Autonomy Software WG Meeting 2022/11/29 #3061

BonoloAWF started this conversation in **Working group meetings**

BonoloAWF on Nov 22, 2022   edited ▾

Administrative

- [Previous Meeting Minutes](#)

Common Resources

- Bus ODD [software architecture proposal](#)
- Bus ODD [architecture design discussions](#)
- Bus ODD [candidate simulator comparisons](#)
- Bus ODD [milestone development plan](#)
- Bus ODD [Project Board](#)
- Autoware [contributors list](#)

Attendees

▶ Chaired by Fatih

Announcements

- None

Autoware.Universe

- ☑ Bus ODD [Nov-Dec Milestone](#)
- ☑ Bus ODD [high priority issues/PRs](#) not in the current milestone
- ☑ PRs [waiting for review](#) not in the current milestone/high priority.
- ☑ Autoware.Universe reported [bugs](#) not in the current milestone/high priority.
- ☑ Autoware [design discussions](#) and [demos](#)

Bus ODD progress updates

ITRI bus integration update (Meeting notes from 28 Nov 2022 - see slides in comments below)

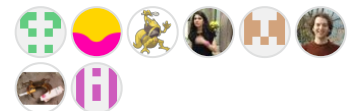**Category**

💼 Working group meetings

Labels

meeting:software-wg

---

8 participants

- Attendees: Huei-Ru, Kaling, Tseng, Ryohsuke, Yu-Heng, Mike, Fatih, Xinyu, Bonolo
- Lidar issues solved by removing the bridge. Each lidar now uses a dedicated IP.
- Path planning works in simulation but currently not working on-vehicle (behaviour planning path and trajectory not obtainable)
  - Ryohsuke - check timestamps of messages coming into planning node (error suggests this is an issue)
- ITRI is not using Web.Auto but internal scheduling software for the Bus ODD
- Timeline update:
  - on-vehicle planning integration tests scheduled for next 2 weeks.
  - vehicle dynamic testing at ITRI campus will occur in two parts from 5-18 Dec.
    - Ryohsuke - the demo will be scheduled for January 2023. This will include a video and interview similar to the cargo ODD demo. See https://www.youtube.com/watch?v=mjibEToagkw and https://www.youtube.com/watch?v=0vtvaOf4Hbo
    - Ryohsuke - will the vehicle be ready for autonomy run by 18 Dec if all goes well? Huei-Ru - yes, that is the plan. Ryohsuke - if there is any risk of not being able to complete autonomous driving by 18 Dec, please let us know so that the video shooting can be rescheduled.
    - Bonolo - does ITRI have a storyboard for the demo? This outlines which features will be showcased and in which sequence. Huei-Ru - I can plan out a storyboard this week for the demo and provide an overview at the next ASWG meeting. Bonolo - I'll see if the Marketing WG has a template you can use.

LeoDrive bus integration update

- No update presentation
- Table showing issues linked in comments below

Discussions

Traffic lights (Zeynep)

- See comments for slides
- Autoware traffic_light_ssd_fine_detector module currently has 4 nodes for traffic light detection
- Current implementation is not working well since Japanese and Turkish traffic lights are physically/visually different
- MobilenetV2 was retrained on Turkish style traffic lights; more datasets will be collected to improve results

TVM in Autoware (Xinyu)

- See comments for slides

- TVM is a powerful ML framework for inference and performance optimisation. It is like a deep learning compiler
- TVM implementation in Universe uses tvm_vendor, tvm_utility and several tvm_package
- To use in Autoware.Universe convert your model to onnx format, upload the model to modelzoo repo, update CMakefile to point to model, implement cuda kernels using c++ or TVMScript
- Interplai will work on #2309 implementation

Demos

Drivable area (Maxime)

- See comments for slides and summary
- Everyone to please review the prototype solution

Ryohsuke - which code do you use for training? Zeynep - the Autoware readme describes how to retrain models with a small example
Fatih - could you add a how to guide on the Autoware documentation?
Zeynep - will do

Obstacles (Lukasz)

- Showed a demo showing implementation of solution for ⊘ **Vehicle stops in front of non-existing obstacle on the path** autoware.universe#2213 and ⌥ **fix(obstacle_stop_planner): add checking of point height** autoware.universe#2296
- Improvement shows a smaller area detected as obstacle (prevents vehicle misinterpreting overhangs as obstacles)
- Planning simulator was updated to publish 3d cars
- PR is ready for review

Action Items

- None

Review of Issues and Discussions

The following Discussions and Issues were highlighted:

- See comments below

↑ 1

5 comments · 3 replies

Oldest | Newest | Top

🟣 **hueirutseng** on Nov 28, 2022 (Collaborator)

ITRI Bus Status Update

↑ 1   0 replies

mehmetdogru on Nov 29, 2022   Maintainer

I won't be able to attend ASWG meeting this week. However here is the link to the table includes the problems/changes we have made during development phase of the project. Sorry that we didn't create all the issues yet.

