Industry: **Automotive /// Manufacturing**
Products Used: **Robots**

Cambridge University chooses Mitsubishi Robots

A world leading project to expand the horizons of robot use in conjunction with vision systems is being developed by Cambridge University's Speech, Vision & Robotics group (SVR).

Research Associate Dr Tom Drummond is leading the field of telerobotics with a system built around a standard Mitsubishi Electric RV-E2 six axis robot, a miniature CCD video camera and a UNIX computer workstation. Telerobotics enables a teaching process whereby an industrial robot can attain accurate positioning relative to a target workpiece or operating environment regardless of the orientation of the workpiece, or indeed the start position of the robot. The introduction of telerobotics brings state-of-the-art technology to bear on the problem robots have working with complex geometries especially in tight workspaces.

Application story first released June 1995 by Mitsubishi Electric UK

The Cambridge University system enables robot positioning to an accuracy best achievable by the Mitsubishi RV-E2 robot. "Nothing else in the price range comes close to this kind of performance. We have purchased the Mitsubishi robot for a five year programme to develop robot technology and vision systems" says Dr Drummond.

Earlier work by the SVR group used a stereo pair of video cameras to provide spatial coordinates from which a robot could be 'taught' its position relative to its surroundings (effectively becoming self calibrating). The telerobotic system uses specially written software which maps edge recognition from a video image of the workpiece to a geometric model of the workpiece held in the computer. This is achieved without any special lighting conditions and does not require the robot to be calibrated.

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>
> Dr Drummond
> Cambridge University

Accuracy required by leading European developers of in-car ergonomics is already being evaluated and implemented using telerobotics and Mitsubishi robots to test fascia switchgear for 'touch and feel'.

The Cambridge team is also working to improve the speed and reaction times of the communications link between the robot and the computer which 'models' the workpiece. This will enable the robot to track more quickly to its handling or operating position.

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