

Week 4 Update: Wheel Control (Motors & Encoders)

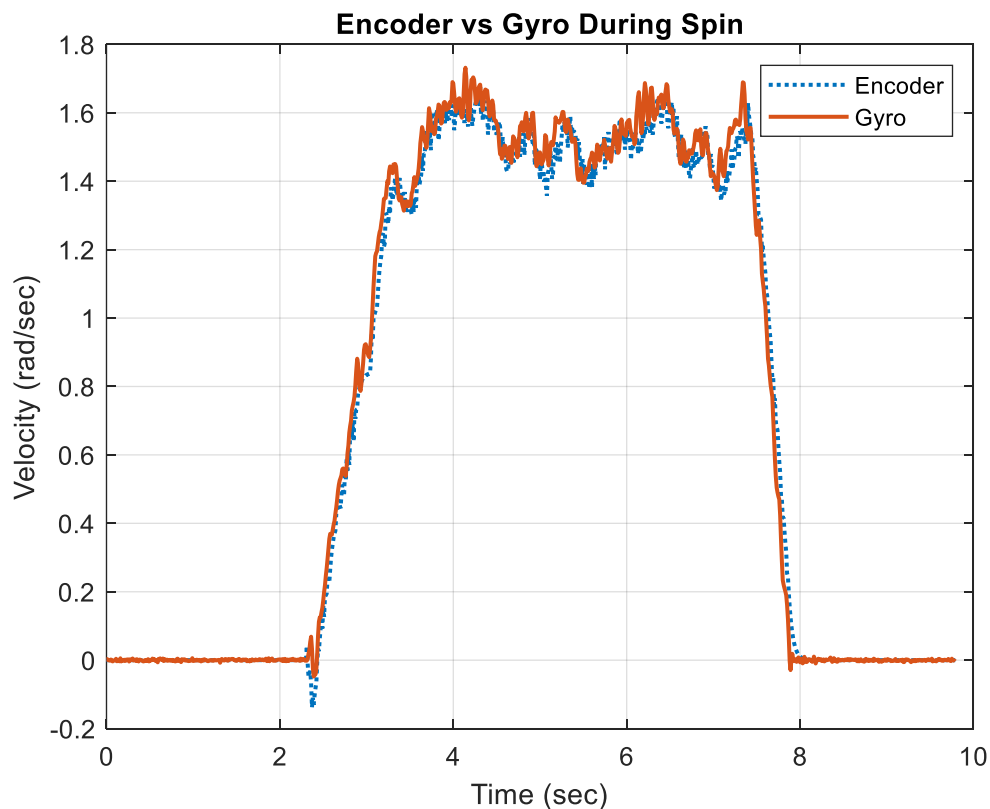
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ME/EE/CS 169

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6. Compare Spin measured by Gyro versus Encoders

Spinning the robot at $1\pi \frac{\text{rad}}{\text{s}}$ counterclockwise provides the following velocity plots. We notice that the values spike at the beginning of the movement, demonstrating slipping. Furthermore, we note that the encoder values lag behind the gyro readings by roughly 0.06s. We also notice that the gyroscope and encoder readings diverge at most by 0.06 rad/s.



9 State Conversion - without Gyro - and Visualization

Driving using Teleop without gyroscope integration, we notice that the RVIZ position does not keep track of the actual robot position very well due to wheel slippage. We especially notice that the RVIZ location and actual location diverge when running into objects.

10 State Conversion - with Gyro

With the gyroscope integration we get a very accurate reading of the robot location in the world space. Even driving the robot around the entire room and back to its starting point shows that we can track the robot location very well.

