The Use of Lane-Centering to Ensure the Visible Light Communication Connectivity for a Platoon of Autonomous Vehicles

https://www.researchgate.net/publication/327651942

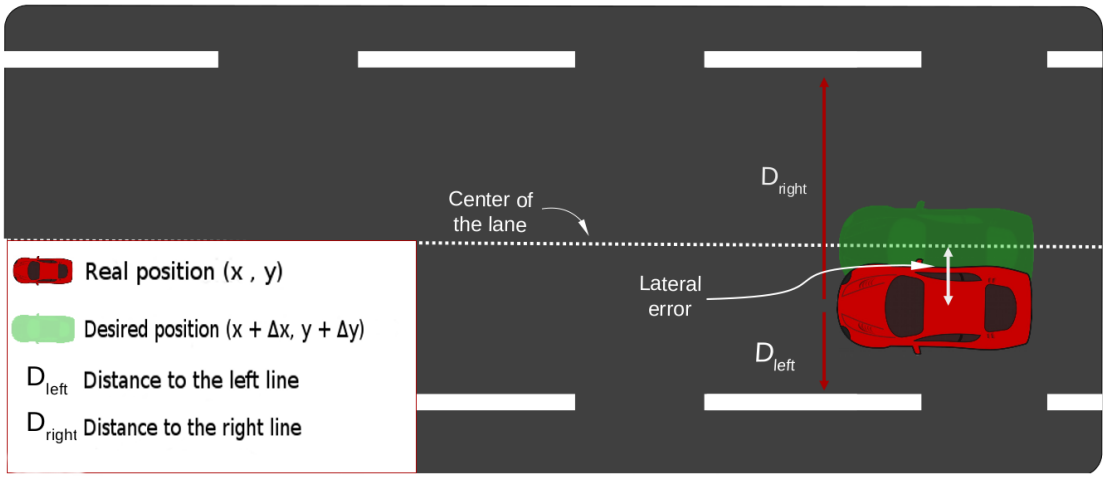
summary:

general theme

for our project we are especially interested in lane centering for self-driving cars.

Lane centering model

The LC concept can be expressed as a lateral control adjustment forcing the autonomous vehicle to center its position by continuously referring to the side lanes, and without the need for any further cooperative information.



The location error
of the red vehicle represents the current position in UTM (Universal Transverse Mercator) coordinates x and y, where both Dleft and Dright represent the distance from the vehicle center point to the edges of the lanes.

By combining cars detection, lane detection and using the ability to find the lane center we can understand if a specific vehicle in the frame is getting into our lane. And if so by measuring the size of the vehicle comparing to the frame size it is possible to decide if this vehicle is to close and getting the right decision of operation (slowdown, break or keep driving in the current speed).

Summarized by: Oren Lacker