Partner and provider to the Integration Team at **+VANTAGE** DESIGN/BUILD • CONSULTING • SERVICE

Why 3D?
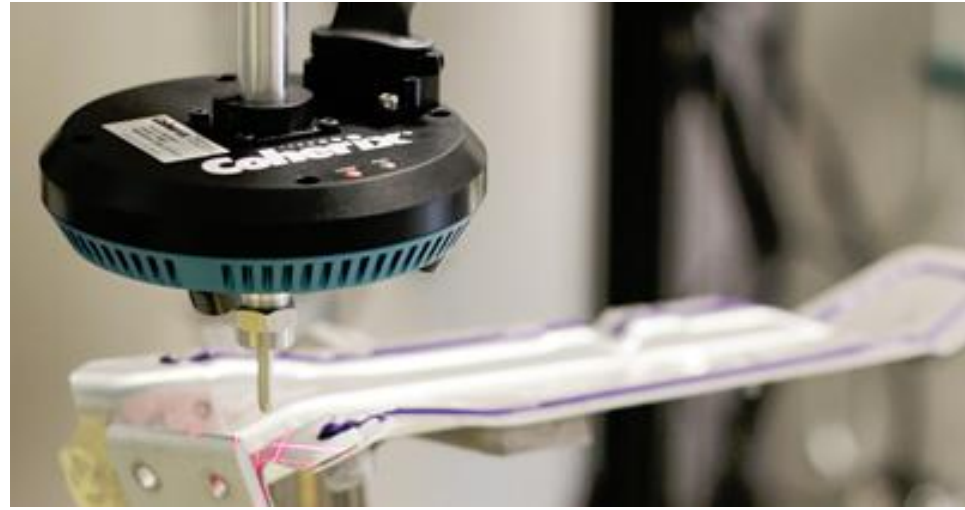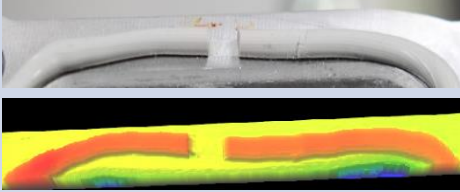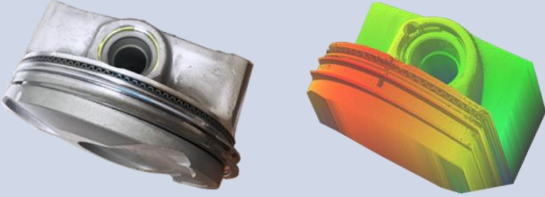

Temperamental 2D

- Unreliable
- 2D representation of 3D Parts
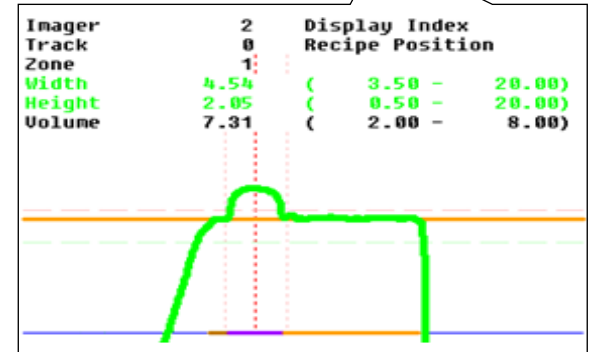- High cost of ownership

Robust 3D

- 100% Reliable
- Full 3D representation of 3D Parts
- Low maintenance

Manufacturing Error-Proofing Solutions

Error-Proofing Products	Predator3D	Robust3D
Solutions	In-line 100% 3D bead inspection	In-line 100% 3D assembly error-proofing
Representative Applications	• Body structural adhesive & sealant • Powertrain FIPG • Final assembly windshield	• Piston assembly • Rolling finger follower • Valve keeper • End-of-line inspection

Predator3D

Predator3D provides inline 100% Robust 3D inspection of the bead as it is being dispensed. It tells you how much and where bead is dispensed at any instantaneous moment.

