­­­My fondest memories I have are being in the robotics club. When I went to the Vex Worlds competition my main role was being a programmer, in this club there were 5 teams and only two programmers my friend Shaiv and I. Only one team made it to the Vex Worlds competition robot 4659B, when we went we had to compete with the best high school programmers in the world, many teams had 10 programmers who would make autonomous functions whereas it was only us two on our team. The night before the competition we decided that we had to completely redo all of the programming because we realized that in this competition mediocrity was not an option only excellence existed here. We wrote up a program 1000 lines long in 6 hours so we could have the most efficient autonomous for the robot. We had to perfect PID(Proportional,Integral,Derivative) loops so the robot could drive straight within an accuracy of 1.5cm by altering the power given to motors accounting for the tolerances that exist, we had to optimize the lift so we could throw the objects as far as possible and we had to create turning functions that could turn to a tenth of a degree accuracy. But those were not our most impressive achievements we developed another one, we found that our lift was very heavy so when you let go of the button the lift would fall, so we attempted to fix it by implementing a PID loop but the loop was just too aggressive causing the breakers to trip. So we developed this algorithm, that we call a “half-back loop” that could keep the lift at a certain height as well as minimizing the load on the motors. The algorithm was developed by realizing how A/C units work. They work by having the unit on for a certain amount of time and off for a certain amount of time creating an average temperature this is called PWM(Pulse Width Modulation) which is good but we realized we needed something better. We were able to develop a program that would utilize PWM as well as adjust the frequency of the PWM according to the distance from the desired lift position that would factor into the final equation which calculated the average speed of the lift so as to not overshoot. We did this all in one night and after that we were not finished we than went on to develop 14 different autonomous routes for our robot when the top teams only had 2. Due to the dedication and perseverance demonstrated I believe that is why I was appointed as the president of the robotics club as a grade 11 rather than the grade 12s.