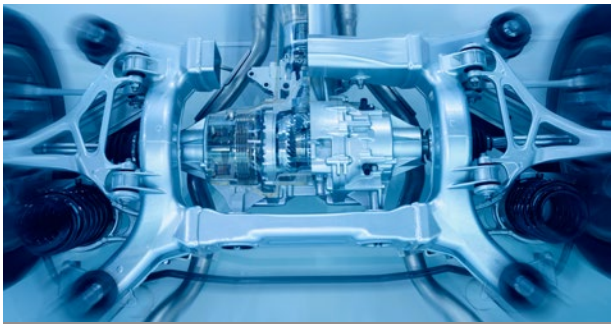


Bluewrist Case Study

Cradle Inspection - 55 Features Per Cycle Under 25 Seconds

The Application

Suspension cradles are complex components found in every automobile. The cradle consists of several welded, high-strength hydroformed steel tubes and stamped parts. These parts have to be manufactured with precise alignment in order to support the mounting of an engine, transmission, and control arm brackets.



A cradle with multiple holes, slots and mounts

The Challenge

A global tier 1 automotive component manufacturer needed to verify the dimensional quality of suspension cradles in an inline process. The application requires 55 feature inspections in under 25 seconds to meet high-volume cycle times and the adherence to strict GD&T (Geometric Dimensioning and Tolerance).

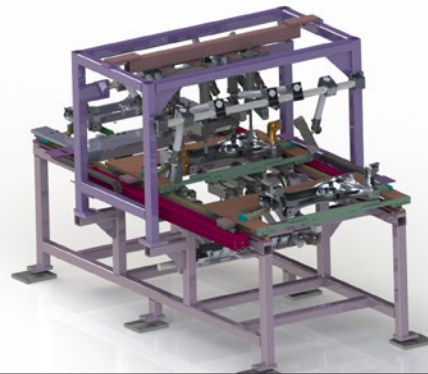
Any deviations in the cradle will lead to incorrectly fit components, which adversely affects the vehicle's camber and toe angles and can result in costly rework and recalls.

The Solution

The manufacturer required a 100% inline solution that could meet production speed. Traditional CMMs (Coordinate Measurement Machine) are expensive and can take more than 1 hour to perform the task.

Bluewrist's FlexiSight system uses 26 3D snapshot sensors strategically positioned on a custom designed fixture. The manufacturer is able to inspect holes, slots, studs, and trims on the two engine cradles. Scan data is compared to the CAD design and GD&T specifications.

Results are streamed in real-time to Bluewrist's



Custom designed inspection cell

comXtream software, which processes large amounts of data from the 3D sensors. comXtream also links the sensors with the robot and PLCs.

Additionally, Bluewrist SPCWorks software monitors real-time dimensional data, and provides statistical analysis to operators in order to identify even the smallest deviations from tolerance.

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Points to highlight:

- Inspection speed: 55 Features under 25 seconds
- Scans down to 35 µm data resolution at speeds of up to 5 Hz.



Actual Bluewrist inspection cell

- Small form factor and lightweight industrial design make Gocator ideal for fitting into small spaces and mounting on robots.
- IP67-rated housing with an industrial projector offering lifetimes up to 10 years of continuous operation.

The Result

If the cradle passes inspection, it is delivered to the next step of the production process. Any cradle with defects or deviations is automatically removed from the production line.

Bluewrist's FlexiSight system is able to identify deviations from tolerances in real-time and deliver a 100% inline inspection on thousands of cradles per day—all while maximizing product quality and reducing system costs.

Next Steps

The Gocator and Bluewrist FlexiSight system can be modified to inspect other vehicle models.

Contact Bluewrist Today!

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