

Activities to Realize Level 4 Cooperated Automated Mobility Service

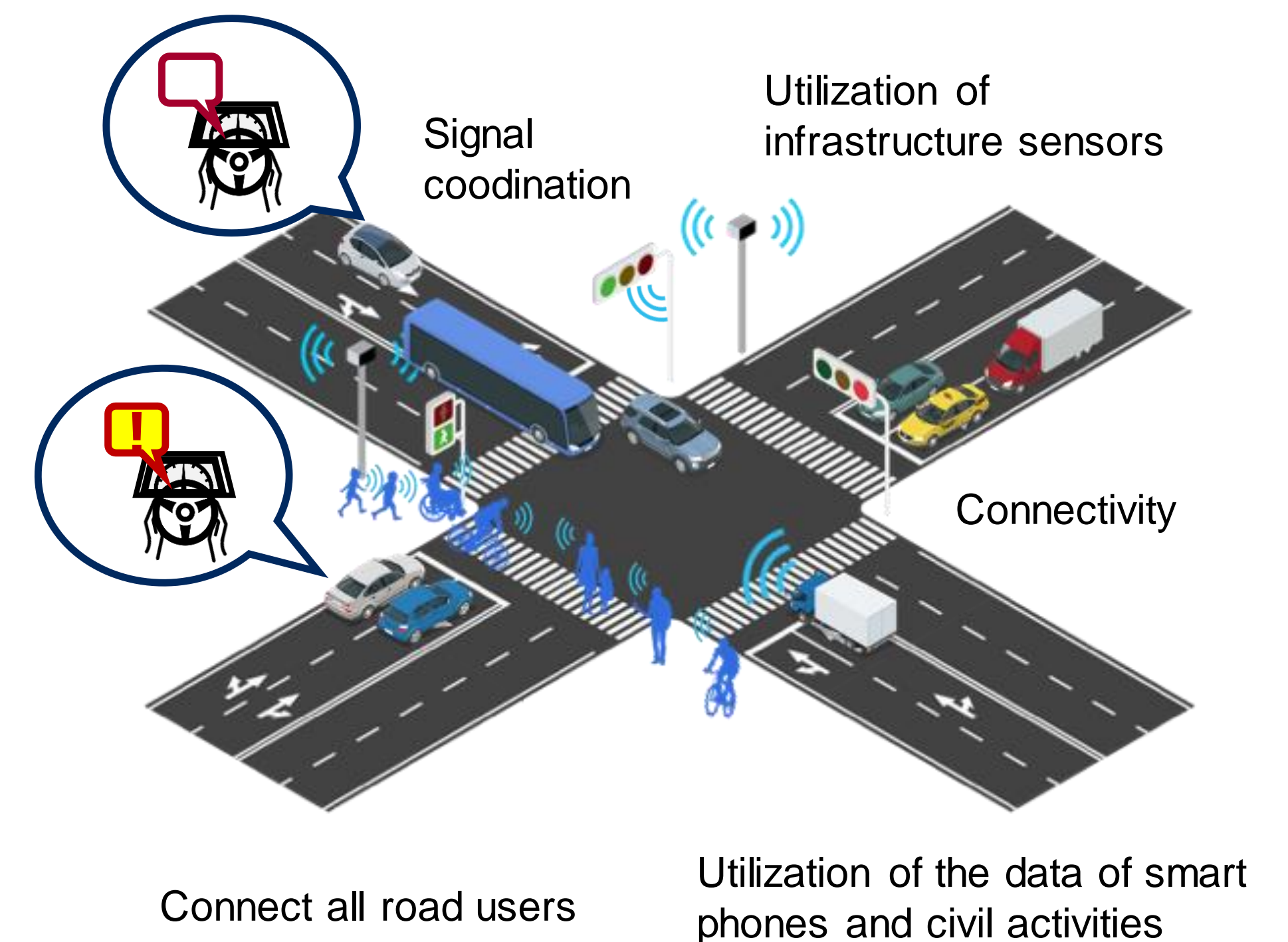
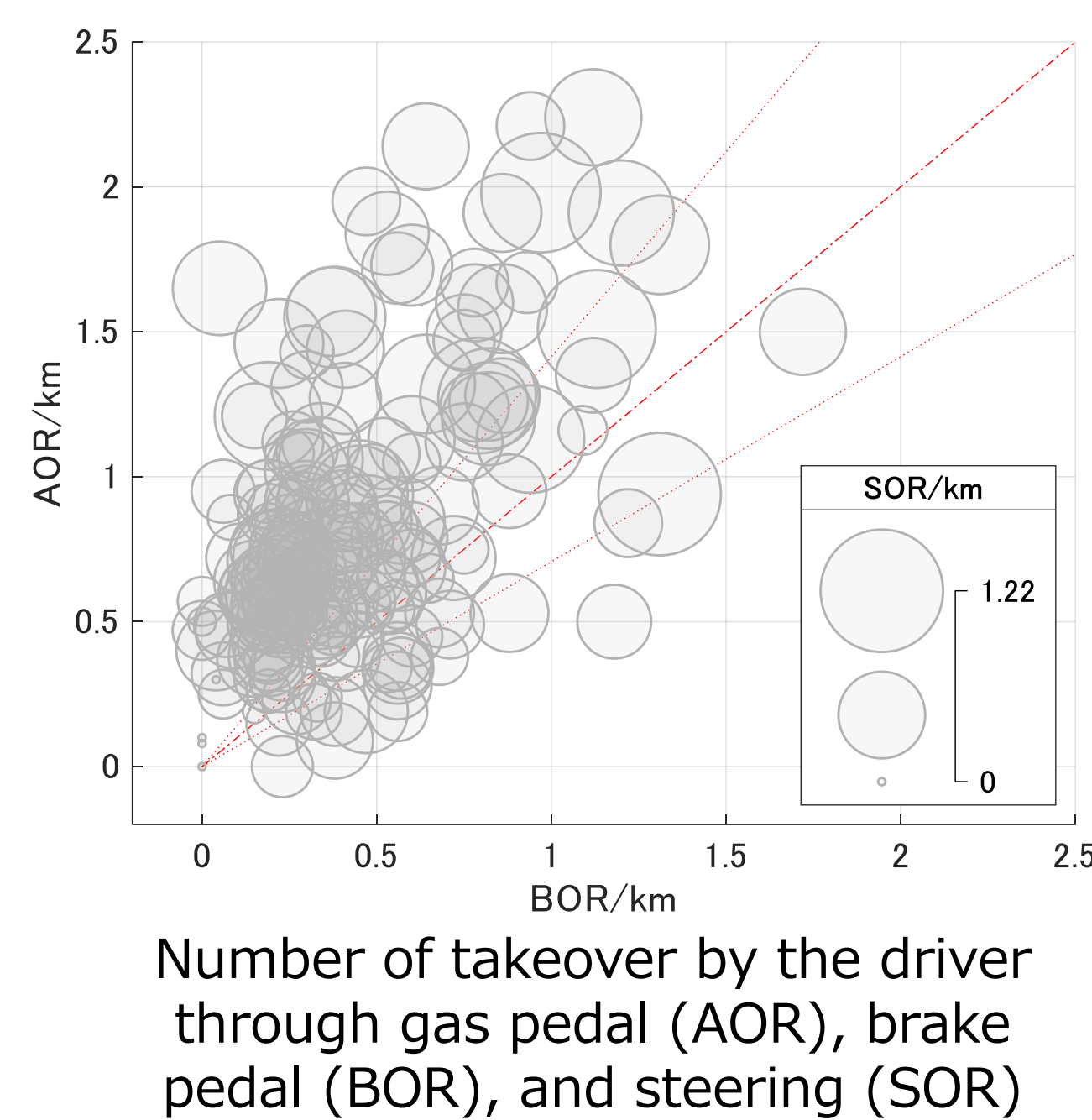
