# Lab 7: Final Contest
## Team 2
## Collin Sorkin and Jesus Sanchez

**Introduction**
This lab entailed competing in a "soccer" match against another robot. The robots were placed on opposite corners of the field with a HiTechnic Infrared Electric Ball in the middle. The goal of the robot was to score as many goals on the opponent's home field in the 2 minutes and 30 seconds given. The robot with the most goals after time was up won.

**Hardware and Software Design**
Our main software algorithm was to detect where the ball was in relation to the robot using the HiTechnic Infrared sensor. After the robot got the direction of the ball the robot the checked the strength of the reading, which gave the robot the distance of the bal. Based on these two parameters, the robot then figured out which direction to turn and how much of an angle if needed to turn.

**Problems and Solution**
We had a couple of different problems in our soccer robot. We had the most problems in our main game program. The first problem we had with our main game is that the robots turn speed wasn't good enough to get to the ball with good accuracy. The way we fixed this was that we had to have a lot of if else statements to check the infrared readings. The second problem that we had with our main game was that at the start our robot would start to head towards the ball and the it would slow down and slightly turn and over correct itself. We had to fix this problem in a similar way to our previous problem. We used a lot of if else statements and just tweaked our boundaries until it worked. The last problems we had was with our penalty kicker program. The problem we had was that it wouldn't kick in other directions other than straight. The way we fixed this was to make the kicker just kick the ball towards the wall and bounce the ball off the wall.

**Unsolved Problems**
We only had one really major unsolved problem. This problem was that when our robot got stuck. We were unable to get our robot unstuck when it was up against a wall or got locked with another robot.

**Contest Results**
Our robot did very poorly in the competition. Our robot was the first robot to get kicked out of the soccer tournament. Our robot faced to many problems to overcome a win in the tournament and because of these problems we were unable to win a single game.

**Conclusion**
In conclusion, we needed to tweak our robot's boundaries more so that we could get a more accurate readings from our robot. We never entered penalty kicks so we don't really know how those two programs reacted against other robots. Overall we think would could have done better in this competition and at least gotten one win in the tournament.

**Appendix**

Please see the link "main_game.nxc", "pk.nxc", and "goalie.nxc" for the code for Lab 7.