

Documentation

TAS Project

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Velocity Control:

tas_autonomous_control_node.cpp

- This node is the expanded version of the forma tas_autonomous_control_node.cpp
- Added Laserscan subscriber
- Added AMCL position subscriber
- Added two different stat machines which are controlling the velocity of the car

Laserscan subscriber

- Calculate the range to the next objects in front of the car and sets according to that a global flag for the velocity control [NO_FREE_SPACE, CORRIDOR, ALL_FREE]
- Furthermore a velocity gain factor is calculated based on the range and the global flag

AMCL position subscriber

- Detection of corners based on the car's position
- Based on the position of the car in the corner several velocity modifications are done while the car is driving around a corner
- Furthermore, a global Flag is set according to the car's position in the corner [NO_CORNER, APP_CORNER, LEAVE_CORNER, EXIT_CORNER] for the velocity control

Main function

- Read in the recorded corner points
- Implement the two subscriber
- Translate the trajectory's, given by the local planner and the velocity, given by the two subscriber to a PWM signals

Cornerpionts.txt

- Recorded corner points
- Position of the corner point [X,Y,Z] in [meter]
- Orientation of the corner piont [as quaternion]
- Alpha correction rotation of the map [an degree]
- Leave position [meter]
- Exit position [meter]