Activities to Realize Level 4 Cooperated Automated Mobility Service

Partner: Kashiwa ITS Promotion Council, UTmobl, CooL4 Consortium, Fund: RoAD to the L4

Introduction

Pilot test to run an automated driving bus (Level 2 operation) between Kashiwanoha Campus Station and Kashiwa campus of the University of Tokyo every day (weekdays only) started in November 2019 implemented by Kashiwa ITS Promotion Council. To link these activities to the social implementation of Level 4 automated driving services in the Kashiwanoha area of Kashiwa City, a six-party consortium led by the University of Tokyo was entrusted with "RoAD to the L4 project (Theme 4)", called as CooL4, of the Ministry of Economy, Trade and Industry and the Ministry of Land, Infrastructure and Transport.

Secretariate   The University of Tokyo
Tokai National Higher Education and Research System (Nagoya University)
National Institute of Advanced Industrial Science and Technology
Mitsubishi Research Institute, Inc.
Japan Automobile Research Institute
Advanced Smart Mobility Co., Ltd.

Goal

1. Achieve cooperative Level 4 automated driving in a mixed space in the Kashiwanoha area.
2. Create basic goals and requirements for a cooperative system that can be deployed in mixed spaces in other regions.

Location and configuration of the roadside units
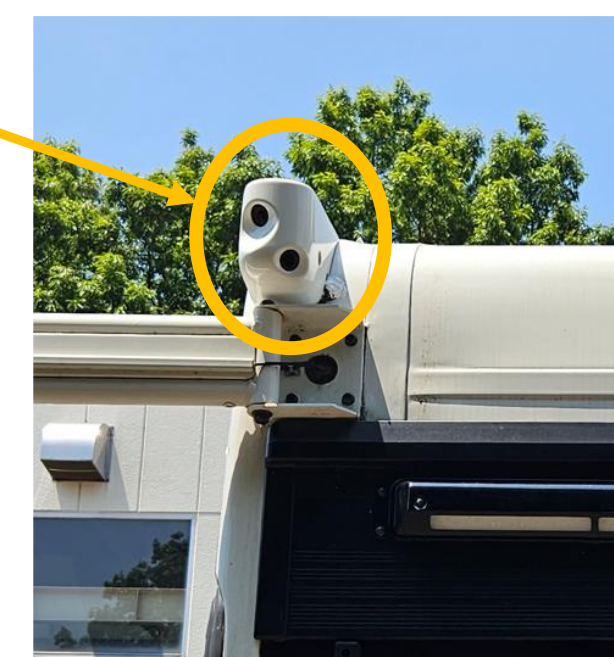

Cooperated System

This refers to a system that performs automated driving using information other than that provided by on-board sensors, such as information obtained from infrastructure via communications. This system is being developed as a system necessary to realize automatic driving in mixed spaces where pedestrians and other vehicles are present.

