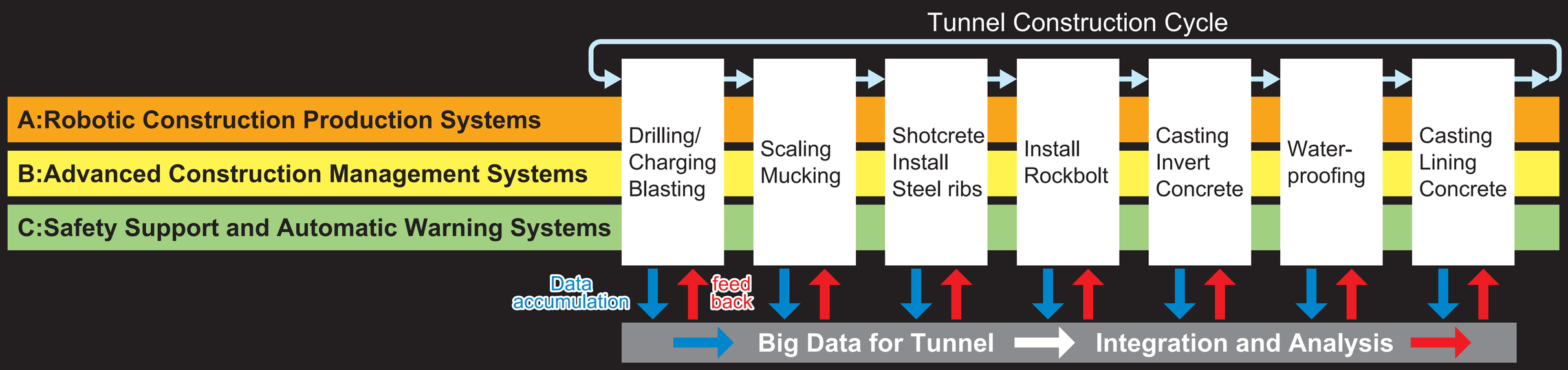
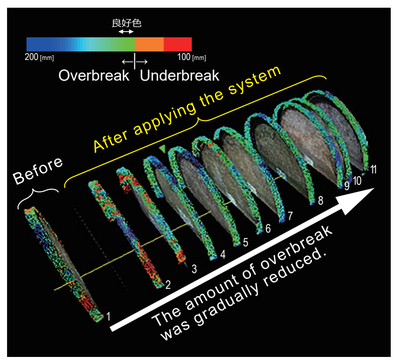
Next-Generation Tunnel Construction Management System “Shimizu Smart Tunnel”

Aiming to dramatically improve safety and productivity by collecting, analyzing and sharing all information on tunnel construction.



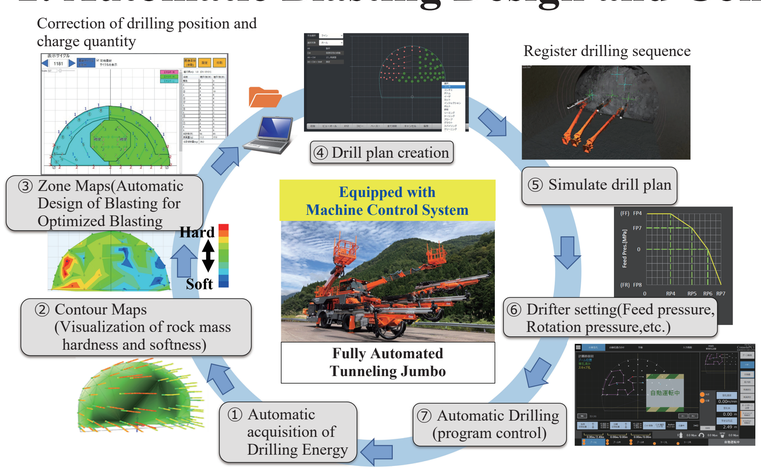
A:Robotic Construction Production Systems

1. Automatic Control of Drilling Angle during Blasting “BLAST MASTER”



The system is designed to automatically control the insertion angle of the outermost circumference holes during blasting. This can help reduce overbreak and underbreak, improving productivity and safety. Furthermore, this system does not require skilled workers.

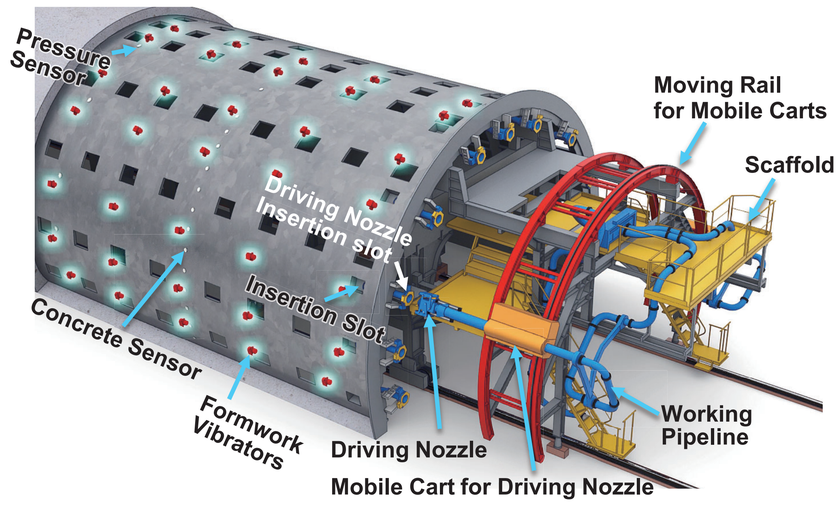
2. Automatic Blasting Design and Construction System



