

# **AUTOMATION E-BOOK**

*How to Integrate Automation into  
Your Work Cell*



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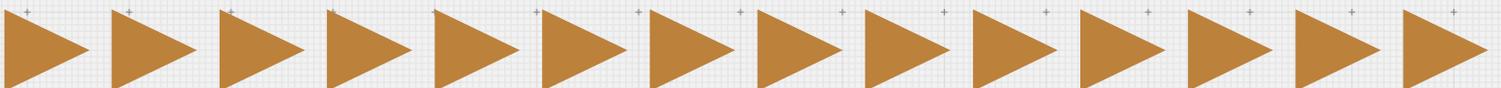
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# **WELCOME**

Thank you for taking the time to download this Automation E-Book. We hope you find this information easy to digest and applicable to wherever you are on your automation journey.

Implementing automation doesn't have to be an overwhelming task. In fact, we would recommend taking baby steps. A good place to start may be implementing automation into a single production cell.

As Lean manufacturing teaches, small changes over time can transform your operations.

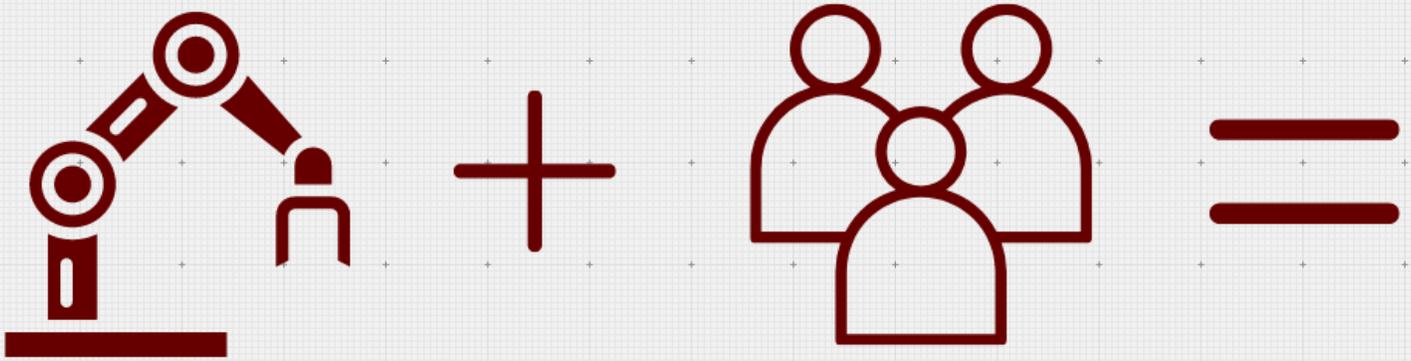
Let's dive in!

# AUTOMATION BENEFITS

Why should you implement automation? The benefits are endless.

- 1 Reduce Rework
- 2 Improve Equipment Efficiency
- 3 Minimize Work-In-Process
- 4 Reduce Operating Costs
- 5 Boost Production Output
- 6 Grow Manufacturing Capability
- 7 Increase Productivity
- 8 Meet Skilled Labor Shortage

