DIVP® Material to ASAM OpenMATERIAL

Sosuke Kimura **DIVP®** Project, JAPAN 17.Apr.2024









DIVP® Project

Driving Intelligence Validation Platform

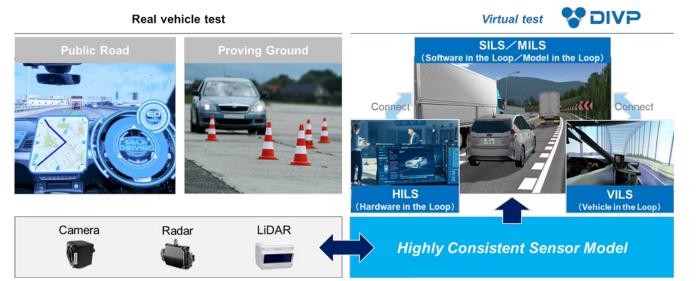
"Driving Intelligence Validation Platform (DIVP®)" project had been funded by Strategic Innovation Program (SIP) Phase 2: Automated Driving (System and Service Expansion).

In this DIVP® project, we are constructing a validation platform in a virtual space characterized by a series of "driving environment objects – electromagnetic wave propagations – sensors" models that are highly consistent with real phenomena. This is intended to enable precise and efficient safety assurance for automated driving under a wide range of environmental scenarios.









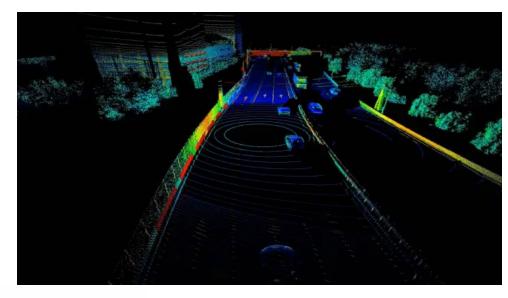




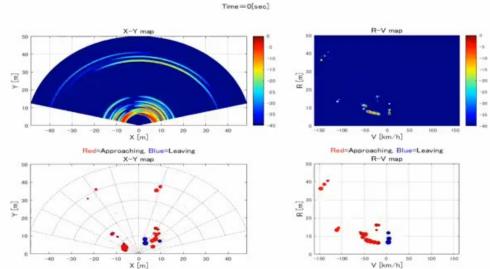
DIVP demo movie







Camera



Radar

LiDAR

DIVP demo movie ☐ Fog



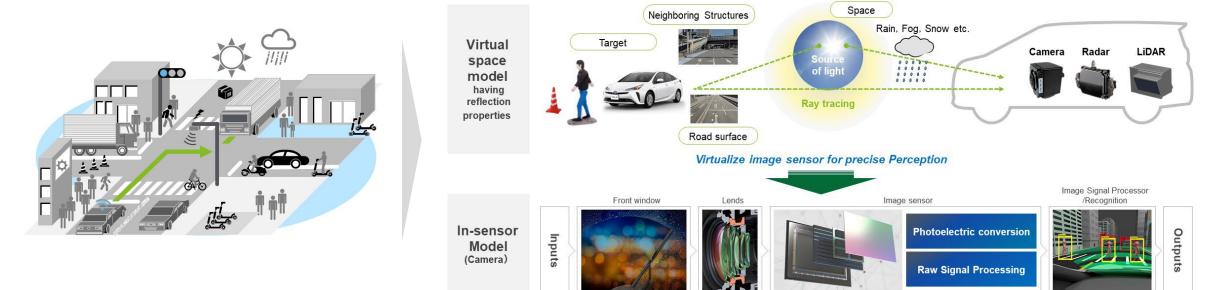
DIVP demo movie Snow



Building a virtual space simulation platform having highly consistent sensor models to contribute to the safety assessment of automated driving.

Features of DIVP® simulator

- Sensor modeling that is highly consistent with physical phenomena.
- Platform that enables AD-evaluations throughout "scenario creation", "verification of recognition", "validation of vehicle control".
- **■** Enhanced connectivity with existing simulation software.



