

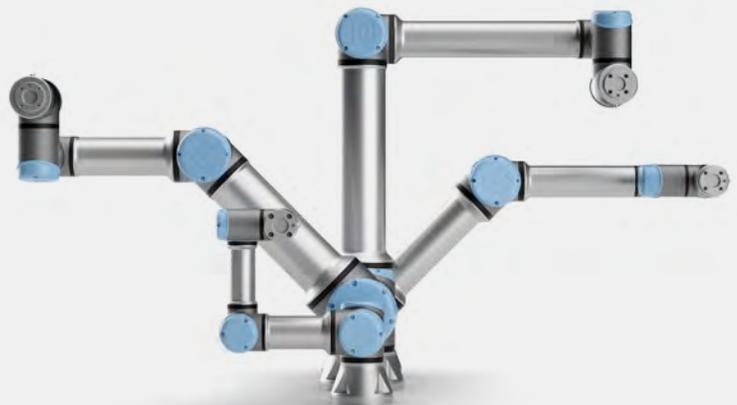
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# Better starts today: stay open for business when the world is closed.

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## White Paper

Published February 2021



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## Collaborative automation is all about humans and robots working together to power business. It can change the way you work, making you safer, more productive, and more profitable.

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### About this guide

If nothing else, COVID-19 has taught us to expect the unexpected. Of course, manufacturers have always been highly attuned to change, regularly weathering market swings, labor fluctuations, new technologies, fickle consumers, and surprising competitors. The COVID-19 pandemic hit the manufacturing industry seemingly overnight, however, causing deep and long-lasting impacts.

While COVID-19 isn't the first (or last) challenge manufacturers must face, it does put into stark relief a few clear conclusions. We recognize that our factories must become resilient and adaptable to respond to intensifying competition. Our businesses must be future-proof, with strategies in place that will help us withstand unforeseeable crises of any kind. And our employees must be kept safe and relevant, with evolving skills that help them continue to add value even during adverse times.

At Universal Robots, we talk to thousands of successful, innovative manufacturers who are addressing the challenges of an uncertain world with creative, proven ideas. The intent of this guide is to draw from those resources, as well as our global network of partners, to share their knowledge and experiences for your benefit.



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## What if your business could turn uncertainty into competitive advantage?

### VUCA

The term - which refers to volatile, uncertain, complex, and ambiguous conditions—has perhaps never been more appropriate.

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The pandemic has forced organizations of all types and sizes to question how they can protect and future-proof their business as the world moves into a post-COVID reality. The term VUCA—which refers to volatile, uncertain, complex, and ambiguous conditions—has perhaps never been more appropriate. VUCA situations demand that companies challenge themselves to anticipate and respond more effectively to change.

For manufacturers, automation has emerged as the single most powerful strategy for succeeding in a VUCA world. Automation helps manufacturers build continuity, flexibility, competitiveness, productivity, and employee safety. In the next logical step, today's VUCA world is accelerating the change from traditional automation to collaborative automation. When changes occur quickly, limiting time to plan, budget, hire and train

employees for new skills, or undertake extensive plant and company reconfigurations, collaborative automation becomes a natural fit.

Like traditional industrial automation, collaborative robots improve output, quality, and consistency, reduce scrap, and work around the clock to meet customer needs. Unlike traditional automation, however, lightweight, small-footprint cobots fit easily into existing production layouts and work cells, often without bulky and expensive safety guarding (after risk assessment).

The cost of collaborative automation is a fraction of traditional automation, and cobots can be set up, programmed, and deployed in-house without expensive and long-term integration and programming services. Easily reconfigured with end-effectors and tools from a large global ecosystem, cobots can also be quickly

redeployed to meet new needs. As manufacturers accelerate change to respond to the VUCA conditions generated by COVID-19, cobots are emerging as the solution to two critical challenges: supply chain and factory capabilities. If manufacturers can't manage both of these axes, new competitors will step in and fill the void, squeezing out those who can't keep up.



