EECS 476 PS8 (AMCL) Report

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Approach

We modified both the steering node and the control node (both launched with `jinx_vending.launch`) to make them accept Poses from AMCL instead of from Jinx's wheels' native `/odom`. This resolves the previously-encountered odometry-drift problem.

Regarding the steering node, we changed the starting position from always being the origin to whatever that node first sees from AMCL. The rest of the path is defined relative to this point.

Regarding the control node, we used the ROS parameter server to distribute the constants, instead of #define-ing them (which requires recompilation) or passing them in as command line arguments (which can be cryptic). For the linear steering algorithm, our final gain coefficients for $K_{\varphi}, K_{disp}, K_{trip-dist}$ were 1.0, 0.5, and 0.25, respectively.

Observations

We observed that Jinx now correctly follows the path, albeit with pronounced underdamped components. Now, Jinx can start anywhere, and the effect of the drift inherent to approaches based on dead reckoning can largely be mitigated.