field struck us hard. “Robots are only for boys!” is what a second-grade boy shouted to us when we were building our robot to prepare for the upcoming local competition. The whole team was shocked about the fact that even a young child in elementary school was influenced by the wrong gender stereotype. We were also hurt when other teams came up to us and said that being a female-only team is our merit and a major reason why we were able to receive the design award at the tournament. That moment, we realized that there remained a glass ceiling that causes women to be under-represented in the STEM field. More importantly, these unforgettable moments acted as a catalyst to taking initiative in the Girl Powered Movement.

# TAKING A BOLD STEP FORWARD

Soon after we became more involved in activities and movements that emphasize GEMS, we were able to discover the VRC Girl Powered Online Challenge. As a team that aims for changing the STEM field so that both young women and men become actively involved robotics, and in the wide range of STEM-related fields, we were enthusiastic that there is an Online Challenge that we can share our stories and aspirations as female engineers. Through taking a part in the challenge, we resolved to continuously take steps forward to achieving our goals.

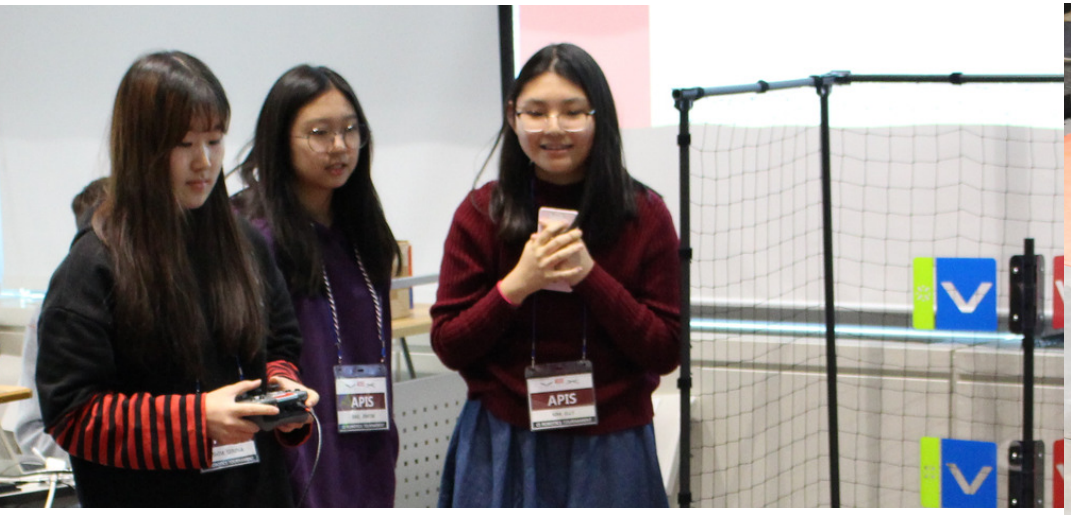


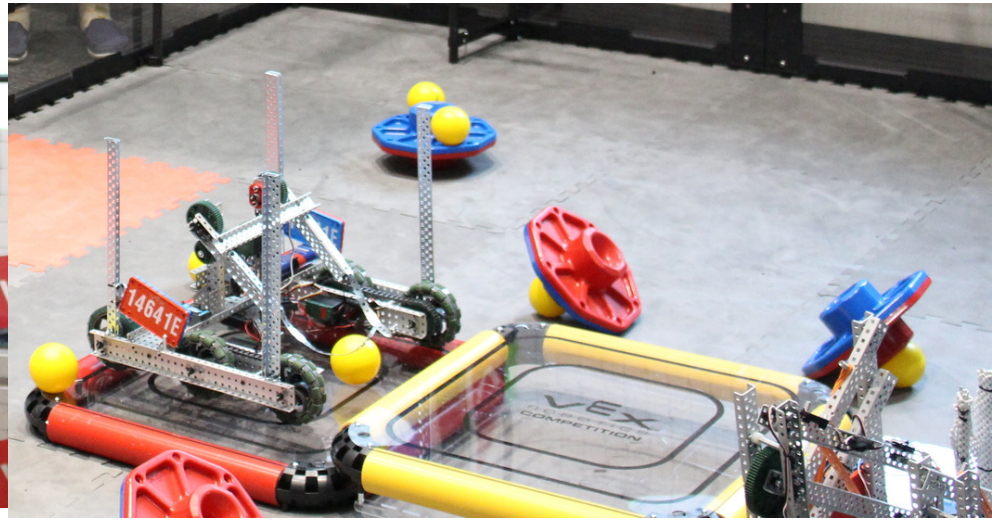
# EMPOWERED WOMEN



For us, the phrase “Girl Powered” illustrates the courageousness of GEMS (Girls in Engineering, Mathematics, and Science) like us that put forth full effort to break the stereotype that “STEM is meant for only men.” Furthermore, just as how the phrase “solar-powered” and “wind-powered” convey the high impact and potent of solar and wind energy, respectively, “Girl Powered” shows the world that women have great skills, talents, and potential to not only influence the STEM field but also change the world. Finally, “Girl Powered” is our team’s slogan that reflects our journey in robotics, persistently overcoming challenges through integrating our innovative thoughts with powerful actions.

