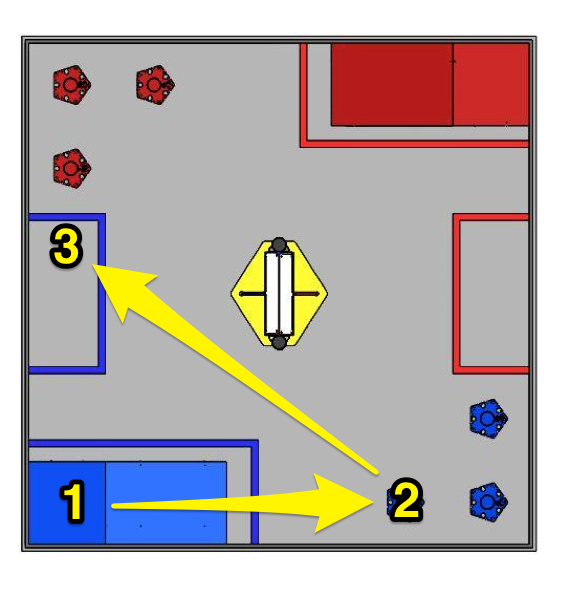
**Control Award Content Sheet**

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| Team # 7155 | Team Name: The Quantum Potentials |

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**Autonomous:**

The Robot starts on the ramp with its two preloads inside of the intake.1 When the match starts, the robot raises its lift a tiny bit, so that the bottom of the lift does not scrape along the playing field floor. The robot drives off of the ramp and gently taps the medium sized rolling goal base to center it. The robot then raises its lift with encoders and deposits its preloaded balls inside of the medium sized rolling goal.2 The Robot then turns around using the encoders on the wheels and hooks on the goal, and pulls it towards the parking zone.3

**Driver Controlled:**

The Tele-Op code has four separate tasks handling different parts of the robot.

*Hook Task:*

This task deals with toggling the two servo hooks that grab onto the base of the rolling goals in order to move them around. It has a loop that continuously checks if the toggle button (button 2) is pressed. If pressed, the program then checks if the hook is up, using a Boolean statement, and sets the servos to the appropriate position to grab the hook.

*Intake Task:*

This task deals with the two Lego “NXT” motors that function as the intake for the robot. When the right top trigger is pushed, the motors are powered, causing the intake to begin to rake in balls with its zip ties. Any trigger button will stop the intake. When the lift has been raised and the robot is ready to deposit balls, the driver can push the bottom button, which spins the motors slowly in the reverse direction to deposit them into the tubes. We spin the motors slowly in reverse, as we found that dropping the balls was more accurate at slower speeds. We chose to toggle the lift as oppose to holding down the buttons to make the robot easier to use, and so that the driver has more room to make minor corrections with their joysticks.

*Main Task:*

The Main task deals with several parts of the robot that do not need a separate task to control toggling. This task calls two methods: Lift and Wheels.

*Lift:*

The Lift method controls the linear slide on the robot and allows the ball intake/holder to be raised and lowered in order to score in the various sized goals, and pick up balls from the playing field floor. The program first sets the encoders on the lift motors so that the motors will not keep spinning after the lift has been brought down. This prevents the lift’s winch mechanism from breaking during a match. Should the driver need to cancel these limits, he/she can simply press the Cancel Lift Limits button (button 10). This will remove all limits on the lift and give full manual operation to the driver. The driver presses the top bumper to raise the lift and the lower bumper to lower the lift.

*Wheels:*

The robot uses a tank drive to control the wheels. The driver uses the left and right joysticks to control the left and right wheels respectively. Because the controllers are not always the most accurate, the robot has a threshold, where it will not take an input unless the controller input is greater than 10. This ensures that the robot does not jitter around on the playing field and helps us ensure that our motors will last longer.



All of our code for this competition can be viewed at <http://github.com/FTC7155/2015>