



AUTOMATE

CANADA MAGAZINE

The official magazine of Automate Canada.

Premiere Issue, Fall 2022

**Automation,
Industry 4.0, and
IoT**

Page 13

**Bridging the Skills
Gap**

Page 17

**Smart Automation
is Here**

Page 20

**Leading &
Advocating
for the
Canadian
Automation
Industry**

TRILLIUM[®]

machine and tool inc.

LEADERS IN

SPECIALTY MACHINE DESIGN & BUILD

Trillium Machine and Tool Inc. designs and builds custom specialty machines for various sectors and industries across North America. Let us help you automate and streamline your production workflow.

MACHINE DESIGN



MECHANICAL SERVICES



ELECTRICAL SERVICES



SUPPORT SERVICES



30+ YEARS
OF EXPERIENCE



TURNKEY
SOLUTIONS



PROUDLY
CANADIAN

519-945-2211
INFO@TRILLIUMMACHINE.COM

TRILLIUMMACHINE.COM
4080-6 NORTH SERVICE RD. EAST, WINDSOR, ONTARIO, CANADA

If it's in your panel, it's at AutomationDirect.com...for less!

Circuit protection including MCCBs, circuit breakers, and transfer switches (Circuit breakers starting at \$15.00)

Wiring solutions including cut-to-length cable, hookup wire, wire duct, conduit, terminal blocks, and cable entry systems (Wire duct starting at \$7.50)

Drives, soft starters, and motor control devices (Micro AC drives starting at \$128.00)

Enclosure lighting and thermal management (Thermoelectric coolers starting at \$718.00)

Industrial power supplies, transformers, and converters (DC power supplies starting at \$20.00)

PLCs, field I/O systems, motion controllers, servo and stepper systems (PLCs starting at \$85.00)

Industrial Ethernet switches, gateways, and VPN routers (Ethernet switches starting at \$83.00)

Safety products including safety controllers, safety relay modules, intrinsically safe isolators, etc. (Safety relays starting at \$103.00)

Modular and pre-fabricated enclosures (Modular enclosure kits starting at \$875.00)

Plus motors, HMIs, pneumatics, a huge assortment of sensors and pilot devices, and so much more. All at great prices and with award-winning customer service and support.

Don't overspend elsewhere. With our everyday low prices you can build your panel for a lot less!

Research, price, buy at:

www.automationdirect.com



AUTOMATIONDIRECT.com
1-800-633-0405 the #1 value in automation

Premier **AUTOMATION** Solutions



Design, Build, Wire & Program
Integration and Development Specialists

**Find Out How Our Talented Team Can Help
Support Your Automation Needs**

BLACKCONTROLS.COM

+1 (705) 252-1100

info@blackcontrols.com



BLACK CONTROLS
COMPANY INC.



CONTENTS

UP FRONT

- 7** Greetings from President Jeanine Lassaline-Berglund
- 9** Greetings from Chair Shelley Fellows
- 10** Automate Canada Board of Directors
- 10** Why Should You Join Automate Canada?
- 11** All About Automate Canada
- 26** Index to Advertisers



MEMBER SHOWCASES

- 23** CenterLine: On Opportunities, Mentorship, and the Bigger Picture
- 25** AIS Technologies Group: Bringing Intelligence to Automation



FEATURES

- 13** A Whole New World: Automation, Industry 4.0, and IoT accelerate success for manufacturing sector.
- 17** Bridging the Skills Gap: Showcasing manufacturing to the next generation of workers, while ensuring continuous learning opportunities for those already hired, are key components to embracing automation and addressing labour shortages.
- 20** Smart Automation: The future is already here!

Fall 2022

Published For: Automate Canada

Institute for Border Logistics and Security
5844 Malden Road, Unit #140, Mailbox
#302

Windsor, Ontario N9J 1S4
Email: info@automatecanada.ca
Tel: (519) 818-8866

Published By: Matrix Group Publishing Inc.

Return all undeliverable addresses to:
309 Youville Street
Winnipeg, MB R2H 2S9
Toll-Free: (866) 999-1299
Toll-Free Fax: (866) 244-2544
sales@matrixgroupinc.net
www.matrixgroupinc.net

President & CEO

Jack Andress

Operations Manager

Shoshana Weinberg
sweinberg@matrixgroupinc.net

Senior Publisher

Jessica Potter
jpotter@matrixgroupinc.net

Editor-in-Chief

Shannon Savory
ssavory@matrixgroupinc.net

Senior Editor

Alexandra Kozub
akozub@matrixgroupinc.net

Editor / Social Media Manager

Jenna Collignon

Finance / Administration

Lloyd Weinberg, Nathan Redekop
accounting@matrixgroupinc.net

Director of Circulation & Distribution

Lloyd Weinberg
distribution@matrixgroupinc.net

Sales Manager - Winnipeg

Neil Gottfred

Sales Manager - Hamilton

Jeff Cash

Matrix Group Publishing Inc.

Account Executives

Colleen Bell, Rob Gibson, Jim Hamilton,
Frank Kenyeres, Sandra Kirby, Cheryl
Klassen, Charlie Langsford, Andrew Lee,
Brian MacIntyre, Jaime Schroeder

Layout & Design

Kayti McDonald

Advertising Design

James Robinson

© 2022 Matrix Group Publishing Inc. All rights reserved. Contents may not be reproduced by any means, in whole or in part, without the prior written permission of the publisher. To advertise in the next edition of Automate Canada, please e-mail sales@matrixgroupinc.net or call (866) 999-1299.

SIEMENS

SITRAIN – DIGITAL INDUSTRY ACADEMY

The Future of Learning starts **now**

siemens.com/sitrain



Find out
more



© 2021 Siemens AG. All rights reserved.



Jeanine Lassaline - Berglund
President
Automate Canada

Greetings from the President of Automate Canada

Hello and welcome! I thought this would be the perfect time to formally say 'thank you' and take the time to summarize what we have been up to at Automate Canada, which continues to grow both in members and in determining the value in organizing an association for this sector.

On the next page, our current Board Chair and Founding Member, Shelley Fellows, provides our association's history and journey so far. For those who may not be familiar, Automate Canada is a national association representing companies involved in the industrial automation industry, as well as service and supplier companies that provide specialized technologies to our industry.

Automate Canada leads and advocates for the Canadian automation industry, assisting and promoting our members. Engagement in activities supporting the business success and innovation expertise of the member companies in our association is our mission.

Since being chosen as President in May 2021, there has been a lot of activity! Leading through this point in history is certainly unique and challenging. Times of challenge and adversity can also lead to innovation and growth. This is a perspective that we are taking

TIMES OF CHALLENGE AND ADVERSITY CAN ALSO LEAD TO INNOVATION AND GROWTH. THIS IS A PERSPECTIVE THAT WE ARE TAKING TO EXPAND OUR REACH, CREATE TOOLS FOR OUR MEMBERS, AND ULTIMATELY DELIVER VALUE.

to expand our reach, create tools for our members, and ultimately deliver value to the industrial automation and advanced manufacturing sector at large.