The system automatically designs blasting patterns using rock strength evaluated from the drilling energy obtained by the fully automated Jumbo. Subsequently, the Jumbo automatically perforates using the designed blasting pattern.

3. Automatic Tunnel Lining Concrete Construction Robot System

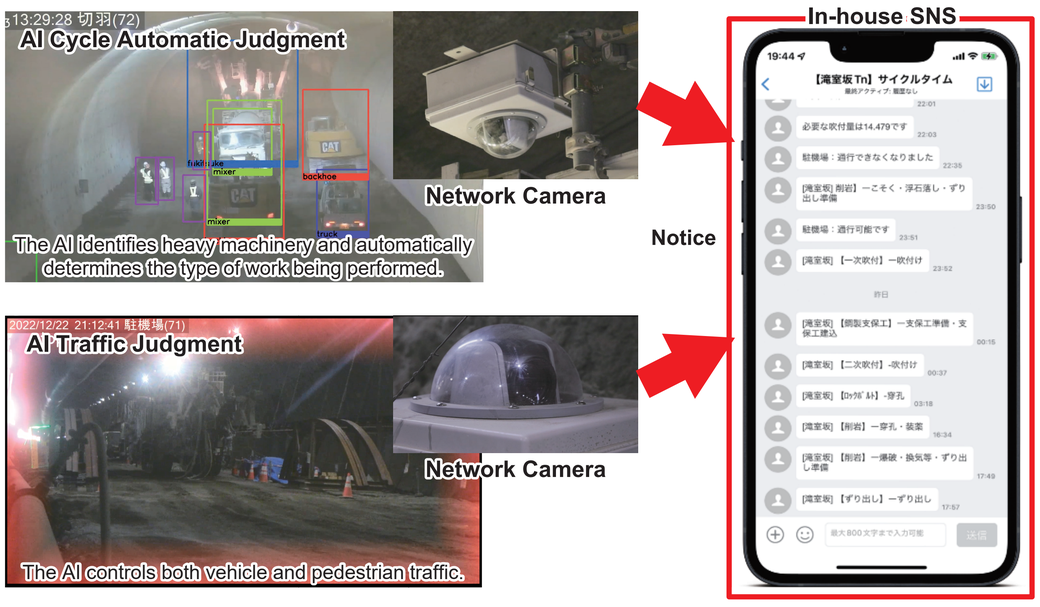
The system has the capability to automate concrete pouring, compaction, and stop-pouring operations fully. A blow-upward pouring method with flowable concrete is utilized to ensure consistent and uniform concrete quality.



B:Advanced Construction Management Systems

4. AI Cycle Automatic Judgment

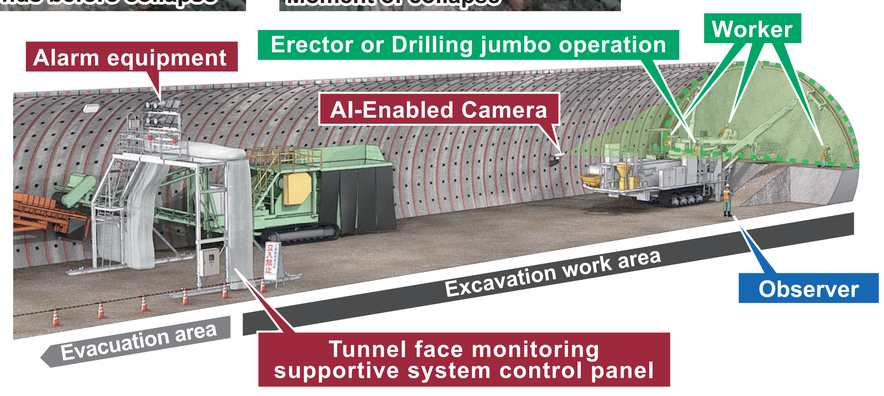
The system uses images from network cameras installed at the site, uses an AI to identify the type of work and traffic congestion, and sends notifications in real time to the company's social networking service, resulting in a significant reduction in delays in obtaining cycle information.



C:Safety Support and Automatic Warning Systems

5. AI-based Hazard Prediction Technology “MIMAMORI MASTER”

The system uses AI-equipped cameras to assist in the detection of cracks on the shotcrete surface in real-time.
In the event of a high risk of face collapsing, workers in the vicinity are promptly notified.



SHIMIZU CORPORATION

For more information, scan here!! ▶

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