E10

Contribute to solving local issues by utilizing data obtained from optical fiber networks

Decision support of snow removal from roads using optical sensing

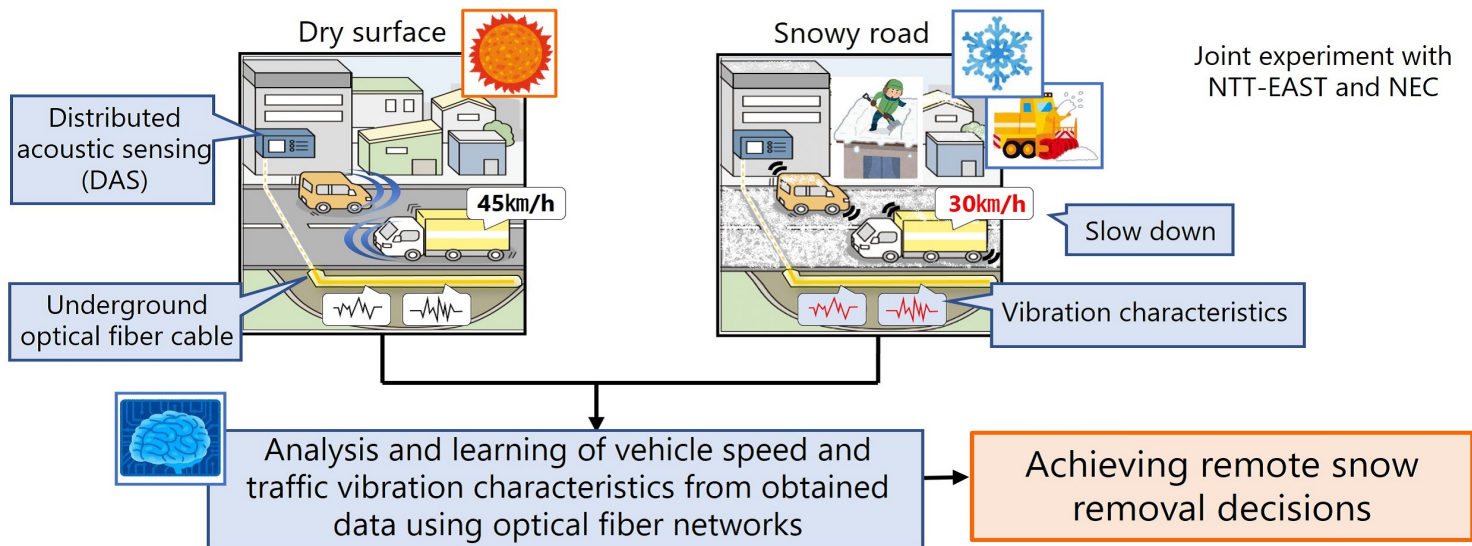IOWN Evolution Smart Infrastructure

IOWN
IOWN ACCELERATION

Background

Snow removal businesses are implemented in heavy snowfall areas. The necessity of snow removal is determined based on the results of daily road patrol surveys. It will be difficult to maintain the current snow removal business system due to labor shortages in local areas.

Summary

Using a machine learning model that was input traffic vibration data obtained by using existing communication underground optical fibers as sensors, we have demonstrated that it is possible to remotely estimate the need for snow removal at multiple points simultaneously.

Dry surface

Snowy road

Joint experiment with NTT-EAST and NEC

Distributed acoustic sensing (DAS)

45km/h

30km/h

Slow down

Underground optical fiber cable

Vibration characteristics

Analysis and learning of vehicle speed and traffic vibration characteristics from obtained data using optical fiber networks

Achieving remote snow removal decisions

Features

■ Economical and maintenance-free monitoring without the need for sensor devices outdoors or in vehicles by using underground optical cables already installed as sensors
■ Multiple routes and points can be observed by a single sensing equipment, enabling microscopic snow removal decisions for each road and section
■ Short monitoring enables real-time determination of road surface conditions on the day of snow removal

Future_benefits

By analyzing environmental vibration data that can be collected using our optical fiber networks, we aim for a future that contributes to solving various social and local issues.

Collaboration partners

NEC Corporation

Exhibiting Company

NIPPON TELEGRAPH AND TELEPHONE CORPORATION, NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION

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