

ENPM809T HW8

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Spring 2020

Our robot is the Baron.

1 Operation with just encoders

<https://youtu.be/jw90qtaGbQ4>

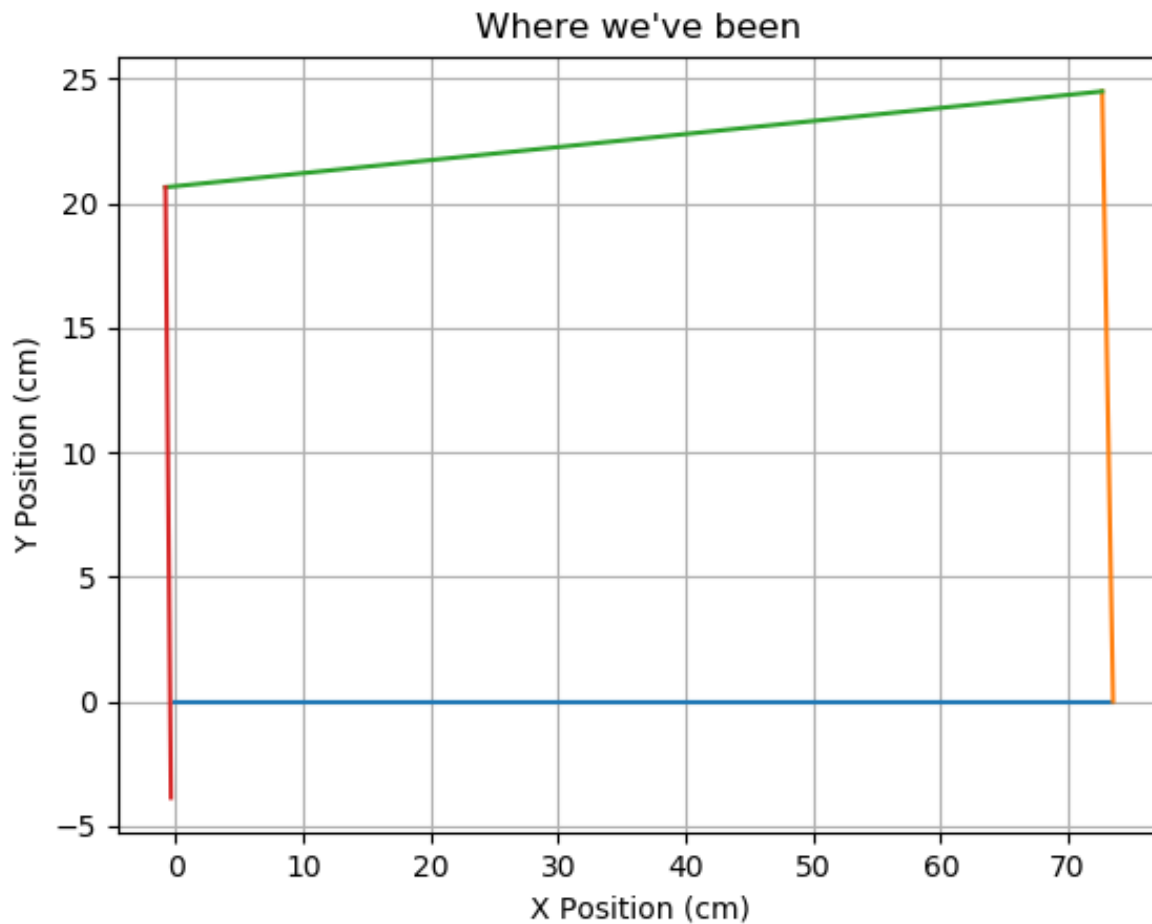


Figure 1: Path from pure encoder motion

The robot starts with the motion in blue. Due to encoder motion error, the robot turns too much on its second 90° turn (yellow to green). You can see the inconsistency in its movement. The robot's first 90° is almost perfect. In the Y direction, the robot moves consistently, and the lengths of the red and yellow lines (although vertically offset) are nearly identical.

