Squeezing through tight areas during avoidance #2931

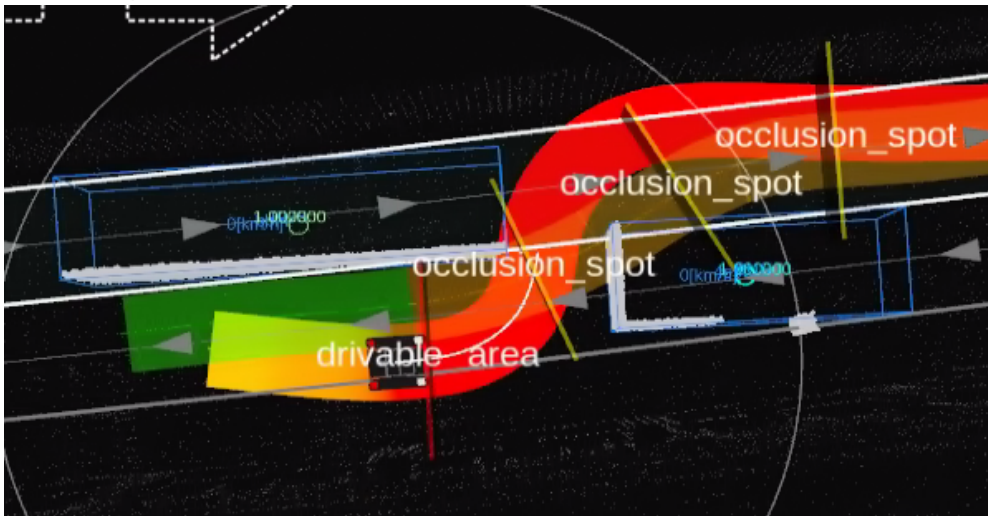✅ **Answered by takayuki5168**   **MrOCW** asked this question in **Q&A**


�, **MrOCW** on Oct 10, 2022   edited ▾

Hi, I am attempting to use autoware for a differential drive robot. In this image, the planner is attempting to plan through the tight space between the 2 obstacles during avoidance, which is what I am actually aiming for but the planned path causes the robot to go outside the road boundary. Are there any parameters that i can tune to improve this behavior? I have set steering angle to 1.57 but it cant make a tight left turn without turning right first to prepare. (Also, I'm pretty sure this path would lead to a collision with the 1st obstacle..)
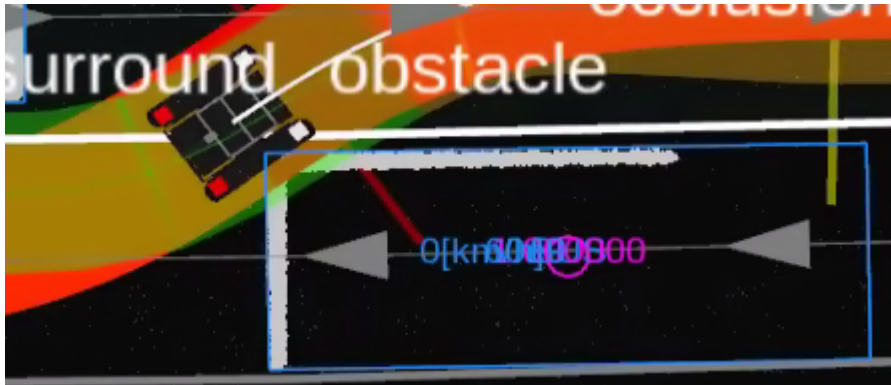

On another try with a larger space,
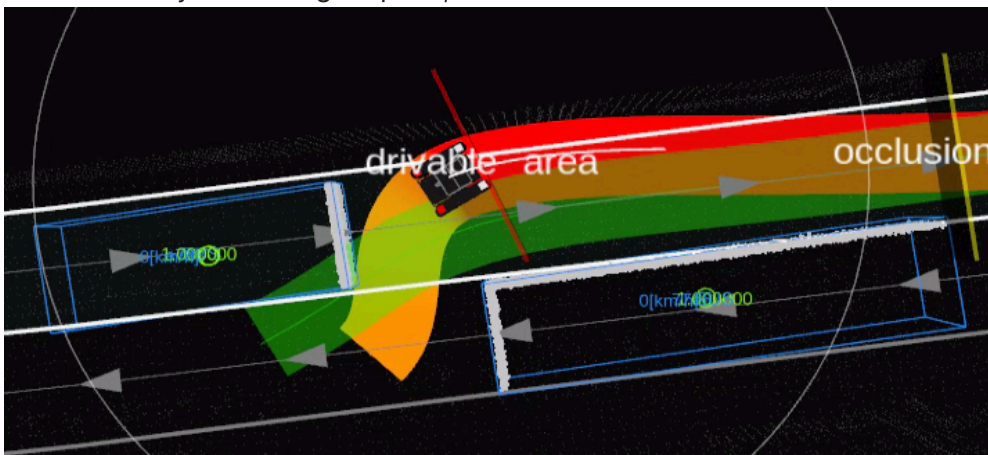
Category

🔱 Q&A

Labels

`component:planning`

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4 participants

👥

Occasionally, the robot drives through although there is a collision:

↑ 1

✓ Answered by **takayuki5168** on Oct 14, 2022

@MrOCW
As I said in another discussion, enable_avoidance=True in obstacle_avoidance_planner is not officially supported.

