Feasibility Study on the Practical Application of Ai-based Sewer Diagnosis System

Implementer: The consortium of OKUMURA CORPORATION, JS, Saitama City, Funabashi City, Fukui City, Fujisawa City, and JUST Ltd.

Achieve an efficient and detailed sewer pipeline inspection using AI image diagnosis technology

Technology Overview

- Capture image data with a wide-angle TV camera
- Based on the data, analyze and detect the following items using AI.
- Pipe structure information (joint location, attached pipe location)
- Damage information (rupture, crack, inundation)
- Damage degree* (a, b, c)

*From Sewer Maintenance and Management Guidelines. From Practical Application - 2014 Edition - P113 "Survey Criteria."
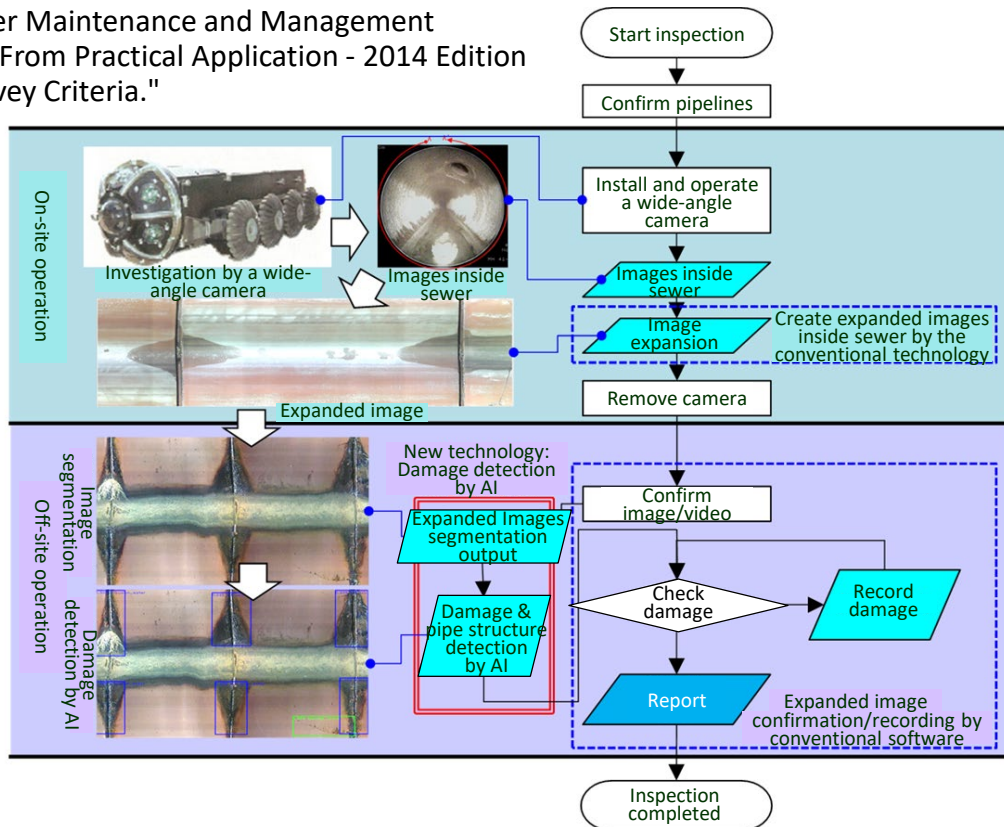
Achievements

- Detection accuracy of pipe structure information (reproduction rate[*1], matching rate[*2]): 80% or more (Target value: 75%)

*1: An index to evaluate AI omissions; the ratio of the number of detections by AI to the number of judgments by expert technicians.

*2: An index to evaluate over-detection by AI; the ratio of the number of judgments made by expert technicians to the number detected by AI.

*As a preliminary step to the full-scale testing level, the feasibility study was conducted in 2020.