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Weekly Report 8 (July 11, 2006)

I have the ball balancing a little now. It will stay on if it starts near the center or if you blow on it just a little. Most of the time the ball will start oscillating and roll off the table in about 5-10 seconds. I need to refine my controlling method. Currently I'm just using the position and the direction of the movement (not velocity, just direction).

Weekly Report 9 (July 18, 2006)

The ball is now balancing pretty well. My main problem was that I did not have my PWM channels configured correctly and the servo movement was pretty choppy. Another problem was that for some reason I had it in my mind that the door viewfinder that I bought would not cause a problem. I was thinking that if the ball was moving at a constant speed towards the edge that it look as though it was accelerating. The opposite is true. I fixed this by straightening out the image in using a simple square function. After I fixed those two problems I added velocity to the ball balancing equation.

I have also received almost everything that I need to do obstacle avoidance. I tested the bump switches and IR and wrote the software to control the motor driver based on their input. It all seems to work pretty well except that I did manage to strip the gears on both of my motors. I've already ordered new ones and they should be here Monday. Until then I'll try to get everything mounted properly.

I'm also considering not doing line following. I'm not sure if that will be allowed or not. Even though I feel confident that I'll be able to finish a ball balancing robot that avoids obstacles, I know that the end of the semester is near. I'll also need to change the name of my robot, but I didn't really like "Delivery Boy" anyways.