

# FEDTEX

*Individual and Unit Tactical Gear, Uniforms and Personal Protective Equipment*

---

May 19-20, 2026    Raleigh, North Carolina

Hosted By  
US Senator Thom Tillis  
US Senator Ted Budd  
North Carolina Military Business Center



*Individual and Unit Tactical Gear, Uniforms and Personal Protective Equipment*

---

May 19-20, 2026 Raleigh, North Carolina

## **The Robotic Revolution in Textile Manufacturing: Efficiency, Precision and Innovation**

- Moderator: Lee Moritz, Regional Program Manager (Hickory), NC Military Business Center
- Frank Henderson, CEO, Henderson Sewing Machine Co, Inc.

# FEDTEX

## *THE ROBOTIC REVOLUTION IN TEXTILE MANUFACTURING: EFFICIENCY, PRECISION & INNOVATION*



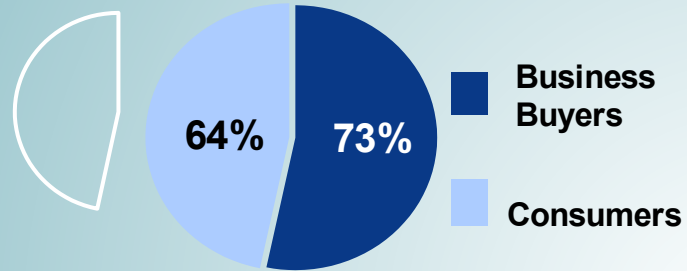
NC STATE UNIVERSITY,  
MCKIMMON  
CONFERENCE CENTER

Raleigh, North Carolina

May 19-20, 2026

# TODAY IN AMERICA

## CHANGING CUSTOMER REQUIREMENTS



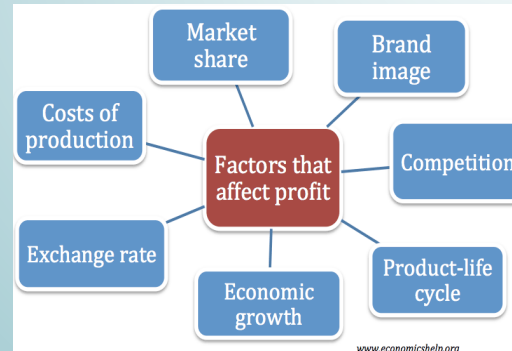
67% of consumer's say their standards for good experiences are higher than ever

## NEW MANUFACTURING TECHNOLOGIES



It's Here! How AI Robot Will Revolutionize Manufacturing

## MARGIN PRESSURES



Surviving the Cost Pressure Cooker

## ARTIFICIAL INTELLIGENCE (AI)



AI Is Reshaping Strategies in Manufacturing

**IN THE NEWS...**

# Humanoid Robots

In the near future, it's clear that robots will seamlessly coexist with us, taking on tasks like making our beds, managing our dry cleaning, walking our dogs, driving our kids to school, and playing a key role in operating our factories.



