Drone-based ultrasonic inspection of concrete structures

Innovative non-destructive inspection of hard-to-access structures using a drone-based ultrasonic array system.

OUR SOLUTION

We enable high-resolution imaging ultrasound inspections in direct contact with the structure—even where conventional access methods reach their limits.

Inspections up to a height of 100m on flat surfaces:

- Bridge columns, walls and road slabs
- Sideways and overhead
- Structures that are difficult to access or cannot be entered

CONTACT

Dr.-Ing. Daniel Algernon
daniel.algernon@svti.ch
+41 44 877 62 59

A cooperation between
SVTI & AITHON Robotics

TECHNOLOGY

Ultrasound-array-system with full matrix capture data collection and total focusing method reconstruction.

Key features

- Imaging of the interior of components
- Precise localisation of anomalies
- Detection and characterisation of damage such as delaminations, voids and structural defects
- Localisation of tendon ducts
- Geometry capture and thickness measurement

Benefits of the system

- Direct access to the structure by docking the drone onto it
- Scanning inspection using an integrated X-Y-Scanner
- High flight stability and positioning accuracy
- Efficient data collection even at great heights
- Inspections without scaffolding or an aerial work platform
- Minimisation of road closures or service interruptions
- No dangerous work at heights

Documentation

- Precise position mapping of all measurement data
- Imaging analysis
- Basis for a sound diagnostic assessment and recommendations for action

OUR SUPPORT FOR YOU

We support engineering firms, building managers, asset owners, and inspection engineers by collecting high-quality, visual measurement data to provide a reliable basis for their technical assessments and decision-making.

How to use our service

- You contact us and describe your request
- We analyse the requirements and plan the appropriate testing strategy
- We coordinate the procedure with you
- We carry out the drone-based ultrasound inspection on your structure
- You receive structured measurement data, analysis and a report to serve as a basis for your further assessment