# THE DYNAMIC DUO



**ACCURACY**

**FLEXIBILITY**

**SPEED**

**STRENGTH**

# Proven Cost-Effective Applications

## Machine Vision Systems

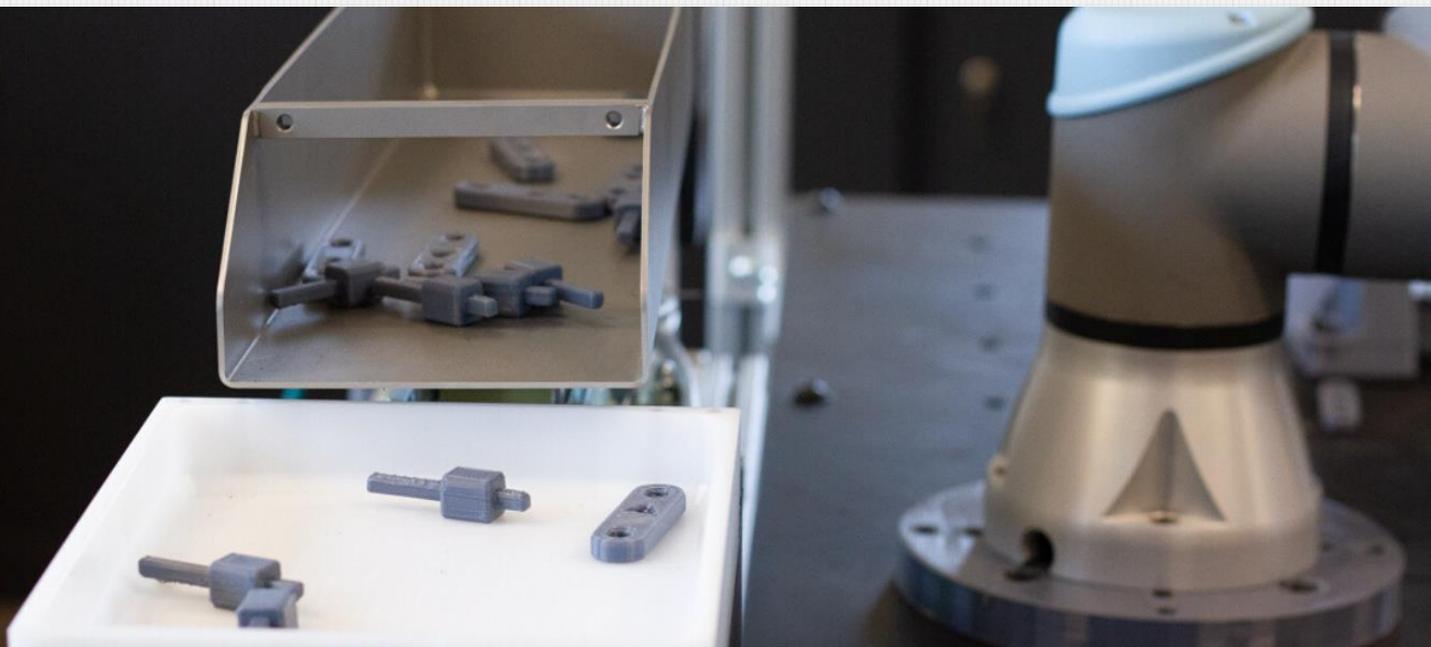
- Use them for measuring, inspecting, and sorting parts to increase throughput and yield higher quality work
- They can capture and process real-time measurements to provide guidance to your machines
- Investment: As low as \$5,000 - \$15,000



