

AWFS Education "TU34" July, 2021

Robotic Solutions, LLC
Jasper, Indiana

ROBOTS IN THE BOOTH
Evolution of the Finish Room...

Mike Rendel, National Sales Manager

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Before we begin...

I would like to THANK AWFS for the opportunity to be a part of this education series.

Especially:

- Adrian Salvatore, Ed. & Conf. Director
- Amy Bartz, Sales Director
- Trina, Presentation Coordinator
- Las Vegas Convention Center Tech Team

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YOU...? ...!

*This is a conversation...
Why are you here?
Hold your hand up "HIGH !"*

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Agenda for Today's Session:

- 1.) Robot Spraying Automation
- 2.) Look at some Current Hardware
7-minute break
- 3.) Review several Case Studies
- 4.) Question & Answer Discussion
- 5.) Summary

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Objectives of "Robots in the Booth"

Create a **"FRAMEWORK"** for **THINKING** about **SPRAYING ROBOTS**.

We all see a "robotic future."
How do I get my operation there?

- 1.) Investment Costs & ROI Justifications
- 2.) Components of Spraying Robots
- 3.) Capabilities of Spraying Robots
- 4.) Let you "see" how a Spraying Robot will be a part of your future.

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#1.) "ROBOT AUTOMATION"

TEN (10) QUESTIONS to UNDERSTAND

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Manufacturing Technology **BOOMS !**

- 1980's: COMPUTERS
- 2000's: CNC's
- 2020's: ROBOTS

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"ROBOTS" imply AUTOMATION...

"IN THE BOOTH" - COMPONENTS

- 1st of 4: Finish CHEMISTRY
- 2nd of 4: Finish SPRAYING
- 3rd of 4: Finish CURING
- 4th of 4: Product TRANSPORTATION

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The #1. Question is "simply..."

WHAT DOES A ROBOT COST?

A: "The same as a CNC."

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The #2. Q.: "How do I pay for it?"

[Woodworking Industry News](#)

Ashley Furniture needs 2,000 workers but can't find them.

By [Robert Dalheim](#)

June 17, 2021 | 10:38 am CDT

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A.#2.: The COST of a *failed* Finish ?

- Availability of SKILLED Labor
- RELIABILITY of Skilled Labor
- Finish QUALITY on the Product
- CONSISTANCY of Finish Quality
- SAFETY of the Finish Staff
- Material Transfer EFFICIENCY
- VOLUME of Daily Production.

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#3. Q.: "Can you say that in \$ Dollars?"

\$275,000 = Project Budget
 100% Financed
 @ 60 Months (5 yrs.)
 \$5,500 = \$ Cost per MONTH
 \$1,270 = \$ Cost per WEEK
 \$32 = \$ Cost per HOUR
 @ 40 Hours per Wk.

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#4. Q.: ...and "Down Stream" Costs?

\$ Zero = \$ Overtime per Week

\$ Zero = \$ Weekends/Holidays

Electric = \$ Cost after 60th Month

Maintenance = Robust Industrial Gear

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#5. Q.: How's a spraying robot work?

- 1.) The Robot must "see" the product...
- 2.) A "spraying program" must be written...
- 3.) Fluids are delivered to a spray gun...
- 4.) The part is presented to the robot...
- 5.) The spraying program is "run..."
- 6.) ...and the Mission-is-Accomplished.

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#6. Q.: Robots “see” the product? How?

- 1.) SCANNING: Part moves -or- Scanner moves
- 2.) SELF-TEACH: Records a human operator
- 3.) COMPUTER MODELING: “Step Files”
- 4.) POINT-to-POINT: (Oldest) Programming
- 5.) “SEEING CAMERAS:” (New) “Vision”

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#8. Q.: Writing a “Spraying Program?”

- 1.) SCANNING: The “controller” auto-writes
- 2.) SELF-TEACH: Controller records a human
- 3.) COMPUTER MODELING: Operator P2P
- 4.) POINT-to-POINT: Operator touches points
- 5.) CAMERAS: Camera data converted to parametric

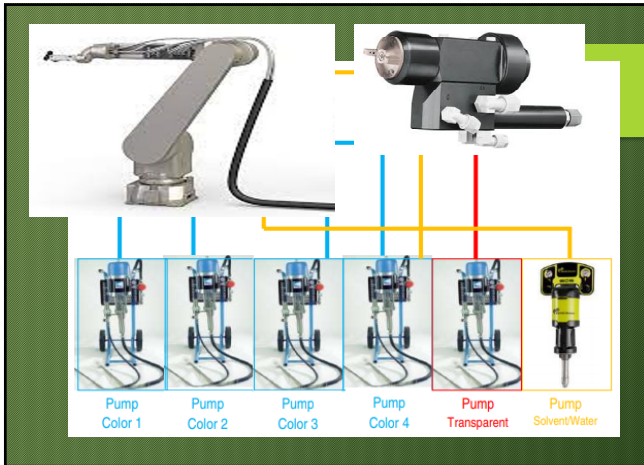
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#9. Q.: “What Fluids can I Spray?”