**HOW WILL IT AFFECT TEXTILE MANUFACTURING?**

# ***ROBOTICS and Automation*** **CAN HELP** ***MANUFACTURING INDUSTRIES***

**...Robotics Integration into Manufacturing Products *IS Possible***

***\*\*\*HOWEVER, PROCESSING FLEXIBLE, TEXTILES, IS HARD\*\*\****

**...Shortened Order Lead Times *Are Possible***

***\*\*\*AVERAGE ORDER LEAD TIME is 90-120 DAYS\*\*\****

**...Over Production is *Not Acceptable Today***

***\*\*\*100 Billion GARMENTS PER YEAR are DISCARDED\*\*\****

**...Sustainability and Circularity of Mfg. Products *IS Attainable***

***\*\*\*TEXTILE WASTE HAS GROWN 80% SINCE the YEAR 2000\*\*\****

**...Finding & Retaining Labor *IS A BIG Issue Today For ALL Mfg.***

***\*\*\*The Textile Industry is facing a HUGH LABOR SHORTAGE\*\*\****

# MANUFACTURING BREAST POCKET FLAPS...

## Manual Operations

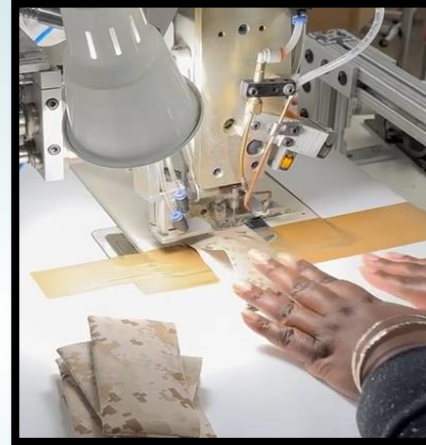
MAKE



TURN



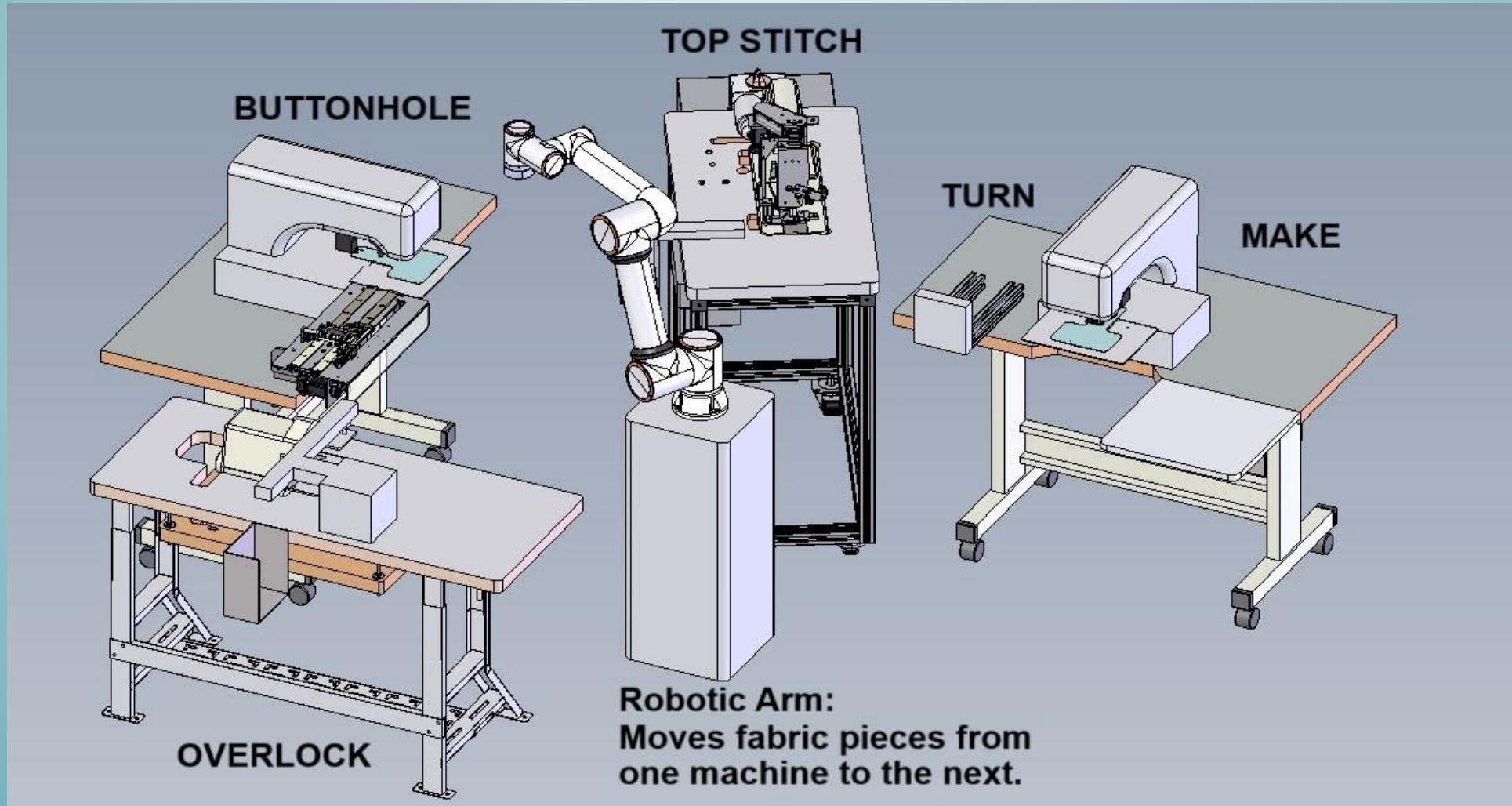
TOP STITCH



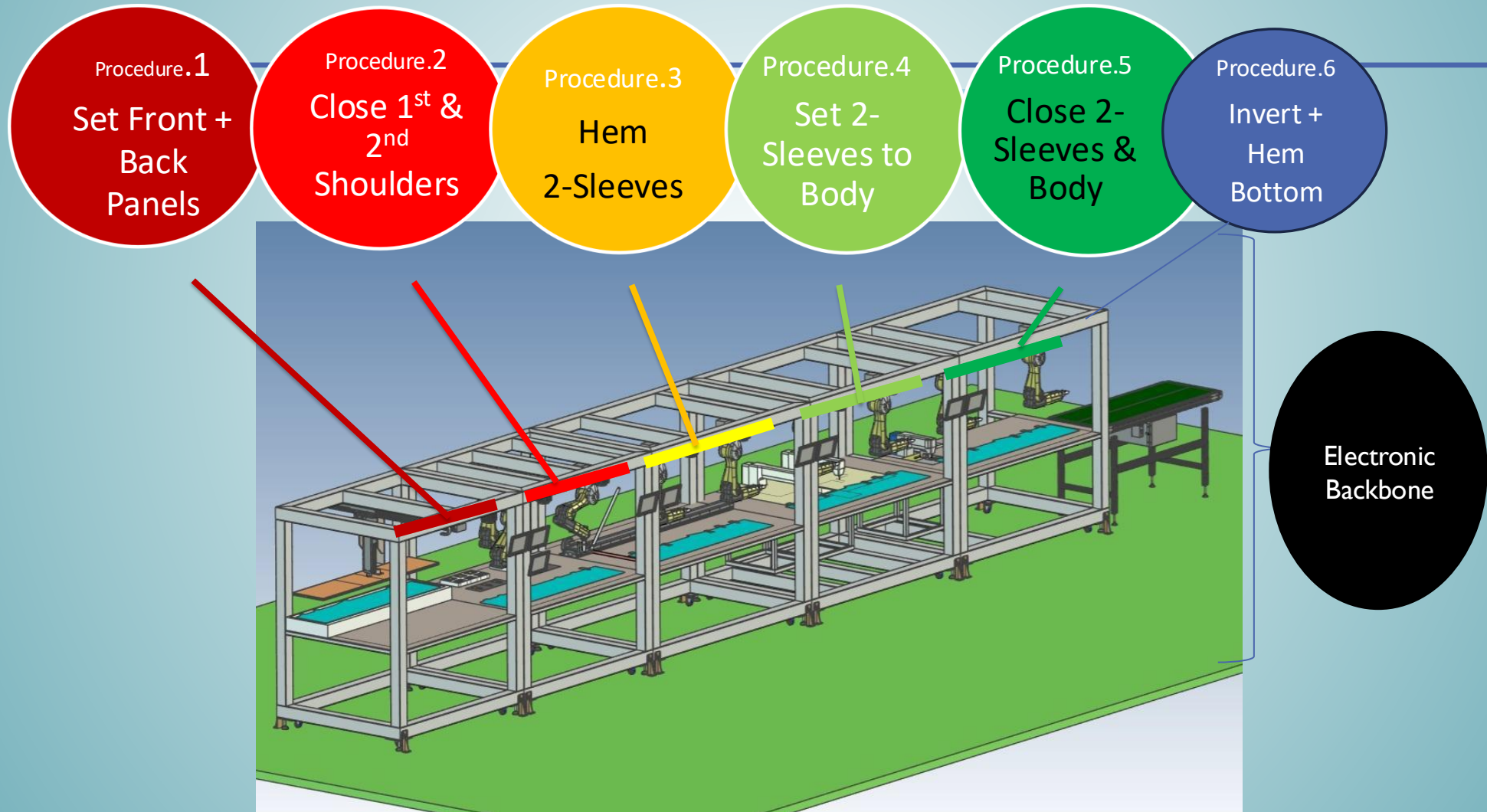
OVERLOCK



# ROBOTIC MANUFACTURE OF TEXTILE PART COMPONENTS



# AUTOMATED T-SHIRT, GOLF SHIRT ASSEMBLY LINE



# **ROBOT for