# REACHING OUT TO THE COMMUNITY



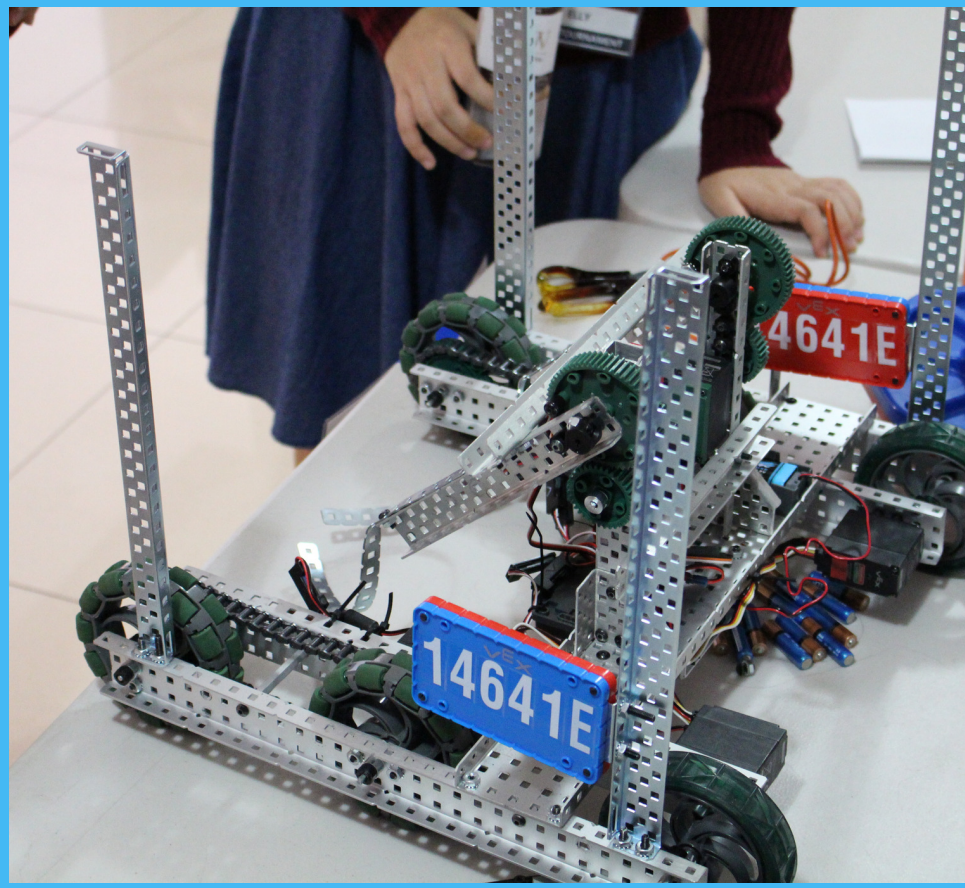

The Girls Powered Movement inspired us to actively reach out to our school community, especially in promoting the STEM field to young females. First, we stepped in to help the new VEX IQ teams and encourage girls to actively engage in robotics. To take an even bigger step, we reached out to our school community's Code Club to teach both young girls and boys in elementary school coding languages as well as exposed them more to the field of computer science. Through sharing our skills and talents, we are progressively influencing our community so that more students, both females and males, are able to recognize their potential to grow as scientists, engineers, programmers, and other professions in STEM at a young age without facing gender discriminations. Sharing our achievements as a Girl-Powered team has also aroused the interest of females to strive in STEM.

# REACHING OUT TO THE COMMUNITY

Furthermore, our team members branched out to change the community's perspective towards Girl-Powered in a variety of ways; as the community science promoter of the APIS Science Olympiad Club, Elly devotes her time to organize more science-based events in the school, and as the president of the volunteer club at science museums, Jiwon, puts in her hardest effort to allow more children can dive into the intriguing aspects of science. Every day, as proud members of the Girls Powered Movement, we continue to strive for changing our community so that there are more opportunities for students to become exposed to STEM as well as learn that "Robots belong to both girls and boys!"

# RISING WITH CONFIDENCE

Through the Girls Power Movement, we not only impacted on our school community but also immensely cultivated our own confidence in robotics. As a team of four members, we all took part in the process of designing, building, programming, and driving by integrating ideas and distributing roles based on daily discussions. The balance of individual roles, as well as teamwork, allowed our team to maintain a steady pace throughout the entire procedure and brought about a collaborative environment in which we share our creative ideas and provide constructive feedback.