Real world

Virtual space and Sensor model

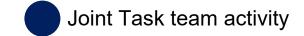






DIVP® proposed the formulation of "VIVID material" as an integrated material format for sensor validation which contributes to AD-Safety assurance under the German=Japan cooperation.

DIVP material to VIVID material under cooperation with VIVALDI



Sensor model defining parameters and interface Radar

Camera



Highly related to Geo-Sensing weakness scenario & OpenX



Sensing weakness scenario

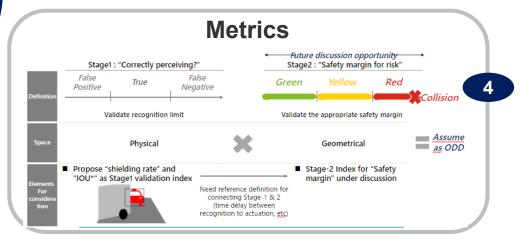


Measurement & validation





LiDAR





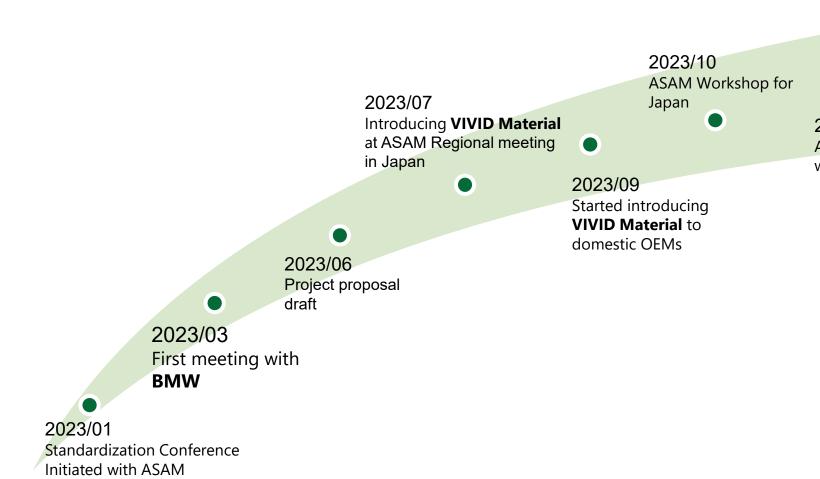






Proposal activities of OpenMATERIAL

Proposal activities in 2023



2023/12 OpenMATERIAL Project proposal to ASAM TSC

2023/11 ASAM Workshop for worldwide 2024/02~
OpenMATERIAL
Project start





Japan team activities

Japan team actively working for international cooperation

OpenMATERIAL standardization project approved by ASAM TSC

Japan member kick off

2023.12.11. > \(\neg 2024.2.1. \) 2024.4.16,17

Preparation for proposal

Standardization activities (18 months at the longest)

International standardization (2025 3Q?)

2024.2.15. Global kickoff of OpenMATERIAL

- During the meeting Japan team member chat each other via Zoom, prepared by ASAM Japan.
- > Japan team have a one hour follow up meeting every week.







International cooperation

OpenMATERIAL is a true global project

- Austria
- China
- England
- France
- Germany
- India
- Malaysia
- United States
- Japan

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-9	Los Ange United States	06:30 Thu, Apr 11	- 07:30 Thu, Apr 11	15	16	17	18	19	20	21	22		APR 11						6	7
+7	Tokyo JST Japan	22:30 Thu, Apr 11	- 23:30 Thu, Apr 11	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	2
+6	Shanghai China	21:30 Thu, Apr 11	- 22:30 Thu, Apr 11	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	2
-1	London United Kingd		- 15:30 Thu, Apr 11	23	APR 11						6	7	8	9	10	11	12	13	14	1
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- ➤ Utilizing live recording, live translating functions of Teams/Zoom.
- ➤ Thank you very much for preparing live interpretation in major meetings. That helps Japan team so much!!









Thank you for your kind attention!

Tokyo Odaiba → Virtual Community Ground

END

