Vehicle sometimes gets stuck when turning #2989
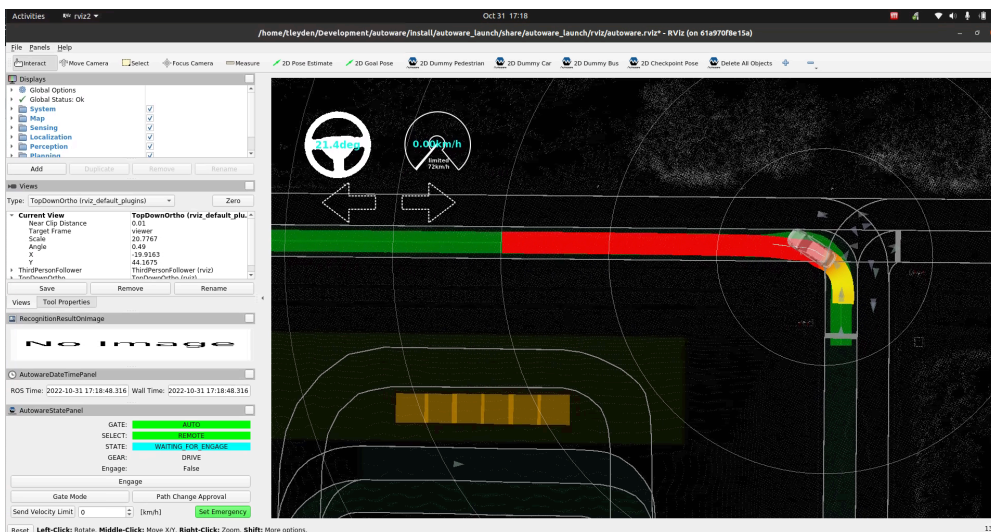
✓ **Answered by maxime-clem**   **tleyden** asked this question in **Q&A**

Category

🙏 Q&A

Labels

None yet

3 participants

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tleyden on Oct 31, 2022

Using autoware on docker, I followed these instructions to run the ad-hoc planning simulation, but after doing some experimentation I've noticed the vehicle getting stuck several times while trying to make a turn.

If I push the "engage" button, the state will switch to "Driving", but the vehicle remains stopped. Some of the messages on the console are:

```
[component_container_mt-14] [ERROR] [1667261931.607786370]
[lanelet2_extension]: Fail to expand lanelet. output may be
undesired. Lanelet points interval in map data could be too
narrow.
[component_container_mt-14] [WARN] [1667261931.811753721]
[planning.scenario_planning.lane_driving.behavior_planning.behavior_
cannot find traffic light lamp state (TrafficSignalNotFound).
[system_error_monitor-5] [ERROR] [1667261936.084601959]
[system_error_monitor
/autoware/control/autonomous_driving/performance_monitoring/lane_dep
[Single Point Fault]: Error
[system_error_monitor-5] [ERROR] [1667261936.084630898]
[system_error_monitor
/autoware/control/autonomous_driving/performance_monitoring/lane_dep
lane_departure]: [Single Point Fault]: vehicle is out of lane
```

I'm assuming it is stopping because it would need to go out of the lane to make the turn.

Since there are no other obstacles, shouldn't the vehicle go determine it's safe into the other lane temporarily? Is there a setting to allow that behavior, or would it be a new feature?

↑ 1

✓ Answered by **maxime-clem** on Oct 31, 2022

This is a known issue related to the drivable area (i.e., the space where the planned trajectory footprint must be contained).
In your picture, the planner generates a trajectory that exits the drivable area which forces ego to stop.

You are right that this can be solved by expanding the drivable area into the

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maxime-clem on Oct 31, 2022 (Collaborator)

This is a known issue related to the drivable area (i.e., the space where the planned trajectory footprint must be contained).
In your picture, the planner generates a trajectory that exits the drivable area which forces ego to stop.
You are right that this can be solved by expanding the drivable area into the other lane, and there are parameters here to statically expand the drivable area in different contexts.
I also proposed some ideas to expand the drivable area dynamically here:
https://github.com/orgs/autowarefoundation/discussions/2851

✓ **Marked as answer**   ↑ 1   5 replies

tleyden on Oct 31, 2022 (Author)

Thanks **@maxime-clem**, that answers my question!

It looks like I'm on an older commit from Oct 21 that doesn't contain your PR. I will try updating my workspace and rebuilding at some point to see if the behavior is improved.

Which static parameters file should I modify to be automatically be picked up when running `ros2 launch autoware_launch planning_simulator.launch.xml` ?

maxime-clem on Oct 31, 2022 (Collaborator)

Prior to my PR, the drivable area could be expanded by updating this file:
https://github.com/autowarefoundation/autoware.universe/blob/c1e312 68e5c9c6fb3546ef3cd37be2ac8d66ee0e/launch/tier4_planning_laun ch/config/scenario_planning/lane_driving/behavior_planning/behavior_ path_planner/lane_following/lane_following.param.yaml
This is only for the "lane driving" context.

After my PR you can set the parameter for each context in this file:
https://github.com/autowarefoundation/autoware.universe/blob/main/launch/tier4_planning_launch/config/scenario_planning/lane_driving/behavior_planning/behavior_path_planner/drivable_area_expansion.param.yaml

👍 1

tleyden on Nov 1, 2022   Author

What are the units, meters? Eg, `right_bound_offset: 0.5` means that it can go 0.5 meters across the lane boundary?

maxime-clem on Nov 1, 2022   Collaborator

Yes, you are correct.

cyhunblr on Jan 5, 2023

> PR'den önce, sürülebilir alan şu dosya güncellenerek genişletilebilir:
> https://github.com/autowarefoundation/autoware.universe/blob/c1e31268e5c9c6fb3546ef3cd37be2ac8d66ee0e/launch/tier4_planning_launch/config/scenario_planning/lane_driving/behavior_planning/behavior_path_planning/behavior_path_planner/lane_following.param.yaml Bu yalnızca "şeritte sürüş" bağlamı içindir.
>
> PR'ımdan sonra, bu dosyadaki her bağlam için parametreyi ayarlayabilirsiniz:
> https://github.com/autowarefoundation/autoware.universe/blob/main/launch/tier4_planning_launch/config/scenario_planning/lane_driving/behavior_planning/behavior_path_planner/drivable_area_expansion.param .yaml
> Hi again, did you check second link.

Answer selected by **tleyden**