

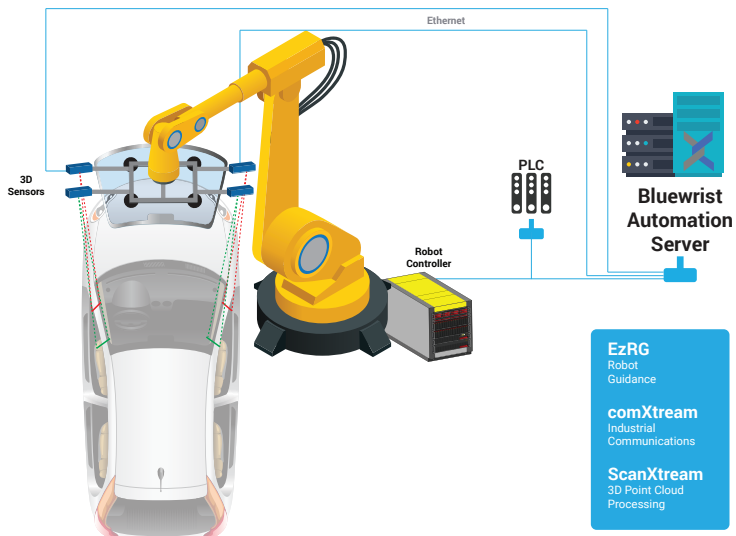
Bluewrist Case Study

Bluewrist Advanced Robot Guidance - Windshield Loading

The Application

Manual insertion of glass into car bodies is an intensive and imprecise job, with the opportunity for body damage and glass breakage leading to significant safety risks to assembly operators.

Alternatively, robotic insertion methods are complicated because the car body location is not precise, and therefore requires vision guidance to transform robot end effectors to compensate for body location variation and to optimize the position of the glass



The Solution

Bluewrist mounted Gocator 2300 3D sensors on the robot end effector of the insertion system in order to monitor location of the critical points on the windshield aperture. The vision sensors determine the 3D location of critical points on the aperture. The 3D measurements were then communicated to an external industrial automation PC equipped with Bluewrist EzRG Advanced Robot Guidance Software, which calculates transformation data in 6 degrees of freedom and then sends its calculations to the robot controller.

EzRG provides a wide range of robot guidance and user-frame calculation strategies, including Best-fit of Measurement, 3-2-1 Fixturing, and a User-Frame Formulas Interpreter. The calculation takes less than 0.5 seconds and the guidance accuracy can achieve up to 0.2mm.

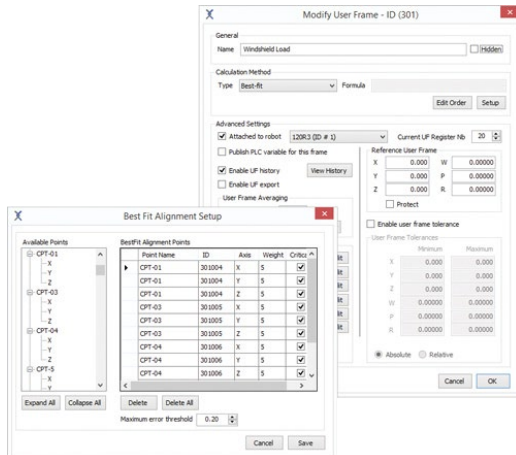
Bluewrist Windshield Insertion System

The following is the sequence of the windshield insertion operation:

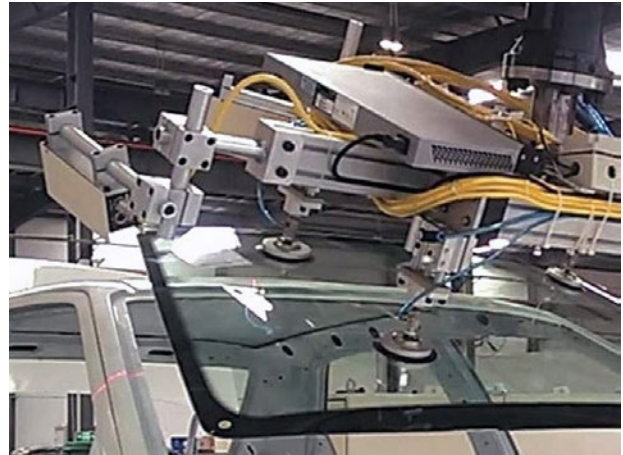
- Robot picks up glass from fixed location using suction cups on the end effector
- Robot moves glass to near nominal insertion point lighting conditions or temperature
- Sensors measure actual aperture position
- EzRG calculates translation values
- Robot moves to optimal position and inserts glass

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Advantages of the Bluewrist Windshield Insertion System

- Combines 3D sensing integrated with robotic automation
- Immune to robot movement, vibration and changes in ambient lighting
- Automates insertion process with high accuracy and speed
- Replaces manual insertion process for components that are not precisely fixtured
- Improves quality and operator safety

Contact Bluewrist Today!

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