

Summary

Company: Nissan
Country: United Kingdom
Sector: Automotive Manufacturer
Product: In-Sight 5100 with PatMax
Description: Glass Type and Positioning System

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Nissan benefit from Cognex vision

At one of the most productive automotive manufacturing plants in Europe, accuracy and reliability at all points on the production line are of paramount importance.

The issue Nissan faced was that the existing mechanical centraliser could not cope with the new glass sizes for two its key vehicles. The centraliser locates at six points around the edge of the glass and consistently locates it to a known 'central' location in preparation for the next stage of the production process. Therefore it was imperative that the new vision system would not only provide accurate information for the two new models, but also that it would adapt easily to future product developments.

With all these elements in mind, Nissan approached Capley Marker who was chosen to supply the system for a number of key reasons. They had previously installed 5 cameras at Nissan and converted a separate line to Cognex In-Sight cameras; Nissan were extremely satisfied with the level of support received through the existing relationship and finally, Capley is an approved Cognex PSI (Partner System Integrator).

The system was to be supplied for use on the Nissan Micra and Note production lines. The key project requirement was to determine the glass type on the line, which could be 1 of 4 variants; Micra fixed side window right hand side (RHS) and left hand side (LHS); Note fixed side window RHS and LHS. A similar system is used on a second line which produces the Qashqai.

Two In-Sight 5100 cameras are used on this line with one camera placed in each cell which is on the side of the assembly line. Each camera is fixed at the required height by a rigid steel stand mounted to the cell base. The In-Sight cameras use Cognex's PatMax® technology. PatMax, the industry's performance standard for part and feature location software, utilizes advanced geometric pattern matching technology to reliably and accurately locate parts. Even under extreme conditions, this tool can significantly reduce or eliminate fixturing requirements and cost. For locating parts or features, PatMax provides the maximum vision inspection yield and reliability available in a vision system.

Using a Fanuc 6 axis robot with RJ-2 control, the cameras provide the robot with two vital pieces of information. Firstly, a digital signal from the camera is sent to the robot confirming the glass variant. Then, a serial string is sent from camera to robot with the coordinates of the glass so the robot picks the glass up in the same position

each cycle. The exact coordinates measured are X, Y and the angle of the glass on the vision part of the cell (front to back, side to side and twist).

The robot locates the glass from the data supplied by the vision system, manipulates the glass edge through a fixed nozzle that applies a continuous bead of mastic to the glass edge and finally transfers the glass to an offload position where the operator picks up to apply to the vehicle. The coordinates are located and relayed directly to the line robot to ensure the robot can access the glass.

Rory McCrystal, the Project Engineer responsible for the installation commented, "This vision system provides accurate and reliable readings, essential for our production lines. The system will better support new product introduction as it is more flexible than before. Based on this improved flexibility it is predicted that there will be a significant reduction in changeover time during future new product introduction."

ENDS

About Capley Marker

Capley Marker is a leading Partner System Integrator with Cognex in the UK. Capley Marker's innovative sensing solutions utilise the full strength of Cognex' technologies. Added to this is their expertise in motion control, automation and integration - a complete solution provider. These skills enable Capley Marker to take a complete view of your requirements and to deliver robust complete solutions for volume, zero-defect manufacturing. Visit www.capleys.co.uk for more information.

About Cognex

COGNEX designs, develops, produces and sells machine-based vision systems and computers which allow machines to see "intelligently". Cognex is the world's leading supplier of machine-based vision systems, with over 400,000 systems already supplied, corresponding to a cumulative turnover of over 2 billion USD since the company was founded in 1981. The Modular Vision Systems Division of Cognex is based in Natick, Massachusetts, and specializes in machine-based vision systems used in the automated production and quality assurance of individual parts. The Surface Inspection Systems Division headquartered in Alamenda, California, concentrates on the high-speed surface inspection of sheet product made of metal, paper and plastic. In addition to the headquarters in Natick, Massachusetts, there are other subsidiaries in North America, Japan, Europe and South-East Asia. The head office of Cognex Europe is in Rueil-Malmaison, near Paris. For more information, see our website at <http://www.cognex.com>.

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