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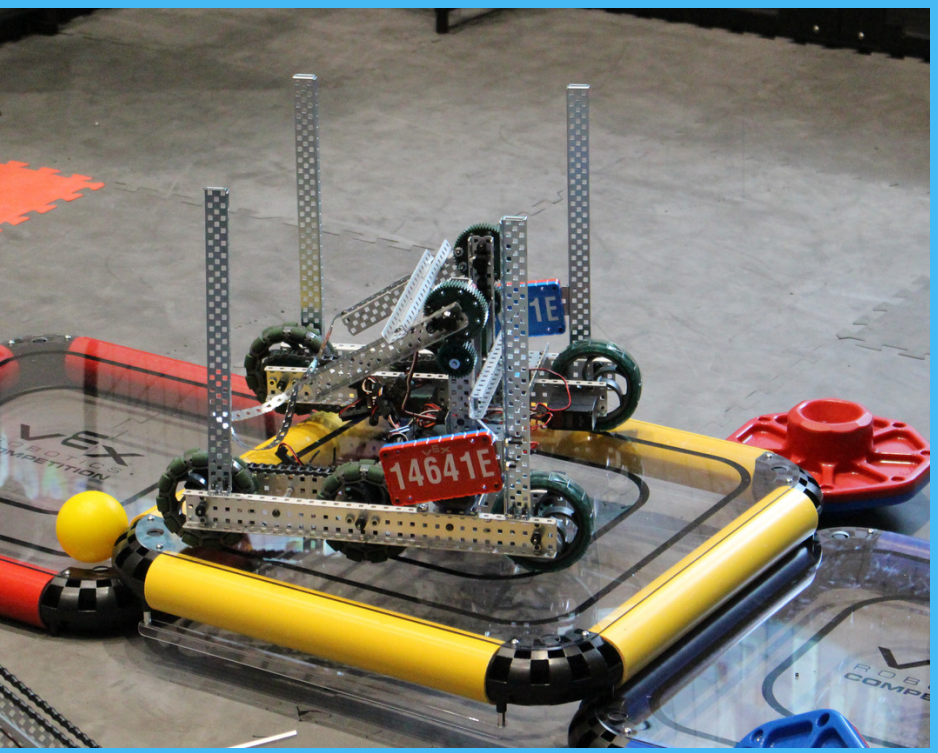
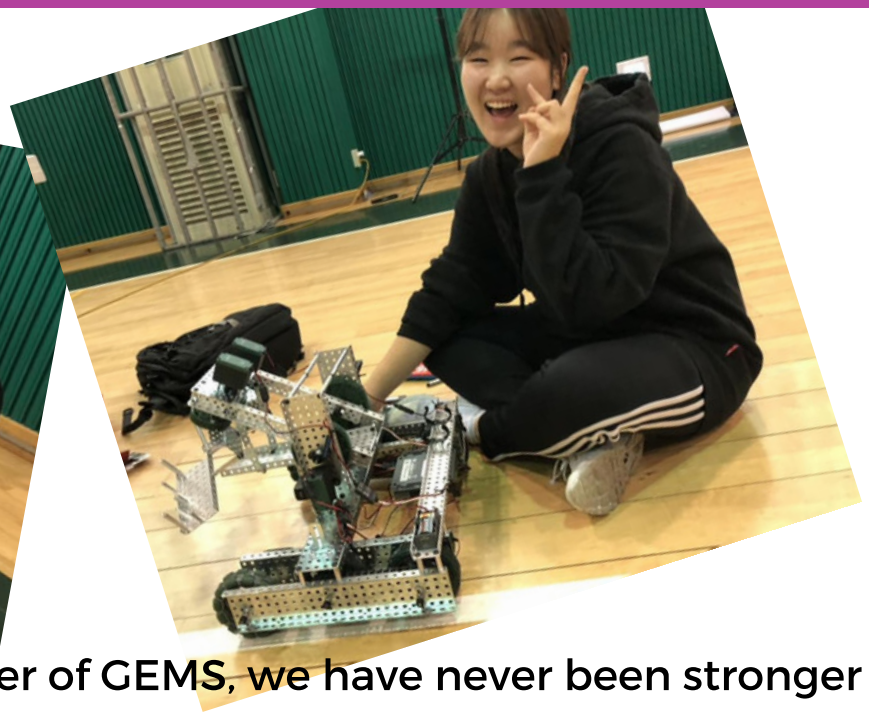



Since the process of building a robot is full of solving complex problems, such settings in our team were invaluable as the exposure to diverse ideas and perspectives inspired us to find creative solutions to those challenges. Realizing that the key to building a strong robot is the integration of our varying ideas, we took advantage of having team members from different academic backgrounds and developed our unique interdisciplinary approach to overcoming challenges. To this day, with confidence, we share our diverse ideas and combine them to develop our robot.

# STRONGER THAN EVER



Now, as a team and as confident member of GEMS, we have never been stronger than ever. In addition to developing a team that truly embraces our different ideas and perspectives to solve even the most challenging problems, we have grown to become each others' role models and mentors. While we influence each other through sharing our expertise in different aspects of robotics, such as building the chassis, programming the drivers mode, and coding a precise and high-scoring autonomous, we learn from each other's feedback, advice, and even work habits. As we foster a stronger and powerful bond between us, we encourage and support each other even when we face the hardest challenges. Most significantly, every single one of us is a special 'family member' that makes robotics our "home-sweet-home."

# TO BE CONTINUED...

Even today, we have encountered difficulties finding the right ratio for our flywheel so that the motors do not overheat; yet, we will not give up and persist through this challenge as we have always done until now. As females in VRC and the STEM field, we will continue to aspire as passionate and determined engineers to help redefine the face of STEM by creating an inclusive environment for both women and men.

# AND OUR Girl Powered JOURNEY CONTINUES...