# Proven Cost-Effective Applications

## Part Feeders

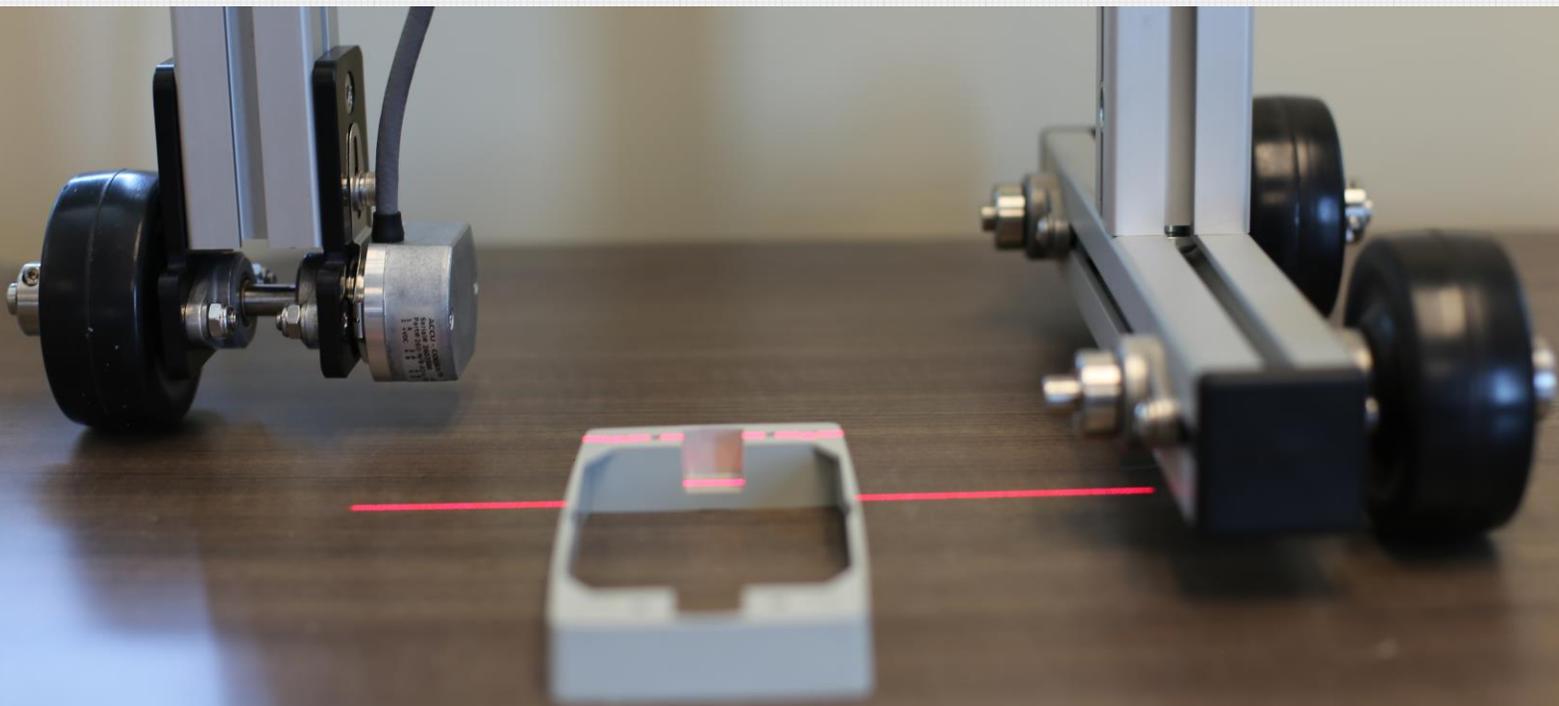
- Are great for counting and sorting components on an assembly line. A part feeder is portable, versatile, and allows for quick changeover
- Most are able to flip and shake parts to make sure they are in the correct orientation
- Ideal for a manufacturer with a large variety of small parts
- Investment: As low as \$12,000 - \$15,000



# Proven Cost-Effective Applications

## 3D Laser Systems

- Are projected high-resolution laser lines to scan and measure cross-sectional shapes for quality control
- No external PCs or controllers required, which makes it easy to integrate into an existing inspection process
- Investment: Less than \$12,000



# Proven Cost-Effective Applications

## Machine Tending

- For handling parts, tool exchange, pick and place, palletizing, painting, and injection molding
- Gives you the ability to increase your capacity, precision, and safety
- Investment: \$40,000 - \$50,000, plus tooling

Pictures: collaborative robot with different grippers



# Cobots in South Dakota

## Applied Engineering & The Freeman Company



Precision Manufacturer in Yankton, South Dakota



Needed to increase production levels to meet customer demand but had trouble finding additional labor



Decided the best automation solution would be to integrate a collaborative robot, or cobot



