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EECS 373
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Assignment P5

Robot push a gear part?

The framework for the node used in this assignment was pulled from the example reactive task commander accompanying the irb120 robot files in Part_5. Most of the code is identical, however I adjusted the goal positions for each trajectory to allow the robot to push the gear part to a location, rather than just touch it.

The robot first found the gear part and positioned itself above. Then it positioned itself slightly to the inside of the gear, virtually on the ground. Next it pushed the gear outwards a distance, and finished by raising vertically. The final position is dependent on the original location of the gear part rather than hard coded, so it can be repeated for any position within the reach of the robot without recompiling.

In practice, the robot had difficulty pushing the gear in a straight line, since both the arm and gear are circular. Additionally, neither the gear nor arm slid on the ground very well. Also, since the position of the arm was coded to be proportional to the initial position of the gear, some issues arose if the gear was too close or too far. However, the overall objective was achieved, though there was little to no accuracy possible pushing the gear in this manner.

A .mp4 file was recorded demonstrating this.

Link to source files on github:
https://github.com/jswise23/EECS_373/tree/master/jsw107_p5/src