T-SHIRT** **Shoulders and Side Seams**



# ***FASTSEWN***

***SEW, CUT & Feed on Same  
Platform***



# ***AUTOMATION TO MANUFACTURE BEANIES***



***Beanie  
Fabric:  
Feed Fabric  
Invert Fabric  
Cut Fabric  
Stack***

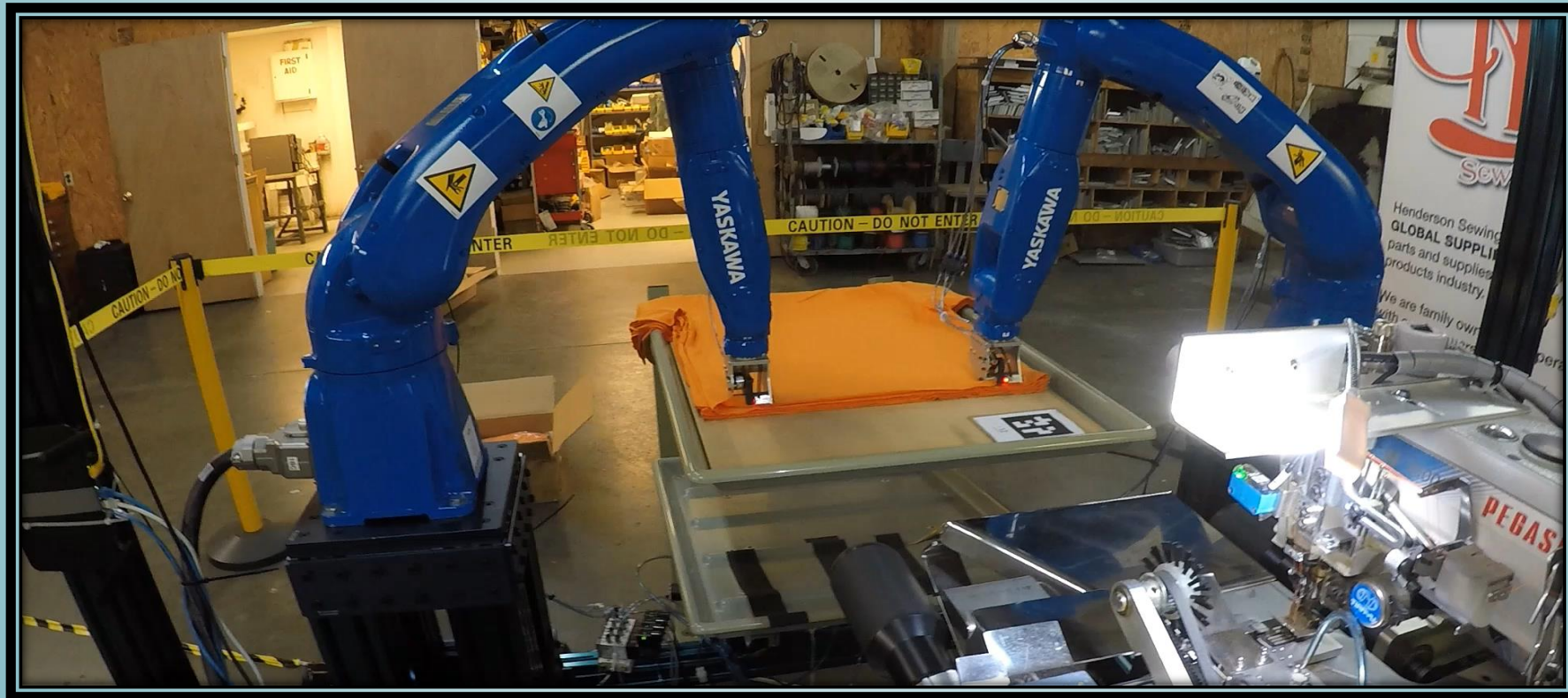


**Beanie Robotic Auto Sew**



**Beanie Robotic Auto Sew**

# ROBOTIC LOADING T-SHIRT Bottom Hem



# **ROBOTS** and **Automation** **Integrated** **into *SEWING***

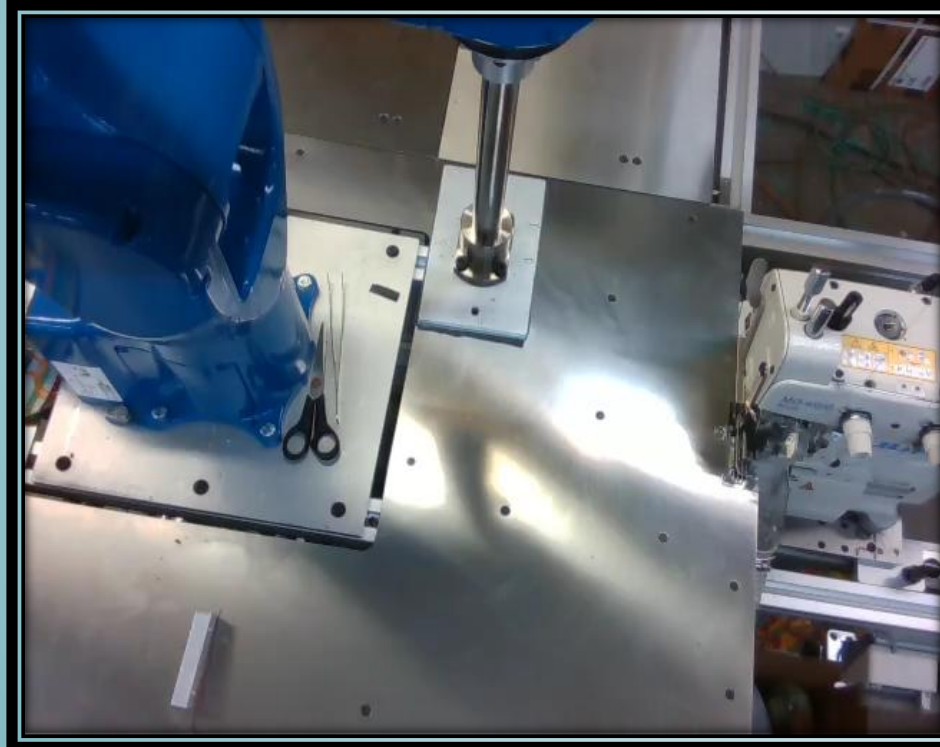


**FIREMAN'S HAT BRIM**

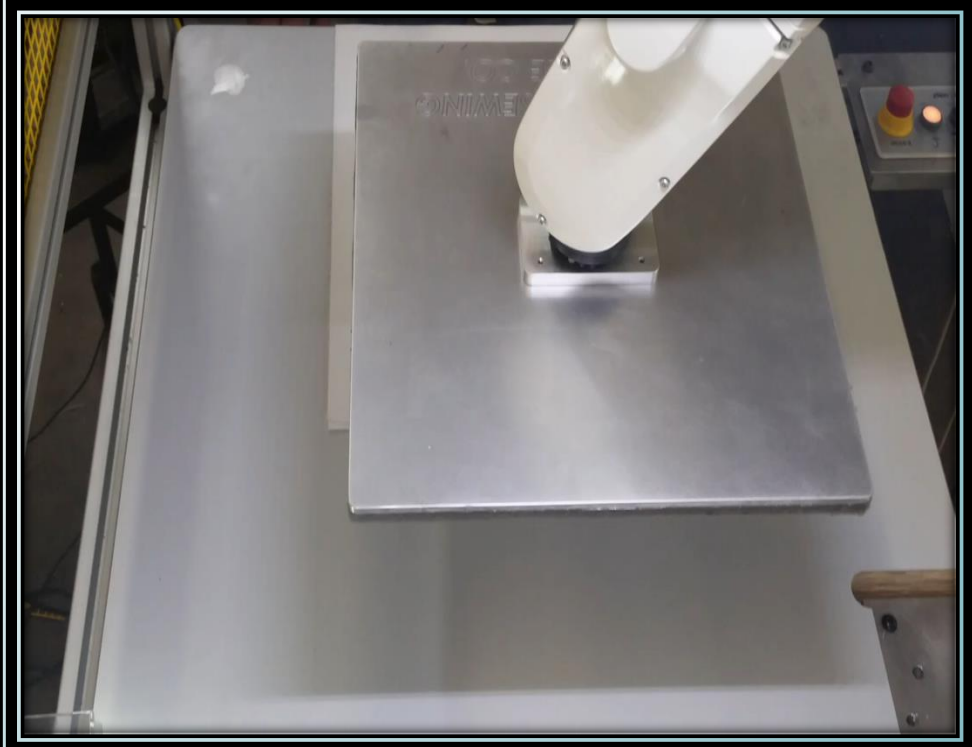


