

PIPELINE AI CRAWLER

Untethered robotic inspection for small-diameter water and drainage networks

NOVARQ (FZE) · Sharjah, United Arab Emirates · August 2026

In one line: a compact, cable-free inspection robot for 110–150 mm pipes, built at a fraction of the cost of tethered CCTV rigs — making routine inspection of small-diameter networks economically practical.

The problem

Municipal pipe inspection today relies on tethered CCTV crawlers: a camera on a cable reel, operated from a van, requiring a crew and producing hours of footage for manual review. The economics work for large-diameter trunk mains. They do not work for the far greater length of small-diameter distribution and drainage pipe, where cost per kilometre is prohibitive, cable drag limits reach, and access points are often too small for the equipment.

The result is that most small-diameter pipe is not inspected routinely at all. Failures are found reactively — after a leak, a blockage or a service complaint — once the cost of repair, disruption and water loss has already been incurred.

Our approach

- **No cable.** The unit carries its own power and streams wirelessly, so reach is not limited by reel length or cable drag, and deployment does not require a support vehicle.
- **Built for the pipe sizes currently skipped.** Designed specifically for small-diameter pipe rather than adapted down from a larger platform.
- **A cost structure that permits routine use.** Component cost under AED 500 against tethered systems priced in the tens of thousands, which makes inspection preventive rather than reactive.
- **Designed for automated reporting.** Footage and sensor data are captured in a structured form intended for automated defect detection, so findings reach an engineer as a report rather than as hours of video.

Current specification

Pipe range	110–150 mm internal diameter
Operation	Untethered; on-board power; live wireless video
Sensing	Forward camera on an articulated head, ultrasonic obstacle and distance measurement
Construction	Sealed printed polymer chassis, splash-resistant; four-wheel drive
Status	V1 field-tested inside a buried pipe, July 2026. V2 — sealed chassis, articulated camera, integrated electronics — in build
Roadmap	Trained defect detection and automated inspection reporting; distance referencing from the access point so findings are located precisely within a run

About NOVARQ

NOVARQ (FZE) is a licensed technology company based at the Sharjah Research, Technology and Innovation Park, developing autonomous inspection robotics for water and municipal infrastructure. The company designs and builds its systems in-house, including mechanical design, embedded software and field testing.

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