Cooperated Automated Bus

1. Develop automated driving methods for each section and define the necessary sensing functions.
2. Update on-board sensors and recognition algorithms.
3. Implement an interface to transmit signals received from cooperative roadside equipment to the vehicle controller.
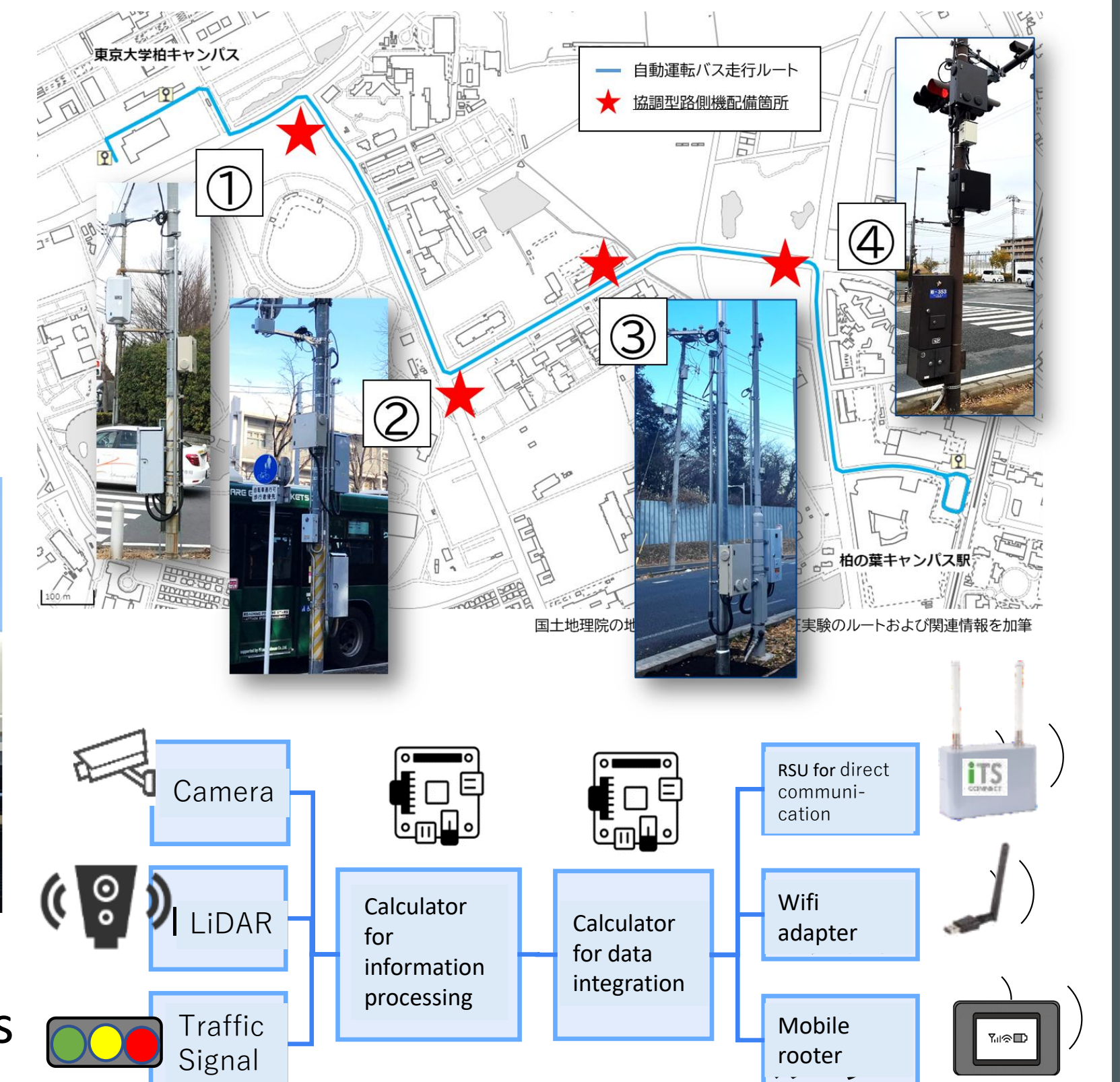

Test Vehicle

Cameras for front, rear and side views

Deployment of the Cooperated System

The information that should be provided to the automated vehicle and the required performance and specifications of the roadside sensor are decided.
The locations where the cooperative system highly effective are selected and deployed on public roads.
The detection performance of the roadside sensors and the influence of the cooperative roadside system on automated driving are evaluated.

Data Integration Platform

Improve the performance, quality, and functions of the data integration PF, and adapt it to the Kashiwanoha experiment environment.

Implement and evaluate the combination of multiple communication methods (mobile network and narrowband direct communication) and security management system.