**FLAG HEMMING**

# **ROBOTS** Integrated into **SEWING**

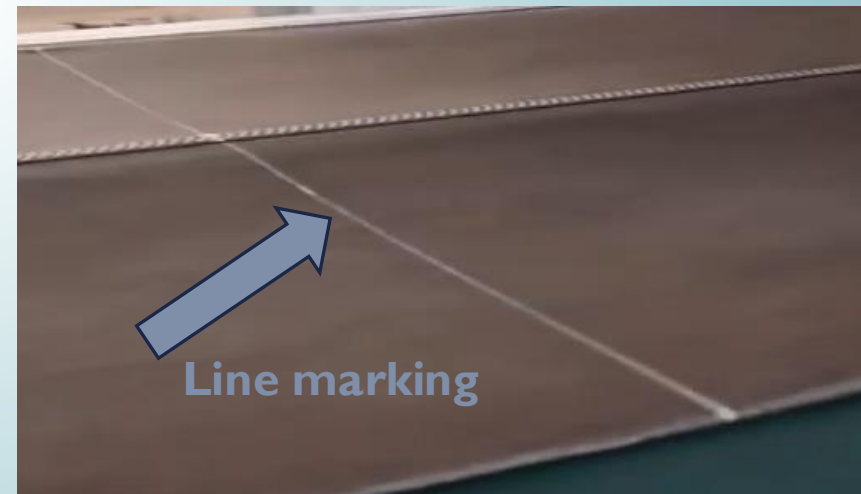


**Scrub Pad**



**Pillow Cover**

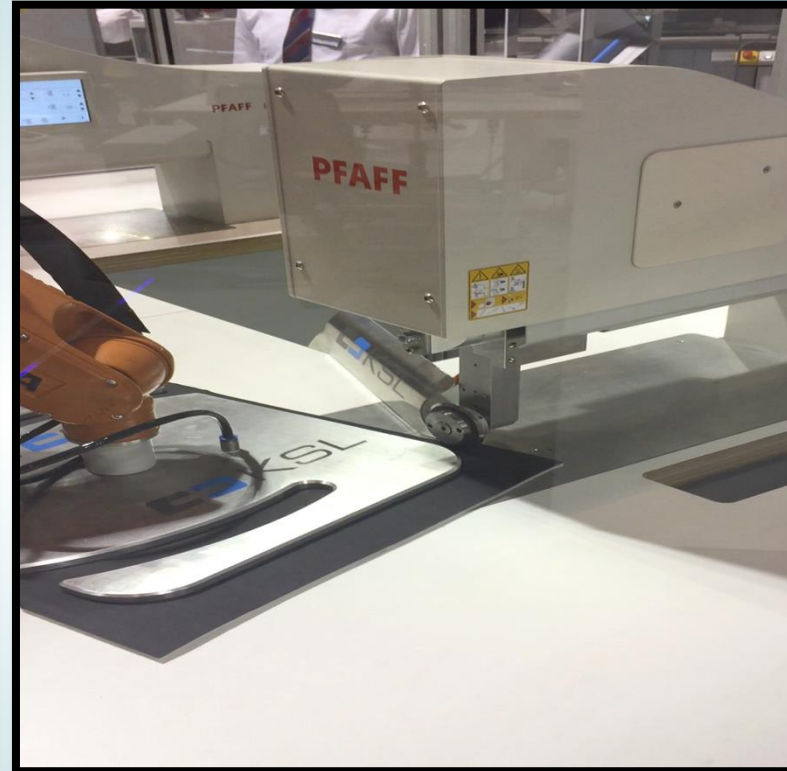
# AUTOMATIC FILTER PRODUCTION



# ROBOTIC MACHINES



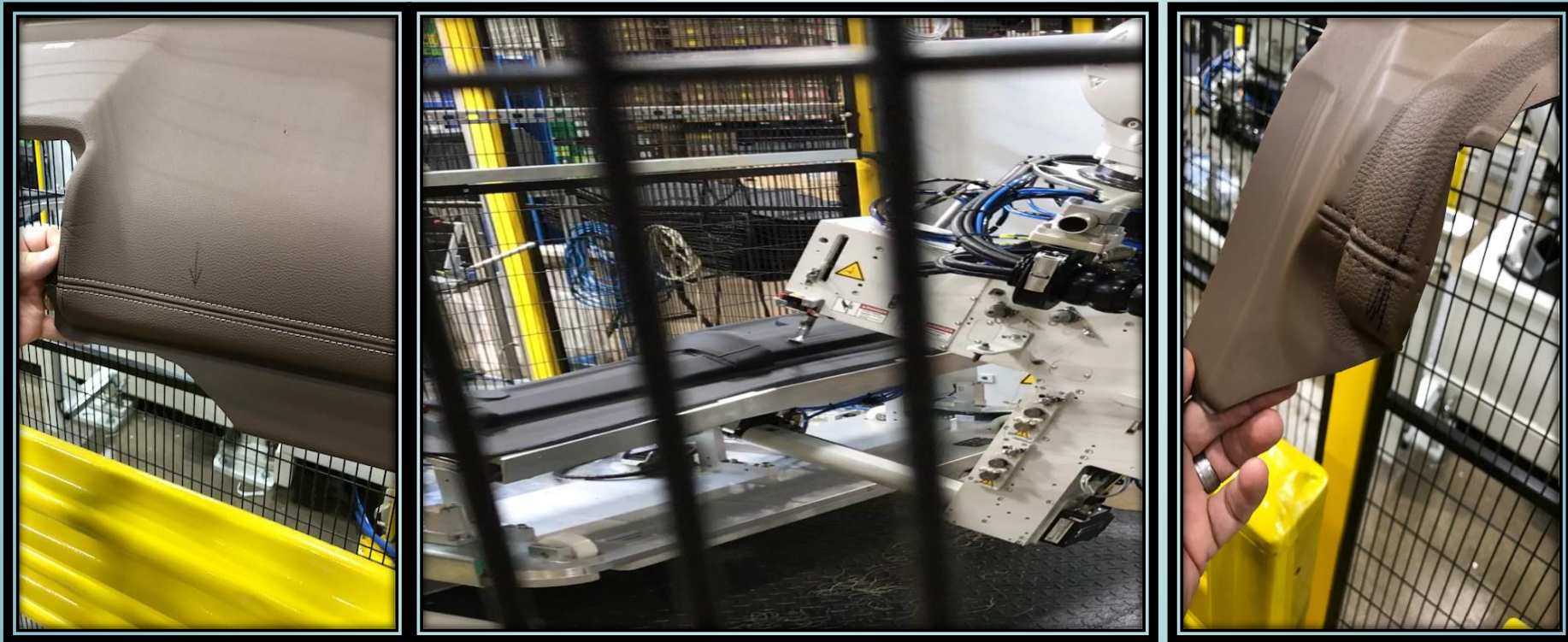
**FURNITURE GANTRY ROBOT**



**ULTRASONIC CUT & SEAL**

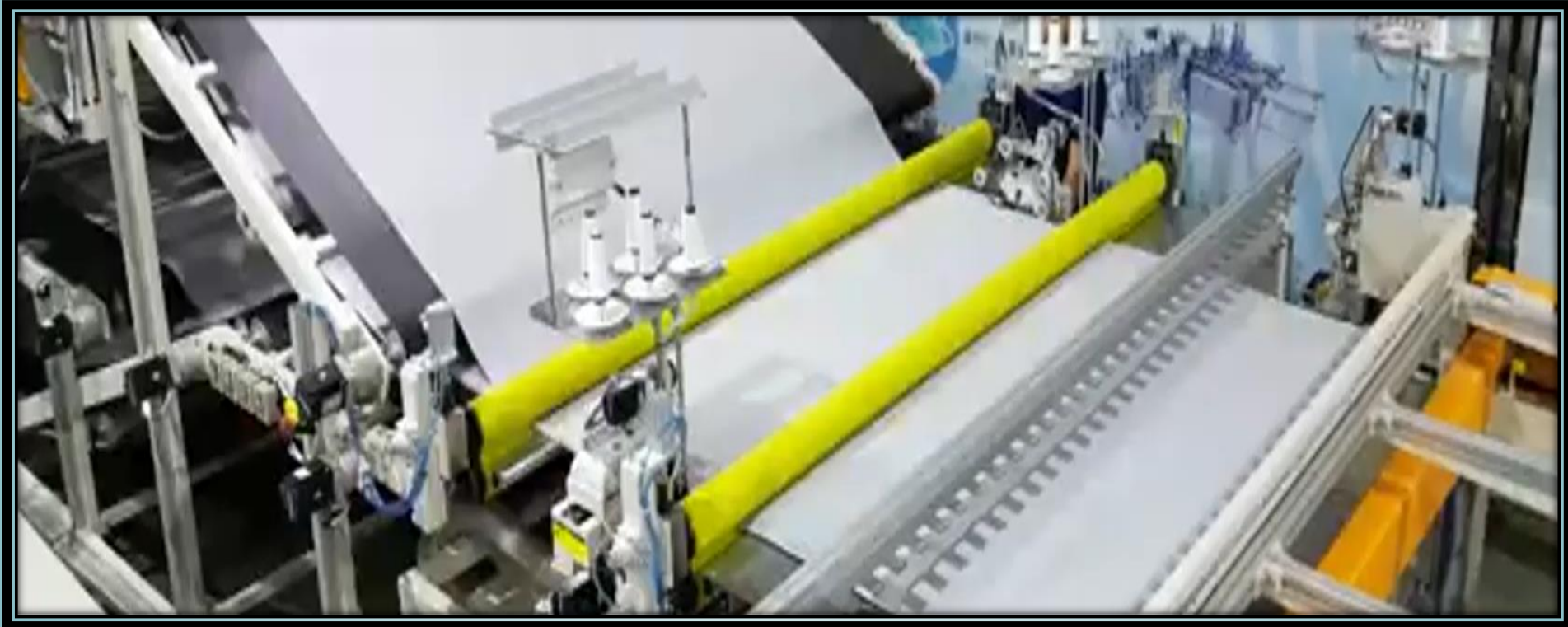
*Material Handling ... WITH Automation*

# **ROBOTS** Integrated **into SEWING**



***Dash Panel of an AUTOMOBILE***

# ***Sewing the Width of a Tubular Knit Sock, Without an Operator***



**Autonomous Sewing**

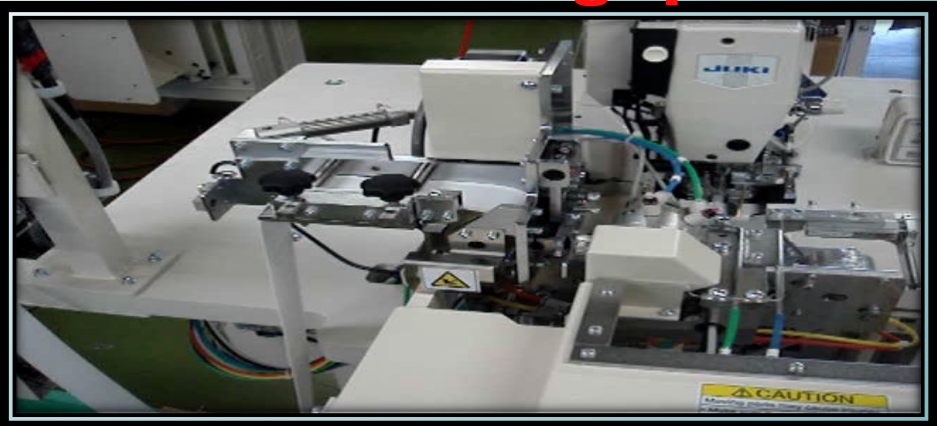
