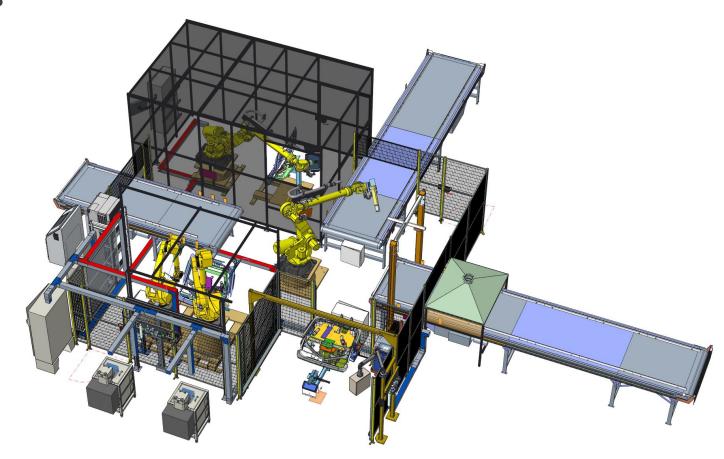


# +Vantage Case Study: Assembly Lines

Lift Gate Assembly & Visual Inspection





#### • Parts:

Lift Gate

#### Customer Problem:

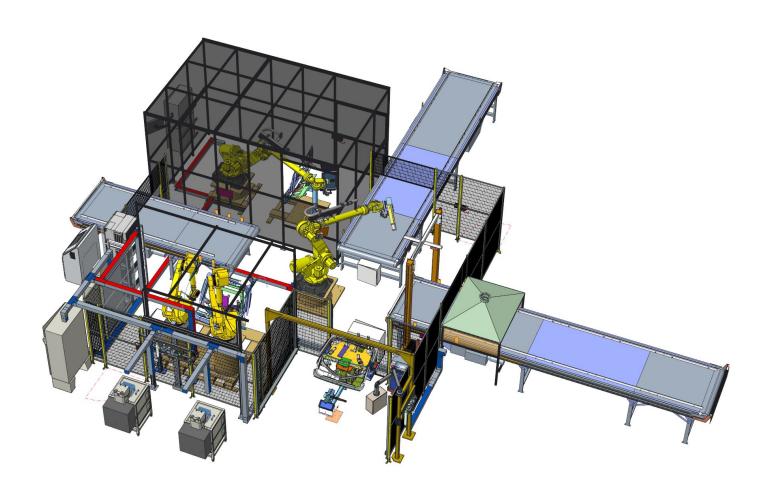
- Numerous Vision Inspection points required and short cycle time
- Semi Manual Assembly process required within Automated Part handling process
- The assembly process was too labor intensive for material handling

#### The project:

 This is an automatic torque, riv-nut, and inspection system with an inline manual process seamlessly integrated. Parts arrive to cell via powered belt conveyor. Robotics maintain part handling within cell. Between Manual and Automatic stations various torque and assembly process occur. Part is then transported to a vision inspection system to validate assembly and class A surface conditions. Parts are sorted for good and reject before leaving the cell.

#### Process:

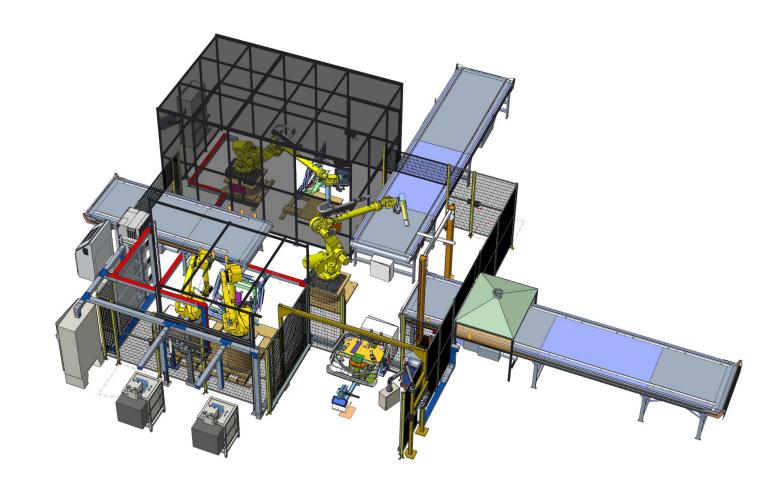
- 1. Powered Belt Conveyers
- 2. Robotic Part Handing
- 3. Automatic Torque Drivers
- 4. Vision Inspection
- 5. Cell full integrated, debugged, and assembled