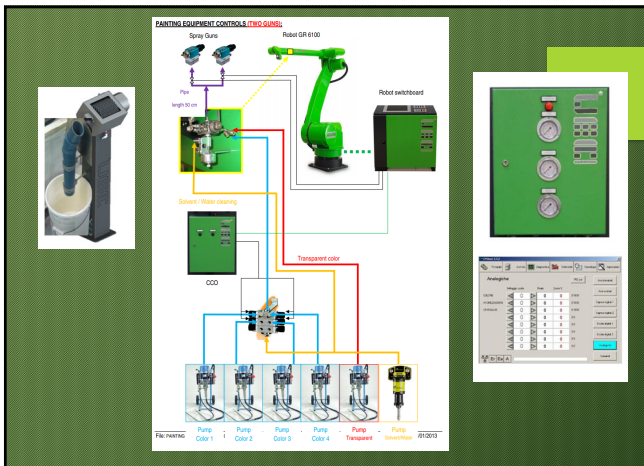
A: “ANY fluid you can spray by hand.”

- Sealers & Topcoats
- Paints & Stains
- Adhesives
- Powder Coats
- Gel Coats & Fiberglass Resins
- Polyurea
- ...and ...and ...and

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#10. Q.: "Safety?" *Warning... Warning...!*

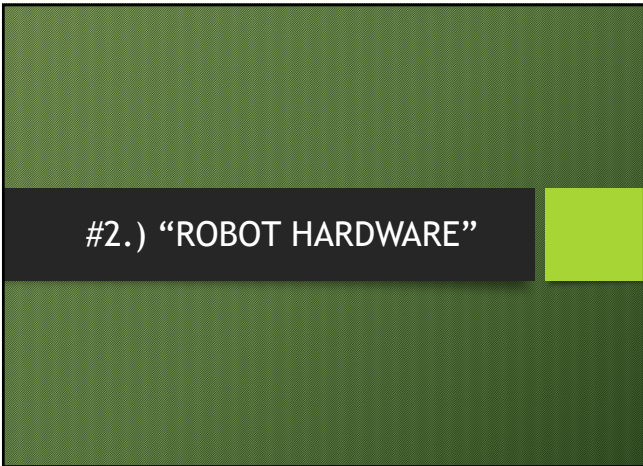
Solvent based fluids!

ATEX Certification:
Zone 2
Zone 1

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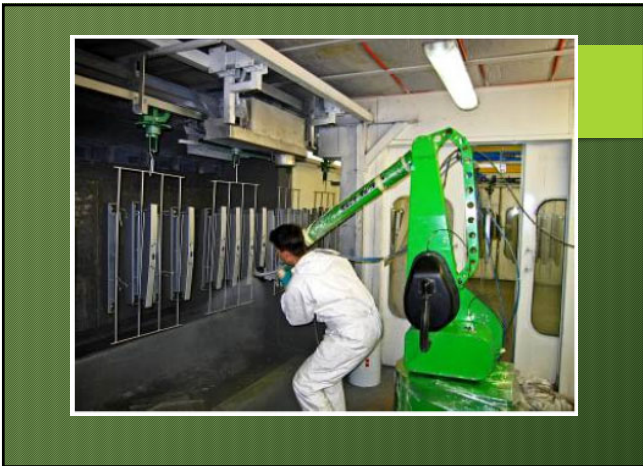