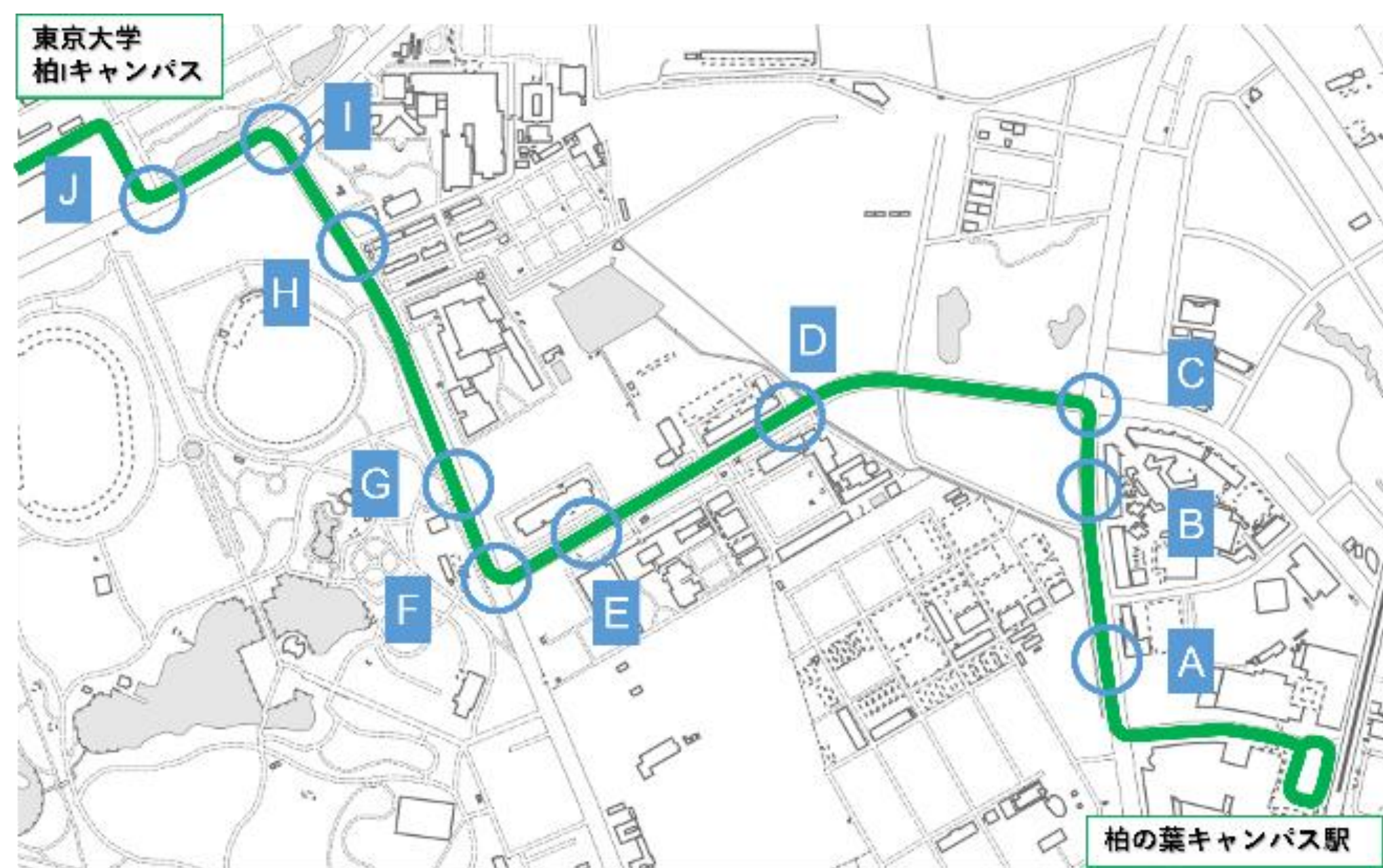
Partner: Kashiwa ITS Promotion Council, UTmobl, Fund: RoAD to the L4(METI), JST RISTEX

