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The Long Journey to the Finals: Vex World Championship

Dragging a squeaky, wobbly cart with a large cubical black box on top, I felt comforted by the large blank concrete walls, the hundreds of STEMies walking around, and the sound of metal creaking and motors whirring. Returning to the Vex World Championships once again, my team and I had our sights set high: reaching the dome, the humongous arena where the grand elimination rounds between divisional winners happen. I felt exhausted, excited, and anxious for the three long days ahead.

This year's competition consisted of launching discs into a goal, spinning colored rollers, and covering as much of the field as possible with string at the end. The first two days consisted of team qualification matches in randomly selected alliances. Based on the number of wins each team has in the qualification matches, the tournament manager ranks them. Teams create the final alliances after the tournament software calculates the final ranks. Teams form alliances by a process where the number one ranked team chooses an alliance partner first, then the procedure goes down the ranks, each team picking another until teams form 16 alliances. The elimination round starts with these alliances, and if an alliance loses, the tournament manager removes them. Each match consisted of a fifteen-second autonomous period in which code controls the robot. Then, a one-minute forty-five-second driver-controlled period in which the driver of a team controls the robot with a controller. In this game, robots had to score discs into a net (similar to disc golf), spin colored rollers to their alliance color (either blue or red), and then at the end of

the match, also known as the endgame, robots had to cover as many of the tiles that made up the field as possible, usually with string.

Two days later, we crowded around our pit table, excitedly debating our alliance choices. After a lengthy discussion, we finally decided to accept the fifth seed's offer to the alliance due to their competitive and complementary robot with a flywheel and their beneficial placement in the elimination bracket. The other programmer and I ran to the practice field with the robot to ensure we could get our code working as well as possible; the rest of the team practically sprinted over to our to-be alliance partner to secure our alliance. I felt apprehensive that the code might not work and that I would let down my team. Constantly checking my phone as I anxiously awaited a text from the rest of my team, the message finally came: 'Alliance secured.' We had found the best alliance possible for the battles ahead.

Meeting our alliance at the practice field and making final adjustments to the robots we would use in battle, we both started walking towards our field as our first battle began soon. My team practically shook with excitement and nervousness. Finding a spot in the hard, grey metal stands so that we could see our field easily, my teammates and I watched as the driver and the two other drive team members set up the robot. Double-checking and triple-checking, they ensured that they set up the robot correctly on the grey foam tiles inside the square white plastic border. I watched intently, trying to ensure they set up so my code had the best chance of working. Soon, both alliances finished setting up. Taking a deep breath, I gazed at the field, with its grey foam tiles on the floor, the white plastic border, the large black nets to keep missed shots from hitting a spectator, and the metal chain nets for the robots to score the yellow hard foam discs into. Exhaling, the match started. The first battle had begun.

Although the programming-controlled portion of the match did not go as well as we had hoped, the match went more smoothly than we expected, allowing us to win and move on to the quarterfinals. I felt relieved that I had not let down my team. We won the first battle, with many more to come. Once again, the cycle started. We all became more tense as the match came closer and closer; we found a place to sit and watch while the drive team set up the robot as if their life depended on it. The quarterfinal went just as smoothly as the round of 16 matches, and now we reached the semifinals. We had won another battle, but the next one would be more challenging.

We felt the most worried about the semifinals. One of the world champions from the previous year and one of the best teams in the world formed our opponent alliance. We were like Luke Skywalker, trying to take on the much more powerful Darth Vader. As the match began, I noticed something peculiar: my entire team had fallen silent. We felt stressed and focused on the match. The match started, and we heard the hum of motors and the loud bang of catapults. The robots dashed and flitted around the field like lightsabers as the red and blue teams found openings to plunge their blade in and retreat. While some of my teammates crossed their fingers hard enough that it looked like they might become blue, I clenched my fists, trying to contain all the emotions inside me. Watching the match, excitement, worry, and awe filled me as the teams traded blows and attempted to gain the upper hand.

The scores looked very close when the match came to a close. In a tight battle, the game would come down to whoever could take a risk to thrust their sword, putting themselves at risk of creating an opening for the opponent. The match would all come down to the final seconds, where teams would try to cover as many tiles as possible. The announcer and the crowd counted down, “3! 2! 1!” just as the clock hit zero, a loud twang and hiss could be heard as strings of different colors blanketed the field. But then, both teams started yelling, and the crowd roared.

Due to the rules, the referee disqualified all of the teams! Both alliances took the risk for the thrust, and both teams took advantage of the opponent's opening, resulting in both teams losing the battle. The teams all stared at the string shot outside of the field. There would have to be a rematch. I found myself utterly astonished. Having not expected the result to be this close, I found myself entirely caught off guard, and my mind attempted to prepare for the next.

After a shocking finish, both alliances started setting up for the rematch. This time, a mixture of emotions filled my team. We felt shocked by the finale, excited by the chance to win, and worried we might have thrown away one of our only chances to reach the finals. When we heard the whir of motors again, a black and silver metal streak zoomed across the field, smacking the tall white and grey robot straight into the tall black mesh nets. My team had taken advantage of the opponent's stumbling, quickly lunging in to strike and knock them off balance. As the white and grey opponent robot struggled to get unstuck, I secretly celebrated inside as in 2 teams vs. 1 team scenario; we had a better chance of winning. But, as the match ended, my team watched as the opponent alliance discussed with the referee. The referee had missed us pushing the opponent robot into the net, so the match would have to be rerun once again. We had accidentally used an illegal move in our lunge to attack, breaking one of the rules. As my internal happiness washed away, thinking we had won during the match, I was again filled with dread as we would have to play the match again.

This time, the battle went without hiccups, and as the match ended and string blanked the field once again, we all held our breath as the scoring referees tailed up the points. There had been no foul play as the teams parried, lunged, and slashed at each other. When the screen displayed the score, we all felt stunned. We won! We had plunged the final blow into our opponent, finally becoming victorious. Practically falling down the steps of the stands, we all ran

to the drive team to celebrate. We had defeated Darth Vader as the much younger and less powerful Skywalker.

Moving onto the final battle keeping us from the dome, we thought we had a good chance of coming out of the fierce struggle in the semifinals. After two matches in our best-of-three finals, our alliance and the opponent's alliance reached a tie, leading to a final match. While our robot scored, a streak of grey metal suddenly t-boned us, getting us stuck on some of the yellow discs. Just like in the semifinals, our opponents had taken advantage of our stumble and delivered a finishing blow adeptly. As my heart dropped, I realized we had lost. And so our run to try to reach the coveted dome ended. As we felt happy with our ability to get the finals but saddened by the prospect of going to the dome, we received our awards as some of us bursted out sobbing, and we all stumbled back to our table.

After two months of hard work, our season was over. Looking back, we realized the importance of practice and that we should have spent two months practicing with our old robot instead of building a new one. From this experience, I learned firsthand the power that burnout has on someone. As I spent the entire school year managing school and robotics, I became burnt out by consuming nearly a thousand hours. At the competition, I had started to care less about the outcome and began to desire that we would be done. However, the drive of my teammates kept us striving to get as far as possible. Thus, I learned the power of a break. I should have given myself a week or two every couple of months to keep myself interested in robotics and recharge. Moreover, this event made me realize that even little mistakes can have disastrous effects. My mistake of forgetting to turn the pneumatics back on during one of the final matches could have been one of the deciding factors in us losing the entire championship, illustrating that even the most minor mistakes can have enormous effects.