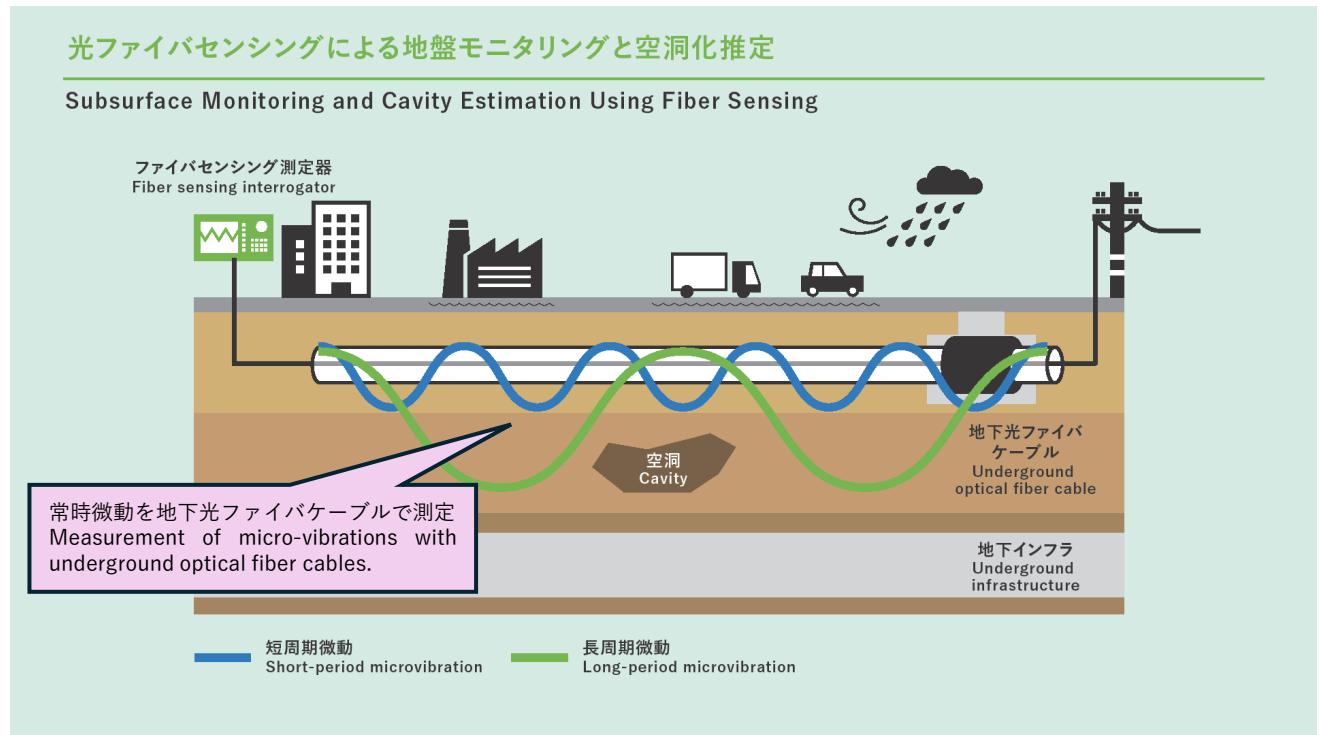


Underground optical fiber cables monitor the urban ground remotely Cavity estimation using fiber sensing

Background and Technical Challenges

Traditional cavity surveys used ground radar or ultrasound, but these were limited to depths under 3 m and required on-site work, making frequent checks difficult. A new, efficient, low-cost method for continuous deep monitoring is needed.



R&D Goals and Outcomes

Remote monitoring technology for subsurface conditions enables early detection of risk for road collapses and contributes to realize safe and secure city infrastructures.

Key Technologies

01 Core Technologies

Advanced fiber-optic vibration sensing technology and data analysis for estimating of subsurface structures based on microtremor data.

02 Key Differentiators

High-precision fiber sensing enabled frequent, accurate evaluation of ground conditions deeper than 3 m, demonstrated using existing telecom fibers in real urban underground conduits.

Use Cases Public Services & Local Government

R&D phase Research

Technology Schedule FY26

Commercialization Schedule TBD

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