



TRX D8 2.0

Intelligent logging of ADAS vision system data

Overview

Intelligent data logging for ADAS vision systems.

Challenges

Critical corner case studies for ADAS testing are lost in the high volumes of video generated on test drives.

Solution

With TRX D8 2.0 and RTMaps apply custom algorithms, to trigger and only log vision system data for unique corner cases.

Benefits

For more efficient R&D vision system development and ADAS validation processes, RTMaps running on TRX D8 2.0 provides:

- Algorithm based automated capture of ADAS vision system data.
- Preprocessing and annotation of ADAS video throughout the test drive.
- Smarter logging, includes pre (30 seconds) and post trigger video capture.

Executive Summary

ADAS safety functionality of advanced driver experiences and protection of vulnerable road users is made possible by the addition of ADAS vision systems and sensing technology to the vehicle. Acting as the eyes of the vehicle, camera sensors deliver awareness of scenes surrounding the vehicle and are also used to determine driver alertness.

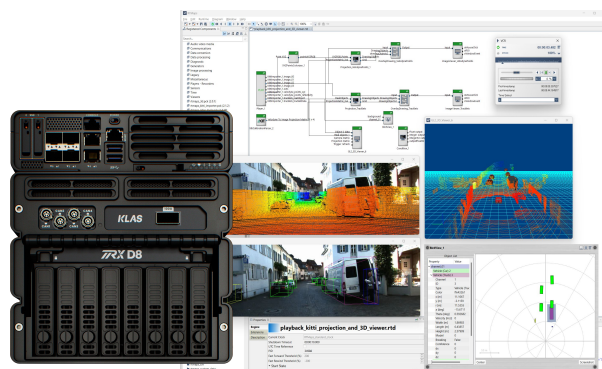
Just like the human eye, camera sensor performance is impeded under certain lighting conditions. A common corner case is direct sunlight exposure e.g. driving into a sunrise/sunset. Other examples include an approaching vehicle with high beams at night.

To assess the performance of camera ADAS functionality requires the ability to capture these corner cases, alongside the data from other supporting sensors of radar, lidar, or ultrasonics.

Only log what makes a difference

The standard drive test is to capture all the vision system data, all the time. However, this is inefficient, especially when multiple cameras with megapixel (MP) ranges are generating gigabits of data per second. The alternative is to intelligently log what matters. To do so requires the ability to create intelligent triggers that capture and only logs the relevant corner case data.

With TRX D8 2.0, an open architecture high-performance vehicle data logging platform, and with Intempora RTMaps, a smart middleware for data logging, users can intelligently capture data that makes the difference in ADAS development.



KLAS

Figure: TRX D8 2.0 (100Gbps data logger) and RTMaps smart middleware sensor fusion

TRX D8 2.0 Case Study

Intelligent logging of ADAS vision system data

TRX D8 2.0 – open logging platform

TRX D8 2.0 is an open compute and data logging platform. TRX D8 holds up to 8 SSDs as a single removable cassette, with support for bring your own SSDs. With TRX D8 2.0 connect and log data from multiple high-bandwidth vision sensors, that includes 30 seconds pre-logging trigger event:

- Intel Xeon D (10 cores / 20 threads), 128GB RAM
- 100 Gbps (12.5GB/s) write throughput
- 240TB of hot-swappable storage
- Integrated Gen 4 RAID Controller
- 100GbE interface for fast data transfer

RTMaps – smart logging middleware

RTMaps™ is a low code middleware to assist developers in the design, development, test and validation of multisensor applications for ADAS and Highly Automated Driving (HAD) software functions. Example video logging features include:

- Agnostic camera sensor integration (incl. webcams)
- Image processing algorithms (OpenCV / Yolo)
- Edge detection / Segmentation / CNN / Anonymization
- Data annotation (Python or any ML library can be used)
- Synchronization and sensor fusion (fuse video streams with other sensor inputs e.g. lidars or radars)
- Recording and playback of video streams

