

Patrick Cloke

Monday, October 17, 2005.

Describe a significant experience or achievement that has special meaning to you.

After three years of participating in FIRST robotics and coming so close, we had finally won the Long Island Regional competition. It was such an exciting moment as our team and our two partners' teams poured from the stands toward the driver station. We had been given six weeks, a small kit of parts, a maximum of 120 pounds, the use of our imagination and a challenge to successfully build a robot to play a game. The extremely long hours we worked, in order to design, build and test our robot, had paid off.

By working closely with engineers I learned about the process of designing, testing, perfecting and implementing ideas. I applied the math and science I have learned in my high school career, such as using trigonometry to find the longest possible length of the robot's arm. In addition, I have learned how to use machinery, such as a bandsaw, drill press and lathe, in order to create or customize parts for use on the robot. Through robotics I have received first hand experience on what it is like to be an engineer – the pain and disappointment when a part fails and continuously causes problems, and the joy when a mechanism finally works after days of design and testing. Last year we had a problem with the chain from the motor that controlled the arm. It was skipping teeth on the sprocket. For almost a week we tried different solutions, from moving the motor closer (and shortening the chain), to trying a different gear box. As we approached the mandatory shipping date we had to get the arm working or redesign the entire arm. When the arm was ready to be tested one final time we all stopped what we were doing, came to stand around the robot as one of the mentors hooked up a battery. It was absolutely quiet while we held our breath. We heard the whir of the motor and watched as the arm rose towards to ceiling. A great weight was lifted as everyone cheered since we now knew we would be able to compete.

Robotics has taught me more than just engineering. It has also shown me how to work together as a team and how to budget time efficiently. In robotics we only had six weeks to design,

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build and ship our robot. Since we worked every weekday night and also put in long hours on weekends, being able to plan ahead was important. I learned effective time management in order to free up time to work on the robot. Without the right dedication, participating in robotics would be difficult. The importance of brainstorming and listening to each others' ideas is seen throughout the design process. After a period of time troubleshooting, we have a discussion including all the members, the teachers and the engineers to finalize the design. Last year we had three major categories to discuss at this meeting: the drive train, how the arm would extend, and the design for the end of the arm. We all sat in a classroom and made a chart of the pros and cons of each design on the chalkboard, after some discussion we broke into groups. The groups would come back together and the advocates of each design would defend the value of their design. Eventually a final design was selected. Not only do we choose a design that we feel would work, but we must also be confident that it is a design we will be able to complete in time for shipment. This has taught me to set goals for myself, but make sure that they are realistic. Although I did not always get along or agree with everyone on the team it was important to work together in order to achieve a team goal. After my freshman year I wanted to be more involved and was elected treasurer, subsequently I have been vice president as a junior and now I am president in my senior year. As an officer I am involved in organizing meetings and mentoring new members of the team. Although being president involves putting in more time, often out of school, it will be worth it as I help the club grow.

Although robotics requires a great deal of commitment, I could never imagine not participating. Once I see the robot finally compete it all becomes worthwhile. It is awe inspiring to see all the parts of the robot work together and to think that I had helped to build it. It amazes me to think that many other high schools built robots to play the same game, yet each robot is unique and worked just as well as ours. Robotics has impacted me as a person; through it I have met new people and learned the basics of engineering, it has allowed me to discover what I want to study.