moblieye assignment

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1 Question 1

The effect of bias in mechanical road wheel servo call the under-steer and over-steer. This effects are vehicle dynamics terms used to describe the sensitivity of a vehicle to steering. Under-steer and over-steer based on changes in steering angle associated with changes in lateral acceleration over a sequence of steady-state circular turning tests. The effect in the simulation can by seen when the vehicle take a curve and didn't do it perfectly,

2 Question 2

It is known that kinematic bicycle model is only valid in low speed. For low speed the inertial effects can be neglected, so when we take about high speed we need to take in consideration the rolling angle. we can suggest a model for high speed that connect the steering angle and the rolling angle. Or we can try to stabilize the roll angle.

3 Question 3

Me consideration for the step size time is come from iterative way. I tried some values of the step time and see how the system is responds, I find out that in high time step we can see a fast convergence but a big overshoot that expressed in under-steer or over-steer. In low time step the system take allot of time to converge. I try to find the 'sweet spot' so, I take $dt = 0.5$. For the integration method for update positions I decide to use the Forward Euler method it fast and easy to implement.