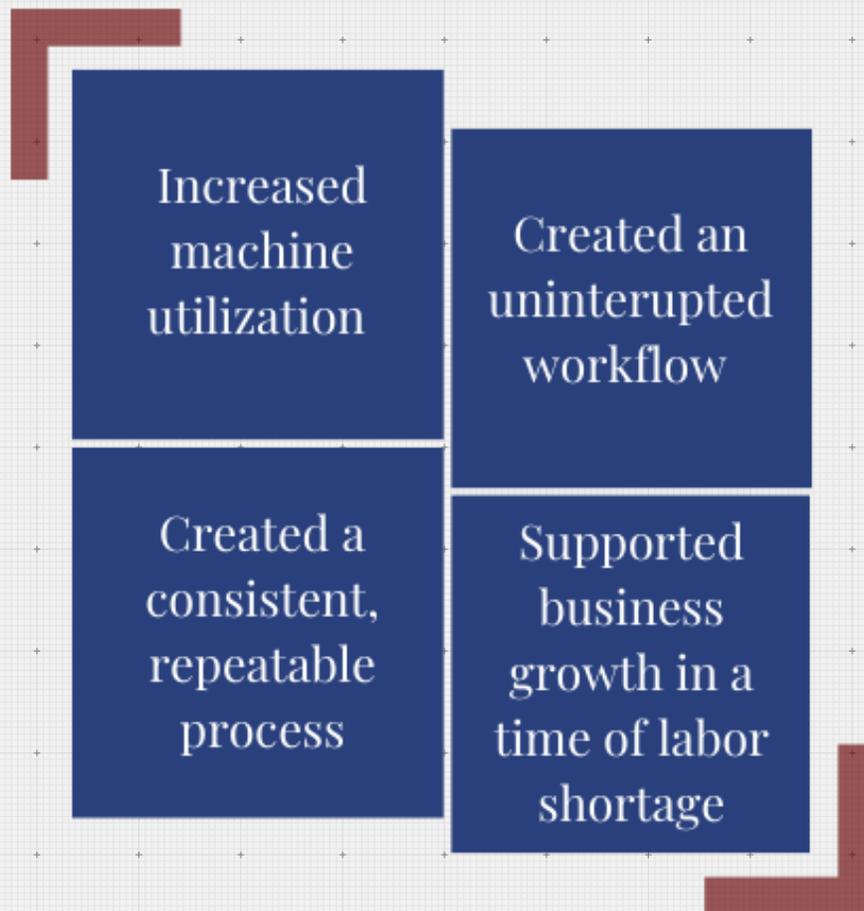
MTS calculated the robot's ROI, designed the end-effector, integrated the technology, and trained staff on how to use the new piece of equipment

The technology also interlaced with an automated turntable system, which allowed one set of fixtures to be loaded while the second was being machined.

# Cobots in South Dakota

Applied Engineering & The Freeman Company

## Results



“ MTS continues to assist us with productivity and technology projects allowing our business to grow and support increasing customer demands. ”

- Justin Schramm, President

# Cobots in South Dakota

## Electronics Systems Inc.



Electronics manufacturing service provider in Sioux Falls, South Dakota



Needed help identifying and integrating a piece of technology that would assist with their inspection process



MTS built an automated inspection system using a collaborative robot and a robotic-guided camera



