The Secret to Our Success Meg Hawkins DeWitt Perry Middle School Carrollton, TX 75006 <u>culpd@cfbisd.edu</u> 940-367-3717

The Secret to Our Success

1 Introduction

In this paper, I will tell you about how my team placed second overall in the Oklahoma regional tournament. Our team was not a team of super geniuses, and being super smart had little to do with winning the competition. Winning is all about the teamwork, strategy, design, planning, documentation, and everything else that goes into making a team and robot great.

2 How we set up our team

This year, all of the members on our team are seventh graders who have had one year of experience. When we started off this Botball season, we organized our team into two different



sub-teams, Link and Create, each with their own team leader. We voted in order to select the most qualified leader. After we organized our teams and read the rules, we all sat around the new game table and discussed the best scoring items. We decided to go for points that we could get consistently, and were fairly easy to obtain. We did it like this in order to make reliable but high scoring robots. Once we had decided our strategy and what each robot would do, we split off into sub-teams and began brainstorming robot designs.

Figure 1: Our completed create going to grab a geode

3 Robot designs

When we built our robots, we designed each part of them for a simple achievable goal, like grabbing all of the sample poms. We made a simple claw and basket that were easy builds and very reliable. Many teams think that getting the most points involves using cameras and sorting, but often this strategy is



unreliable. The best way to score the most points is to go for the points that your robots can get consistently. You can easily beat a team when you have a reliable, well designed, simple robot, rather than having a complicated, unreliable one (even if it scores a bunch of points on only one out of ten runs). The best designs follow the KISS rule (keep it simple stupid). A simple robot design is a robot with as few major components as possible. Also, the components are not extremely complicated. A simple robot could include a claw, basket, arm, scoop, forklift and simple structures like this. A complex robot is likely to have a camera, elevator (pulley system), treads, many sensors like an E.T. sensor, and more difficult to program structures.

4 Teamwork

The most important thing that you need in a robotics team is teamwork. Without teamwork, nothing would get done, and the robot would not be functional. The robot is as functional as the team that made it. A dysfunctional team will not lead to any kind of success. The way our team stuck together and worked well, is that we had our team leaders assign tasks to a small group that was compatible. People that became disruptive to that group were moved to



Figure 2: Our team picture after we won an award

a different task. This kept the group working together as a team. One time, we had a big controversy over who should do the onsite presentation. We needed two people and only one person wanted to do it. This would be fine because you can do the presentation with one person, but our teammate didn't want to do it alone. So, we voted on who should do it, and that teammate stepped up.

4.1 Respect

Our team worked well because we respected each other. When you respect your teammates, it allows the group to move forward and get the work done. Also, it allows everyone to take suggestions from peers, rather than let one person do everything. For a team to achieve respect, they need to get along well enough to listen to each other's ideas and take them into account. Most of the time, respect has to do with listening. If the team can listen to each other's ideas, the team can achieve their goals. You should help a teammate when she needs help, but if she doesn't need your help, don't keep asking her. Your team should be able to accept criticism from other members on the team, and the teacher. All of these things help improve the levels of respect your team has within it.

5 Documentation

The best way to get an award at the regional Botball tournament is to work on documentation. Documentation is an important part of the competition. It's one third of your overall score. If you get a perfect documentation score, you will receive at least one award at the contest. Good documentation scores can push you up a few places overall in the regional tournament. Perfect documentation is not as hard as you think to accomplish. The rubric gives you step-by-step instructions. All you have to do is follow them. If you don't understand them, then look at the example and the comments. Also, you can get information on the Q & A section of the KIPR website or you can send an email to KIPR for clarification.

6 Adapting to the competition and having a back up plan

One of the reasons our team is successful is that we know that when something is not working quite right, we should change it so that it doesn't mess up everything else. Everyone knows that at the competition, your robot messes up. It happens. But, the way team members react to a situation shows the quality of the team. No one wants to change the robots, but, when it comes down to it, making a change may save everything. During the competition, our Create robot continued to get caught on the airlock and almost destroyed itself. Our team leader for the Create team knew it wasn't going to work, so he made the executive decision to cut that part out of the program. This was a great thing to do, because it allowed our other robot to function without being messed up by the Create. Also, the Create didn't destroy itself because it shut off before it could break.

7 Conclusion

Although the spirit of Botball is to do your best and achieve your goals, wining is part of the fun. You too, can look forward to winning if you follow the "rules" above. Just remember, you don't have to be a super genius to take home a trophy!