Architecture of Data Integration PF

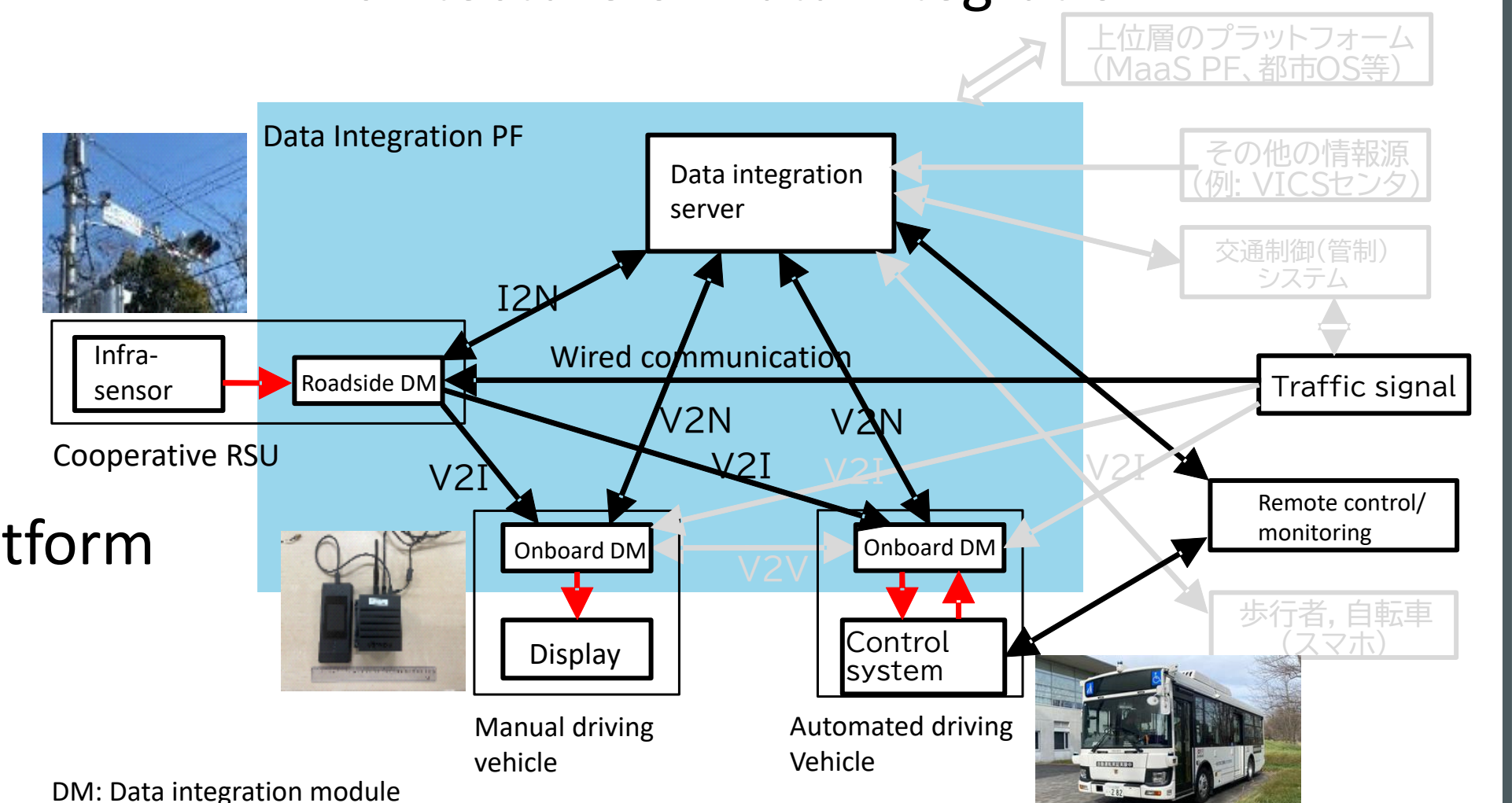
DM: Data integration module

Evaluation Environment Building

Optimize the system and contribute to risk reduction before deployment, an evaluation platform for a cooperative automatic driving system using 3D physical simulation was developed.
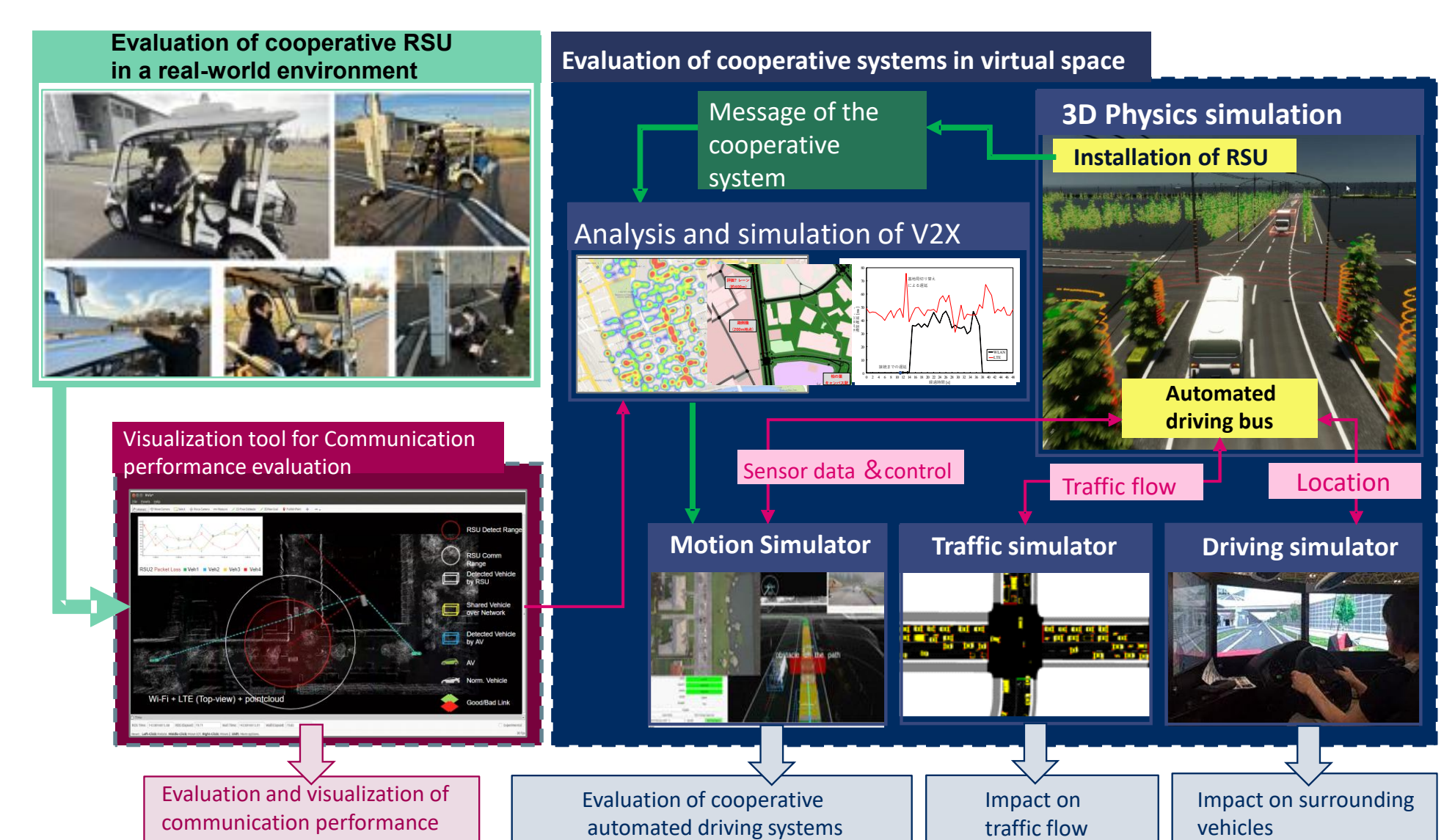
Create a simulation test environment that is closer to reality incorporating communication network parameters and traffic data collected in a real-world environment.

Overview of the evaluation environment

International Cooperation

1. Survey of international trends and information transmission through international conferences and so on.
2. Cooperation with ULTIMO, a project under the European Commission.
3. Invitation of foreign experts to Kashiwanoha for demonstration and discussion of results.

Related Documents

https://www.road-to-the-l4.go.jp/publication/

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