

Eden Robotics 2005 Personal Log

11/5/2004

Monday: we built the different mechanisms. Brian worked on the elastic type shoot mechanism and I worked on the wheel type mechanism

Tuesday: on Tuesday I finished milling my piece of plastic that would hold the bearings for the axels.

Wednesday: I began trying to fit the wheels to the axels, but discovered that the wheels were almost impossible to drill, while keeping them true.

Thursday: I wrote the CNC code for the upper bearing plate then milled it out. I discovered that the milling machine had somehow made a mistake so Andrea and I worked on filing away at the plastic until we got the opening to the right size.

Friday: on Friday we were assigned the task of cleaning the cupboards to make room for the Welland canal projects.

11/12/2004

- put together the shooting mechanism that uses wheels. I needed to adjust the openings that the CNC machine had used

-decided to use screws as temporary axels, but they turned out to be very wobbly

-began working on the drawing for the gears, which should be made of wood.

-tried to use small metal gears but due to the amount of wobble I decided to make my own out of wood

-I helped build/modify the elastic launch mechanism.

-we drew on the whiteboard, and I came up with a new launch design that could maybe work

-we launched rockets on Friday.. to finish up the week.

11/19/2004

Monday: wrote the code that would create the gears for the motorized launch system.

Tuesday: decided to drop the wooden gear idea and move to using two motors

Wednesday: half-day.. no tech class

Thursday: cardboard boats competition.. no class

Friday: working on the rotating launcher.. making a mold for the plastic feeding ramp.. waiting for the oven to heat.

11/22/2004

Monday: I set-up the battery charging station and helped Brian every once and a while to make the feeding slide for the rotating puck launcher

Tuesday: charged batteries, rearranged the display case mounted the slide to the launcher and added guides.

Wednesday: we tested the completed launcher in the hall trying different voltages, and currents. I decided to apply a speed control, and use the controllers adjustable switches. I wired up the batteries to get the desired battery life/voltage. we discovered that a tool box made of plastic had the ability to ground our circuit (laugh)

Thursday: we manufactured some brackets out of aluminium that would hold the axels for the wheels.

Friday: we destroyed the old drive base, in order to use aluminium for the new base. we also discussed exactly how we would pick up pucks and shoot them, as well as how to load them in from the "tack"

12/03/2004

Monday: we discussed the driving base, we worried about Brian who was late and about allissa who received her immunizations. Next we took a picture of the cardboard boat team and I edited it at lunch.

Tuesday: we assembled part of the base structure of the robot. We drilled the pieces and riveted the pieces together.

Wednesday: we continued building the frame of the new base.. I drew up a sketch for the reload/pickup/launch ramp. We finalized the frame of the robot. The lady from the newspaper came and we got interviewed for cardboard boats

thursday: I was absent due to illness

Friday: I organized log sheets and we drilled circuit boards

12/10/2004

Monday: we discussed the height needed for the feeding slide, we decided upon the slope.. and then cut it out, Brian made the mold while the rest of us discussed the details of the internal system.

Tuesday: we heated up the oven while the rest of the team went out and bought more aluminium.

Thursday: I came up with the idea to run pucks directly into the motors and shove in from the side using a wedge.

Friday: we used the aluminium to build the rest of the bottom layer of the base and we put in the axels. Now we are ready to put the launch system in.

11/17/2004

This week was filled with figuring out exactly how and where everything would go. I was figuring out how to make the drive roller for the conveyer belt. We milled out the wheels and discussed dimensions for the wheels. And for the height of the robot. I came up with the slide mechanism for putting the puck into the conveyer belt from the stack. Brian and I discussed how we would make the slide and how it would be driven.

1/8/2005

Monday: I finished the rollers that drove the conveyer belt while Brian Andrea and Alyssa pounded the wheels onto the axels.

Tuesday: once the wheels were mounted we noticed that we had measured from the wrong place on the robot to get the OD of the wheels. So we needed to re-mill the wheels.

Wednesday: Brian and I worked on our physics project.

Thursday: continued to work on the physics project

Friday: we made several attempts at re-milling the wheels. We had the wrong depths.

1/14/2005

Monday: Brian and I rewrote the code for the wheels. It took many attempts. Then the bit broke so the machine milled the wheels too shallow.

Tuesday: I was absent

Wednesday: we received the sheet that told us that we only held 342 pounds in cardboard boats. However we actually held more weight than that. So we e-mailed the officials telling them that we held 668 pounds.

Thursday: i cut out the plastic base piece for the lower level of the robot.

Friday: we drilled holes in the plastic.. And created the aluminium supports for the plastic.

1/21/2005

Monday: made the mounting brackets to support the bottom piece of plastic

Tuesday: I cut out some of the pieces for the upper motor mounting frame, also made the brackets for them

Wednesday: talked about heights and the order in which we should put things together this took almost the whole period. We decided to make the slider first.

Thursday: began finding pieces of plastic to make the slider out of .. Drew out the angles for the slider.

1/26/2005

We continued to make the slider/ reloader device that pushed the pucks into the conveyer belt, for firing. I continued to make the frame out of aluminium .. Cutting brackets and attaching them together this continued for both Monday and Tuesday. On Wednesday (the last day of school) Brian and I went to the cafeteria to study for the physics exam. While Andrea received tips on the cardboard boat drawing. This concluded the robotics section of grade 12 tech class. Thanks for the great opportunity

The robotics team consisted of alyissa, Andrea, Brian, and David (me). The program consisted of a full year of work based on the challenge of making a robot that would be capable of playing a modified game of curling. One half of the year was spent while in a grade 12 technology class. The remainder of the year was spent working on the robot whenever there was spare time... after school, during spare. Etc. this project taught us how to use tools and machinery in order to make a product. We learned how to use AutoCAD, and MasterCAM [a CNC graphical coding program]. We took abstract ideas and turned them into prototypes, which in turn turned into the real thing. We finished the robot in time for the competition. We tested and drove the robot for hours upon hours during the days leading up to the competition. Finally the competition came, and we were able to prove our skills and design ideas in their designed application. I started off the competition rough, due to my eagerness to drive competitively. When the game began I quickly rushed the drive motors and ended up stuck.... caught up on the game board.. On top of that we received a demerit point due to my foolishness. The next rounds proved to be good. Though our firing wheels proved to be inaccurate. This problem could have been fixed had we run the two wheels in a series circuit rather than in

a parallel circuit. This would have drawn more current from our batteries.. and made the wheels both more powerful and more controllable. This defect led to our demise. Next came an ambiguity of the rules. Our main source of competition began to get angry at us because our robot was faster and I could manoeuvre it like a fox in the bushes.. While their robot manoeuvred like an elephant on ice. Thus when we began to cut in front of them causing them to lose time.. They decided that it would be good to just begin to ram into us while we were parked in our launching area. This resulted in many of their fuses blowing and which put us into a stalemate for a period in the game. Because of their multiple demerit points their robot should have been disqualified. But the judges called for a rematch and our robot ended up not putting enough "rocks" in the target area. Thus they won first and we won second.. Thus our team did not though we should have won by default. I very much enjoyed the experience of being involved in the robotics team, and am very happy to have been one of the four students chosen to be part of the team. Coming from a school of about seven hundred at the time, I found this to be a great honour.