

Ackerman Steering Controller

Overview

To develop a controller for controlling an Ackerman steering model which uses the constraints and navigates from start to goal.

Objective: Controller for an Ackermann kinematic model with a maximum steering angle constraint (e.g. < 45 degrees) (input robot target heading and velocity, output steering and the two drive wheel velocities, demonstrating convergence to the set points)

Application

Integral component of the Acme Robotics plug-n-play self driving stack

Approach

Define constraints and the behaviour model of the ackerman steering class

Define a controller to achieve the start and goal positions based on the defined controller and steering class

Visualize the output in a simulation environment like ROS-Gazebo

Key Milestones

Deliverables: Well documented software with flexibility to be integrated in a large scale system

Schedule:

1. Phase 0: Headers, classes and stub implementations of the software
2. Phase 1: Initial design implementation and revisions if necessary
3. Phase 2: Final delivery with documentation and testing