Open AD Kit WG meeting 2022/08/18 #2802

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

armaganarsln on Aug 16, 2022 · Collaborator · edited by ghost ▾

Administrative

- [Meeting recording](#) (Password: *#ba1D1D=*)
- [Previous meeting minutes](#)
- [Open AD Kit project board](#)
- [Open AD Kit 2.0 schedule](#)

Attendees

▶ Chaired by Armağan

Agenda

- Introduction of new meeting attendees
- [Robosense Ground Truth System .pdf](#)
- Discussion topics
  - Use cases for Open AD Kit 2.0 based on OpsCons (Hashimoto-san)
  - Open AD Kit documentation (Kasper)
  - High-level vision for the ARM DevSummit workshop (Kasper)
  - AWS Services Roborunner, Greengrass (Mitsudome-san)
  - Installation test on AGX Orin with the provided documentation (Nilay)
- Review of outstanding actions/issues
- Schedule review

Introduction of new attendees/members

- Jasmine Liu (RoboSense)
- Simon George (Xilinx/AMD)

RoboSense presentation

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- RoboSense is a smart LiDAR sensor system provider (developing hardware, software and AI perception algorithms) that was founded in August 2014, and targeting commercial robots, delivery robots and autonomous buses/taxis
- RoboSense RS-Reference Solution

Category

Working group meetings

Labels

meeting:openadkit-...

2 participants

- - Comes in two parts: a multi-sensor fusion hardware platform and a high performance offline sensor evaluation package
  - integrated rooftop bracket for hardware (no damage to the car)
  - point cloud AI perception algorithm, LIDAR SLAM algorithm, multi-sensor fusion algorithm
  - offline optimization of detection and tracking -> removes limitation of real-time processing and hardware limitations of in-vehicle ECUs
  - full-stack tool chain
  - system workflow: system deployment then loop of data collection, offline processing (including manual correction), DUT (Device Under Test) evaluation (GUI tools to help visualise and evaluate sensor data), DUT updating
  - DUT evaluation -> synchronization (time & space), data matching
  - Uses [RT-Range](#) for verification of position and velocity results
- Questions:
  - Armağan: Can we use any of RoboSense's collected data, or a sample?
    - Jasmine: Not possible due to Chinese government regulations (cannot share data about road environment)
  - Armağan: Can we benchmark Autoware's perception algorithms against RoboSense's algorithms?
    - Jasmine: Need to consult with engineers
  - Lalith: What was used to visualize sensor data in the video?
    - Jasmine: ISViz, developed internally by RoboSense and something that can be shared with customers

Discussion topics

Use cases for Open AD Kit 2.0 based on OpsCons

- 🗨 **[Proposal for use cases with OpsCons of the Open AD Kit 2.0](#)** #2750
- [https://github.com/autowarefoundation/autoware/files/9155812/CR-FY2022-089.Use.cases.with.OpsCons.xlsx](#) (spreadsheet)
- Lalith: Kasper was the only one who provided feedback and Hashimoto-san answered his questions. Are there any remaining concerns?
- Kasper: My only concern is that we need to drill-down into the examples so that we ensure we can meet the scope within the deadline that has been set. For example, I can see dependencies on MIH APIs like the Sensor API, but will these be ready in time?
  - Lalith: I know that the DBW API is due to be complete by the end of this month, but can anyone confirm when the Sensor API work will be completed?
  - Tanzawa-san: Currently being proposed to MIH and work will start shortly.
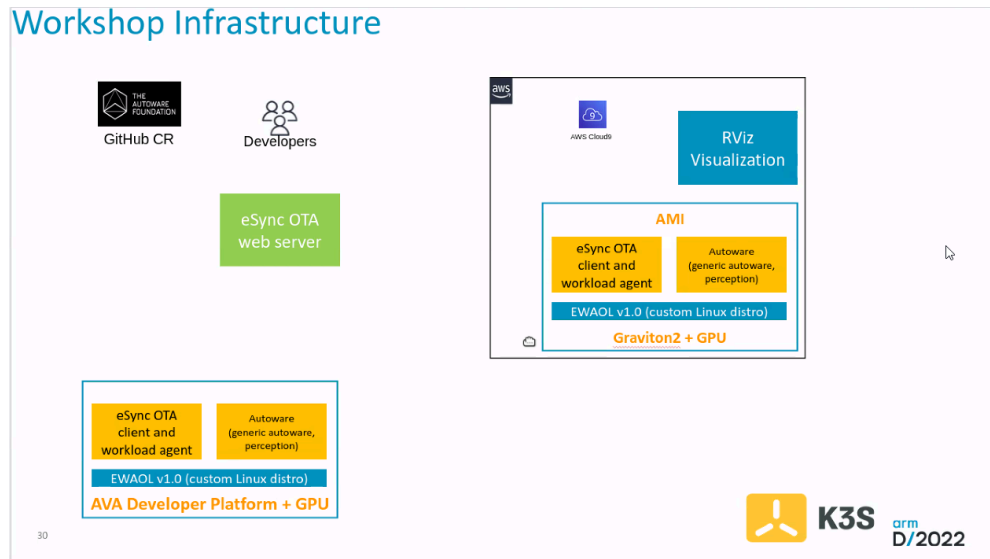- ACTION:

Open AD Kit documentation

- We currently have the original OADK v1.0 start guide for Autoware.Auto, and we have been verifying v1.0 with Autoware Universe ("v1.5"). But

how do we plan to handle older releases? Will these be maintained?

