Our research aims to develop mobile wall climbing robots that can climb on vertical surfaces, go to a test site and then deploy sensors to find defects. This leaflet describes some of the mobile robots that we have developed to provide access to remote test sites that may be located on very large structures e.g. a weld line on the hull of a huge cargo container ship, or in a hazardous environment e.g. a weld in a nuclear pressure vessel. The robots then deploy sensors to find defects such as cracks in a weld or corrosion in the floor of an oil tank.

How can you test very large steel structures e.g. to see if the many kilometres of welding on the hull of a cargo container ship is strong enough to prevent the ship collapsing into a heap? The current practice is to build a scaffold using ropes and wooden planks before inspection can begin.

Our approach is to send a wall climbing robot equipped with ultrasound probes to test the quality of the welding.

Our wirelessly controlled CROCELLS robot sticks to steel plates using permanent rare earth magnets. It uses electronics to steer an ultrasonic beam (phased array) through a range of angles to test the weld. Defect data is sent wirelessly to a laptop computer to enable an inspector to analyze the data.

FOR MORE INFORMATION SEE:
http://www1.lsbu.ac.uk/esbe/ndt/

To see videos of all these robots go to:
http://robotics.umng.edu.co

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