



Intelligent Road Asset Management Platform

UAV road survey: Long-range inspection

Javier Curado | CATEC | jcurado@catec.aero

CATEC

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**OLD ROADS,
NEW TECHNOLOGIES**
safe and intelligent road asset management

OMICRON solution: Long-range UAV Inspections



Traffic disruption is reduced by 100% due to the fact that no vehicles are involved in the inspection

Reduces time (2.4min/km) and cost (12.5€/km) of inspections

Reduces susceptibility to human errors in finding faults, decision criteria is constant

Generates valuable and high-quality data for the asset owner



OMICRON solution: Long-range UAV Inspections

Custom aerial platform with cameras

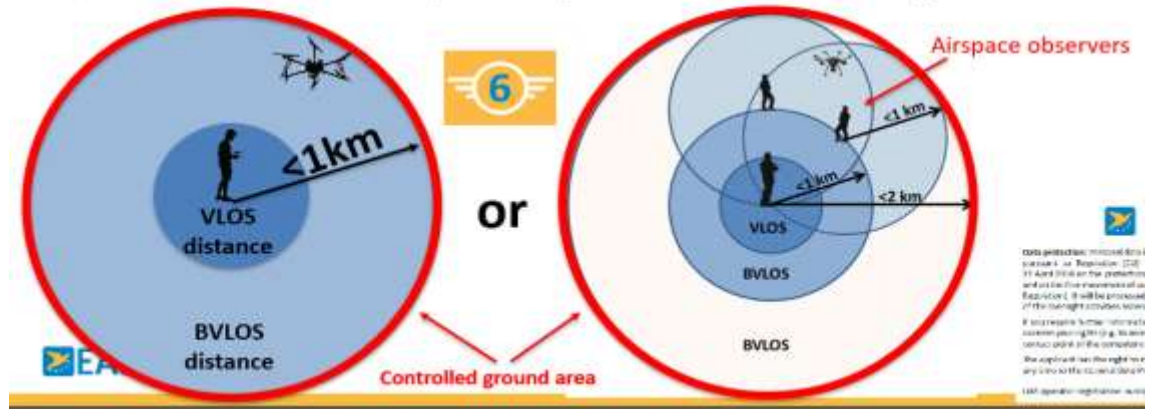
- High-resolution camera for road digitalisation
- Industrial cameras for detect-and-avoid system



European Standard Scenario STS - 02

Regulation 2019/947 – Appendix 1 – Chapter 2

- BVLOS (up to 1km distance or 2 km if airspace observer is used),
- below 120m (over sparsely populated area)
- with a UAS bearing a C6 Class identification label
- Ensure no uninvolved person is present in the controlled ground area



Long-range Standard Scenario (STS) | EASA

OMICRON solution: Long-range UAV Inspections

Final Demonstrator: Inspection of Settefonti and Puliana areas



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Photogrammetric reconstruction of Settefonti viaduct using the collected HQ images



OMICRON solution: Long-range UAV Inspections



Photogrammetric reconstruction of Puliana viaduct using the collected HQ images



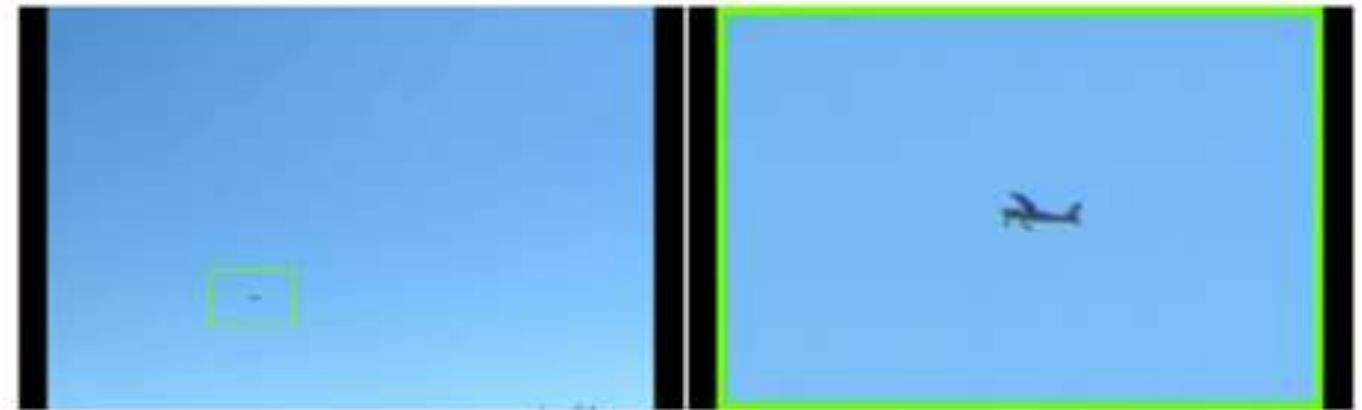
OMICRON solution: Long-range UAV Inspections

Detect and Avoid system for long-range operations

External observer POV



Our development



OMICRON solution: Long-range UAV Inspections

Testing Detect and Avoid system at [ATLAS Bravo](#)

- Photogrammetric inspection during BVLOS flight of UAVs while monitoring the environment with the detect-and-avoid system

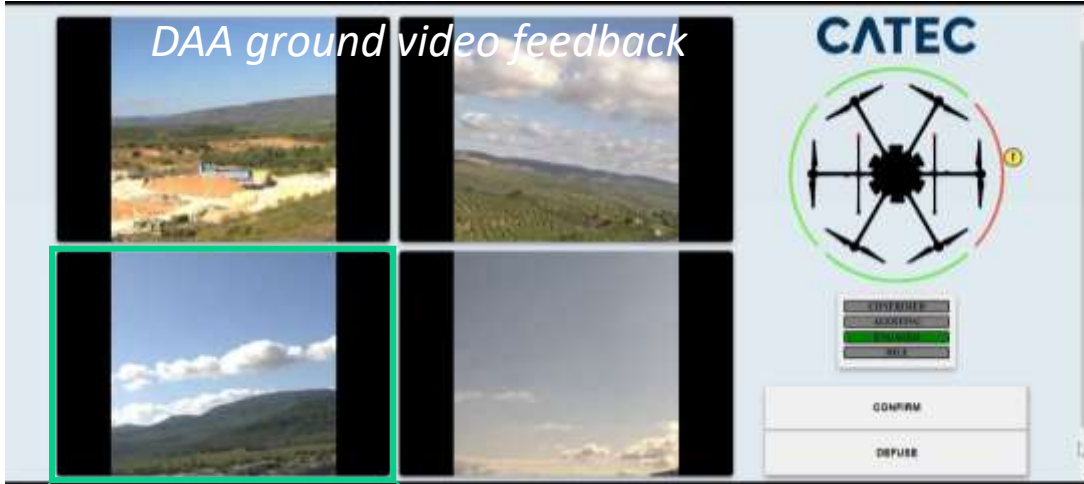


- Flying distance: 1200m
- Altitude: 35m
- Lateral separation: 40m
- Speed: 7 m/s
- Mission time: 11 min
- Photogrammetry image every 6m



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Testing Detect and Avoid system at [ATLAS Bravo](#)



Orthomosaic



Point cloud



Avoidance manoeuvre



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Challenges for next generation UAV-based inspection systems

- Increasing battery efficiency to achieve longer distances
- Using smaller and lighter cameras to increase flight times
- Automate regular inspections with solutions like 'Drone-in-a-box'
- Updating UAV regulations according to new UAV capabilities





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Thank you

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