But the performance may be improved with the following tuning.

View full answer ↓

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3 comments · 4 replies

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satoshi-ota on Oct 13, 2022 `Maintainer`

(@takayuki5168 Could you answer this question ?)

↑ 1   0 replies

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takayuki5168 on Oct 14, 2022 `Collaborator`

@MrOCW
As I said in another discussion, enable_avoidance=True in obstacle_avoidance_planner is not officially supported.

But the performance may be improved with the following tuning.

```
10 ■■■■ ...driving/motion_planning/obstacle_avoidance_planner/obstacle_avoidance_planner.param.yaml ⧉                              ☐ Viewed  •••
@@ -14,9 +14,9 @@
14        is_showing_calculation_time: false                     14        is_showing_calculation_time: false
15                                                                15
16        # other                                                 16        # other
17   -    enable_avoidance: false # enable avoidance function     17   +    enable_avoidance: true # enable avoidance function
18        enable_pre_smoothing: true # enable EB                  18        enable_pre_smoothing: true # enable EB
19   -    skip_optimization: true # skip MPT and EB               19   +    skip_optimization: false # skip MPT and EB
20        reset_prev_optimization: false                          20        reset_prev_optimization: false
21                                                                21
22        common:                                                 22        common:
@@ -127,7 +127,7 @@
127       hard_clearance_from_road: 0.0 # clearance from road boundary[m]   127   hard_clearance_from_road: 0.0 # clearance from road boundary[m]
128       soft_clearance_from_road: 0.1 # clearance from road boundary[m]   128   soft_clearance_from_road: 0.1 # clearance from road boundary[m]
129       soft_second_clearance_from_road: 1.0 # clearance from road boundary[m]  129  soft_second_clearance_from_road: 1.0 # clearance from road boundary[m]
130  -    clearance_from_object: 1.0 # clearance from object[m]   130   +    clearance_from_object: 0.5 # clearance from object[m]
131       extra_desired_clearance_from_road: 0.0 # extra desired clearance from road  131   extra_desired_clearance_from_road: 0.0 # extra desired clearance from road
132                                                               132
133       weight:                                                 133       weight:
@@ -142,8 +142,8 @@
142                                                               142
143       obstacle_avoid_lat_error_weight: 3.0 # weight for lateral error   143   obstacle_avoid_lat_error_weight: 3.0 # weight for lateral error
144       obstacle_avoid_yaw_error_weight: 0.0 # weight for yaw error   144   obstacle_avoid_yaw_error_weight: 0.0 # weight for yaw error
145  -    obstacle_avoid_steer_input_weight: 1000.0 # weight for yaw error   145  +   obstacle_avoid_steer_input_weight: 20.0 # weight for yaw error
146  -    near_objects_length: 30.0 # weight for yaw error       146   +    near_objects_length: 10.0 # weight for yaw error
147                                                               147
148       terminal_lat_error_weight: 100.0 # weight for lateral error at terminal point   148   terminal_lat_error_weight: 100.0 # weight for lateral error at terminal point
149       terminal_yaw_error_weight: 100.0 # weight for yaw error at terminal point   149   terminal_yaw_error_weight: 100.0 # weight for yaw error at terminal point
```

PaGu3 on Nov 4, 2022   edited ▾

Hi **@takayuki5168** ,
Is this autowareAuto or autoware.ai ?, because i am using autoware.ai 1.14.0 and i couldn't find this folder or code in that.
Thanks

takayuki5168 on Nov 4, 2022   Collaborator

This is in autoware.universe
https://github.com/autowarefoundation/autoware.universe/tree/main/planning/obstacle_avoidance_planner

👍 1

PaGu3 on Nov 4, 2022

Thanks **@takayuki5168** , but i have a question that is obstacle avoidance possible in autoware.ai (without open planner) ?

takayuki5168 on Nov 4, 2022   Collaborator

Sorry, I'm not familiar with autoware.ai. AWF will not support autoware.ai from next year. FYI: https://github.com/Autoware-AI
Therefore, I recommend you using autoware.universe. If autoware.universe lacks some functions you were using, please open an issue.

Answer selected by **MrOCW**