## +VANTAGE

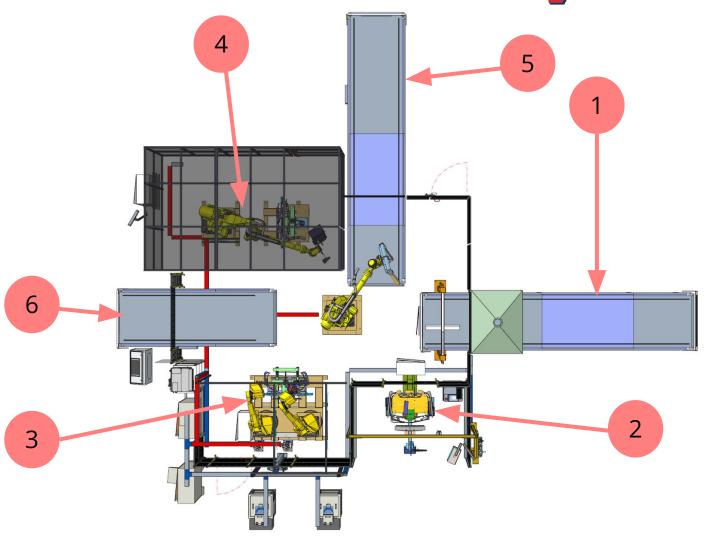
#### • Components:

- Hytrol Powered Belt Conveyor
- Fanuc Robotics
- Custom EOATs
- Schunk Pneumatic Grippers
- Bollhoff Torque Drivers
- Cognex Vision Inspection
- Safety interlocks
- Allen Bradley Controls Structure

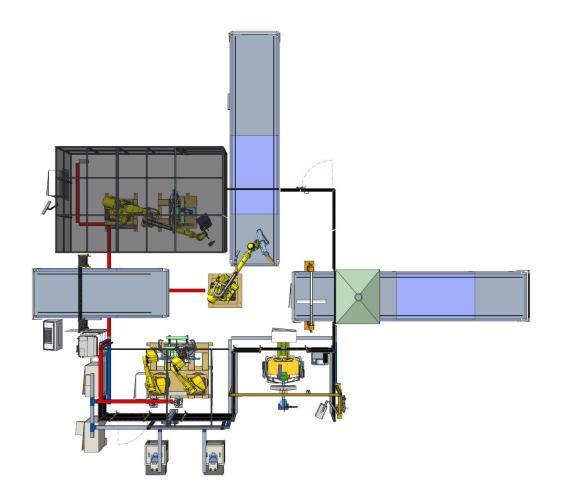


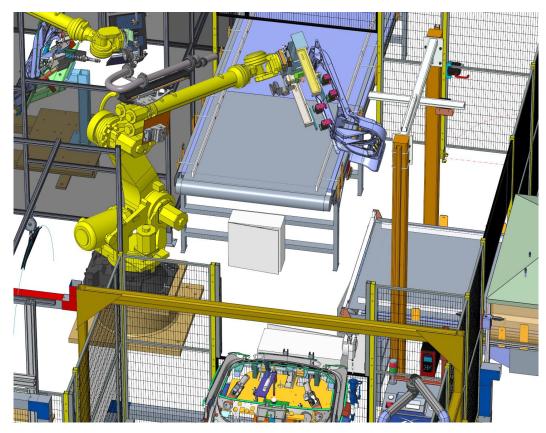
## +VANTAGE

- Overview:
  - 1. Incoming Station
    - Powered Belt Conveyor
    - Part Type Verification
  - 2. Semi Manual Torque Station
    - Assembly components
      - Ball Studs
      - Threaded Plates
      - Rivnuts
  - 3. Automatic Torque Station
    - Robot Driven
    - Assembly Components
      - Rivnuts
  - 4. Automatic Vision Inspection Station
    - Robot Driven
    - Inspection Types
      - Surface Prosperity Defect
      - Surface Polish Defect
      - Surface Crack Defect
      - Surface Blister Defect
  - 5. Reject Station
    - Powered Belt Conveyor
  - 6. Outgoing Station
    - Powered Belt Conveyor