Imager	2	Display Index
Track	0	Recipe Position
Zone	1	
Width	4.54	(3.50 – 20.00)
Height	2.05	(0.50 – 20.00)
Volume	7.31	(2.00 – 8.00)
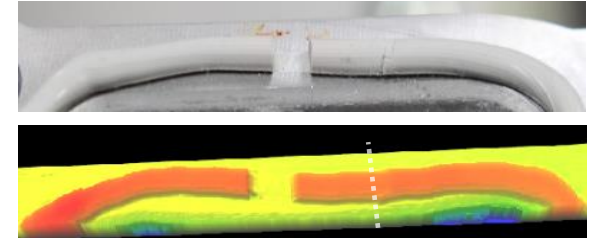
Predator3D In Action for Powertrain Assembly
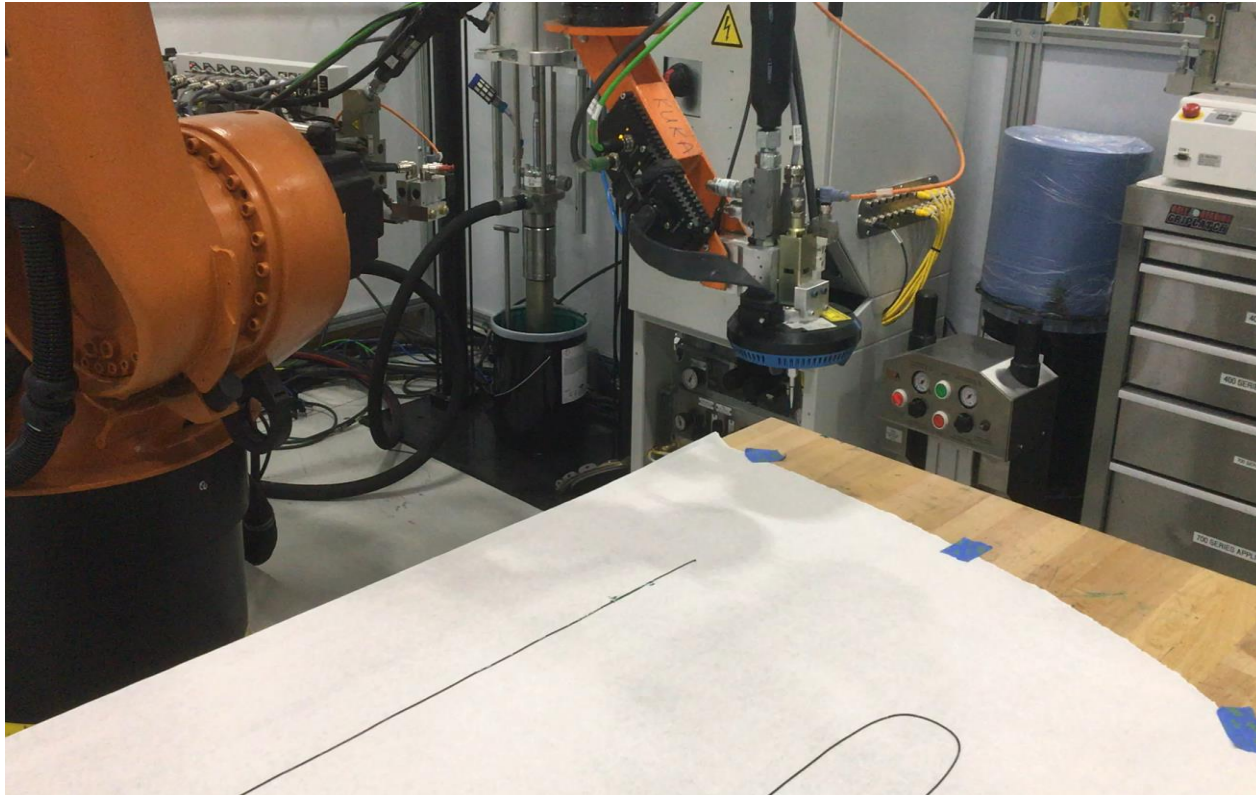
Predator3D in Action for Body Assembly

