Robocode Report

Our robot’s original design consisted primarily of one major strategy. Our strategy would first implement the robot to calculate the center of the battle field and its distance from any wall. From this information resulted a radius in which our robot can move in a circular path around the arena as close as possible to a wall without touching it. Our robot would aim towards the center and have its back towards the wall. We believed this strategy would prevent us from hitting the wall and have better aim at other opponents. When looking at examples of codes that we could adapt in our robot, we found too many flaws with the idea. For one, if our robot was to only travel in a circular path then another robot with any form of tracking code would easily be able to calculate our robot’s circular path and destroy it. Another flaw we found with our original design was that a circular movement limited our defense and our offense because our robot would attack based on another bot’s location, which means our robot would have to change its angular distance based on the other robot’s movement change. The angular change would be the same but the linear distance would be a greater distance for our robot because of how far away it is from the center.

Trying to achieve milestone one became a task our robot would not be able to accomplish. First, we created a barrier in which our robot could not step outside of. The problem with this design is if our robot started a battle between the barrier and the wall it would get stuck and be destroyed. Even if the robot started within the arena, inside the barrier, if something triggered the robot to overlap the barrier the robot would glitch and force quit the battle.

Our final robocode implemented simple ideas which we believed would help us win more battles. Our first idea was to track our enemy. By tracking another bot, our robot gathered information from the tracked bot and predicted its future path. With this information, our robot would move towards the enemy, until reaching face to face combat maximizing total damage inflicted. As it moved toward the bot our robot continued to aim and shoot. Our robot would only stick to one bot until it was either dead or the enemy was destroyed which would then allow our robot to scan a new bot to face. We also implemented random movement in our robot, which would make it difficult for another bot’s attempt in tracking our robot. Finally, we wanted our robot to conserve as much energy as possible to be able to fire big bullets at bots closest in range. This was done by shooting small bullets at bots further away and big bullets at the nearest bots.

In conclusion, our robot ended being a tracking robot. We began with the idea of moving in a circular path, but found it wasn’t fighting defensively nor offensively, which would result in a weak robot. By implementing a tracking design through the help of robocode wiki and various discussion boards we were able to create the robot we have now, which was designed to target the enemy and destroy. This design got us to fourth place in the robocode battles. There were other ideas we would have liked to implement in our code but we were unable to go through with them due to code errors or bugs that would cause our robot to glitch and stop running. For example, when the robot approached an enemy we wanted it to go in a waving motion, similar to a snake so it can better dodge bullets, but in the end we were happy with our final results.