

Milestone 2 individual report

group 7

For this milestone, I constructed a new frame for the robot and a spinner attached at the front that spins the ball backwards so as to gain more control over it. I also wrote a ball predicting class, that takes previous coordinates of the ball, computes initial velocity, average deceleration and uses these to predict the future X and Y coordinates of the ball.

The spinner is made out of 2 wheels, each connected to one of the wheels of the robot. Although I did not really expect it, the fact that they spin independently helps when the robot goes around an ark. The is spun in such a way that it stays in contact with the wheels during the turn.

There were a few big issues that made it a time consuming task. First of all , because of its front position, the kicker had to be changed so that it would fit around the spinner wheels. This means the kicker is more unstable now and a better design is needed. I will continue working on this.

Second of all, it was hard to fit gears from the motors to the front of the robot for the spinner. I tried many different combinations, under the constraint that the first gear must be bigger than the last one. In order for the spinner to work, its wheels have to spin with roughly the same speed as the robot. Since the wheels of the robot are much bigger than the spinner wheels, the gear ratio had have about the same ratio as the one between the wheels.

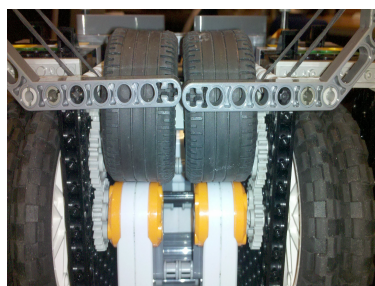
Third of all, the axils on which each of the the spinner wheels had to be well braced. Up to this point I could not find a good way of connecting 2 axils well, under the constraint that they have to spin independently.

At last, getting the right wheels for the spinner proved to be crucial. I tried four different wheels and the first 3 failed completely. Two of them did not even spin the ball because of little friction and one threw the ball out because of too much friction and very flexible tire.

The first frame we had was only temporary. The new frame I build is much more resilient. I hope it is not changed much for the end design. Because we did not have enough lego pieces, I did not finish it. However, adding to much weight is not a good idea, so I am hoping that not much more will be added to the robot.

The ball predicting class needs some changes. At the moment it takes 5 points and predicts the X and Y coordinates of the ball at any future time. Because our world state class is not ready yet, my class cannot get the 5 points . Also, ball prediction should provide a coordinate of where the robot should go for the intercept, and the final angle at which to make the interception. At the moment we do not have a function that computes the time it takes to robot to perform this, so ball predicting is on stand by.

I plan to continue working in construction: build a better kicker that fits around the spinner, hopefully one powered by springs; make the spinner more stable , finish the frame. I will also continue working in the strategy team.



The spinner