MTS designed and developed cobot attachments and pass/fail placeholders



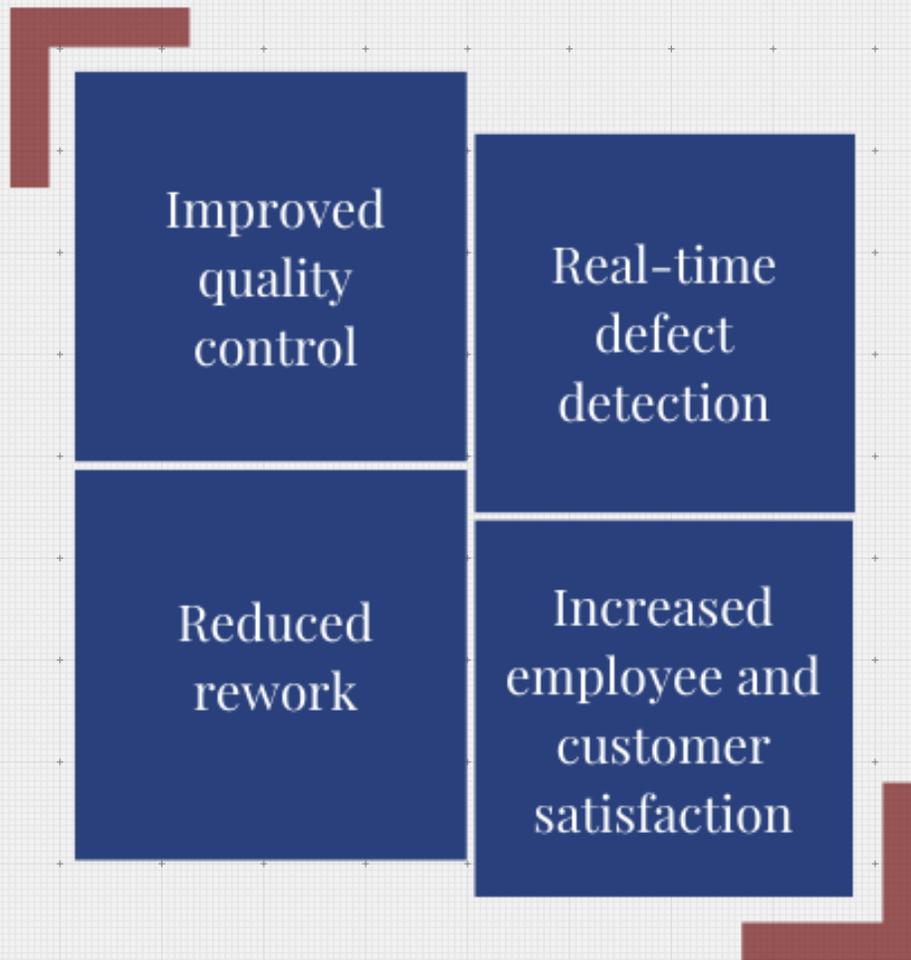
### Why a Cobot?

Its lightweight, transportable size made it easy to integrate on the production floor. It was also more cost-effective than a traditional robot.

# Cobots in South Dakota

Electronic Systems Inc.

## Results



“ Employees often think robots will replace jobs, but that’s not even close to what we’re looking to do. We want to utilize the robot to help our people become efficient and enjoy their work more. ”

