AUTOMATED VISUAL INSPECTIONS
LARGE PANORAMA IMAGES OF SURFACES
WHY IMAGES?

Because...

... a still picture is the **basis** for any **reliable** evaluation.

... you can determine the **evaluation speed yourself** (without being bound to the playback speeds of players or similar).

... a picture is much **easier to archive** than, e.g., video material (progress of technology, outdated playback devices or data formats, etc.).
WHAT IS SUITABLE?

Applications for inspection by panorama visualisation

- cable surfaces
- tunnel surfaces
- long edge beams of bridges etc.
- stacks
- adits
- mine shafts
- facades

... any large surface which need to be recorded and visualized:

- within shortest time,
- in high resolution,
- for inspection,
- for evaluation and
- for direct comparison with earlier or future recordings.
Visual inspection is the first and major method for maintenance of structures

**First challenge**
Access to the structure: avoidance of operation interruptions

**Second challenge**
Data acquisition on site: 100 % recording and mapping of all findings

**Third challenge**
Data handling: fast and easy evaluation of big amount of data
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CONCEPT

Splitting the process into work packages that can be efficiently implemented

- Automated documentation
- Viewing the data and decision on the further procedure
- Targeted close-up inspection in case of peculiarities
- Further measures

Less traffic impairment, more expert availability for others!
Avoid interruptions of operation with the ATIS cable robot

The various panorama pictures modules are perfectly aligned with the constructional situation.

- No scaffolding, no crane
- Short erection time (10 – 40 minutes)
- Fast recording time (0,1m/s – 0,5 m/s)
- Distance to the object bigger 50 cm
- 100% data recording in a consistently high quality
CONCEPT

Recording and assignment of all data in one panorama picture

- 200 m cable – 200 m panorama picture of the entire surface (360°)
- 7000 m tunnel – 7000 m panorama picture of the entire surface (360°)
- The panorama picture can be edited by zooming, moving and highlighting.
- All data recorded in a consistently high quality.
CONCEPT

ATIS Viewer – Fast and easy handling

view  compare  measure  document

old  new

since 1999 ISO 9001 & SCC certified
www.alpintechnik.com
View

- Self-determined working speed.
- Simple handling by pushing on the panorama picture.
- High-resolution illustration across the entire building surface, no quality loss.
- 400% enlarged views possible.
**ATIS VIEWER**

**Compare**

- Direct comparison between current and past inspections is possible at all times.
- Damage progress is thus easier to recognise and document.
- Experts can inspect peculiarities on site specifically.
- Particularly helps to assert warranty claims.

![Old and new comparison](image)
Measure

- No impairment from weather or lighting.
- No time pressure on site.
- Area calculation of defects possible.
- Several areas with the same kind of damage can be totalled up.
- Traceability of the measurement present at all times.
Document

- Peculiarities can be applied with comments and saved.
- All comments, marks, etc., can be printed out, e.g., for reports.
- Targeted printouts of noticed areas possible, easily, e.g., for experts.
- Creation of PDF files possible, e.g., for emailing.
- Archiving of the actual condition as a basis for, e.g., warranty claims.
- Damage progress can be documented, e.g., for warranty claims.
Cable module
Work at night
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ATIS SVT

Inspection of full locked and PE-sheathed cables

Cable inspection on Stonecutters Bridge, Hong Kong

Cable inspection on Passerelle de deux Rives, Kehl/Strasbourg
Efficient

Niederwartha Bridge: recording speed 0,3 m/s

Neuwied Bridge: erection time approx. 20 minutes
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ATIS TVT

Tunnel- and facade module
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Old Elbtunnel, Hamburg

*Inspection of the intact tunnel*

*Inspection of the tunnel under rehabilitation*
Processing of the panorama image

Flatten of a curved surface
Automated Visual Inspections

ATIS TVT

Zoom levels

Tunnel panorama

ATIS Viewer - Zoom level 100%

circumference 14 m

19 m
Zoom levels

Tunnel panorama

ATIS Viewer - Zoom level 400 %

circumference 14 m

19 m
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