But our work doesn't stop there. We are continually listening to what is important to our members, the wider industrial automation sector in Canada, and beyond. For those of us who have some history with industry, there are several factors that will continue to affect business: economic uncertainty, competing political priorities, export and trade pressures, lack of materials or inflated costs, lack of talent and available skills, the cost of innovation and commercialization, and the list goes on. We are making it our mission to listen and work collaboratively to prioritize initiatives and actions that will have lasting impact.

Although Automate Canada has been operating as a sector group of volunteers for more than three years, it has really been the actions of the last year and a half that have led to the creation of a formal association, including our incorporation and the development of Strategic Initiatives. We formalized volunteer committees in strategic areas and have begun to put actions behind our work. But we can't do it alone.

Between these pages you will be introduced to our members, who will showcase their expertise. But please do not think it stops there. We want you to think about what could be, and while you are looking at these pages, think about engaging with our members to talk about innovating your operations and how to adopt Industry 4.0 in a way that meets your needs, but is also within your budget and resource levels. Or consider joining us to help further our efforts. If you are as passionate as we are about this growing and important sector, then consider getting involved.

Of course, in everything we do, it takes a team of advisors and support. This publication is an example of the way that we give our member companies an opportunity to shine and has been a huge undertaking on the part of our staff along with the publishing team at Matrix Group Publishing Inc. I am extremely proud of the result.



ST. CLAIR
COLLEGE

FUTURE FOCUSED

ENGINEERING · ROBOTICS



APPLY TODAY FOR SEPTEMBER

At St. Clair College, we are committed to teach from a place of innovation that supports our region. Our goal is to build a talent pipeline for the industry that is focused on training the next generations workforce on Industry 4.0 Technologies. Our Research & Innovation Centres provide opportunities for developing cutting-edge solutions to solve challenges posed by the industry, the community, and through entrepreneurial activity.



STCLAIRAPPLIEDRESEARCH.COM

RISE ABOVE THE ORDINARY

WINDSOR | CHATHAM | STCLAIRCOLLEGE.CA |



Shelley Fellows

Chair, Board of Directors
Automate Canada

**SAYING I'M SIMPLY
PROUD OF WHAT
OUR INDUSTRY
ASSOCIATION HAS
ACCOMPLISHED
SINCE IT WAS
FOUNDED IN 2019
IS ACTUALLY AN
UNDERSTATEMENT.
I'M BURSTING WITH
PRIDE!**

Greetings from the Chair of Automate Canada

Providing strategic advocacy and targeted actions for a remarkable sector, the Automate Canada industry association was founded to foster a thriving and sustainable Canadian industrial automation sector. What's the role of the Automate Canada publication, you ask? The answer is simple – to shine a spotlight on our innovative, agile, and forward-thinking industrial automation enterprises of course.

In typical Canadian fashion, our industry tends to lead with a modest and understated presentation of our capabilities. Automate Canada – both the industry association and the magazine – aims to change that. We're firmly convinced that we need to promote the tremendous achievements and advanced technologies developed right here in Canada to the world. Among other ways we employ to communicate and promote our industry, we are proudly launching this first ever issue of the *Automate Canada* magazine.

Saying I'm simply proud of what our industry association has accomplished since it was founded in 2019 is actually an understatement. I'm bursting with pride! In 2019, a group of visionary business leaders from a diverse range of companies, including AIS Technologies Group, Brave Controls, CenterLine, DataRealm, Onyx, Reko Automation, Ro-Matt, Siemens, and Vista Solutions gathered around a meeting table, and with the support of the Canadian Association of Mold Makers, the University of Windsor, St. Clair College, Invest Windsor-Essex, and NRC-IRAP, agreed to foster a first for Canada – an industry association representing the Canadian industrial automation sector.

That group has grown since our early days, representing an industry that contributes an estimated \$7.2 billion in gross domestic product (GDP) to Canada's economy and employing approximately 58,000 highly skilled specialists. Over half of the firms in this sector are located in Ontario, with a Canadian customer base including the automotive, food, pharmaceutical, and aerospace sectors. Our global customer base is exceptionally diversified, allowing us to contribute to efficient and advanced production of goods worldwide.

Of course, we weren't able to predict the onset of a global pandemic. The challenges presented to global manufacturing by the COVID-19 crisis have been unparalleled and significant. Our Canadian industrial automation sector has thrived on these challenges and developed unique and innovative solutions, which we are delighted to showcase in this *Automate Canada* publication.

As an industry, we did not falter in the face of COVID-19. We dug in, focused on our customers, fostered talent within our companies, and diversified and improved on our innovative products and processes. I am certain we will look back in this period in our history with pride, and as a time of productivity and accelerated innovation.

As an industry association, we also didn't falter when presented with the challenges of advocacy and promotion during COVID-19. We fostered a strong connection with our members, industry, and stakeholders, and we shared practices, industry leading information, and advocacy on behalf of our sector.

Best practices for health and safety? Advocacy around export market expansion, supply chain, and border crossing issues? Innovative marketing for market expansion? Skill development? We focused on all these and more.

Our Canadian industrial automation companies significantly advance how manufacturing works and Automate Canada is actively engaged in supporting those companies.

With expertise from robotics to advanced controls, emerging vision, and virtual reality applications to digital technologies designed specifically for manufacturing, the Canadian industrial automation industry is smart, advanced, and capable. Automate Canada is the first association established in Canada specifically for the industrial automation sector, however our members have a significant and long-standing presence in the industry. Thank you for investing your time in learning more about our resilient, innovative Canadian industrial automation experts.

