Obstacle Management

Our robot has ultrasonic sensors mounted on the left, right, and front. We use these to find distances from the wall (to figure out its orientation, placed in the competition). The front one is used to determine whether it is about to get stuck and ram into a wall if the side ones are reporting unusual values.
We are using threshold ranges to compare the distances from the robot to the reflected barrier. The robot has many conditions in place, performing comparisons on distances upon distances with all three sensors to make sure when to turn right, and to correct its position if it notices that it's veering away from the wall. It also uses the ultrasonic sensors to know when to trigger a turn, and in what direction to turn by comparing the left distance to the right distance and selecting the greater value in the specified direction.

Possible improvements:

We're planning on upgrading the bot with a camera, as reflected in the simulations seen in the **Team Progress** document. We will use computer vision to better locate obstacles with positional and color data. This will obviously require a more powerful controller compared to the Arduino, like a Raspberry Pi. For now, we've been performing computer vision simulations on Blender with OpenCV.