# Automated Machines *and* Robots



**ROBOT - Ironing Board Covers**



**ROBOT - Auto Air Bag Operation**



**Auto Elastic Ring**

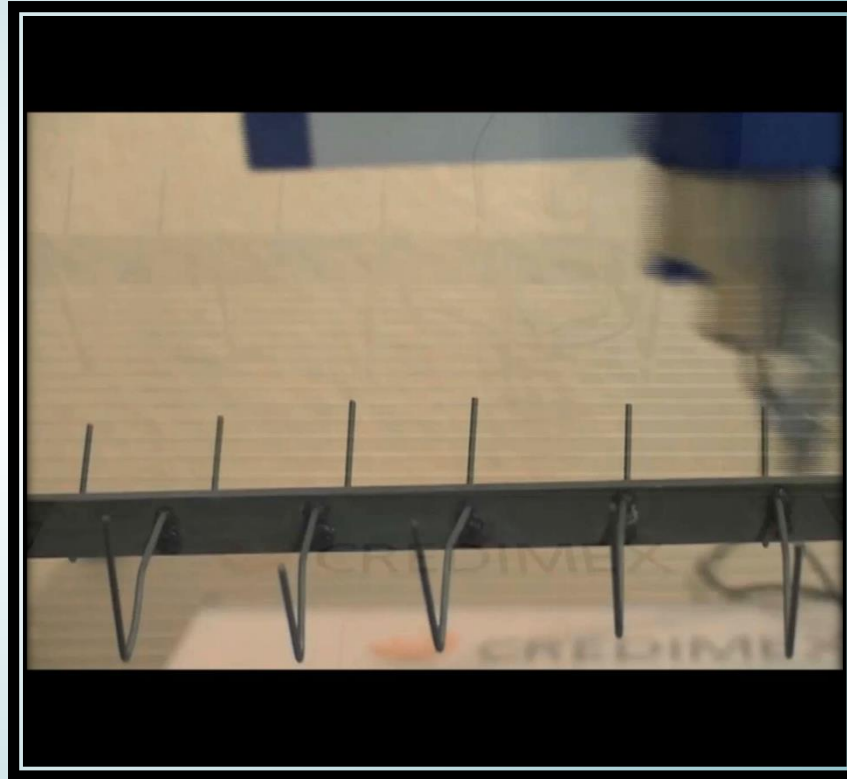
# ROBOTS AND HUMANS CAN WORK TOGETHER



***Goal is to bring Customization and Personalization Closer to Production***

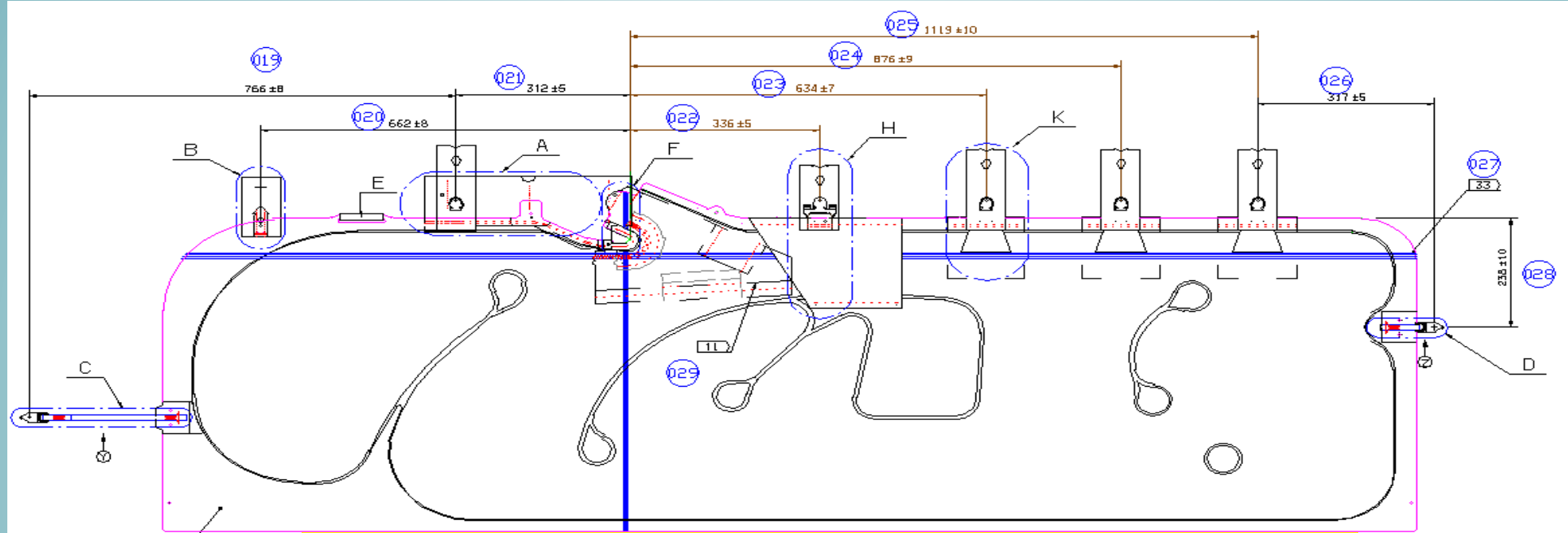
# VISION SYSTEMS

## VIDEO

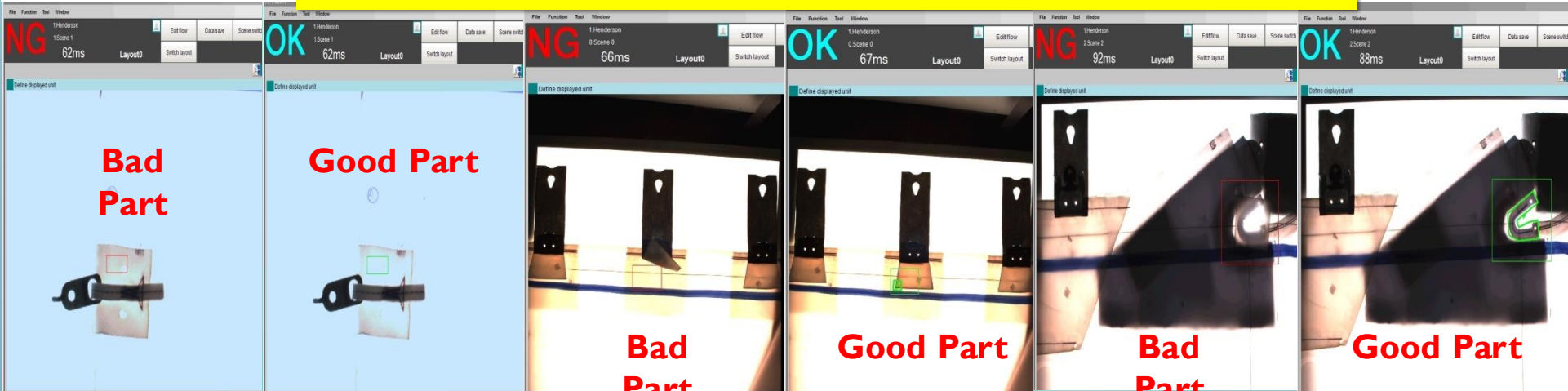


Camera takes a Picture of the Drop Location...  
then of the Object... Then Drops the Object Onto  
the Pin