BOARD OF DIRECTORS

Jeanine Lassaline - Berglund

President

Shelley Fellows

Chair, Board of Directors

Steven Del Duca

Vice Chair

Jonathon Azzopardi

Chair of CAMM

Cheng Ye

Director of Innovation

Larry Koscielsk

FIRST Liaison

Peter Frise

Director of Government Relations

Jason Grech

Director of Finance / Treasurer

Shawn Horton

Director at Large

Kathleen Cvitkovic

Director of Marketing

Dave Fortin

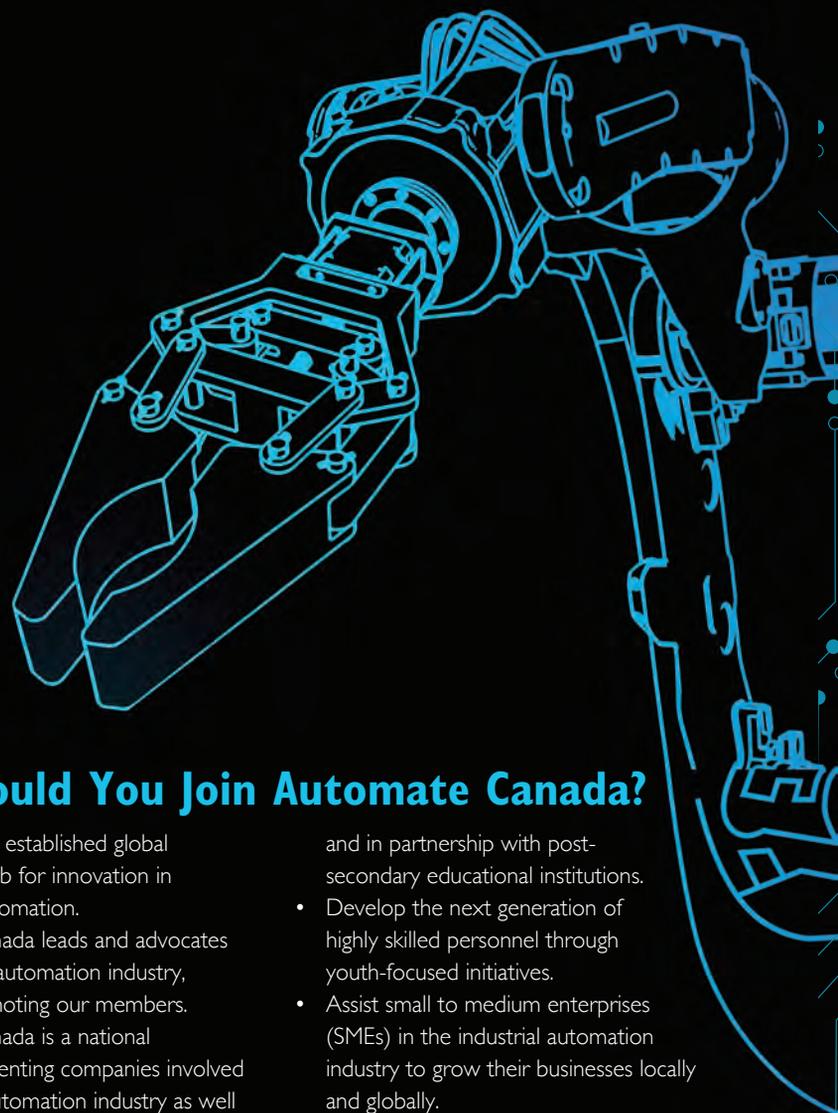
Director of Talent

Dino Oliva

Director at Large

Steve Powney

Director at Large



Why Should You Join Automate Canada?

Canada has an established global reputation as a hub for innovation in manufacturing automation.

Automate Canada leads and advocates for the Canadian automation industry, assisting and promoting our members.

Automate Canada is a national association representing companies involved in the industrial automation industry as well as service and supplier companies which provide specialized technologies to our industry.

Our mandate is to:

- Promote and develop the global exposure of the Canadian industrial automation industry.
- Be the voice of our industry to all levels of government. Automate Canada will focus on trade discussions regarding the North American Free Trade Agreement (NAFTA) / the United States-Mexico-Canada Agreement (USMCA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), Canada-Mercosur, and the Trans-Pacific Partnership (TPP), as well as on intellectual property, research and development, and commercialization issues.
- Encourage the development and adoption of technology in the manufacturing sector as a whole, as well as in the industrial automation industry,

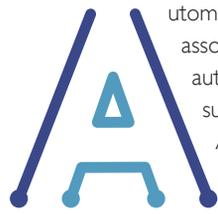
and in partnership with post-secondary educational institutions.

- Develop the next generation of highly skilled personnel through youth-focused initiatives.
- Assist small to medium enterprises (SMEs) in the industrial automation industry to grow their businesses locally and globally.
- Be committed to working with other organizations and associations to build global relationships.
- Assist members to identify opportunities for export.
- Invest in market research and industry research in order to identify emerging issues and trends affecting our industry and to target growing markets.
- Support Canadian SMEs in their path to prosperity, increased competitiveness, and improved capacity domestically as well as in the international marketplace.
- Showcase our industry's capabilities and strengths on a domestic and global stage through a range of direct activities and materials, like printed and digital directories, online presence, trade shows, B2B meetings, and site visits.

LEARN MORE AND JOIN ONLINE!

WWW.AUTOMATECANADA.CA/JOIN

All About Automate Canada



Automate Canada is a Canadian industry association representing Canada's industrial automation sector, service providers, and suppliers. Founded in 2018 by the Canadian Association of Moldmakers (CAMP) and supported by Invest Windsor-Essex and NRC-IRAP, Automate Canada is an

informative community of vibrant industry leaders who are facilitating the development and adoption of technology.

Canada has established a reputation as a hub for innovation in manufacturing automation and we are proud to be a part of such an impressive industry. Representing one of Canada's most essential technology industries, industrial automation contributes an estimated \$7 billion to Canada's economy yearly and creates approximately 40,000 jobs per year. Our industry contributions continue to grow and expand as technology continues to advance.

Automate Canada leads, advocates, and showcases the Canadian automation industry strengths and capabilities. We assist and promote our members and engage in activities that support business success and innovation expertise. We invest in market and industry research to identify emerging trends and issues within our industry and assist our members with any challenges. We have fostered relationships with trade commissioners, government officials, and international companies to ensure our place as a voice for our members and industry.

Our strategic pillars provide a roadmap to represent our industry locally, nationally, and globally and structures our focus when advocating to government and developing new programs. Our pillars and roadmap also ensure that we are addressing the needs of our member companies.

One of our pillars is Skill and Talent Development within which we work to address skilled labour shortages and provide our members with the knowledge to transition to Industry 4.0 practices and digital transformations. Our efforts are geared towards methods of developing a talent pipeline of skilled and ready personnel interested in advanced manufacturing. We work with partners, such as We Build a Dream and the YMCA, to attract under-represented groups to our industry and to develop programs to encourage their involvement. We create and provide access to learning and training programs for our members and promote upskilling and reskilling opportunities to ensure our members and their employees are ready to adopt new technologies.

Automate Canada also embraces equality, diversity, and inclusion practices and provides information for our members to adopt these practices. We work with federal and

provincial governments to advocate for the importance of skill development in our industry. We develop youth-focused initiatives and work with secondary and post-secondary institutions on curriculum development to ensure the training being provided is keeping up with innovation and preparing youth to enter the workforce, while cultivating an interest in advanced manufacturing.

Another one of our strategic pillars is Branding and Collaboration. Within this pillar we develop partnerships to promote 'Made in Canada' products as good value with high quality. We work with our partners to ensure Canadian industrial automation maintains their reputation as innovative and reliable while promoting our members to increase global relationships and foster business opportunities.

Our strategic pillar, Technology and Innovation, aims to support our members in their transition to Industry 4.0 practices and digital transformations. We promote a culture of innovation and ensure our members have access to funding information, resources, and tools to facilitate their transition. We promote and participate in research and development projects, as well as emerging technologies. We work with our members while developing new technologies and IPs, while performing research and development activities or commercialization plans.