↑ 1   0 replies

xmfcx on Nov 29, 2022   Maintainer   edited ⌄

Issues to discuss

Bus ODD Nov-Dec Milestone

- ⊘ **behavior_path_planner generating invalid path orientation** autoware.universe#2125
  - No updates.
- ⊘ **planning sometimes fails when using RRT* for parking** autoware.universe#2099
  - ⌥ **fix(freespace_planning_algorithms): fix rrtstar can't arrive goal error** autoware.universe#2350
    - Waiting for review from **@TakaHoribe**
- ⊘ **Trajectory planning for long vehicles not working properly** autoware.universe#2182
  - ⌥ **feat(behavior_path_planner): param to skip some linestring types when expanding the drivable area** autoware.universe#2288
    - Review approved, is additional review required?
- ⊘ **The `detection_area` module does not visualize debug markers when some obstacles are not detected by it** autoware.universe#1121
  - Old PR was closed, new PR is created: ⌥ **fix(detection_area): add color debug markers** autoware.universe#2401
    - Waiting for review.
- ⊘ **Vehicle starts move before the steering angle converged** autoware.universe#1543
  - Waiting for response from **@brkay54**
- ⊘ **behavior_path_planner creates shift point outside drivable area** autoware.universe#2208
  - ⌥ **fix(behavior_path_planner): keep shift points in the lane** autoware.universe#2209
    - Waiting for rosbags from **@mehmetdogru**
- ⊘ **behavior_path_planner generated path outside of drivable area** autoware.universe#1761

- **feat(mission_planner): check goal footprint** autoware.universe#2088
  - Ongoing discussion.
- **add configurable lateral_distance for different target objects** autoware.universe#2222
  - **feat(obstacle_stop_planner): add configurable lateral_distance for different target objects** autoware.universe#2290 this is closed, why?
  - Is there a plan for this issue?
- **Autoware keeps following old local path after `behavior_velocity_planner` is dead** autoware.universe#1253
  - **Add instructions on topic monitoring** autoware-documentation#231
    - Waiting for action from **@mitsudome-r**
- **Checking only 4 corners in the drivable area** autoware.universe#1716
  - **feat(obstacle_avoidance_planner): check footprint with boost::geometry::intersection** autoware.universe#1999
    - Any updates **@beyzanurkaya** ?
- **Finalize the field type for pointcloud** autoware.universe#563
  - **docs(sensing): add sensing design documentation** autoware-documentation#180
    - Ongoing discussion, waiting for response from **@xmfcx**
- **Create speed_bump behavior module** autoware.universe#611
  - **feat(behavior_velocity_planner): add speed bump module** autoware.universe#647
    - Review is done, waiting for updates from **@mehmetdogru**
- **Using a de-grounded point cloud for NDT matching gives a more reasonable match score** autoware.universe#2044
  - **fix(ndt_scan_matcher): using de-ground points calculate ndt match score** autoware.universe#2312
    - Ongoing discussion.
- **Update deprecated TensorRT 8.5 codes for ROS2 humble** autoware.universe#2330
  - Waiting for transition to humble.
- **Vehicle stops in front of non-existing obstacle on the path** autoware.universe#2213
  - **fix(obstacle_stop_planner): add checking of point height** autoware.universe#2296
    - Updates made, waiting for another round of reviews.
- **Planning simulator stops for non-existant virtual traffic light** autoware.universe#2390
  - Open bug issue.
- **add option to turn signal while obstacle swerving** autoware.universe#2321
  - **feat(behavior_path_planner): add option to turn signal while obstacle swerving** autoware.universe#2333
    - Approved but waiting for action from **@beyzanurkaya**
- **fix(tensorrt_yolo): multi gpu on component container** autoware.universe#2297
  - Will be merged.

- ⊘ **Can not give a new goal behind in the same lane** autoware.universe#1715
  - Ongoing discussion.

PRs waiting for review

- ⑂ **feat(behavior_path_planner): update path when object is gone** autoware.universe#2314
  - Being reviewed by **@satoshi-ota**
- ⑂ **feat(pointcloud_preprocessor): test loaned message API** autoware.universe#1794
  - Discuss with **@esteve**
- ⑂ **test: add test(ray_ground_filter/scan_ground_filter) and fix bug for ray_ground_filter** autoware.universe#1401
  - Waiting for review from **@badai-nguyen**

Remaining bugs

-

↑ 1   3 replies

maxime-clem on Nov 29, 2022   `Collaborator`

I want to quickly present my progress on autowarefoundation/autoware.universe#2182

- Proposal was presented 2 weeks ago (https://github.com/autowarefoundation/autoware/files/10012666/AWF-202211-DynamicDrivableArea.pdf).
- Prototype is implemented here: https://github.com/maxime-clem/autoware.universe/tree/drivable-area-expander/planning/drivable_area_expander
- I want people to try this prototype to check if it solves their issue with bus vehicles.

▸ **Demo videos**

👍 1

angry-crab on Nov 29, 2022   `Maintainer`   edited ▾

I want to present the current tvm pipeline.

👍 1

guankou on Feb 23, 2023

i want to know how do you implement the right-hand driving of vehicles?

Zeysthingz on Nov 29, 2022   Collaborator

I want to present my progress on traffic_light_ssd_fine_detector module.

↑ 1   👍 1   0 replies

---

xmfcx on Nov 29, 2022   Maintainer

@lchojnack presented the solution demo for:

- ✅ **Vehicle stops in front of non-existing obstacle on the path** autoware.universe#2213
- ⑂ **fix(obstacle_stop_planner): add checking of point height** autoware.universe#2296

↑ 1   0 replies