# Vision INSPECTION



**OF A FINISHED PRODUCT**



# Vision Alignment & Inspection of Products



Heat Transfer of LOGO Onto a T-Shirt

# WEB END, Insert Webbing TURN & TACK



**Webbing Inserted into Plastic Buckle**

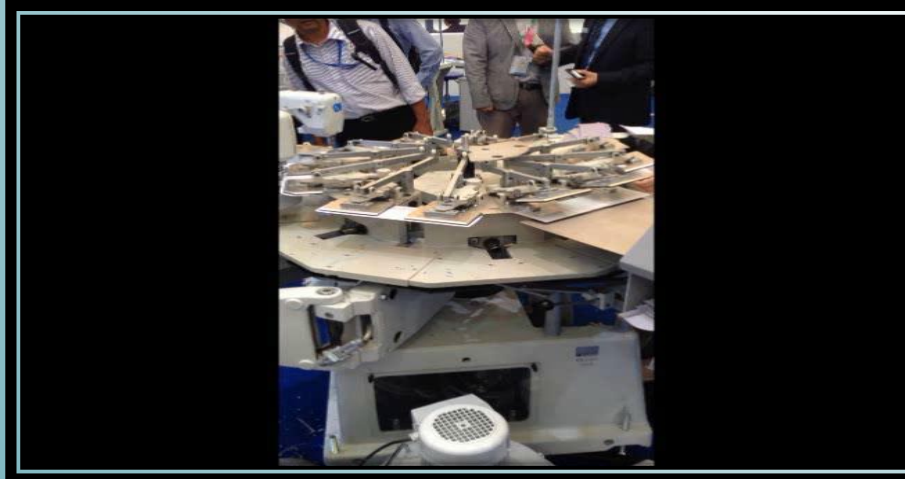
# **Robots *and* Automated Machines**



**Autonomous Strap System**



**X Y Theta Turning Head**



**Auto Collar & Cuff Sewing Unit**



**DAB Air Bag Robot**

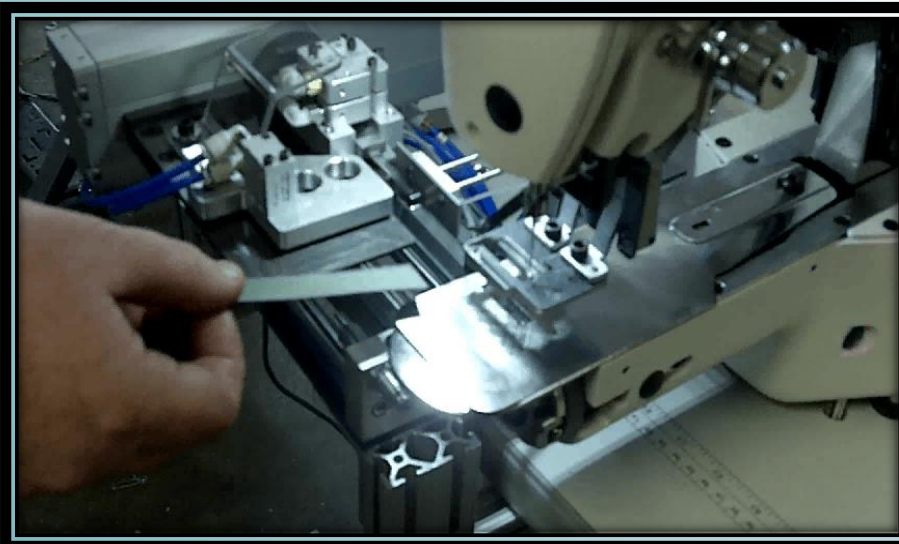
# Work Cell Automation



Parachute Line Cord Automation



Twin Head, Auto Velcro Loading, Medical Unit



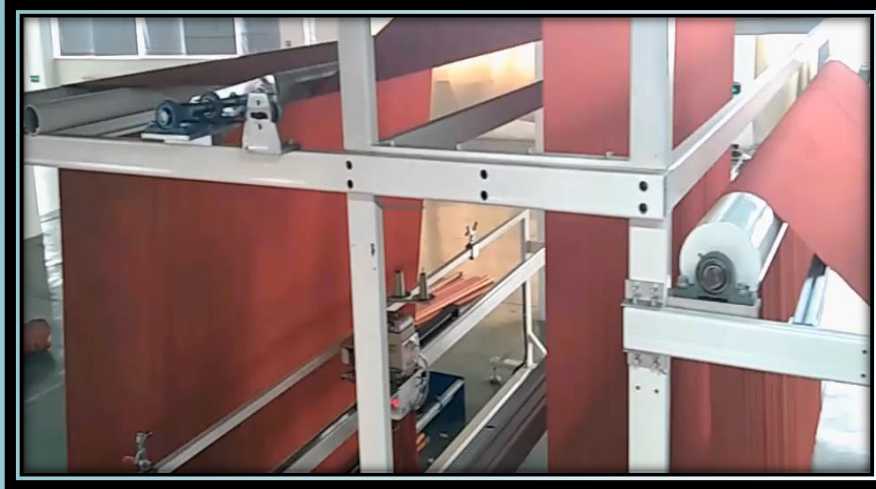
Webbing End, Turn and Tack



Bottom Velcro Load with Name Tape on Top

# FOUR SIDE SEWING

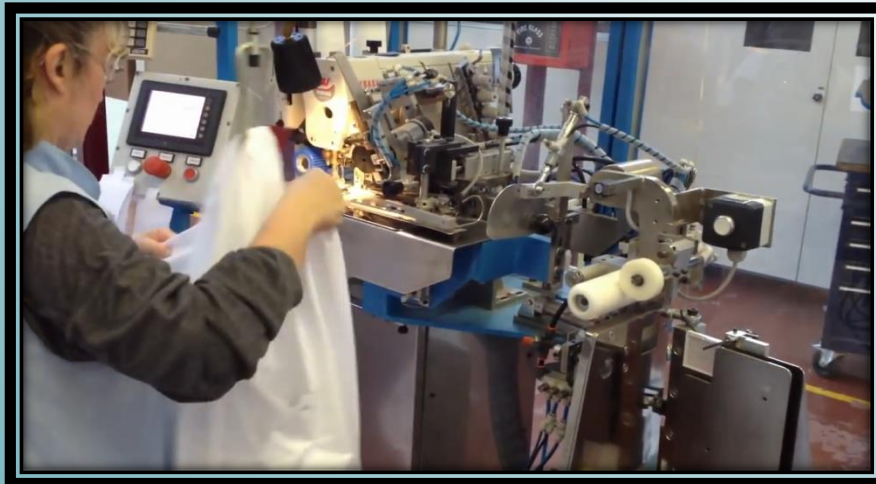
## BED SHEET



## Blanket



## Fitted Sheet



## Pillow Cover



# AFFORDABLE Robots



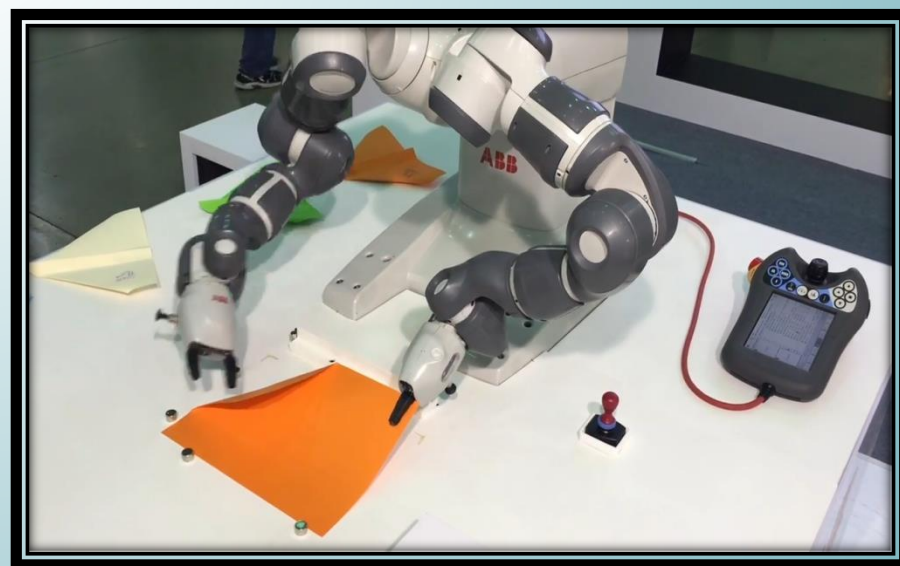
**Universal Dual Arm Robot**



**OMRON COBOT**

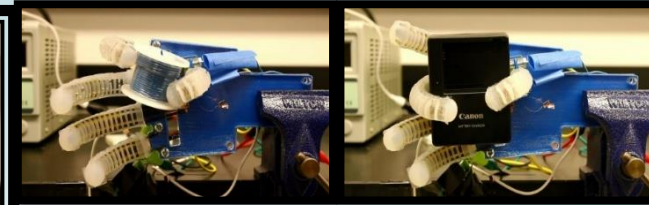
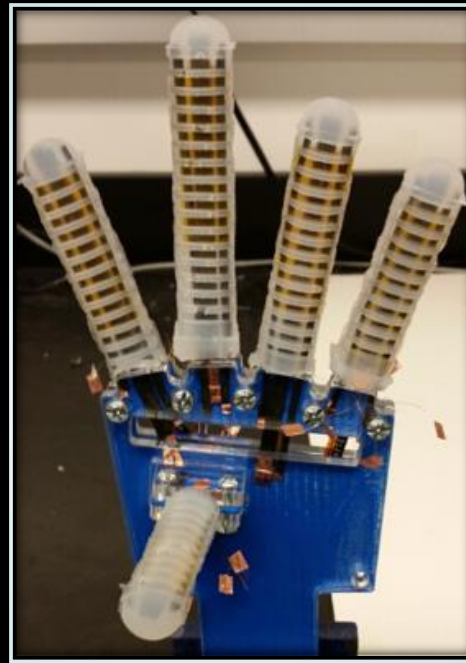
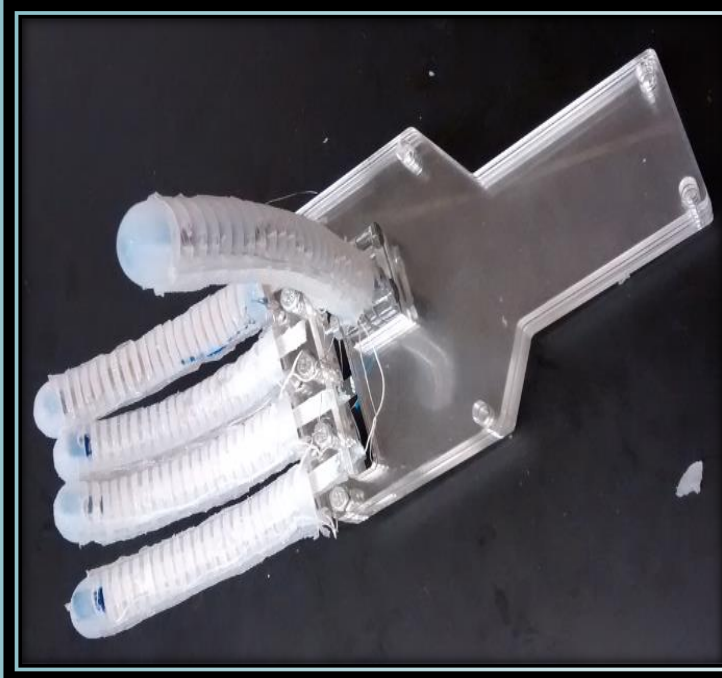