We continue to add programs and services for our members including discount and affinity programs, training and development opportunities, and marketing and promotion support. We have a full calendar of upcoming events, including networking opportunities, trade shows, and learning and training events. We will continue to develop creative and innovative ways to benefit our members.

Please contact info@automatecanada.ca if you have any questions.

Connect With Automate Canada!



www.automatecanada.ca



info@automatecanada.ca



www.facebook.com/AutomateCan



<https://twitter.com/AutomateCanada>



www.linkedin.com/company/automate-canada

YOU GET MORE



Choose Allied. Get More.

When you shop Allied, you get:

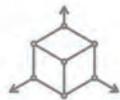
- More complete **industrial networking solutions** to keep you ahead of customer and supply demands
- More automation products from more **innovative suppliers**—in stock and ready to ship
- More **purchasing solutions**, from easy auto-ordering to personalized sales reps
- More opportunities to save with our private-label brand, **RS PRO**, so you never have to sacrifice quality for value



Thousands of Products Ready to Ship



1,100,000+ Datasheets



3D CAD models available for view and download



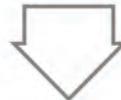
360° Product Images for a Close-Up of Features **Before** You Buy



Expert Advice Article that Put Knowledge and Know-How at Your Fingertips



Technical Product Support When You Need It



Low minimum order quantities (MOQ)



Easy, User-Friendly E-Commerce Site

Allied is the one-stop shop for everything you need to streamline, automate, and optimize your processes.



ALLIED
ELECTRONICS & AUTOMATION

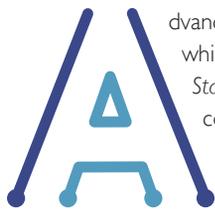


PART OF RS GROUP

A WHOLE NEW WORLD

Automation, Industry 4.0, and IoT accelerate success for manufacturing sector.

By Nicole Vlanich, Administrative and Support Services Coordinator, Automate Canada & the Canadian Association of Moldmakers



Advances in technology and innovation are impacting the manner in which we live and work. As per the World Economic Forum's *State of the Connected World 2020*¹ report, there are more connected devices on the planet than individuals. Canada is known globally as a hub of innovation in manufacturing automation and Canadian organizations are carrying out new, Industry 4.0, advances to fulfill client needs, and address difficulties, expansion, and soaring costs.

The History of Industry 4.0

Industry 4.0, or the Fourth Industrial Revolution, is the fourth period of modern technological disruptions and is characterized by the digital transformation of industrial processes and several vital technologies coming together to create smart factories. Technological disruptions have occurred in four phases, beginning in 1760.

1. The first modern technological disruption occurred from 1760 to 1849 and involved the use of water and steam power mechanization and manufacturing items with machines as opposed to manually.
2. The second disruption occurred from 1871 to 1914 and involved the development of assembly lines and the utilization of oil, gas, and power as new power sources, as well as large scale manufacturing.
3. The third modern disruption started in the early 20th century and added computers and data analysis to manufacturing, as well as programmable logic controllers.
4. The Industry 4.0 concept was first presented during the 1990s as the internet and telecommunications changed the ways in which we connect and share information, along with the development of cyber-physical software that allowed machines on factory floors to communicate with each other.

These modern disruptions have carried us to the technological age that we are encountering today and a computerized change that incorporates robotics, the Internet of Things, and artificial intelligence. Industry 4.0 includes an expansion in automation, smart machines, and smart factories, and increased and improved data collection. Producers are better ready to serve their clients and satisfy needs.

The Internet of Things (IoT)

Industry 4.0 is driven by different innovations, including the Internet of Things (IoT). IoT is the key to smart factories and includes the utilization of sensors that allow machines to connect with other web-connected devices and allows for large-scale data to be collected, analyzed, and consumed. Industry 4.0 refers to the results



of the fourth Industrial Revolution, a combination of automation, traditional manufacturing, and industrial procedures done with intelligent technology and machines that communicate with each other.

The term 'Internet of Things (IoT)' was coined by Kevin Ashton in 1999 when he proposed putting radio frequency identification (RFID) chips on items to track them through the manufacturing and sales process. IoT is the largest piece of Industry 4.0, alongside other advancements

such as Big Data, robotics, and additive manufacturing. Smart factories have been made possible by these innovations and allow for increased data analytics to look at trends and patterns, empower manufacturers to make better decisions, and enable interconnectivity and customization. These new technologies have turned into a vital part of the manufacturing process.

Implementation

Manufacturers who implement these technological advancements begin a path

of consistent improvement and further improved efficiencies, increased revenue, and advanced production methods. Through the implementation of IoT and other Industry 4.0 technologies, as well as understanding how to review and analyze Big Data, manufacturers can recognize patterns and examples and begin production with advanced customizations for a larger range of customers. Those that implement advanced technologies can increase their competitive advantage through the continuous monitoring of quality, which drives constant improvement and forecasts upcoming demand.

There are many steps to follow when implementing Industry 4.0 technologies, which can be prepared in a roadmap to ease the transition for manufacturers. The initial step is grasping their beginning position and determining what initial technologies would be most beneficial, followed by implementing a strategy and starting small.

Manufacturers should start by ensuring secure connectivity and device management, enabling data consumption and change for administrations that depend on telemetry data, for example, rules, geographic services, events, and analytics. To implement Industry 4.0 advancements, manufacturers need to focus on the implementation of innovations and technologies that connect machines and systems together, IoT.

The implementation of Big Data capabilities with data tiering to deal with large amounts of data volumes at affordable price points, that carry out the ability to analyze relationships and identify anomalies and behaviour predictions, can be a pain point in the implementation of new technology and can also be one of the most important factors.

Advantages and Disadvantages

There are many advantages to welcoming Industry 4.0 advancements and implementing IoT, such as predictive maintenance. When Big Data is collected, there is the ability to predict when a machine will need maintenance. This reduces the risk of downtime and unexpected upkeep, where manufacturers may have to wait extended periods of time for repairs, which ultimately delays production. IoT additionally improves



E Engineering Partner

S Systems Integrator

V Value-Added Distributor

ADVANCED MOTION CONTROL

Solutions for Industrial Applications

Driven by a passion for innovative technology and conquering challenges, Morrell Group develops solutions that keep you moving. From concept to completion, we provide exceptional customer service deeply rooted in our commitment to excellence. Our experienced application and technical specialists leverage product and industry knowledge to provide innovative solutions for:

- Automation
- Pneumatic
- Hydraulic
- Tightening
- Controls
- Electrical
- Dispense
- Conveyance

MorrellGroup 
Evolution in Controls

Contact Us Today!
519-944-3877

info@morrellinc.com • morrell-group.com • 2775 Kew Drive Windsor ON N8T3B7 Canada









quality control since quality is monitored throughout production and issues are improved in real time.

