Work Completed

This week a lot of work was completed towards the completion of our project. The design of the game was the focus for the week. Work on the foamed PVC sheets also happened. We wanted this done so that once the wheel mold came in we could cut out the pie pieces for the game.

The wheel mold is made out of polypropylene (PP). This has hindered our painting of the plastic. Instead of using the foamed PVC sheets we are looking into using the wheel mold as the pie pieces. This will help us be creating less work for us. We will no longer have to cut out the pie pieces and make them fit perfectly together. Rather, we will be using the already cut pieces on the actual wheel mold. By not adding the foamed PVC we will also be decreasing the total weight of the wheel. This in turn will help the motor to spin at a better speed.

Polypropylene is a thermoplastic polymer which is made by the chemical industry. It is used in a wide variety of applications. It is also rugged and unusually resistant to many chemical solvents, bases, and acids. That will help us and not help us. Painting the polypropylene will now be our main problem. Polypropylene also has a very good resistance to fatigue. This will allow the game to be played more frequently with less chance of the game being ruined. It also has a high melting point of 320 degrees Fahrenheit (160 degrees Celsius). This will help on the off chance that a hot liquid is spilled on the game. Figure 1 depicts the wheel mold where you can actually see the individual pie pieces.
Painting the polypropylene is now our biggest problem. However, I found online that if you use Krylon Fusion spray paint it should adhere to the plastic. The company Krylon claims on their cans that the paint will adhere to normally hard to coat plastics. This is very helpful because from our previous painting method we already have some of the correct paint. This also means that we will not have to use epoxy on the surface of the plastics. By not using epoxy it will also cut down on our construction time. By using up less time we will be able to concentrate on the other tasks that need to get done. Figure 2 shows the many different kinds of Krylon spray paint. However, we only need to use the Fusion spray paint.

![Krylon Spray Paint](figure2.png)

We decided that we would buy a new motor to replace the one we already have. We wanted to do this because the shaft of our current motor is not the in center of the actual motor. By not having it in the center it will create more calculations as well as making it more difficult to attach to the aluminum rod (which makes the wheel spin). However, after looking at our current budget we have tentatively decided to not purchase a new motor. Even though using our current motor will be a challenge, it is one that we will meet. Our current motor requires 0.5 milliamps of current with 12 volts to run at a speed of 40 rotations per minute (rpm). It will also provide 2000 g-cm of torque. This is exactly what we need for our project. We also found that if we bought a motor with a shaft in the middle we would risk something going wrong with the torque or the speed aspect of the motor

Future Work
Throughout the next week many things will be worked upon. Continued construction of the pie pieces as well as the support system will be undertaken. Hopefully we will be able to finish the pie pieces which will mean that the top of the game is completed. The micro-processor program will be finished this week. The SP03 will also be worked on. We are currently looking into buying a PCB board as it is now evident that we will need one to complete our project.
Project Review

The past week small things were accomplished. The game is starting to actually all come together. With the wheel mold now available we can continue the construction of the actual game. Research was done on another painting method and will continue to be done throughout the upcoming week. The SP03 program was also worked on some more. Having this done will help the project finalize as a whole. The actual testing portion of the game will begin this week which is something that is long overdue.

Hours Worked
10 hours