**Robot Operation**

The robot starts in the middle facing the fish in between the tanks. It will then approach the first fish, adjusting its distance and position to the fish based on the information from the camera. The robot will then lower the pickup arm, and drive to the fish for pickup. Before picking up the fish, the bucket will move to the bin assigned to the current color of the fish. The extender piece on the arm will push the fish to line it up for the claw as the robot moves forward a set distance based on the values given to the encoders. When the robot is in position for pickup, the robot will stop and grab the fish with the claw. After a short delay, the pickup arm will lift the fish back and drop it into the bucket. After the first fish, the robot will attempt to repeat the same steps for the second fish. With the two fish in between the tanks gone, the robot will drive in reverse a set distance based on the value given to the encoders, and turn towards the fish in front of the bucket. The robot will then approach the fish as it did the previous two, and attempt a pickup. With the fish in front of the bucket gone, the camera will have a good view of the tank and can use it to reverse back to the center. Once the robot is back to the center, it will turn towards the next set of fish in between the tanks, and repeat the process all over again. This process will be done a total of 4 times to capture all fish, at which point the robot will be ready for drop off. Because of the way the bucket system works, the robot must go to the tank that corresponds with the color of the fish in the first bucket, which it will be at after the last fish is picked up. Already at the tank for the first drop off, the robot will get as close to the wall as it can without touching it, and then rotate in place. The bucket will with then be extended out far enough to reach over the tank, and the floor will be moved out to let the fish drop. The robot will then rotate around so the camera is facing the tank it just dropped off too, and back up till it is back to the center. Using the camera to find the tank corresponding to the color of the next bucket, the robot will approach the tank as it did the previous tank. This process will be repeated 2 more times and all fish will be sorted and dropped off.