The additional capabilities increase flexibility within manufacturing and drive opportunities to meet emerging demands and improves the ability to make a high range of products in small batches with increased performance and can increase customers by increasing customization capabilities. Industry 4.0 empowers manufacturers with the ability to improve management by having insight, control, and data visibility. Using these new technologies means they can deliver products and services quicker, with reduced costs and with higher quality. Smart manufacturing also further develops tracking and streamlining, and opportunities related to logistics, improved internal processes, navigation and decision making.

Smart factories bring significant advantages, including increased revenue, proficiency, and efficiency; reduced down time; and increased markets and capabilities. Manufacturers who implement these new technologies can better estimate project times and offer more reliable and dependable services.

The addition of these new technologies also comes with manageable risks. Maintaining systems and data within the cloud makes that information accessible to hackers and should be protected. Cybersecurity is another area of Industry 4.0 that may be considered one of the most important areas. Manufacturers should ensure they have cybersecurity in place to maintain the security and integrity of their factories, as well as artificial intelligence and blockchain to monitor and guard devices.

Along with risks comes some complex challenges that include potential difficulties with integration and coordination, lack of in-house ability or information, and difficulties finding a third-party vendor to assist with the transition. It is important, when making the transition to smart technologies, for manufacturers to ensure they have appropriate knowledge and training to fully utilize the tools at their disposal.

The Future of Automation

What does this mean for the future? As more and more factories become smart factories, employees will need

training to maintain and monitor the machines. Upskilling has already become a big component in factories today, as well as human factors training. Industry 4.0 capabilities mean machines complete tasks that are dangerous, tedious, or need special precision, which leaves more difficult, complex tasks to skilled workers. New technologies also improve a factory's carbon footprint and allow factories to make less of an impact on the environment. Companies need to be strategic on their path towards the implementation of new

technologies and leverage the advantage it provides.

One of Automate Canada's most important strategic pillars is encouraging a culture of innovation as we move towards Industry 5.0, and we are here to support our members on their journey. 🍁

Reference:

1. www.weforum.org/connectedworld/report

RO-MATT INTERNATIONAL INC.

design and build of custom machinery,
automation and material handling systems

EST. 1989

Specializing in:

Robotic Welding and Assembly Systems

Dedicated Production Machinery

Custom Hydraulic Cylinders



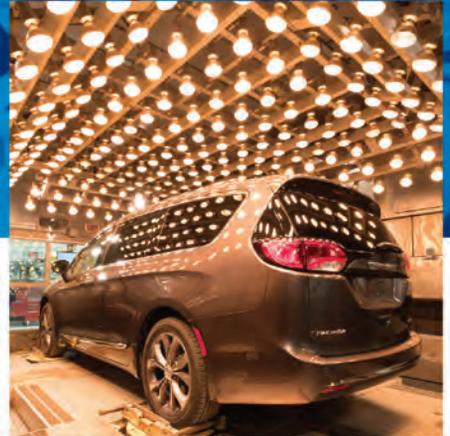
ro-matt.com

(519) 737-7575



University
of Windsor

LEADING THE WAY IN CONNECTED, AUTONOMOUS, SECURE, AND ELECTRIFIED VEHICLES



The University of Windsor is home to some of the most innovative research in Canada.

The Automotive Industry is being disrupted by Connected, Autonomous, Secure/Shared and Electric (C.A.S.E.) technologies. The University of Windsor stands ready to lead with world-class researchers in a wide variety of expertise including electric vehicles, motors, batteries, 5G, computer vision systems, smart sensors, automation, cybersecurity, light weighting, safety, policy and more.

Industry looking to improve their capability and capacity to compete in a global marketplace can find it at UWindsor, with access to talent, facilities, infrastructure, training, and connections in the automation sector.

R&D investments supporting collaborative research with UWindsor can qualify for additional funding opportunities and SR&ED tax credits. Both cash and in-kind contributions may be leveraged.

We are committed to building bridges between industry, research, and education to transform ideas into products, competitive advantages, and a deeper understanding of our world.

Get in touch to learn more about partnership opportunities.

Contact us:

Office of Research & Innovation Services

Phone: 519-253-3000 ext. 3917 Email: oris@uwindsor.ca

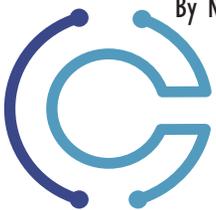
Learn more:

uwindsor.ca/research-partnerships

BRIDGING THE SKILLS GAPS

Showcasing manufacturing to the next generation of workers, while ensuring continuous learning opportunities for those already hired, are key components to embracing automation and addressing labour shortages.

By Nicole Vlanich, Administrative and Support Services Coordinator, Automate Canada & the Canadian Association of Moldmakers



Canada is experiencing a skilled labour shortage and it is imperative that it be addressed to ensure manufacturing continues to thrive and contribute

to the Canadian economy. According to the Business Development Bank of Canada (BDC), 83% of Canadian manufacturers are experiencing labour shortages and 75% are finding hiring more difficult. Each of these realities is negatively impacting their growth.

In fact, 2021 saw the highest number of job vacancies in manufacturing across all sub-sectors and this is affecting large and small businesses. The Business Council of Canada says 30% of companies are relocating work out of Canada, and although outsourcing offers temporary relief to companies, it is detrimental to the Canadian economy, costing billions. The implementation of automation

technologies can help these companies address the labour shortage, increase profits, and improve product quality.

Automation technologies can boost productivity and economic growth, and, when working alongside automated technologies, workers can do more meaningful and creative tasks which results in them feeling empowered to use intrinsic knowledge of production best practices rather than complete repetitive tasks every day. Technology can perform these mundane, repetitive, and physical tasks to free up workers to do more rewarding, skilled work.

Combating Misconceptions

Many young people believe that manufacturing is dirty, dangerous, and repetitive. These misconceptions are just examples of why it's vital for representatives of the manufacturing industry to perform

outreach to high schools and post-secondary institutions. Bringing the latest information about manufacturing, including the implementation of automation technology, to youths and young adults will increase interest and remove the negative connotations they currently have about the industry.

This outreach must include students, teachers, guidance counselors, and parents. Each of these groups does not yet understand the pathways and options that exist within automation and advanced manufacturing.

According to Lido Zuccato, an Academic Administrator at St. Clair College in Ontario, they are focusing on outreach to high schools and elementary schools to promote their programs so students understand what is involved in these fields today. This includes producing specific marketing for high schools to detail the programs and get students

excited about working with products such as Tesla and Cadillac.

It is important to spread the word about what the trades are today. Working with educational institutions to develop innovative education models and fine-tuning co-op program curriculums, increasing focus on educating the younger generations in automation and smart manufacturing, including artificial intelligence, the Internet of Things, cloud computing, and robotics, and bringing awareness to the skills of the future – which includes creative thinking, problem-solving, and teambuilding – is crucial to increasing interest in these fields.