- Hans Haase, ESI Manufacturing Engineer

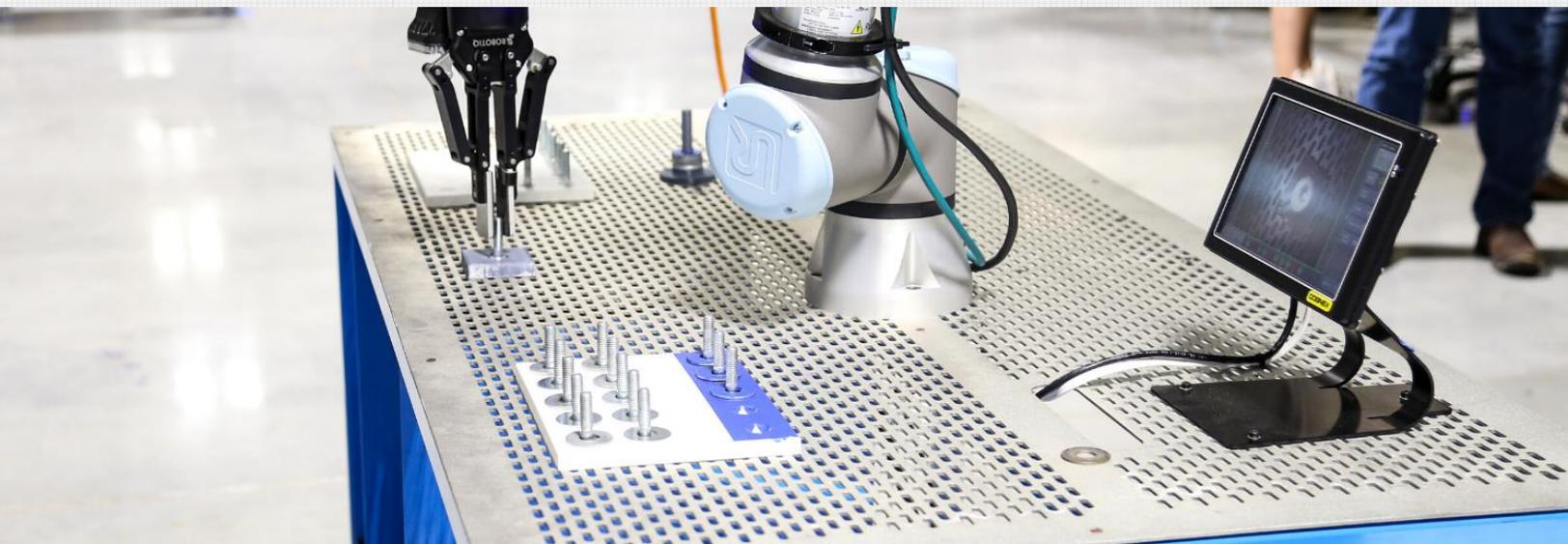
# Automation Exploration

Come visit our Sioux Falls lab to see live demonstrations. We can also provide you with a free in-depth Automation Readiness Assessment if you are strongly considering automation.

We are willing to assist you at whatever stage you are at in the process. Maybe you want help setting up a robotic welding system or maybe you just want an automation specialist's honest opinion, we are here to help.

MTS is happy to take a tour of your facility and offer automation ideas and advice. If we see an area we think would be a good fit for automation, we can provide feedback and become a connector for your automation needs.

If you want to educate your team on the benefits of automation, enroll in Automation 101 training.



# Automation 101 Training

## about

Adapt and excel in today's modern manufacturing world by teaching your employees the principles of automation and how they can be applied to a real-world setting. Automation 101 training takes on a similar format to Lean 101 training. Attendees will begin their day with classroom instruction and a lecture on the first lesson. As the day progresses, attendees will go through a series of automation rounds at a fictitious manufacturing facility. Each round will build on the automation lesson taught before the round. Attendees will apply the new concept to the automation simulation and see the impact the new automation tool has on the company's throughput. After each round attendees will measure their results and discuss their discoveries before moving on to the next section. Attendees will leave the Automation 101 training with a better understanding of what automation can do for their organization and be able to see new opportunities for application.

## training overview

### Lesson 1

Principles of Lean Automation

### Lesson 2

Process Mapping the Work Cell, Overview of Collaborative Robots (Cobots) and Safety Requirements

### Lesson 3

Vision Systems, ERP transactions

### Lesson 4

Vision Systems with Deep Learning, Lenses, and Lighting, 3D Laser Scanners, Intelligent Vibrating Feeder System and "real time" dashboard to monitor work cell activities

Check out our Events Calendar for upcoming training opportunities or set up a private company training today.

We can come to you or host the training in our Sioux Falls Automation Lab.

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## investment

\$200 / person or \$1,200 for a private company training at your facility with six to ten employees.



# Sources

“How to Cross the Threshold into Manufacturing Automation.”

*IndustryWeek*, 5 Aug. 2020,

[www.industryweek.com/sponsored/article/21138384/how-to-cross-the-threshold-into-manufacturing-automation](http://www.industryweek.com/sponsored/article/21138384/how-to-cross-the-threshold-into-manufacturing-automation).

Nicole.ausherman@nist.gov. “What Cobots Can Do for Your Business.” *NIST*, 16 Nov. 2019, [www.nist.gov/mep/manufacturing-infographics/what-cobots-can-do-your-business](http://www.nist.gov/mep/manufacturing-infographics/what-cobots-can-do-your-business).

# THANKS FOR READING!

MTS is here to help educate, train, and assist with identifying and installing the best automation solutions for your organization. If you would like help with your custom design, installation or have questions on the best fit, feel free to reach out to us.



**CONTACT US**