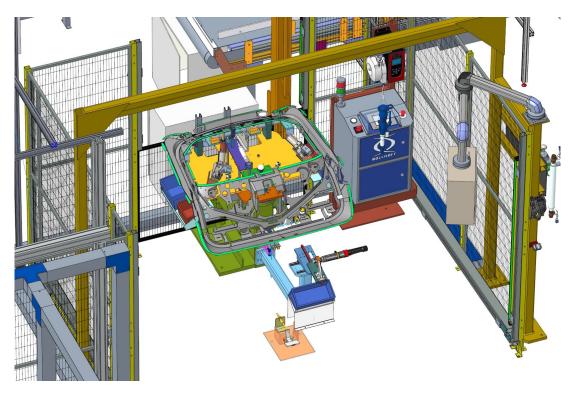




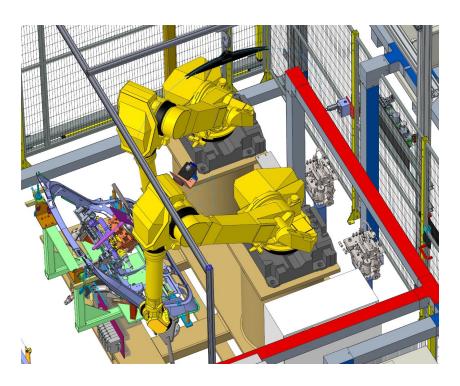
**Robotics Material Handling** 

Layout



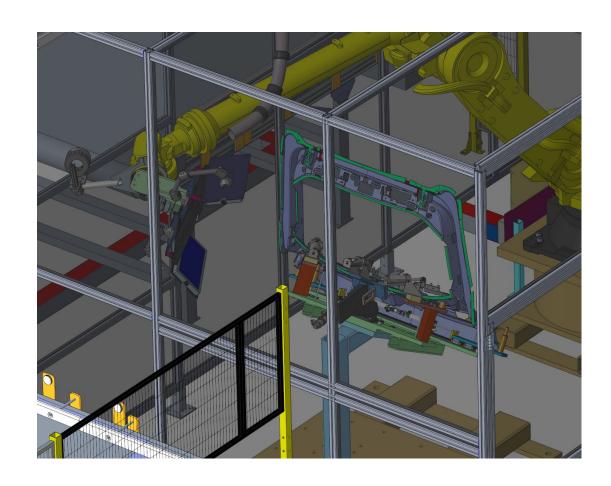


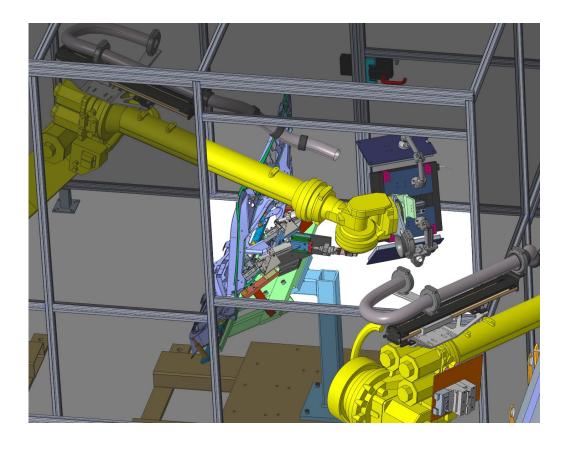
Inline Manual Process Integration



**Automatic Torquing** 





















### **Core Product Overview**



#### Inspection



Vision, Laser, Pneumatic, Dynamic, Torque, as well as Classification and Identification

#### **Engineering & Service**



Let the +Vantage team's decades of experience solve your manufacturing challenges

#### **Automation &**



Fully automatic systems to streamline your manufacturing process and increase production

#### **Assembly Systems**



Manual and semi-automatic multi-station assembly systems for pressing, torqueing, & riveting

**Automation Made Seamless** 

#### **Systems**



Custom design or upgrade/retrofit existing lines with the latest sensors and manufacturing technology

#### **Industrial**



Contact and non-contact gages for precision measurements. In-line and audit room.