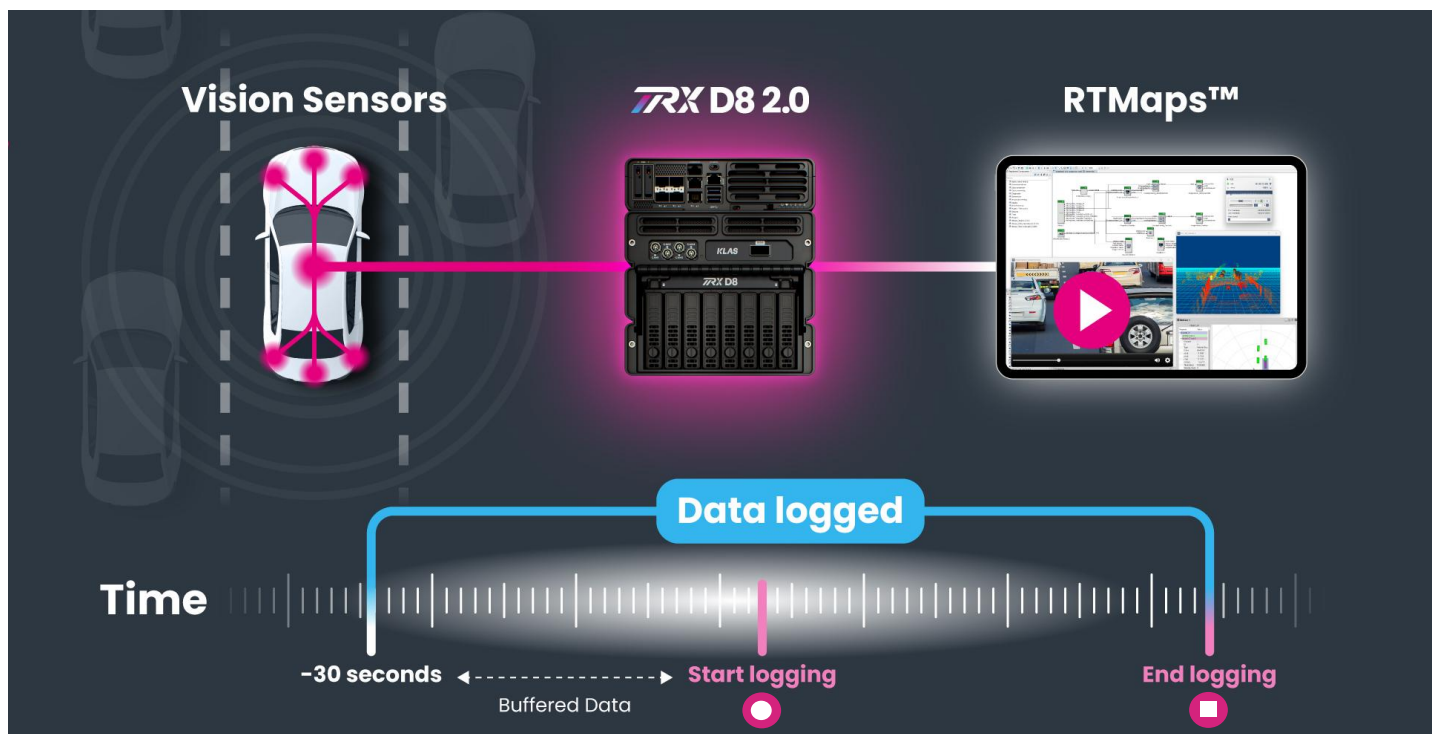


Figure: TRX D8 2.0 and RTMaps smart logging supports automated logging triggers. Logged data includes 30 seconds of buffered data prior to the start logging trigger event.

Conclusion

For intelligent vehicle logging the TRX D8 2.0 and RTMaps middleware running in the vehicle, allows developers to efficiently collect ADAS vision system data:

- Multi-sensor data capture and fusion.
- Custom automation or manual event logging trigger events.
- Buffer up to 30 seconds of data in memory, captured as part of the logged data file.
- In-line processing and annotation of sensor data and video streams.

For more information on Intempora RTMaps, visit:
<https://intempora.com/products/rmaps/>

For more information about Klas automotive, visit:
www.klasgroup.com/automotive/

KLAS