Introduction

The Kashiwa ITS Promotion Council is the main implementer of this project, and automated buses (Level 2 operation) are running between Kashiwanoha Campus Station and the University of Tokyo's Kashiwa Campus every day (weekdays only). In order to link these activities to the social implementation of Level 4 automated driving services, the use of a cooperative system is being considered and developed.

Data of Driving Intervention

When operating an automated bus, there are many cases in which the driver must intervene in the operation, such as when turning right or left at signalized intersections, passing through unsignalized intersections (including pedestrian crossings), avoiding on-street parking, and during road construction. In order for the bus to pass through these situations automatically, a cooperative system that provides information such as cycle of the traffic signal and obstacles in the blind area to the vehicle through roadside equipment is required.



Situations (scenarios) where driving intervention occurs in the automated buses.

Needs to be addressed if it is to be run as level 4 automation.

Technical measure:

Intersection design, crosswalks, signals, parked car and roadworks
→Vehicle control development, On-road sensing

Non-technical measures:

→Communication and cooperation with society and local communities

Experiments of the Cooperated System

An experimental facility capable of installing the cooperative system has been established in the ITS experimental field at the Kashiwa Campus. In addition, the Kashiwa ITS Promotion Council is playing a central role in the installation of roadside units along the route of an automated bus in order to conduct public road demonstrations of the cooperative system. The cooperative system transmits traffic signal information including signal cycle and controls deceleration of the vehicle accordingly.



In Kashiwa campus



Aim

In order to realize a Level 4 automated bus in a mixed space, research and development of a cooperative system interacting with traffic signals and infrastructures are conducted.

In addition to the technical aspects, business feasibility, ethics, legal system, and social acceptance of Level 4 automated buses are examined for social implementation of the Level 4 automated buses.

Publications

Shimono, K., Nakano, K., Suzuki, S., Umeda, M., Iwasaki, K., Suda, Y., Visualization of traffic scenarios surrounding the automated driving bus on the real road environment at Kashiwa-no-ha, ITS Symposium, ITS Japan, 2022, in Japanese.

Shimono, K., Nakano, K., Suzuki, S., Iwasaki, K., Suda, Y., Long-term data collection of the automated driving bus at Kashiwa-no-ha, ITS Symposium, ITS Japan, 2021, in Japanese.