- Kasper: When we do an Open AD Kit release with a new version, we need to make that clear. We should also explain the conditions under which each version was run so that people understand the situation, and also aim to minimise the maintenance of older versions.
- ACTION: Lalith and Hashimoto-san to discuss how to handle different Open AD Kit versions in the documentation. Once decided, issues can be created for others to add detailed documentation for different hardware

High-level vision for the ARM DevSummit workshop

- [Document link on the Open AD Kit WG Google Drive](#)
- Have the AWF GitHub container registry, diagram shows two boxes (one for eSync and one for Autoware, but in reality each box is made up of multiple containers)
- participants will boot an AMI, get a RVIz visualisation and access through a web browser using RMC, then manipulate the cloud instance via the eSync OTA web server
  - want to avoid having all 60 people download a container, so plan to use the web server to update the configuration file and all containers will be already downloaded to the cloud and edge
- Still working on the details of the procedure
- Thinking about having a live sensor
- For more details, check the [spreadsheet](#) which lists out requirements for the cloud instance and edge devices as well as tasks for the workshop
- Armağan: Can the workshop be broadcast live so other people can watch?
  - Kasper: ARM DevSummit runners want the workshop to be exclusive to the hands-on workshop
- David: Regarding the (LiDAR) sensor, if you have one on-site, will it be playing a part in the updated perception algorithm? Would people be shown with bounding boxes?
  - Kasper: Plan would be to do another OTA update to update other required parts of Autoware, showing how you go from recorded data in the cloud, to live data at the edge

AWS Services Roborunner, Greengrass

- [Use of AWS in TIER IV.pdf](#)
- Background was Armağan asking about whether the AWF could use AWS IoT Greengrass for Open AD Kit in anyway. Mitsudome-san chatted with T4's web team to see how Greengrass is used in T4
- Web.Auto product developed by T4, which includes fleet management, OTA updates, scenario editor, vector map builder, CI/CD dashboard and Autoware Drive, all built on AWS services
- IoT Greengrass is installed in the vehicle - collects vehicle info from Autoware to share with the other cloud services, sends scheduled routes to Autoware as ROS message
- If AWF is going to provide cloud services (eg: remote monitoring, fleet management) on AWS, then Greengrass is good synergy
  - But need to design the architecture and the services that are going to run in the cloud
- Questions:
  - Armağan: I originally wonder if we can use Greengrass for the next ODD, when we plan to support multiple vehicles and do things like data collection
    - Mitsudome-san: It doesn't have to be as complicated as the example shown of Web.Auto, but you do need to have the cloud service infrastructure set up first before you can start using Greengrass
  - Armağan: Does T4 have any plans to demonstrate Web.Auto capabilities in any ODD demonstrations?
    - Mitsudome-san: Possibly for the Bus ODD demo in December - there has been some discussion between T4, Leo Drive and ITRI about using T4's Fleet Management System to control the buses running from stop to stop. ITRI would need to allow T4 to install the FMS client on the bus. T4 is not planning to make Web.Auto open, but can use it for demonstration to prove the external APIs to customers

Installation test on AGX Orin with the provided documentation

- Nilay: Tried to complete the installation based on Shark's test documentation, but the PDF export cut off long commands, so asked Shark to provide those commands in the issue. Tried following Ito-san's steps with EWAOL 1.0 but that didn't work. Will EWAOL 1.0 work on AGX Orin or not?
  - Ito-san: EWAOL 1.0 only works with AVA Platform
  - Kasper: EWAOL needs to be ported to Orin by swapping out the BSP file.
  - Lalith: How much work is required to get EWAOL running on Orin?
  - Kasper: Trickiest thing is to get the GPU enabled and make sure versions are aligned. It's not easy and requires yocto knowledge.
  - ACTION: <was an action agreed for this topic?>

Review of backlog actions / open issues / schedule

Outstanding actions

- Ito-san to create documentation explaining how to set up Autoware Universe with K3s on AVA
  - Pending discussion on how to version Open AD Kit documentation

Issues

- ⊘ **Verify that Autoware Universe can be run with Open AD Kit 1.0** autoware-projects#32
  - Can this issue be closed since all tasks have been completed?

Schedule review

- Skipped due to lack of time

Actions

- ☑ Ask RoboSense to provide a PDF of their presentation to add to the minutes of 💬 **Open AD Kit WG meeting 2022/08/18** #2802
- ☐ Lalith and Hashimoto-san to discuss how to handle different Open AD Kit versions in the documentation
- ☐ Shark to share his AGX Orin test report for OADK 1.0 and Autoware Universe in a file format where all commands are displayed in full

↑ 1

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1 comment

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mitsudome-r on Aug 18, 2022 · Maintainer · edited ▾

Here's the presentation slide that I shared today:
[Use of AWS in TIER IV.pdf](#)

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