2 Operation with encoders and IMU

<https://youtu.be/Ok4Kk876cPM>

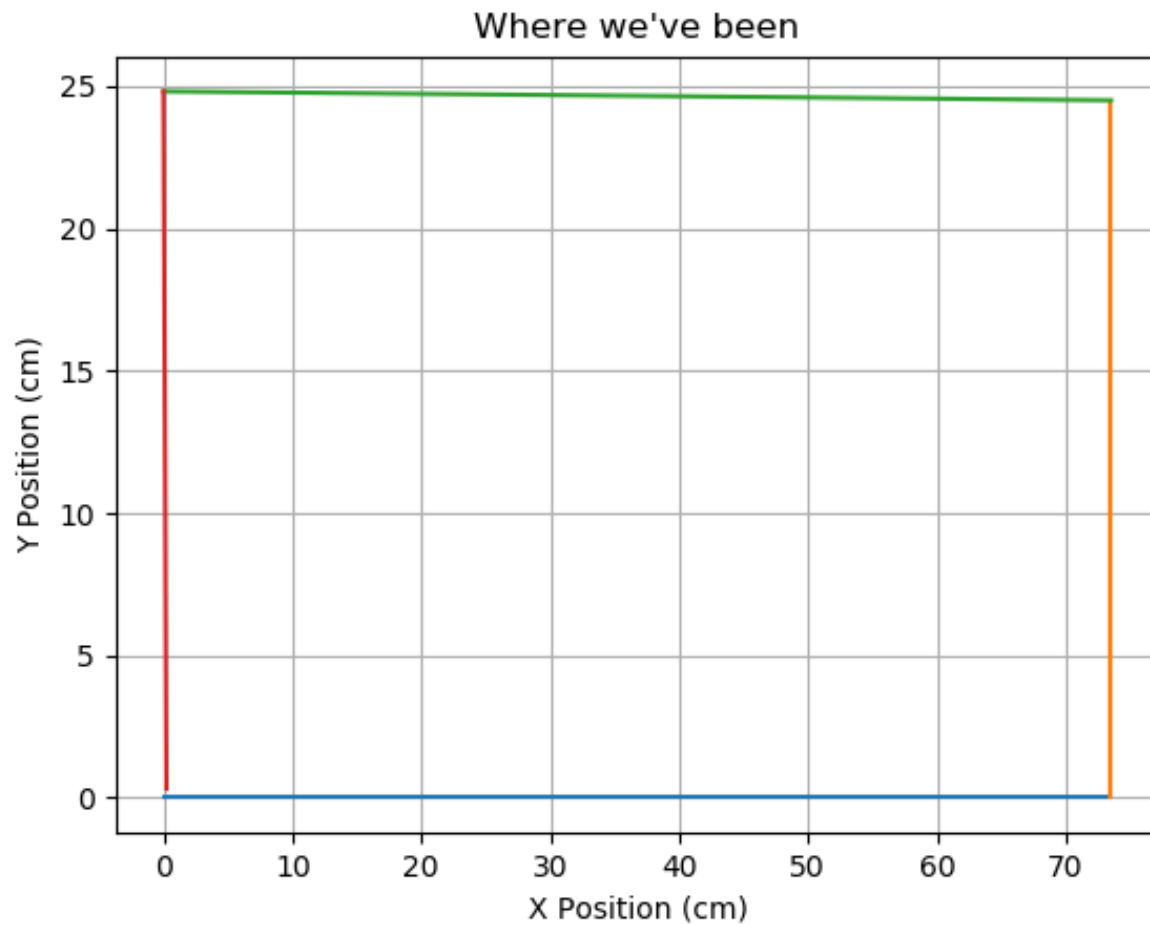


Figure 2: Path from IMU motion

The robot starts with the motion in blue. The IMU data forms nearly a perfect rectangle. We added the grid overlay to compare how perpendicular the motions are. The slow turns with the IMU correction provide much more repeatable and accurate turning.