

IceRobotics

Scottish firm IceRobotics develops electronic and mechanical technologies for applications in livestock farming. The company has four products – IceTag, IceTracker, IceCam and IceScore – that it supplies to farms and livestock researchers.

IceTag is used by research institutions to closely monitor and report animal activity. It was originally developed for use in dairy research, but can also be used with other livestock. When correctly positioned on the animal's leg, the IceTag continuously monitors stepping activity and lying behaviour.

IceTracker is used in dairy farming to track the three-dimensional positions of cow teats for automated milking processes.

(Apparently, research shows that cows produce more milk if they are milked more frequently. Using robots makes it easier to milk cows three or four times a day, and can increase milk yields by as much as 20%.)

IceCam is a twin sensor digital colour stereovision camera used for advanced object tracking, machine vision and robot guidance applications.

IceScore is a close-range contour mapping technology that is used to consistently and objectively monitor the changing body condition of livestock.

IceRobotics – which is based in Roslin, Midlothian – was created in 2003 through the merger of two other Scottish companies: Intelligent Compliant Engineering and Image Fusion Systems.

It has won funding from NESTA (National Endowment for Science, Technology and the Arts) twice: the first award (for £98,000) being made in March 2003; the second award (£75,000) coming as part of a funding round of £430,000 that involved Scottish Enterprise and Aberdeen Murray Johnstone Private Equity.