## Global Customer Reach



1,500

250

**MACHINES BUILT** 

YEARS COMBINED EXPERIENCE

SYSTEMS INSTALLED IN +12 DIFFERENT COUNTRIES





USA (HQ)

12651 Newburgh Rd Livonia, MI 48150

tel: +1 734 432 5055

Canada

London, ON Canada tel: +1 226 234 1515 Mexico

Micro Parque Finsa Eje 2 #470-2 Ramos Arizpe, Coah. 25210 tel: +52 1 844 270 9389

China

14/F Suncome Cimic Tower 800 Shangcheng Rd Pudong New Distric Shanghai. 200120

tel: +86 137 7103 2628

## Company Overview



## **Company Size**

- 70 Employees Globally
- 100,000 sq. ft in Livonia
  - Additional office space globally

#### **Certifications**

- ISO 9001:2019
- Coherix System Integrator
- Fanuc Authorized Integrator
- Q-DAS ASCII Certification
- Schunk Official Partner
- Solartron Orbit 3 Integrator



## Project Management

+Vantage - Action Item Deck



ID Tas	sk Name	Duration	Start	Finish	Predecessors	% 2 Complete	11   Mar'21   Apr'21   May'21   Jun'21   Jul'21   Aug'   7   14   21   28   7   14   21   28   4   11   18   25   2   9   16   23   30   6   13   20   27   4   11   18   25   1
	amcor 200752 - Base Shaft Assembly System	116 days	Fri 2/19/21	Fri 7/30/21	1	18%	¥
2							
3	Open Job	3 days	Fri 2/19/21	Tue 2/23/21	1	100%	
4	Receive PO	1 day		Fri 2/19/21		100%	
5	Initial kick off meeting		Mon 2/22/21	Tue 2/23/21		100%	<b>1</b>
6	Assign a Job Number to the Project in QuickBooks	2 days	Mon 2/22/21	Tue 2/23/21		100%	<b>3</b>
7	Send PO Acknowledgment	2 days	Mon 2/22/21	Tue 2/23/21	1 4	100%	
8							
9	Mechanical Engineering	39 days	Wed 2/24/21	Mon 4/19/21	1	62%	•
10	Project in Engineering Cue	3 days	Wed 2/24/21	Fri 2/26/21	15	100%	<u>*</u>
11	Create Approval Drawings and submit to Customer	21 days	Mon 3/1/21	Mon 3/29/21	1 10	100%	Eng
12	Design approved by Customer - Design updates by Danilo following feedback and discussions with Camcor ** Critical Path Timing***	7 days	Tue 3/30/21	Wed 4/7/21	111	0%	Eng_App
13	Complete mechanical design	5 days	Thu 4/8/21	Wed 4/14/21	1 12	0%	<del>                               </del>
14	Release commercial items and build details	3 days				0%	
15		/-					
16	Electrical/Pneumatic Engineering	42 days	Thu 4/15/21	Fri 6/11/21	1	0%	
1.0	ical design and submit for Approval		Thu 4/15/21	Wed 5/5/21		0%	Elec
+VANTA		3 days		Mon 5/10/21		0%	
TVANIA	utility information with Camcor		Mon 5/10/21	Mon 5/10/21		0%	<b>5</b> 510
ion Item Deck Rev 1			Tue 5/11/21	Fri 5/14/21		0%	<u> </u>
	amming		Mon 5/17/21	Fri 6/11/21		0%	Prog
		EU ULIJU		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		0.0	
ness if applicabl	sembly	73 days	Tue 4/20/21	Thu 7/29/21	1	0%	
	facturing	35 days	Tue 4/20/21	Mon 6/7/21	1 14	0%	Mnfa
	ve Electrical/Pneumatic items	5 days	Mon 5/31/21	Fri 6/4/21	1 20FS+10 days	0%	
of from Eston) (3/18 Shawn 3/24 Shawn sent some older XF low- some around 126 N. ey calculated 12.5 Kn. Big njby		0 days	Tue 6/1/21	Tue 6/1/21	1 24FS-5 days	0%	<b>→</b> 6/1
		0 days	Tue 6/1/21		1 24FS-5 days	0%	61
		19 days	Tue 6/8/21	Fri 7/2/21		0%	Ass'y
rrent data. Danilo	said	19 days		Thu 7/29/21		0%	De
tage and the Van in they are not ma							
n Eston. Shawn to	o see if at Vantage	1 day	Fri 7/30/21	Fri 7/30/21	1	0%	
me retainers we ca	an send )ff	1 day	Fri 7/30/21	Fri 7/30/21		0%	R
	mer Acceptance	1 day	Fri 7/30/21	Fri 7/30/21		0%	
	The Facepaire	1 day	111110021		. 20	0.0	
	³ackage/Ship	2 days	Mon 8/2/21	Tue 8/3/21	1	0%	
is wondering if in		1 day	Mon 8/2/21	Mon 8/2/21	1 33	0%	K
part are held with		1 day	Mon 8/2/21	Mon 8/2/21		0%	- I I I I I I I I I I I I I I I I I I I
mal will be +/- 0.0 0.1 mm. They are		1 day		Tue 8/3/21		0%	
concern with shaft		. duy			170	370	