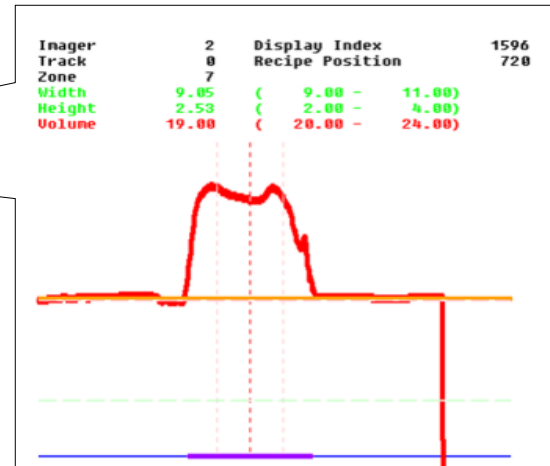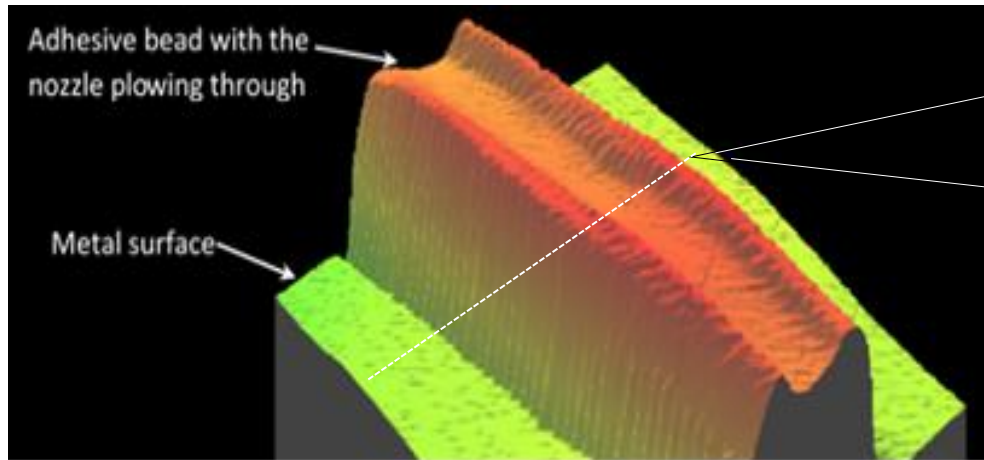Robot-Carried

Pedestal-Mounted

Auto Repair Function of Predator3D

Case Study

Due to the imperfection of the part fixturing mechanism, the dispensing nozzle turns out to be plowing through the bead as it is being dispensed and ends up with a deep trough. This caused insufficient wet-out for serious body frame rigidity (safety) concern. The traditionally-used tolerancing parameter – bead width, even the bead height, would pass for this case.

| Imager | 2 | Display Index | 1596 |
Track	0	Recipe Position	720
Zone	7		
Width	9.05	(9.00 –	11.00)
Height	2.53	(2.00 –	4.00)
Volume	19.00	(20.00 –	24.00)

The Predator3D-only tolerancing parameter - instantaneous volume, kicked in as another level of assurance and failed this part as it is supposed to. This saved customers potentially millions to tens of millions of dollars of a major quality leakage.

Predator3D Bead Location Inspection
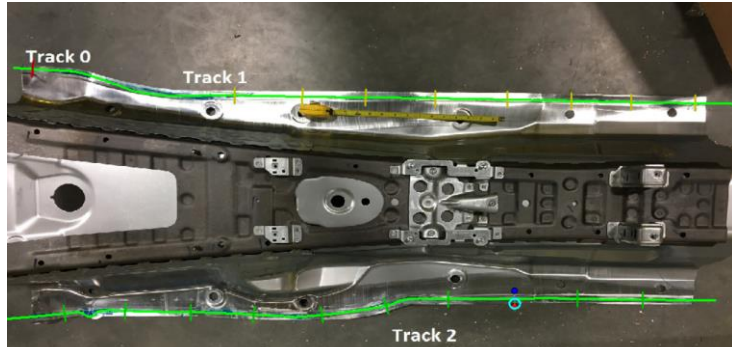
Feature Tool Details:

