IMPORTANCE OF DOCUMENTATION IN BOTBALL
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1. Introduction

As two beginner members in Robotics, we have accomplished many things and learned many skills we would have never learned elsewhere. One of the things of greater importance that we learned was how to do documentation well and with passion.

Documentation allows us to record the steps we took in order to create and program the robots, and thus lets us come back to look over them for future reference. In addition, when the judges rate a team's performance in the Botball Tournament, they first examine their documentation: if it has detailed accounts of how the team fared, they immediately know that it was you, not a teacher, who completed the task at hand, no matter how extraordinary or ordinary the finished product turns out to be. If not, and the documentation was a near-failure, it becomes apparent that the amazing robots that your team proudly present are not of your own making. Thus is the hard life of fairness.

Also, the knowledge that we (Edna and I) gained from the experience in documentation can—and will—most definitely help us in the future, because it teaches us how to be descriptive and pay attention to tiny details while putting them into words at the same time.

Documentation also builds onto our confidence level; at the Regional Botball Tournament, members from each team had to present a documentation presentation in front of judges to earn a documentation score, which was judged and compared with others for a final result. While there, we heard how some teams had not done documentation whatsoever, and how all their energy and focus had been directed to scoring points. Documentation is a third of the overall score, and the difference between doing it or not could easily keep a first place team out of the top.

**1.1 How To Organize and Execute a Good Documentation Report**

In the first week that we met for Robotics, our priority was to set goals and assign jobs to the team members. Our team leader said that there would be builders and programmers, and that everybody would take turns as documenters. It turns out, oddly enough, that we were the only two who actually attempted to do the documentation, but however tedious the job was, it got easier as we went. I suppose we got into the "rhythm", and before long, we were professionals—so to speak.

Along the way, we determined that there were a few steps needed to complete a good documentation paper. One could easily skip to the last, final step of the completed assignment and just begin writing right off the bat, but in doing so, they would miss vital details and notes that would add to the originality of the documentation, and thus earn perhaps a lower score.

The first step to begin with was to observe the team in whatever they may have been doing at the time, and either take notes or recall by memory. (I advise the note taking, just because it is considerably more convenient. Obviously.)

Coincidentally, we were stuck doing all of it, but it wasn't as bad as it sounds. To make things a bit easier, we "interviewed" every one of our team members to ask them how things were progressing, and what part they played. It was a bit tiresome because most people just ignored us or said things along the lines of "Well, we're now starting our plot for world domination" or something of the sort. Hey, we *were* the beginners. After a while, though, a few more people decided to join in and help in documentation—most likely after they learned how significant documentation was and how "incompetent" we supposedly were, given the enormous importance and weight of the job. Even so, we quickly arranged a routine among our trusty "documenters": we had at least one person from our group to write and take notes about the team on just about every day we met, if the person wasn't as reluctant as they usually were. Most of the time, the people we assigned to the job sort of drifted off, so one of us had to take over. If needed, we had someone else spouting out ideas and telling our "scribe" what to write. To save time, on a few occasions someone would look over our scribe's shoulder and type all the notes onto a Word Document, adding a few conjunctions or sentence beginners/enders to make it more understandable. Occasionally, we had another person drawing models and sketches and making a prototype of our robot(s), or taking pictures as we worked, but they eventually fell back into neglect, or started doodling, and the job ceased to exist.

However, note taking and diagramming are extremely important for documentation assignments that require knowing the progress of the team and the status, so we took it pretty seriously. These following pictures show Team One's Regional Competition robots (we had three teams in total at Perry Middle School).
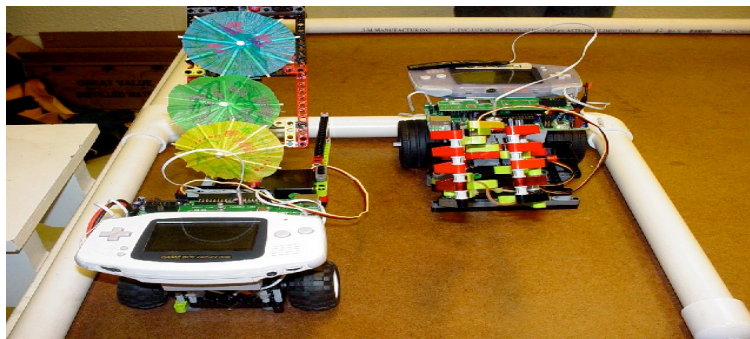
Front of Robots- *This is how King Triton and The Garage fit into the starting box together. Notice the umbrellas on the Garage; they will lower onto the houses once they are inside.*
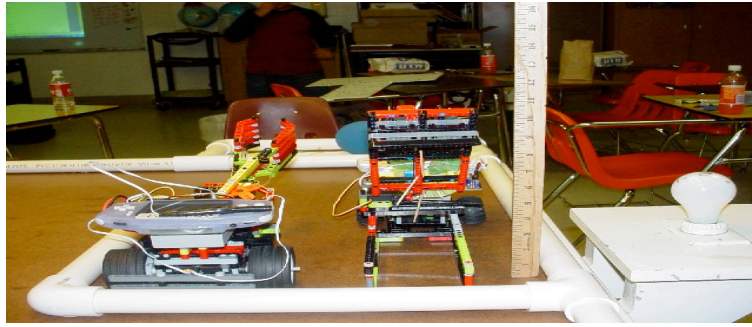
Back of Robots- *Here you can see the back profile of both robots in the starting box. The meter stick on the right was placed there so that we would be able to make sure that the robots didn't extend more than 12 inches high. The tallest robot, The Garage, measured at about 11 inches.*
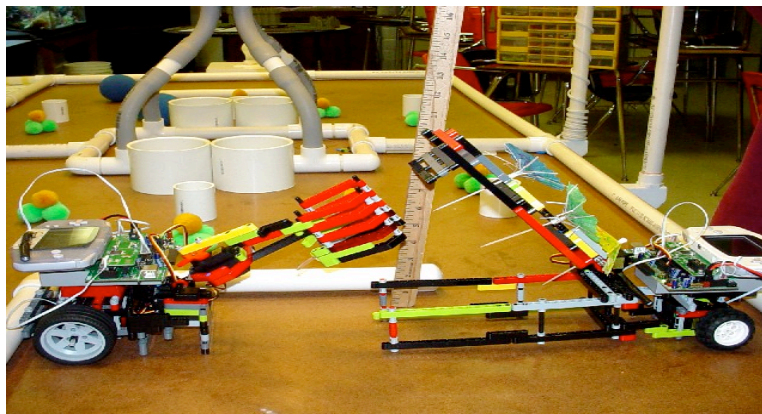
Robots Side-to-Side- *In this picture, we arranged the robots so that one was in front of the other. You can see their side profiles this way.*

