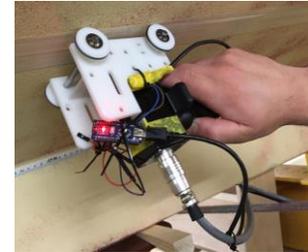




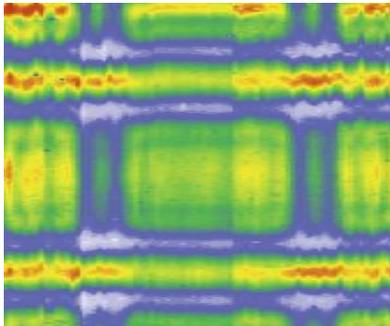
Automated Tap Test Prototype

With the support of JR Technology Ltd, TWI have developed a prototype, automated tap-test system based on a modified Evtis unit and bespoke software for data acquisition, signal processing and visualisation.

The system allows inspection of large areas, including complex GFRP structures. The software automatically tracks the position of the probe and records the responses from the unit, digitally processes them and displays the results in the familiar “heat map” or c-scan type format.



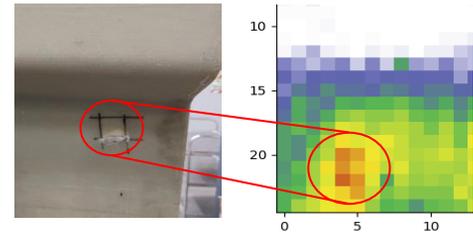
Prototype hand-held scanning device



Typical results from a large area scan



Prototype being used on site for wind turbine blade inspection



Artificial defect and inspection results for GFRP structure

The system has been trialled on a number of structures including very thick GFRP laminates such as wind turbine blades and complex structural geometries like boat hulls, with excellent results.

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TWI Automated Tap Test Prototype

The next step in this project is to fully automate the system; trials are already underway with a collaborative robot mounted version and we are teaming up with HausBots to integrate the device with their HB1 robotic crawler.

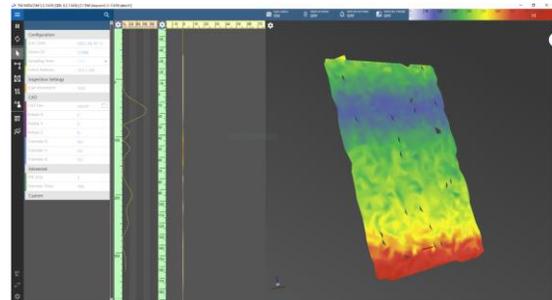


HausBot HB1 Crawler Robot

Fully automated inspection will also enable 3D visualisation of the results, overlaid onto a CAD model of the structure. This will allow easy interpretation and analysis of the results and mapping of defects, anomalies and indications (complete with the coordinates of their physical location on the structure) for lifetime records and future reference.



EvoTis tap tester mounted on a UR10e Collaborative Robot for automated inspection of a large GFRP sample



Screenshot from TWI's 3D data acquisition and visualisation software, showing data obtained from robotic tap testing prototype

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