

## **OC Robotics delivers ½” diameter snake-arm robot**

15/08/2008 -- OC Robotics has developed a snake-arm robot that is only ½” (12.5mm) in diameter. The arm is the smallest snake-arm robot to date and uncoils out of a briefcase-sized box where it is stowed. The arm is 24” (610mm) in length, with longer arms under development, and was designed for the US Department of Defense who needed a way of inspecting and working inside confined or cluttered spaces – a capability not previously available.

Snake-arm robots are flexible robotic arms that don't have 'elbows', so they can 'follow their nose' into confined spaces. Conventional industrial robots are virtually impossible to manoeuvre in cluttered environments because their elbows get in the way. At the other end of the scale endoscopes are very flexible but are also floppy and it can be difficult to make them go where you want them to, especially if the path is particularly complex. A snake-arm robot is somewhere in between the two. Snake-arm robots are flexible and compliant, like endoscopes, but they are fully controllable like a robot and can be precisely positioned.

With a snake-arm robot the operator needs only to drive the tip of the arm around obstacles using a tip-mounted camera and the software will control the rest of the arm to follow where the tip has been. This makes controlling these devices simple and easy to learn. A snake-arm robot is effectively a controllable endoscope which can snake into awkward or cluttered environments to conduct real work.

OC Robotics has been focussed on larger devices for industrial applications, but this latest development demonstrates that these devices can also be very small. The snake-arm is deployed out of a fully portable box weighing 10kg excluding internal batteries. Power is supplied via mains, external battery or internal battery. The device is joystick-controlled via a laptop. At the tip of the arm is a camera and tool.

The first device of this type was recently delivered to the US Department of Defense for operational evaluation. It offers the military a new capability of viewing and working inside cluttered spaces – something not previously possible.

This technology also impacts on other industries where confined spaces must be routinely inspected. Having personnel working inside confined spaces incurs significant Health and Safety costs in industry, but snake-arm robots can enable personnel to conduct work remotely from outside the hazard area. In many cases snake-arm robots also offer the potential to speed up processes, especially where space restrictions prevent employees from working efficiently. The scale of this device is also ideal for minimally invasive surgical applications including the rapidly emerging field of natural orifice surgery (often called NOTES).

OC Robotics is currently taking orders for portable snake-arm robots. If you would like more information about these devices, or would like to be kept informed of any developments regarding the portable snake-arm robot device, then please contact OC Robotics on +44 (0)117 3144700 or [contactus@ocrobotics.com](mailto:contactus@ocrobotics.com).