Remote sensing of concrete structure with the high-sensitive near-infrared spectroscopy

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R&D Objectives and Subjects

Objectives of this Study
Remote Observation of Deterioration Factors of Concrete

What we have Developed
- Remote spectroscopy
- Primary screening
- Detection of slight deterioration
- For (1) Detecting location for precise inspection
- (2) Preventive maintenance/Repair

Current Accomplishments (1/2)
New technology implemented in our equipment

Current Accomplishments (2/2)
Quantification of salt damage by Multi-component analysis
Visualization of the amount of water distribution (bridge pier)

Current Accomplishments (3/2)
Analysis of concrete data

Higher sensitivity
1000 times higher sensitivity than competitive technologies

Objectives
(1) Inspection, Monitoring and Diagnostics
(2) Structural Materials, Deterioration
(3) Mechanisms, Repairs, and Reinforcement
(4) Information and Communications
(5) Robotics
(6) Asset Management

R&D Objectives and Subjects

Goals
1. Remote diagnosis of water and chloride content at the surface of concrete at 3 m intervals.
2. Measurement time: 10 sec per 1 m x 1 m area.
3. Equipment weight: under 5 kg

Final Numerical Targets
1. Remote diagnosis of water and chloride content at the surface of concrete at 3 m intervals.
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New Business Concept
1) Application in the primary screening of reinforced concrete structures
2) Evidence of a long-term maintenance plan against fatal deterioration

Inspection Service with Consulting Support

Analysis of concrete data
Visualization of the amount of water distribution (bridge pier)
Detection of water deposits
Visualization of salt contents

Current Accomplishments (3/3)

Remote spectroscopy
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