HARDWARE
INTIGRATED SYSTEMS...
that include:
TRANSPORTATION
"SEEING"
PROGRAMMING
SPRAYING

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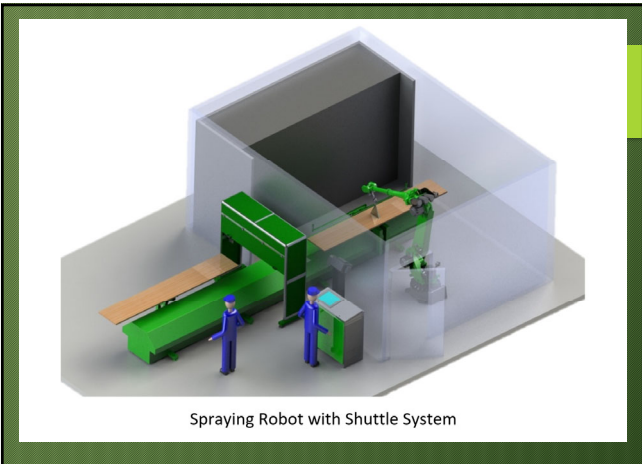
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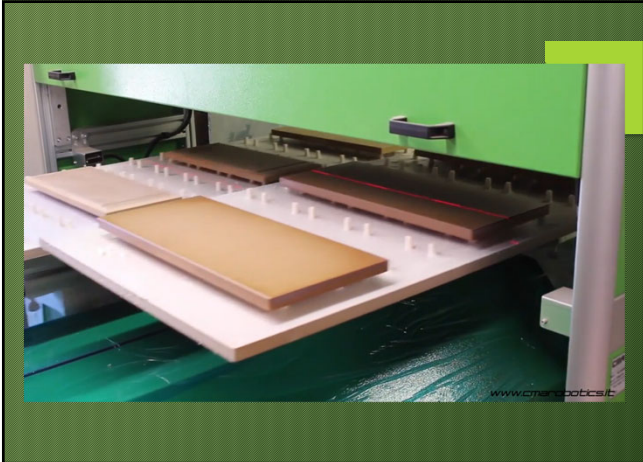


Spraying Robot with Shuttle System

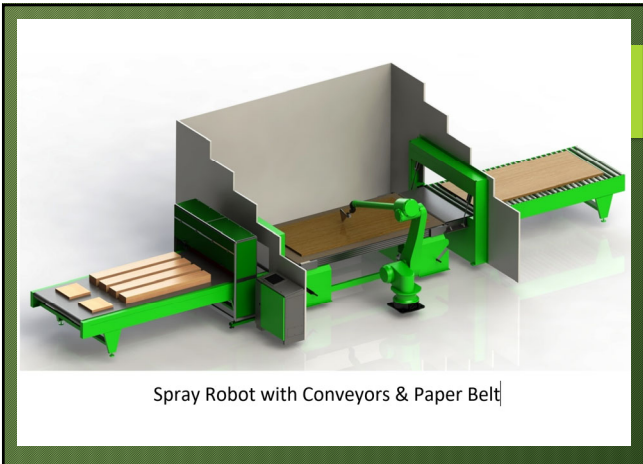
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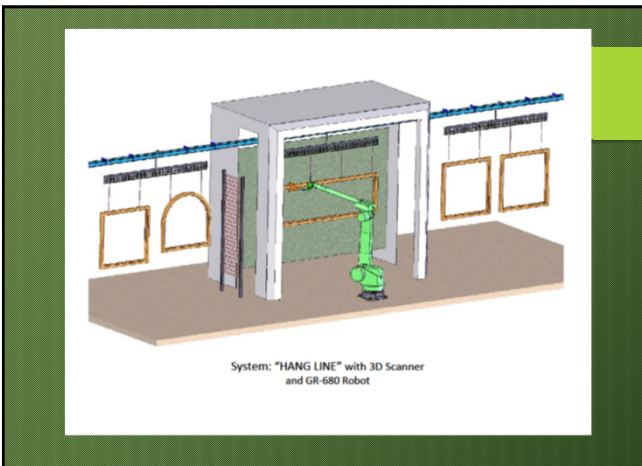
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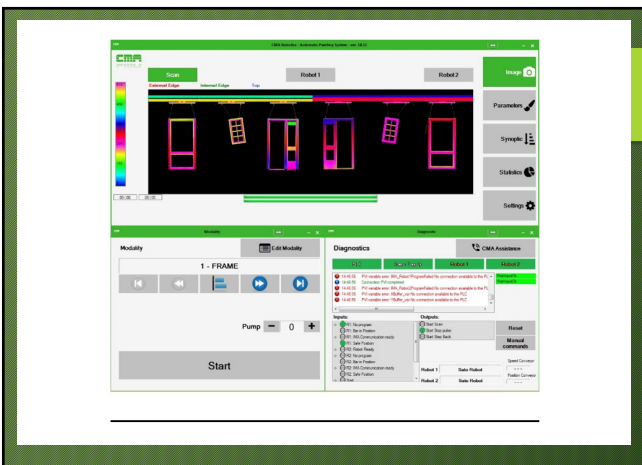
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#3.) "CASE STUDIES"

Case studies are available upon request.
(mike@roboticsolutions.net)

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#4.) Question & Answer Discussion

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#5. Summary:
"Automate or Evaporate..."

- 1980's: COMPUTERS
- 2000's: CNC's
- 2020's: ROBOTS

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Closing Remarks...



THINKING
"FRAMEWORK?"

- 1.) Investment ?
- 2.) Components?
- 3.) Capabilities?
- 4.) Your Future?

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Top "3" Follow-Ups...



Follow-Up

- 1.) Envision a spraying robot in your shop.
- 2.) Calculate your real \$ of failed finishes.
(Revisit Question #2.)
- 3.) Review you vision w/ a robot integrator.

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