

Awarded “Best Research Paper (Asia Pacific region)” at the 31st ITS World Congress 2025 in Atlanta

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Toyota Motor Corporation and the University of Tokyo participated in the 31st ITS World Congress 2025, held in Atlanta, USA, and presented the results of their joint research. The submitted paper titled “Dynamic Link Selection Method for Suitable Communication Cost Allocation in Internet of Vehicles” received the Best Research Paper Award (Asia-Pacific region).

Background

The ITS World Congress [1] is an annual global conference jointly organized by ITS organizations representing the three global regions. It consists of symposiums, exhibitions, and showcases. Within the conference, experts review papers, and both Technical Papers and Research Papers are accepted.

Toyota Motor Corporation and the University of Tokyo are collaborating on research into communication infrastructure for connected cars. The results of this initiative were presented at the conference as a Scientific Paper.

Presentation Overview

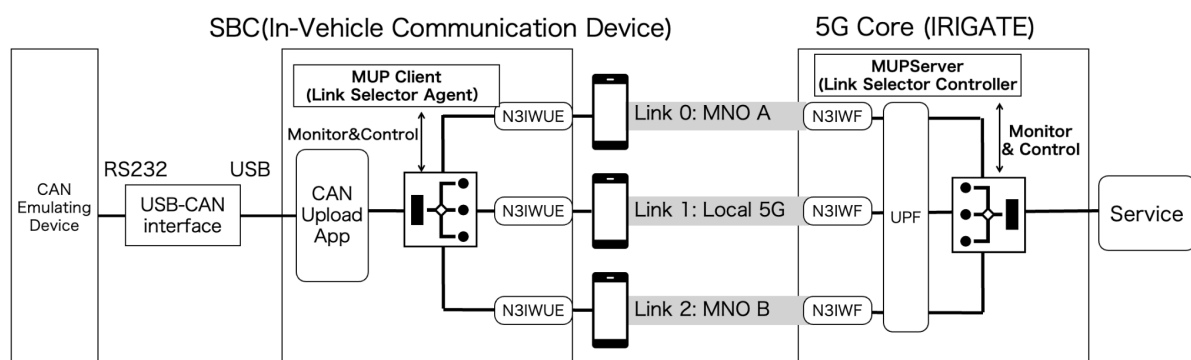
In this study, we present a multipath communication system within Toyota Motor Corporation’s IRIGATE (Intelligent Replaceable Interconnections GATE) framework [2], which considers both the parties incurring communication costs and the beneficiaries of applications.

IRIGATE is a technology that enables connected cars to remain “continuously connected for twenty years” by allowing communication modules to be replaceable while ensuring manageability and security, thereby adapting to the evolution of communication technologies

over a vehicle's 20-year lifespan. Beyond replaceability, IRIGATE also provides mechanisms for aggregating multiple communication modules, making multipath communication applicable to future connected services that demand persistent connectivity.

In this research, we proposed a multipath communication system that leverages IRIGATE to utilize communication links brought by various stakeholders, while supporting diverse connected services and enabling appropriate cost allocation. For example, in a connected car equipped with both the passenger's smartphone tethering and the automaker's embedded communication module, the proposed system makes it possible to bundle these communication links and fairly distribute costs among services such as infotainment accessed by passengers, vehicle data collection by the automaker, and telematics insurance provided by third-party service providers.

For further details, please refer to the proceedings of the ITS World Congress 2025.



Overview of the Proposed System

Results

This paper presentation was highly evaluated and received the *Best Research Paper Award (Asia-Pacific region)*, one of the three awards selected for research papers at the congress.



Reference Links

[1] ITS World Congress 2025 <https://www.itsamericaevents.com/world-congress/en-us.html>

[2] IRIGATE Overview

https://aecc.org/wp-content/uploads/2025/03/EN_20250311_IRIGATE_Material.pdf