

# Bluewrist Case Study

## 3D Door Panel Inspection Solution

### Our Client

Our client, a large OEM parts supplier for a major Japanese car manufacturer, manufactures interior door panels, producing 1,400 parts daily across two shifts. These panels can have up to 95 features each, including screws, clips, welds, felt strips, SK clips, and switches.

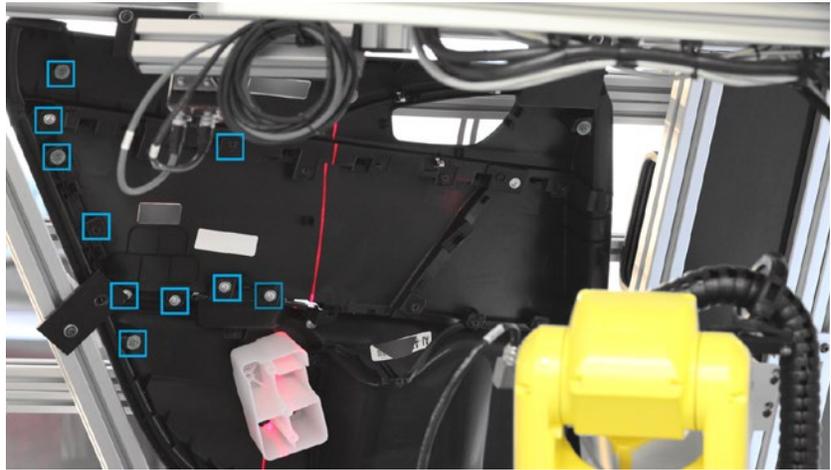
The original inspection process was completed by four operators. Two operators focused on the B side of the panel where all the fittings are installed (the side that is not visible to vehicle occupants), and two focused on the A-side of the panel. The B side inspection involved checking for the presence and correct fitments of screws, clips and the other 95-plus features.

Our client required an automated solution that can perform 100% inline inspection of these features with a 30 second cycle time.

### The Challenge

The inspection process for the B-side of the panel, which is the more complex element of the process, needed to be completed in 30-seconds. Using a manual inspection process, the factory noted that a number of incorrectly assembled parts were reaching the customer.

This situation was a major risk for the firm because



supplying incorrectly assembled products impacts the customer downstream process could result in termination of the contract. Developing a solution that eliminated human error and downstream defects was a priority.

### The Solution

Our solution includes robot motion, product clamping, scanning, data processing and uploading. The client was also keen to reduce the cycle time. To achieve this goal, we installed one Fanuc robot per cell and two 3D profile cameras working in tandem. This system provides the necessary field of view to cover a large part in a single pass of the robot arm.

When each part is ready for inspection, the operator loads the door. The B-side of the panel is then scanned by a robot, and the data is sent to ScanX-tream for point cloud analysis. Each of the features is extracted and compared to the design specifications.

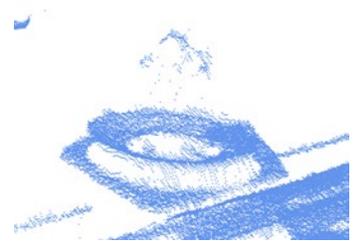
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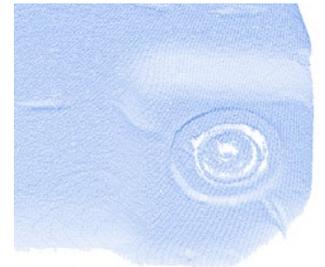
The results of the analysis are sent to the SPCWorks database and the client's process control software system. While this process takes place, operators check the A-side. If any faults are identified, the part is then sent to the repair station. Parts that pass the inspection process are then dispatched to the shipping racks.

### The Results

The benefits to our client have been three-fold. First, we have reduced the processing time from 36 seconds to 30 seconds, ensuring that 700 parts are completed every shift and allowing our client to meet its production targets. Second, operating costs have been reduced because the process now requires only two operators rather than four. Finally and most importantly, the overall number of defects has been reduced. This benefit was achieved both within the production line as faults are identified and rectified as part of a process of continuous improvement. Bluewrist software identifies common faults so that improvements can be made to the manufacturing process.



Dog House Clip and Dog House Point Cloud



Plastic Weld and Point Cloud



Screw and Screw Point Cloud

### Contact Bluewrist Today!

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