We had a binder in which to keep track of all the goals, dates, and jobs of our team, so we stored all of our documentation notes there. We once lost our binder and had to make a new one, but luckily we had all the information we needed in a Word document. That little incident taught us that we had to be more organized, so that we (hopefully) wouldn't lose anything else later on.

The second step, which, by our standards, was optional, was to compile everything into a readable Word document—sometimes we had trouble deciphering our notes, which we had scribbled at a furious rate, so it was easier to put everything into standard fonts—and then add a few of the more obvious details to make the sentences "flow". The more subtle details could wait for later; at this stage, just the basic facts would suffice. Until later, minor mistakes didn't matter much.

After that, it was a simple matter of transferring all the information we had into whatever format

the assignment we were doing required, whether it be simple Word document, Microsoft Excel, or Code Library, and elaborate, add details, or insert words to better suit the sentence wherever necessary. . . .

. . . . which brings up another good point: *elaboration*. Without a detailed description of what we were doing, our assignments would have been little more than just the cold, hard facts, and we would have surely received a low grade for it. In addition, good details add to the overall quality of the assignment; without them, the report was sure to fall apart, a notion that our more experienced team members literally etched into our brains.

1.2 Why Documentation Is Important

Documentation is extremely important because it accounts for 1/3 of the final grade. If, for example, you have a low point average, the score that your documentation presentation earns could very well help you win, or at least elbow your way into the top few.

But that doesn't mean documentation is easy—*far* from it. You have to observe a lot of things while you are documenting: the things your team is doing, how it affects their strategy, the progress they are making, plans for the robots, what alterations they may have come up with, dates, programming, etc., and then prioritize and jot down the more important facts. That way, the paper won't be jammed with random, useless points that don't contribute to the main topic. You also have to have a good sense of words, and know where, when, and how to place them to keep the paper in balance.

And, as pointed out earlier in the introduction, documentation gives you a real taste of all the essays and exams headed your way in the upcoming years that require intense and deep thinking. For documentation, some of us had to sit for nearly ten minutes trying to brainstorm and formulate an idea that actually made sense, and that tied in with our strategy. It didn't make anything easier either with the fact that the rest of the team who didn't do documentation, building, or programming refused point-blank to help, trying to distract us in any way possible.

1.3 The Botball Regional Competition

At long last, after the last ounce of our hard work and devotion had finally been poured into our two robots, the competition day came around. We boarded the bus and drove to Houston, where we unloaded and began practicing on the boards already set up. It was exhilarating to finally experience firsthand what we had been working up to for the entire year. It was thrilling, rather like riding a roller coaster: when you start up the first and biggest hill, it's similar to the preparation and practice that the teams put in before the competition; the peak of the inclination is the competition itself; and the wild descent is like the actual Tournament, filled with heart-stopping moments and passing in a blur of color and cheers.

Half an hour later, the competition began. Our Seeding Round passed exceptionally well, but in the Double Elimination Round, Edna and I were so nervous that we left the room, coming back

only to learn the results. It was do-or-die. We either won—or lost—and it all boiled down to the results earned by our documentation presentation. We were pretty confident about ourselves, and Mr. Culp, our outstanding teacher, was always there to whisper a few encouraging words to us when we got nervous, which, when we look back on it, really helped us make it through the long and extremely stressful day.

The results, which were almost better than we anticipated, caused an eruption of ecstasy from our team members; we had set our hopes rather low, knowing how many variables were involved with our performance, and were pleasantly surprised.

The outcome is as follows: Seeding: first place; Double Elimination: eighth place (we encountered technical difficulties); and Documentation . . . . . *first place*! We were wildly excited—and, to make things seem almost *too* good, our documentation score boosted us to *third* place in the overall score! Yet another thing to add to our happiness was another award we received: Overall Judges' Choice!

All in all, on the way back, our spirits were high and our moods were soaring. Still, buried under all the fun and anxiety, we learned a very vital tool for the future: *how to document.* We learned how to pay attention to details and how to understand what was important and what was not. We learned how to elaborate, how to describe and justify our words, and, most importantly of all, how to be a team, in all we did and said and achieved.

Note: Christine and Edna were on two different teams at DeWitt Perry: Christine was on Team Two, while Edna was on Team One. This paper was written from Team One's perspective, so that the two different outlooks wouldn't be too confusing when put into one combined paper.

References

- Mr. Culp

- Charlie Foster. *Winning at Documentation: What and How We Did It.* A Botball paper written in the past.