www.icerobotics.co.uk

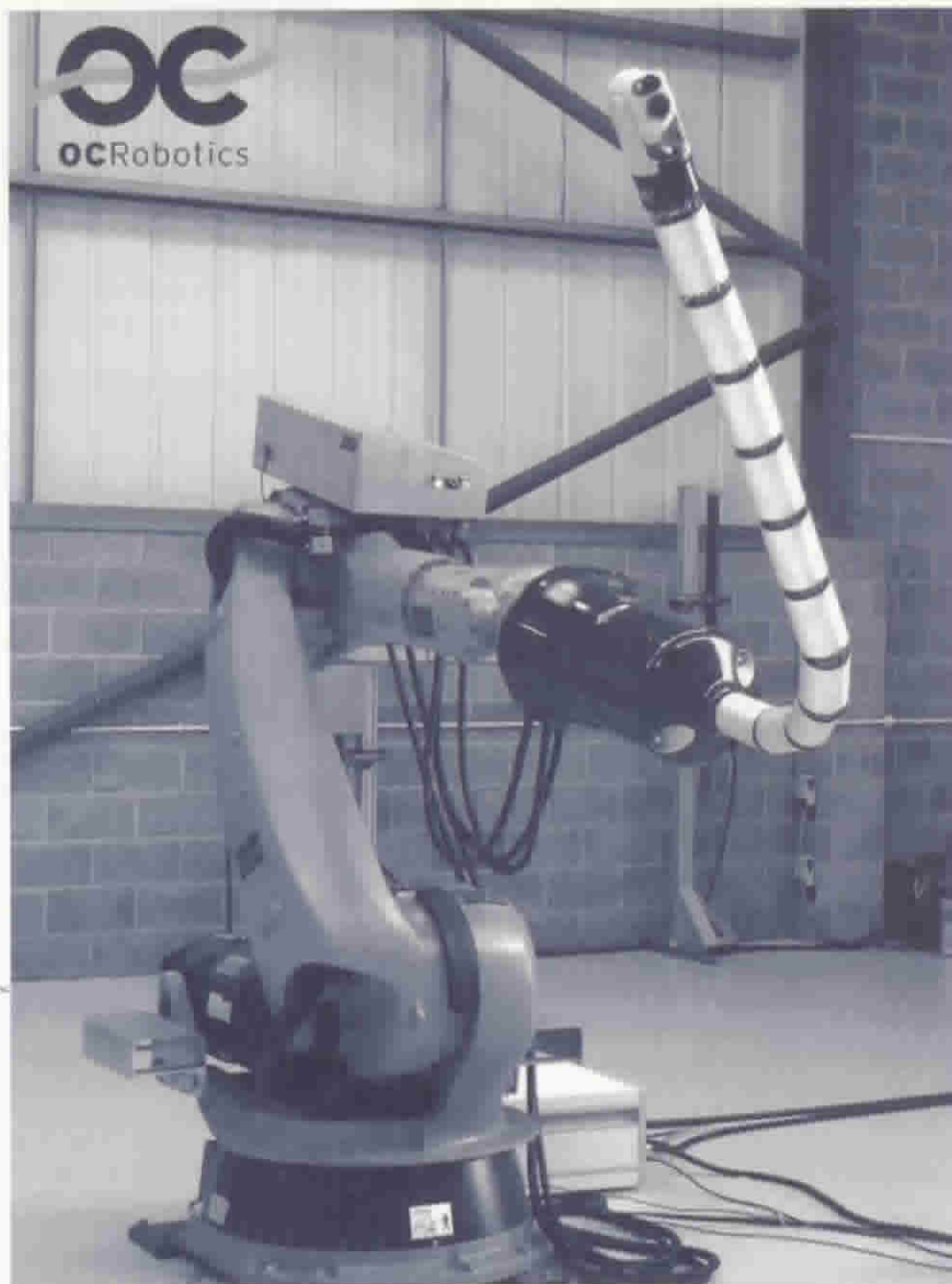
OCRobotics

Bristol-based OCRobotics has been in business since 1997 when it was founded with the aim of using innovative robotic systems to overcome complex engineering problems. In its early years the company built servo-mechanisms for Hewlett-Packard and became a second tier supplier to Rolls Royce. But since 2000 it has focused on snake-arm robots, which can be used in a variety of applications.

OCRobotics describes its snake-arm robots as being a bit like a human spine. They are comprised of a large number of vertebrae, but wires (acting like tendons) terminate throughout the arm enabling each segment to be controlled independently.

An operator uses a joystick to drive the tip of the arm, while a computer makes the necessary calculations to get the rest of the arm to move the tip in the desired direction.

The snake-arm robot has applications in the nuclear power industry. Last year, OCRobotics completed a contract with British Nuclear Group Sellafield to produce a specification for a 10-metre snake-arm robot for use at Sellafield. The robot is intended for on-site inspection, instrumentation and



One of OCRobotics' snake-arm robots for use in aerospace applications

repair activities. OCRobotics had previously supplied its snake-arm technology to Swedish nuclear company Ringhals for maintenance at its reactor on the west coast of Sweden.

Aerospace manufacturing is another sector where snake-arm robots have potential. Snakearm technology could be used to complete assembly tasks within wing boxes (an area currently inaccessible to standard automated machinery) and for the coating of assembled aerospace structures (currently too awkward for industrial robots to do).

In September, OCRobotics exhibited at the SAE Aerotech exhibition in Los Angeles. This was after it had completed work on a pre-production snake-arm robot demonstrator for Airbus UK. This robot system is capable of conducting in-wing, low access assembly tasks such as inspection, swaging and sealing.

Meanwhile, OCRobotics has also been working

with the Ministry of Defence to introduce a new breed of robot capable of reaching into awkward spaces. Back in 2003, it was tasked by the MoD to build a snake-arm robot that could be used on a remote vehicle (much like those currently used for bomb disposal work). The arm had to be 2.5 metres long and able to carry a load of up to 25 kilograms. The company then built a robot that successfully completed trials that involved having the arm reach into a car through an open window as well as having the arm tow a car.

In September 2005, OCRobotics won an innovation award from the Institution of Electrical Engineers. It has also been the recipient of three Department of Trade and Industry SMART awards.

OCRobotics is backed financially by the Oxford Technology 2 VCT and business angels.

www.ocrobotics.com