

SheaRIOS In-situ Wind Turbine Blade Inspection

Problem

Successful operation of commercial wind farms requires the operator to make informed and optimal decisions related to operation and maintenance activities.

Wind turbine blade (WTB) inspections are dangerous, with accidents and fatalities among inspectors being an all-too-common occurrence.

Solution

Shearios is a semi-automated inspection system that greatly reduces the hazards associated WTB inspection.

It combines robotics and shearography, to deliver a novel state-of-the-art inspection solution for in-situ inspection of operational WTBs.

During an inspection, a climbing robot ascends a wind turbine tower and releases a robotic crawler onto the surface of a WTB.

The crawler uses vacuum assisted caterpillar tracks to transverse the WTB to reach an area of interest.

For increased safety, the entire system is remotely controlled from a base station located at ground level.



SheaRIOS inspection of in-situ a WTB



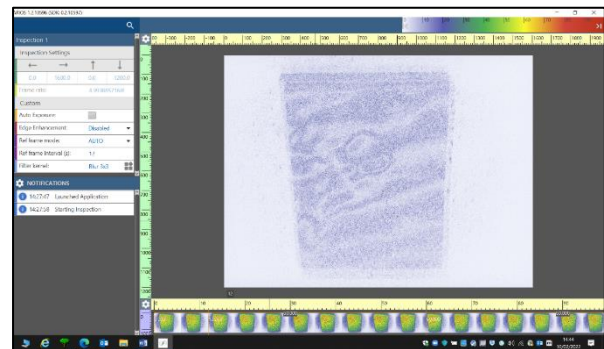
Robotic climber deploying the blade crawler

Benefits

- Improved health and safety, with minimal working at height.
- No rope access required for the inspection process.
- Semi-automatic WTB inspection from ground level.
- Adaptable for different wind turbine types and sizes.
- Adaptable multi-payload robotic system.
- Sub-surface defect detection.
- Reduced inspection time.
- Reduced wind turbine down-time and lost energy production.
- More efficient use of resources and trained personnel.
- Potential for risk-based inspection (RBI) that can lead to a reduced inspection frequency.



Robotic crawler with vacuum assisted caterpillar tracks and shearography light shield



Shearography software user interface

Website



www.shearrios.com

CONTACT

Telephone

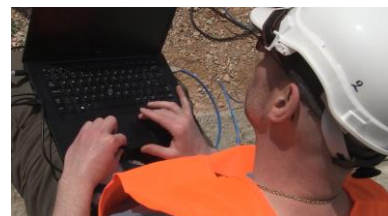


+44 1223 899479

Email



shearrios@twi.co.uk



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