**FESTO BIONIC COBOT**

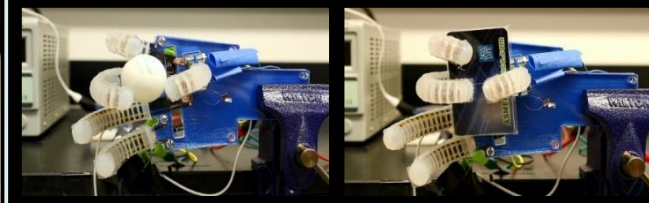


**ABB YUMI ROBOT**

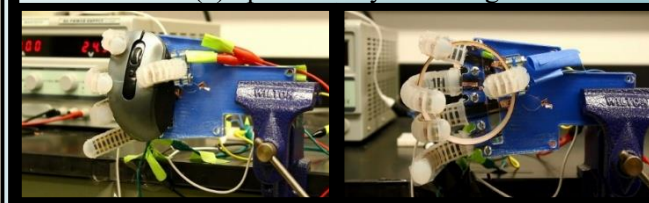
# Haptic Technology



(a) operations by two fingers



(b) operations by three fingers



(c) operations by four fingers

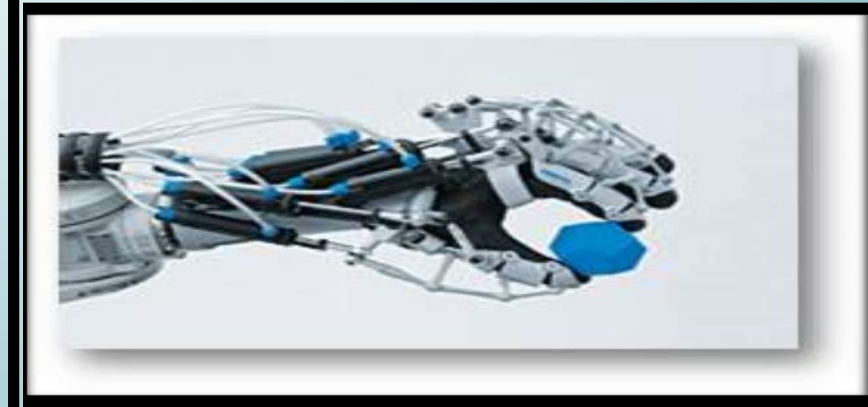
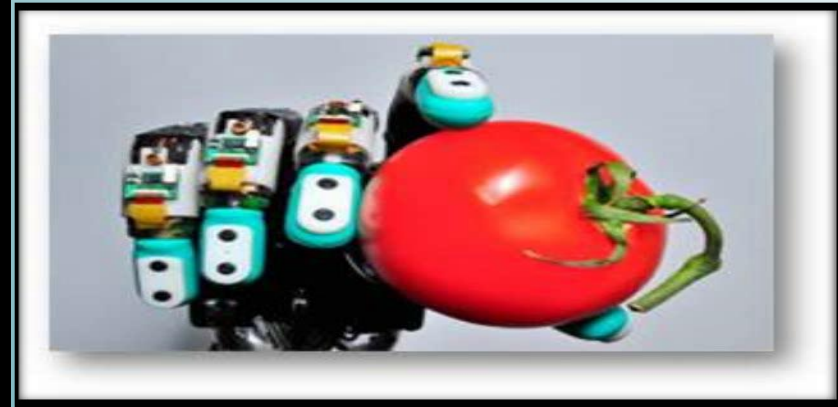
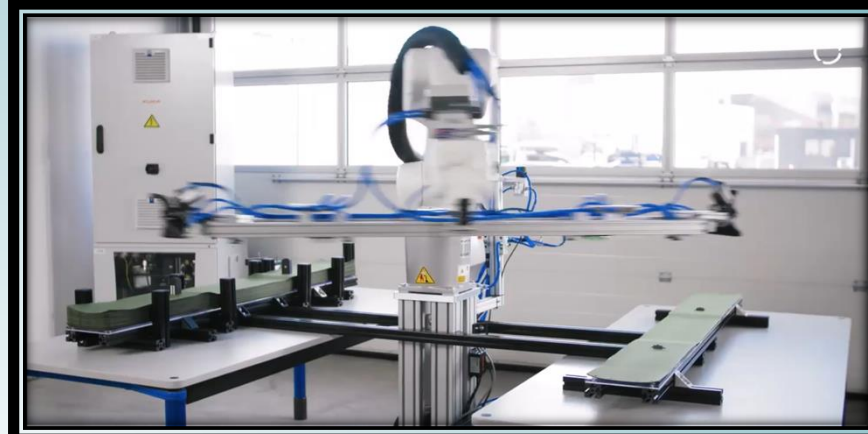


(d) operations by five fingers

**FLEXIBLE, DEXTEROUS,  
MECHANICAL HAND FORM**

**CAMERA & SENSOR TECHNOLOGY**

# Robotic End Effectors



# Automated Devices



**Auto Bobbin  
Checker**

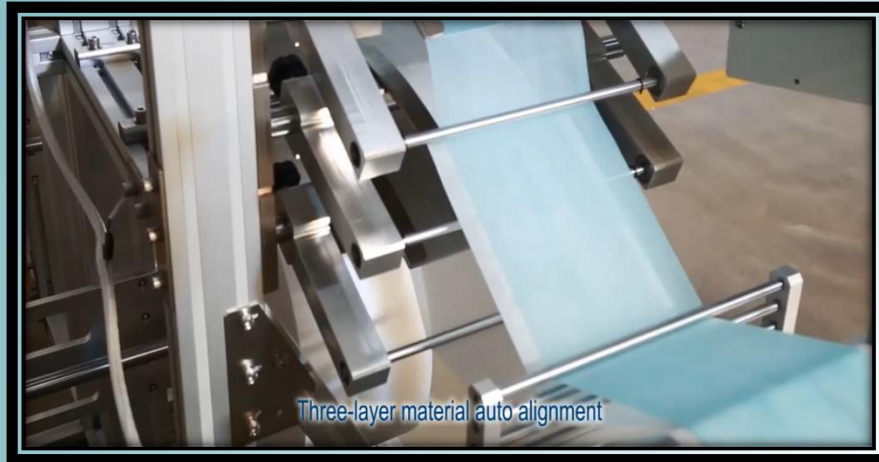


**Auto Skip Catcher**



**Auto Bobbin  
Changer**

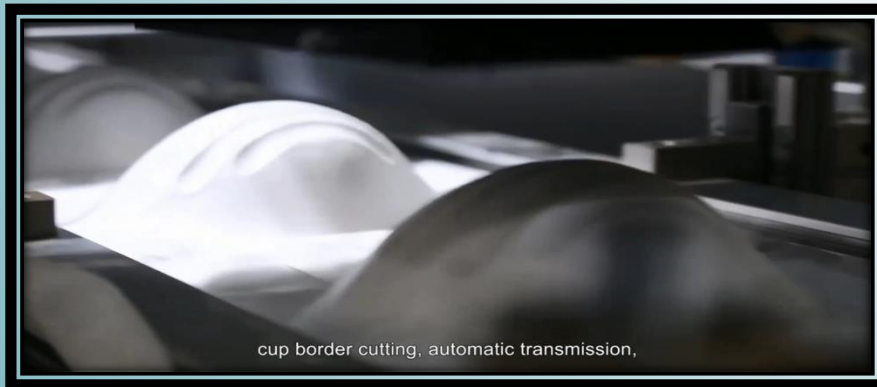
# PPE Non-Woven AUTOMATION



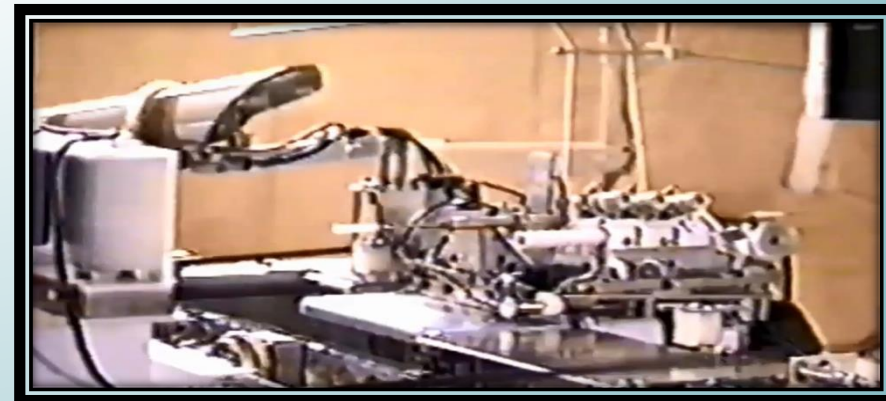
**PLEATED MASK MACHINE**



**FOLDABLE MASK MACHINE**



**CUP MASK MACHINE**



**MEDICAL CAP MACHINE**

# SMS AUTOMATIC GOWN MACHINES

Medical Gown (Body Part) Making Machine



# Automatic Folding Machines



# THANK YOU!

## FOR YOUR ATTENTION



TOLL FREE: 1-800-824-5113  
FAX: 1-800-239-8398



INT'L PHONE: 1-334-222-2451  
FAX: 1-334-222-3738

[WWW.HENDERSONSEWING.COM](http://WWW.HENDERSONSEWING.COM)



*Individual and Unit Tactical Gear, Uniforms and Personal Protective Equipment*

---

May 19-20, 2026 Raleigh, North Carolina

## **The Robotic Revolution in Textile Manufacturing: Efficiency, Precision and Innovation**

- Moderator: Lee Moritz, Regional Program Manager (Hickory), NC Military Business Center
- Frank Henderson, CEO, Henderson Sewing Machine Co, Inc.

# FEDTEX

*Individual and Unit Tactical Gear, Uniforms and Personal Protective Equipment*

---

May 19-20, 2026    Raleigh, North Carolina

Hosted By  
US Senator Thom Tillis  
US Senator Ted Budd  
North Carolina Military Business Center