Lifelong Learning

The manufacturing industry is constantly innovating and developing new solutions to increase efficiency. Employers expect workers to be knowledgeable about operations, robotics, and automation, and this requires reskilling and upskilling.

The top challenge for manufacturers is the gap between demand and the availability of workers with experience. Manufacturing jobs require skills that are different than what was needed in the past. In reality, advanced

manufacturing requires lifelong learning, which is why there is major value in incorporating learning opportunities within an organization's culture. It is important for companies to make quantifiable commitments to invest in and implement new learning and training programs and utilize these programs to reskill and upskill current and new employees.

Automation technology allows manufacturers to compete on a global scale through increased productivity, quality, and profit margins, and skilled workers are the key to success. Investments in training, reskilling, and upskilling workers are crucial to reaching goals and have a measurable return on investment; it is these workers who facilitate the shift towards innovation and advanced manufacturing, which are the critical drivers of global competitiveness.

For centuries, employers have prepared themselves for what the labour market demanded and learning one profession and one set of skills was what was valued for a worker's entire life. This is not the case now, with constant technology advancements. Today, 94% of businesses expect their employees to pick up new skills on the job, which is up from 65% in 2018. The

companies that are the most successful in combating skill shortages have invested in retraining their employees, attracting new talent by targeting different and diverse candidate pools, and are exploring alternate solutions.

Showcasing the Benefits of Automation

There are several benefits to implementing automation and these include increased quality, consistency, the elimination of human error, higher throughput, more accuracy, increased competitiveness, rapid research and development, better worker safety, research and development tax credits, and reduced training costs. Automation is also the obvious solution for the labour shortage, but we need the everyday worker to have the skills needed for the digital revolution. Human-machine interactions, including virtual reality, augmented reality, robotics, and Cobots (Collaborative Robots), are just some of the new skills required today.

The average worker today in manufacturing is much older than the average Canadian worker; 22% of manufacturing employees are over the age of 55. By 2028, manufacturing will demand 4.8 million



iMVR
Passion Innovation Excellence

iMVR Canada Inc
4654 Ontario St
Beamsville, ON
1-855-224-4687
imvr.ca

AUTOMATION TECHNOLOGIES CAN BOOST PRODUCTIVITY AND ECONOMIC GROWTH, AND, WHEN WORKING ALONGSIDE AUTOMATED TECHNOLOGIES, WORKERS CAN DO MORE MEANINGFUL AND CREATIVE TASKS WHICH RESULTS IN THEM FEELING EMPOWERED.

jobs with only 2.4 million workers to fill the positions, and this is just one of the reasons why tech adoption in manufacturing is so vital. One of the most attractive ways to maintain employees is to give them opportunities for growth, training, and development. Training can be offered using an artificial intelligence, which offers new recruitment techniques to handle time-consuming tasks and builds a talent pipeline.

Emerging technologies are not only able to assist in recruitment and training, but they also reduce downtime with predictive maintenance. Stressful situations can be avoided, as information on breakdowns is provided before they happen. Companies can develop their own courseware for reskilling and upskilling their employees, and those that invest in providing learning opportunities to their staff are seeing higher profits, production, and success.

According to the World Economic Forum, there are some skills that thrive within Industry 4.0 and those include complex problem-solving, critical thinking creativity, emotional intelligence, decision making, and cognitive flexibility. Creativity becomes one of the top skills needed in the workforce and data analysis

has become just as important as engineering skills. The shopfloor becomes faster, more flexible, more productive, and more cost efficient.

Canadian companies are currently lacking in their investment in new technology, even though these investments lead to lower operational costs, decreased downtime, increased product quality, and increased customer satisfaction. Every 100 manufacturing jobs creates 750 indirect jobs, so manufacturing facilities must overcome previous perceptions

of industry, utilize automated solutions to supplement their workforce, and be willing to provide learning and training opportunities to new and current employees.

Employers who value robust training and learning, reskilling, and upskilling – and recognize the importance of continued learning – are more valued by their staff and show more success.

Industrial automation is not only the way of the future, but the way for companies to ensure continued success. 🍁



Your Plastics Joining & Automation Partner



Our turnkey automation and plastics joining solutions, including our proprietary Laser Welding technologies are proudly designed, engineered, and manufactured in Canada



For more information, please contact us at info@spm-automation.com



SMART AUTOMATION

The future is already here!

By Jayson Myers, Chief Executive Officer, and Stephanie Holko, Director of Project Development, NGen

The global industrial automation market was valued at US\$150 billion in 2021 and is expected to grow to US\$290 billion by 2028. Manufacturers are turning to automation to improve production efficiencies, increase throughput, and enhance productivity.

Automation is improving safety, reducing defects, allowing greater production flexibility, and enhancing the resilience of manufacturers and their suppliers. In a world of increasing labour and skills shortages, automation frees up workers from routine tasks and processes to focus on more important value-adding activity.

So far so good. Now, consider what happens when artificial intelligence (AI) and machine learning (ML) come into the picture! Deployed correctly, AI / ML solutions offer greater data transparency, accuracy, and predictability to automated processes in manufacturing, enabling systems optimization, rapid design, engineering, and testing of complex products and processes, more autonomy. They are leading to exponential improvements in responsiveness, productivity, reliability, and quality, allowing manufacturers to cut costs and increase customer value at the same time. More revolutionary, at a time when more products and processes are becoming data platforms, AI solutions are helping manufacturers implement new business models and take advantage of new revenue streams based on digital customer services.

Industrial applications of AI can be seemingly small, imbedded in process inputs or equipment via sensing technologies. AI can also be overarching, providing optimization across multiple operations.

At the input level, artificial intelligence is now consistently used in sensing applications to mimic human sensing, processing, and meaning-assignment. These can be vision solutions – telling you what kind of product or defect is present and then deciding what kind of actions or procedures to implement, just like noticing the pizza you put in the oven needs a few extra minutes to come out perfectly cooked. They can also be auditory, picking up on those noises that a seasoned operator or tradesperson would identify when walking around the plant and alerting personnel to an irregularity. The sensing applications can be olfactory too, such as deciding a batch of beer is done and needs to be decanted to the next process step. It's the integration of these sensors into a wider process that is changing how things are made, saving money, reducing waste, and minimizing human intervention when not required.

At the plant optimization level, AI augments existing technology. An Internet of Things (IoT)-based plant advisor system could be even more effective with AI models that can optimize over time for a better process outcome. AI can predict maintenance failures earlier and schedule a diagnostic or repair at a convenient, or non-bottleneck time to increase equipment

operating efficiency. It can afford operators the ability to be unceasing eyes and ears (and nose) on the plant and it frees them up for higher-level tasks. AI technology can provide a similar level of diligence without an operator standing over a machine full-time.

