

## Period 3: Lessons Learned

### **Experience Gained:**

Our team developed well throughout the Botball season, with new kids learning the ropes of botball while the seniors learned a lot more about teaching. Traditionally, we only do botball seasonally, only meeting once the tournament is released. This year we decided to change the way we do things and begin three months before the start of the tournament. This allowed for the new kids to learn how to code and program robots. By making them compete in a mini tournament that we simulated for them, they were able to learn how to apply their building and coding skills in a timed and competitive environment. Meanwhile, this benefited the more senior members as we got to experiment with which teaching styles and methods allowed us to best communicate with the newer kids. The tournament itself taught us a lot about simplicity. We ended up building about 6 robots throughout the season, of which only two, the simplest ones, worked. This made us realize that as robots gain complexity there simply become more things that can break down, not more things that can score. So like the Botball mantra states, "Keep it Simple Stupid !"

### **Documentation Process:**

A major difference in doc this year for our team was that we made sure to do it long before the due date as opposed to day before it. This allowed us to set goals for when things should be done, something that we have not done in the past, enabling us to adjust when we started to fall behind. Additionally contributing to the doc made us more aware of the robots that we weren't personally working on, making our team feel more unified as opposed to a bunch of builders and coders working on separate projects.

### **Surprises:**

Our biggest surprise was the difficulty of sorting. In the past we avoided sorting with a passion, but due to the nature of the furrows this year, we decided to give sorting a shot. Simply coming up with a design took us three weeks. After that, implementing it took another two weeks only to realize our design was too slow for the two minute limit. We eventually made a working design a week and a half before the competition but decided not to use it due to its complex nature, fearing the number of things that could break during a run. Another surprise was how precise the roomba was with dead reckoning. Traditionally we avoid dead reckoning due to the notion that it is very imprecise and a lot can go wrong, but it turned out that when combined with the distance sensors of the create, dead reckoning became a very powerful tool, capable of consistently grabbing small items such as the hay bales.

## Period 3: Lessons Learned

### **Advice for Future Teams:**

Don't rush into things. While the tournament date may be quickly approaching, don't let that scare you into making the first robot design that comes to mind. You want to spend almost as much time making your plan, blueprinting your robot, and considering different ideas as actually building and running the robots themselves. While it will take more time to complete all these steps, doing so almost guarantees that you won't have to make full revisions of your robot and start over from scratch, something you really don't want to do with only a few weeks left until the tournament. This style has always worked for us in the past, so it will probably work for you. We wish all the new teams good luck!