Camcor 200752 Timing Plan.mpp

	item	Operation	Item Description	Key Contact for Item	Actions	Date Open	Target Close date	Actual Close Date	Comments (and note effectiveness if applicable)	Se
5		Press	max expected press force for retainer	Shawn		3/8/2021	3/12/2021		(3/10 Shawn working to get this info from Eston) (3/18 Shawn still waiting for info. will by again) (2/24 Shawn sent some older still waiting for info. will by again) (2/24 Shawn sent some older still sti	ni at
9			Shawn to look at in process tolerances for journals - Danilo is considering to use Vees to support journals during press.	Shawn		3/10/2021	3/12/2021	3/24/2021	(3/18 +/1 current tolerance. Vantage is wondering if in process spec could be that all diameters on one part are held within tolerate to the control of the process of the control of t	7.
11		reeding	Vantage using Feeding Concepts for feeding systems. Request deviation from Camcor spec that was sent 3/12. PO has been placed.	Shawn		3/18/2021	3/19/2021	3/24/2021	(3/18 Shawn will investigate. Vantage has developed this project with Feeding Concepts before specification was received.) (3/24 Deviation approved to use Feeding Concepts - commercial issue - Vantage did not have machine spec revision in quoting stage)	1
12			Bobby requesting to look at feasibility to check retainer height 0/-0.3	Danilo/Todd		3/18/2021	3/31/2021		(3/24 request in in Proposal department - should have by next week)	
13		Feeding system	1/2 cubic feet retainers and coffee can of balls	Shawn		3/18/2021	4/1/2021		(3/24 Shawn working with Eston to try and get parts)	
14		Shipping/ install info	Shawn requesting info re, shipping and utilities	Shellie/Zach	UKA Leaving Life Leaving of Costing? Special Voltage Section Size  Vendor Costess General Requirements Voltage Section Size	3/22/2021	7/23/2021		(See email sent 3/22/21 from Shawn. Utility information can be provided sooner after electrical design)	9
15		Eng	FEA Study for press operation	Danilo	Ref Item 5 and Item 9				(3/24 Danilo did Preliminary FEA study on current design based on 20Kn and 12.5Kn. If 20Kn force applied, will deform shaft. 12/5Kn would not deform shaft. Is below max yield)	
1		1		1		1				

Project: Camcor 200752 Assembly System



**Automation Made Seamless** 

#### **Proud Partners of:**



**Robotics** 













Vision Systems













Marking
Systems
DATALOGIC
THE VISION IS YOURS



**MECCO**°





**PLC** 









Torquing/Press ing

































































































+*V* 

## On-Site Service & Support

+VANTAGE

100% Dedication to Customer Service

Global Support On-Site Representatives

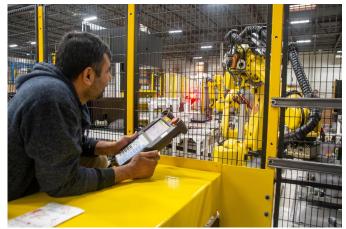
Quick Response Unit and Down Time Recovery

Remote Log In Service in a Moments Notice

24/7 Service Support

On-site Contracts Available

Highly Trained Staff of Engineers & Technicians







#### USA

12651 Newburgh Rd Livonia, MI 48150 tel: +1 734 432 5055

## Mexico

Micro Parque Finsa Eje 2 #470-2 Ramos Arizpe, Coah. 25210 tel: +52 1 844 270 9389

#### Canada

London, ON Canada tel: +1 226 234 1515

# Thank You for Reading! Zero Defects

#### China

14/F Suncome Cimic Tower 800 Shangcheng Rd Pudong New District Shanghai. 200120 tel: +86 137 7103 2628



**Automated Inspection** 

**Quality Assurance**