Artificial intelligence plant models can be stand-alone: the model optimizes for one outcome, such as uptime or quality or cost. What is emerging is how multiple optimization models can be inter-linked and the entire process optimized based on a system of constraints. For example, while you may want perfect quality, that may trigger a cost constraint. It may make business sense to achieve 95% quality to minimize costs of rework – so 95% should be the constraint on the quality model and once that threshold is reached, you can optimize for increased production speed instead. The interplay between AI models at this level is an exciting trend that is just starting to take off.

One limiting factor of AI adoption has been access to AI development experts who not only know the theory of model development but can code and integrate systems. This bottleneck is prohibitive for many companies for a variety of reasons. Many companies, for instance, do not have a large enough employee base to justify a full-time resource to support AI development. Luckily, there are several ways that technology is changing that make





Photo courtesy of NGen.

AI approachable for users who want to explore the power of AI in their plants.

One way is the development of low-code or no-code solutions that integrate with existing data architectures providing users with a simplified method of creating and fine-tuning models for a variety of process and maintenance applications. For example, one solution is an add-on module that connects directly with plant controls and allows the process specialist to drag and drop data representing good or poor operations into the data model. The software trains the model how to predict issues specific to that plant and recommends actions without having to code anything. This democratization of AI model tuning makes it easy for an average process specialist to take advantage of the power of AI.

AI is no panacea. But, it is becoming easier to use and apply in order to enhance industrial automation processes. It can be a powerful tool in transforming manufacturing processes and ways of working. The advances being made in making AI approachable and user-friendly for plant operators is perhaps the most important trend in smart automation with some truly inspiring results on the horizon. There's a long way to go for AI to become generally embedded in industrial automation – but we'll get there sooner rather than later. 🍁

Jayson Myers, CEO of Ngen, is an award-winning business economist specializing in industrial and technological change and is widely recognized as an influential policy advocate in Canada. Stephanie Holko, Director

of Project Development, has 17 years of experience leading teams and projects in the steel industry. She enjoys connecting emerging technologies with existing manufacturing problems.

Canada has world-leading expertise in AI and machine learning and some of the best AI solution providers in the world. Next Generation Manufacturing Canada (NGen) is working to grow industrial AI capabilities and support the adoption of AI solutions by manufacturers across Canada. NGen also leads Canada's Global Innovation Cluster for advanced manufacturing and invests in collaborative industry-led projects that build world leading advanced manufacturing capabilities in Canada for the benefit of Canadians. Connect with Ngen to learn more at info@ngen.ca.

**EMERGING
TECHNOLOGIES
IN AUTOMATION**
CONFERENCE & TRADE SHOW

The Power of Automation

Wednesday, October 26, 2022
Caesars Windsor
Windsor, Ont.

emergingtechnologies.ca





CLCS FlexFast™ Lite

The smart fastener welding solution

The CenterLine **CLCS FlexFast™ Lite** is a versatile machine designed for production fastener welding applications. The **CLCS FlexFast™ Lite** produces consistent weld quality, is easily operated, and has minimal maintenance requirements.

For more information on our **CLCS FlexFast™ Lite**, contact us at **1-800-771-6172**



www.cntrline.com



Platinum member

CENTERLINE: ON OPPORTUNITIES, MENTORSHIP, AND THE BIGGER PICTURE



By Larry F. Koscielski, Vice President of Process & Technology Development, CenterLine (Windsor) Limited

First, I need to say it is an honour to be asked to contribute to the very first *Automate Canada* magazine. Rather than use this platform to tout the incredible family-owned company I am part of (I will leave you to look up CenterLine and our innovative products at www.cntrline.com), I would like to speak about the significant threat we are all facing.

Automation is an ever-evolving and exciting space. Technology is moving at an incredible pace, and we have tools we could never have imagined to help solve our customers' problems. New materials have created new processes and presented new automation challenges to tackle, especially in the automotive market where the shift to Battery Electric Vehicles (BEVs) has created new and increasingly complex assemblies, like the battery trays themselves. The evolution of the car body has moved to mixed-material joints with new processes used to join them.

Cobots (Collaborative Robots) have created incredible opportunities not only to solve part of the labour gaps our customers face but also, in many cases, to create safer work environments and improved quality. We are just starting to understand the power of the Internet of Things (IoT) and artificial intelligence (AI) technologies and how they will help us take considerable steps in productivity and quality in our given industries.

At a time of unprecedented opportunity, our industry is facing perhaps our greatest

challenge ever. We find ourselves desperately struggling to fill critical positions within our teams. We will have to work together as an automation community and with our customers to solve this issue. The talent gap is real, and the losers in this battle will be those who stand on the sidelines and complain about "kids these days."

I submit that "kids these days" are nothing short of amazing and have all the talent and energy of any generation before them, except they are way smarter! Yes, they have different views about work hours and vacation time, but don't think for a second they are less passionate than any of us old-timers. You have to work to unleash that passion. You need to take the time to engage with them to get to know them and help them see how their actions are important and increasingly exciting. Some may even need a healthy dose of "this is the way the world works" because they didn't get it at home.

Before all that can even happen, though, we need to work on the little league and farm teams who will eventually be the pros on our teams – the schools. Get involved with your school boards to offer tours of your plants for kids and even parents. Engage with scouts and girl guides, get involved with community centers, and the local colleges and universities. Any interaction helps, and you will also start seeing your existing team members excited about their engagement.

I also want to touch on the incredible programs we have for co-op and job

placements. Use these as much as you can but use them wisely and have a plan for them to learn and do real and relevant work. If you have them painting and cleaning floors or worse – just have them sitting around – you have both lost an incredible opportunity.

FIRST® inspires young people to be science and technology leaders and innovators by engaging them in exciting mentor-based programs. These programs build science, engineering, and technology skills that inspire innovation and foster well-rounded life capabilities, including self-confidence, communication, teamwork, and leadership. Put very simply – kids come out of this program job ready. They have skills and are prepared for a new challenge. Get involved, sponsor a team or an event, get your team involved, and see how they are inspired.

I am very proud of CenterLine's commitment to the community and our employees' engagement in all areas I have mentioned. The company's tagline is "Centered on Solutions," and although most see that being directed as solutions for our customers, it is really much bigger than that. 🍁

**"KIDS THESE
DAYS" ARE
NOTHING
SHORT OF
AMAZING.**



Building Canada's Future Workforce



FOR MORE INFORMATION ABOUT
BRINGING A *FIRST* ROBOTICS
PROGRAM TO YOUR SCHOOL OR
COMMUNITY

VISIT

www.firstroboticscanada.org



FIRST[®] LEGO[®] LEAGUE



Grades Pre K-8

**A hands-on approach
to STEM Learning**

The three divisions
inspire youth to
Discover, Explore
and Challenge their
critical thinking,
coding and design
skills!

