

Expressway Maintenance-2 Non Destructive Inspection

고속도로 관리-2 비파괴 점검

Road Surface

Our uniquely developed Road Tiger, a high-speed road surface measuring vehicle, not only can measure rutting, cracking, and flatness ($\sigma 10\text{ft}$, IRI) but also longitudinal and transverse pavement measurements without making contact with the pavement. Our Road Tiger can smoothly and safely perform all 6 functions at 65mph without impacting the flow of other traffic.



High-Speed Road Surface Measuring Vehicle (Road Tiger)

Specifications

	Measurement Method	Coverage (Transverse)	Coverage (Longitudinal)	Measurement Accuracy
Rutting	Multi-point displacement measurement	17ft (4in intervals)	1.6-65.6ft	$\pm 1/10\text{in}$ or less
Cracking	Line scan	14.7ft	continuous	Width: $1/32\text{in}$ or wider
Flatness ($\sigma 10\text{ft}$)	Non-contact 10ft profilometer	1 side line (OWP)	4.5ft	$\pm 30\%$ or less
Flatness (IRI)	Acceleration double integral	1 side line (OWP)	0.3ft	$\pm 30\%$ or less
Longi. Trans. Grades Location Info	GPS IMU	17ft (4in intervals)	1.6ft	Vertical error Average: $\pm 7/16\text{in}$

Bridge

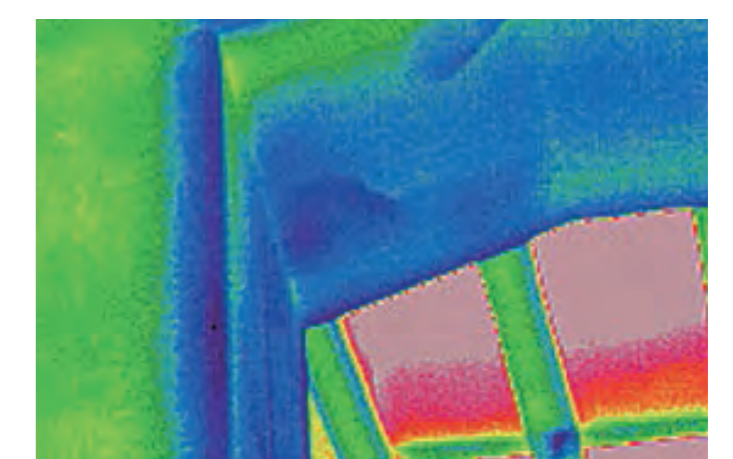
Digital camera/video camera system - Crack inspection:

High definition images taken by digital camera or video camera makes it possible to inspect the surface of a structure in the same way as the close visual inspection. Through a computer analysis of the images, the cracks are automatically detected.

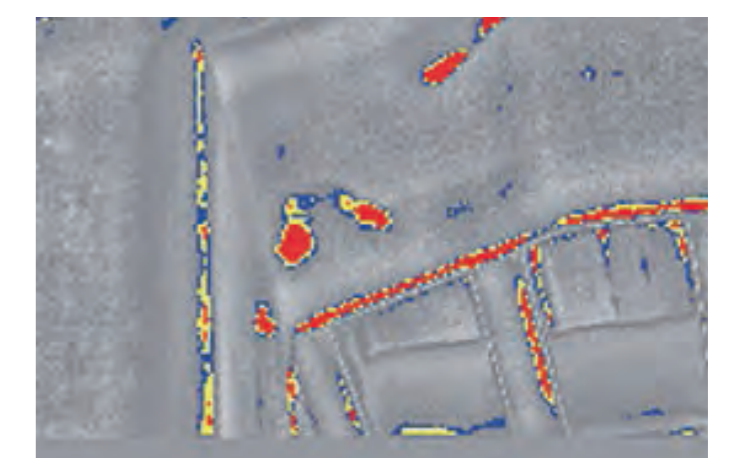
Infrared Camera System - Delaminations/spall inspection:

The infrared camera system takes images which is analyzed automatically and displays the damage level in three stages. Because damages are objectively analyzed by software, bias or oversight in measuring caused by skill difference can be prevented. In addition, this system helps to create a research report since the detected results are easily captured on spreadsheets or word processing software. This system has gotten track records in the U.S.

Bridge inspection using Infrared Camera System



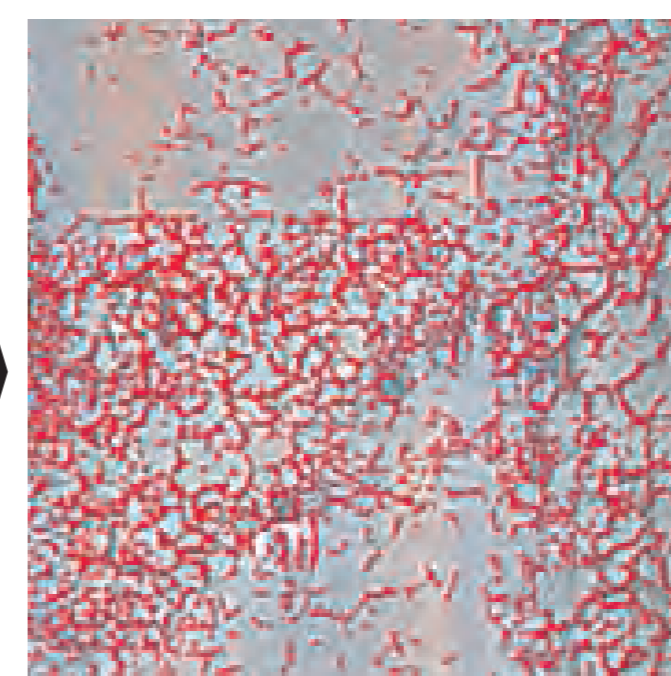
Infrared thermal image



Damage is detected by computer analysis



Bridge inspection using Digital Camera System



Automatic crack-analysis by computer



Video Camera System

Tunnel Liner



Inspection vehicle



Filming in a tunnel



Crack analysis (minimum 0.2mm in width)

Tunnel liner inspection vehicle:

It is now possible to obtain a clearer image at a speed of 100km/h by adopting the line sensor camera instead of the conventional video camera. In addition, because the photographing illumination using LED infrared illumination is not visible to the naked eye, it no longer influences on the passing vehicles on the opposite direction. Moreover, this vehicle automatically identifies the cracks by the captured image.