Index	Side	Feature Type	Distance	Minimum	Maximum	Pass Missing	Result
0	Left	Nearest Passing Decline	10.25	7.52	13.57	NO	PASS
1	Left	Nearest Passing Decline	7.52	5.01	11.01	NO	PASS
2	Left	Nearest Passing Decline	7.50	5.00	11.00	NO	PASS
3	Left	Nearest Passing Decline	7.27	4.38	10.58	NO	PASS
4	Left	Nearest Passing Decline	8.23	5.18	6.28	NO	FAIL
5	Left	Nearest Passing Decline	8.04	5.08	11.08	NO	PASS
6	Left	Nearest Passing Decline	7.14	4.14	10.14	NO	PASS
7	Left	Nearest Passing Decline	7.45	4.71	10.81	NO	PASS
8	Left	Nearest Passing Decline	6.97	4.50	10.50	NO	PASS
9	Right	Nearest Passing Decline	11.00	8.00	14.00	NO	PASS
10	Right	Nearest Passing Decline	11.27	8.00	14.00	NO	PASS
11	Right	Nearest Passing Decline	12.35	9.00	15.00	NO	PASS
12	Right	Nearest Passing Decline	10.48	8.00	14.00	NO	PASS
13	Right	Nearest Passing Decline	11.88	9.00	15.00	NO	PASS
14	Right	Nearest Passing Decline	12.49	9.50	15.50	NO	PASS
15	Right	Nearest Passing Decline	12.81	10.00	16.00	NO	PASS
16	Right	Nearest Passing Decline	13.62	11.00	17.00	NO	PASS
17	Right	Nearest Passing Decline	11.66	9.00	14.00	NO	PASS
18	Right	Nearest Passing Decline	13.59	12.00	16.00	NO	PASS
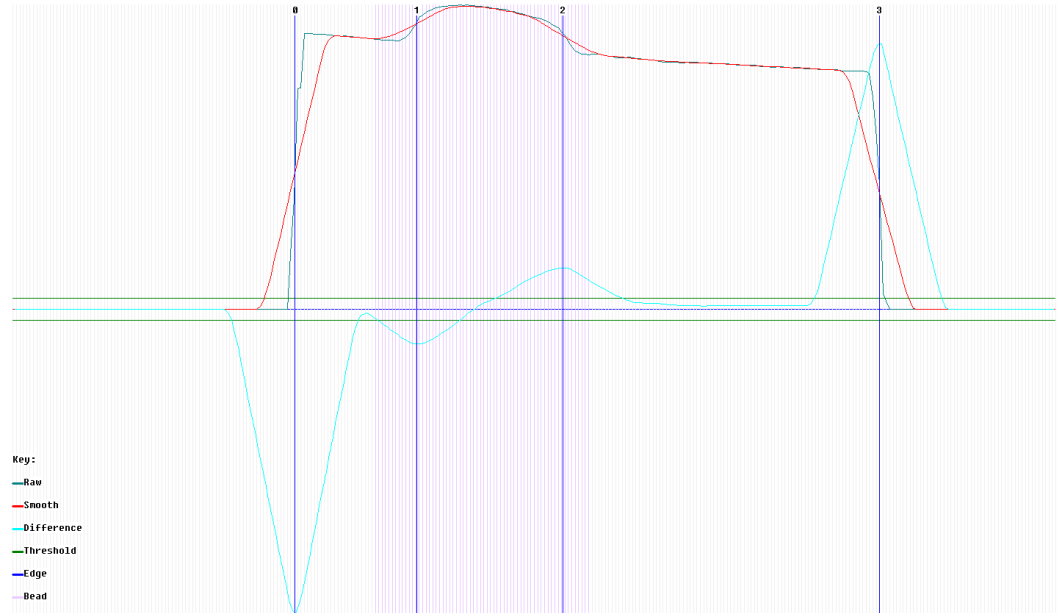
Features of Predator3D

Easy Setup and Integration

- Self contained, compact and lightweight
- Carried or pedestal mounting
- Supports a variety of industrial protocols
- No added complexity to robot programming
- User-friendly interface
- Tracing bead in any direction with no
- blind corners
- No penalty to production cycle time

3D Information

- Real-time 3D information on the bead
- Full part traceability with flexible archiving options
- Configurable reporting and displays

Robust and Rugged

- Impervious to part color or ambient lighting change
- No moving part to fail
- Rugged crash-resistant casing
- IP65 construction protects it from typical spills and cleanup

Proven

- Built on Coherix proprietary Shark hardware and i-Cite software platform with field-proven reliability in inspecting billions of customer parts to date
- Successfully deployed in some of the most advanced facilities around the world
- Online system that stays online

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Coherix®

Predator3D Details

Ethernet connectivity and USB interface

24 VDC Power

0 - 45 °C operating temperature

< 1.7 kg total weight

IP65 environmental seal for harsh factory operating conditions

FOV 40mm wide x 20mm deep x 360 degree standard model

400+ bead profiles per second with combined 4 lasers

Visible Laser Class 3A/3R

Coherix Core Software Platform (CSP) and Embedded i-Cite™ applications

Smart, continuous 100% bead tracking and measurement

Optimized configurations for powertrain and body shop applications

60mm, 125mm, and 200mm standoff options

+VANTAGE
Design/Build · Consulting · Service

Coherix®

Visual Reporting

Part Information

Visual Inspection Result

Details and Disposition

Why Predator3D for bead inspection?

1. Robust 3D error-proofing system that does NOT need to be error-proofed – low cost of ownership

2. 3D inspection of what is directly related to bead functionality

3. Enabling 3D visualization technology for better process control and optimization

Robust 3D Solutions in Manufacturing