FIRST[®] TECH CHALLENGE



Grades 7-12

It's More than Robots

Students learn to
think like engineers.
Teams design, build
and use java-based
programs to code
robots to compete
in an alliance format
against other
teams!

FIRST[®] ROBOTICS COMPETITION



Grades 9 -12

**The passion of
sport, the rigours of
STEM**

With limited time and
resources, teams
develop a brand,
raise funds, build
120-pound robots to
compete against
each other in
alliances,
& promote STEM in
their community!

AIS TECHNOLOGIES GROUP: BRINGING INTELLIGENCE TO AUTOMATION

By Jenna Collignon, Staff Writer



AIS Technologies Group, located in Windsor, Ontario, works with customers and suppliers to develop innovative automation and methods of integration.

Proudly Canadian-owned, AIS Technologies Group (AISTG) opened its doors in 2003, originally as AB Automation. The company initially designed and manufactured automated part processing assembly equipment.

After the acquisition of Radix, AIS Technologies Group was formally created. The company's mission is to bring intelligence to automation.

Shawn Horton, Director of Marketing & Business Development for AIS Technologies Group, explained, "Vision and tooling automation have always been at the forefront of what we do."

However, long before the words "vision, deep learning, and artificial intelligence (AI)" became catch phrases, AISTG was bringing advanced technologies to markets. Their team is remarkable at working together with customers and suppliers to develop innovative automation and methods of integration.

"We're constantly looking at how we can evolve technology further, to create even more value for our customers," said Horton. "We are continually ensuring that what we're giving our customers is going to help them now and further into the future, which allows them to keep their equipment longer. If we can reuse the technology they already have and enhance it, we will do that. We build systems for our customers that can go hand-in-hand with their current

technology, and we can give them a way to upgrade to something new if they wish."

When selling new pieces of equipment, AIS Technologies strives to give the highest quality and the best value to their customers. "For us, we are not a cookie-cutter service," said Horton. "We are constantly evaluating what our customers need, what they already have, and what best suits them moving forward."

As we transition towards a post-pandemic future, AIS Technologies Group hopes to expand into more industries and continue to evolve their brand and vision. "It's about taking our vision to the next level so that we're able to bring the best to our customers," said Horton. "We bring intelligence to automation."

Horton is thankful for the work Automate Canada has done on behalf of the industry. For example, at the height of the pandemic Automate Canada was a trusted source of information. "The association was incredibly active at keeping us updated, keeping in contact with the government for both funding and information, and keeping that flowing to members," said Horton.

AISTG has been a member of Automate Canada since nearly the beginning. Shelley Fellows, Chair of Automate Canada and previous owner of Radix – now a part of AIS Technologies Group – kept her business relationship with Shawn Horton through their mutual involvement with

Automate Canada. "When there's a problem," said Horton, "Automate Canada can be there, can be the voice we need. They have given members the ability to have an open discussion with competitors and clients, and they keep members well-informed about what's going on in the automation industry."

The future looks bright for AISTG and the entire industry. "We are incredibly excited about the technology that we've been developing ourselves," said Horton. "It is fantastic knowing that the technology we are developing here in Canada is directly influencing the market to the south. I can't wait to see where the industry continues to go." 🍁

"WE BUILD SYSTEMS FOR OUR CUSTOMERS THAT CAN GO HAND-IN-HAND WITH THEIR CURRENT TECHNOLOGY"



Congratulations Automate Canada on your Launch.

Contact us

618 Greenwood Centre,
3200 Deziel Dr.
T: 519.251.3500

Jason Grech, Tax Partner
John Ropac, Tax Partner
Alison Picollo, Enterprise Partner
John Renaud, Enterprise Partner
Cynthia Swift, Audit Partner
Dan Dwyer, Tax Partner
Ronan Carrig, Tax Partner



© 2022 KPMG LLP, an Ontario limited liability partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

INDEX TO ADVERTISERS

AUDIT, TAX, AND ADVISORY SERVICES

KPMG 26

AUTOMATION ASSEMBLY AND INTEGRATION

Innovative Automation Inc. outside back cover

AUTOMATION CONTROL INTEGRATORS

Morrell Group 14

AUTOMATION TRAINING, PARTNERSHIPS, RESEARCH, AND INNOVATION SERVICES

University of Windsor – Office of Research and Innovation Services 16

CUSTOM AUTOMATED WELDING AND ASSEMBLY LINES

Centerline 22

DESIGN AND BUILD OF CUSTOM MACHINERY, AUTOMATION, AND MATERIAL HANDLING

Ro-Matt International 15

ELECTROMECHANICAL ENGINEERING AND ROBOTICS EDUCATION, RESEARCH, AND INNOVATIONS CENTRE

St. Clair College 8

INDUSTRIAL AUTOMATION AND CONTROL PRODUCTS

Allied Electronics & Automation 12

INDUSTRIAL AUTOMATION EQUIPMENT AND SUPPLIES

Automation Direct 3

INNOVATIVE INDUSTRIAL AUTOMATION SOLUTIONS

ATSI Robotics inside back cover

INTEGRATION AND DEVELOPMENT SPECIALISTS

Black Controls Company Inc. 4

REVERSIBLE FANS FOR RADIATOR CLEANING

Cleanfix North America 26

SITRAIN – DIGITAL INDUSTRY ACADEMY

Siemens Canada 6

SPECIALTY MACHINE DESIGN AND BUILD

Trillium Machine inside front cover

TURNKEY AUTOMATION AND PLASTICS JOINING SOLUTIONS

SPM Automation Canada Inc. 19

VIRTUAL REALITY TRAINING

iMVR Inc. 18

WINDSOR-ESSEX ECONOMIC DEVELOPMENT

Invest Windsor-Essex 21

CLEANFIX® Reversible Fans For Radiator Cleaning



Improved Air Conditioning



Increased Horsepower



Less Downtime



Toll Free 1-855-REV-FANS (1-855-738-3267)
Phone 519-275-2808 | www.cleanfix.org

Human Beings Can be Difficult to Work With!



Gentle....

They enter high traffic areas without looking, stop and change direction without warning, block access ways, and leave personal equipment in hazardous areas.

Robots have been developed that can function in a variety of demanding environments. Now one has been created that can operate in the most challenging environment of all, the human workspace.

Collaborative robots were developed to work as partners with their human workmates. They are reliable, affordable, and simple to operate.

Automation isn't just for the big guys anymore.

Machine shops, bakeries, and other small business's facing staffing shortages are discovering that cobots can streamline any process. Any task that requires human hands to complete can be done faster with less expense using cobots, and ATSI Robotics can help you make it happen.

Make your business future-ready. Talk to our innovation experts, and let us help you meet today's challenges and tomorrow's demands.



....But rugged

Innovative Automation Group of Companies

Providing the world with quality automation solutions.



WATCH
A DEMO



www.innovativeautomation.com