**For manufacturers, automation has emerged as the single most powerful strategy for succeeding in a VUCA world.**

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## What if your supply chain was built to expect the unexpected?

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**The global pandemic hit supply chains quickly and acutely, illustrating the vulnerability that had been building for years. Manufacturers now know that they need a Plan B in case remote production or supply is compromised and market demand shifts.**

Similarly, many manufacturers have realized the advantage of being closer to their customers, even if that keeps them in regions with higher labor costs. The key is to be able to manage workers in terms of their availability and safety, and to increase their value and skills to meet new production needs.

Collaborative automation can help businesses of all sizes anticipate and respond more effectively to change; turning unexpected obstacles into new opportunities. Several key strategies support these initiatives.

The key is to be able to manage workers in terms of their availability and safety, and to increase their value and skills to meet new production needs.



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## What if you could turn a shortage of labour into an abundance of opportunity?

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Previous off-shoring trends were fueled by lower-cost labor, but advances in collaborative automation have drastically increased productivity and reduced costs across a number of manufacturing processes. Many of these can now be easily reshored and deployed domestically. While labor rates in traditionally low-cost countries have seen annual increases in the double digits, affordable collaborative robots make automation accessible to companies of all sizes.

Washington, USA-based Tool Gauge manufactures precision metal and plastic components and assemblies for the aerospace industry. Jim Lee, Tool Gauge General Manager, faces the stark realities of doing business in a global market. Even though the company is close to many of its customers in the Pacific Northwest, those customers can do business anywhere in the world, often at a lower labor cost.

“It became clear that the way we can compete is not by adding more bodies but by adding more technology, and then adding more value using that technology,” Lee stated.

The company needed to hire as many as 100 new employees who simply weren’t available in the tight Pacific Northwest labor market. With long-term customer contracts that couldn’t be renegotiated, Tool Gauge turned to automation to help mitigate and contain costs. Two UR collaborative robots accomplish that goal, delivering labor savings up to 75 percent while doubling production in glue dispensing and CNC machine tending applications, and reducing the need for additional workers for repetitive, undesirable jobs. The company also found new opportunities for employees to add value, improve safety, and gain job satisfaction.



**It became clear that the way we can compete is not by adding more bodies but by adding more technology, and then adding more value using that technology.”**

**Jim Lee**  
General Manager  
Tool Gauge

With long-term customer contracts that couldn’t be renegotiated, Tool Gauge turned to automation to help mitigate and contain costs.

**Find out more:**

[universal-robots.com/  
case-stories/tool-gauge](https://universal-robots.com/case-stories/tool-gauge)



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## Localized production starts today.

If remote production can't be changed, a Plan B production capability to service minimal strategic supply requirements may be in order. This approach offers additional opportunities as well. For instance, this line could also be used to offer customization capabilities, which might otherwise compromise a remote mass-production process.

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## Resilient supply chains start today.

Relying on a limited or distant source of supply has proven to be riskier than ever. Seek supply closer to home and insist on sufficiently competitive suppliers with the necessary flexibility and level of automation to support your cost and quality targets. Diversifying your supplier database (both locally and globally) can give you an edge over competitors in changing times.



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Find out more:

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blog/cobots-vs-covid-19-  
part-ii](https://universal-robots.com/blog/cobots-vs-covid-19-part-ii)



Within just four weeks,  
the production cell was  
producing an amazing

**700+**

face shields per day.

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## What if your business could meet customer demands, on demand?

Uncertainty places increased demands on companies to turn on a dime. What if you must suddenly produce something different than your plant was originally designed to produce? What if the market suddenly demands more customization? Collaborative automation is designed to be easily learned and quickly deployed so that it can be moved, changed, and redeployed by your own people with minimal hand-holding.

Revtch Systems, a Universal Robots integrator from Quebec, Canada, launched a COVID-

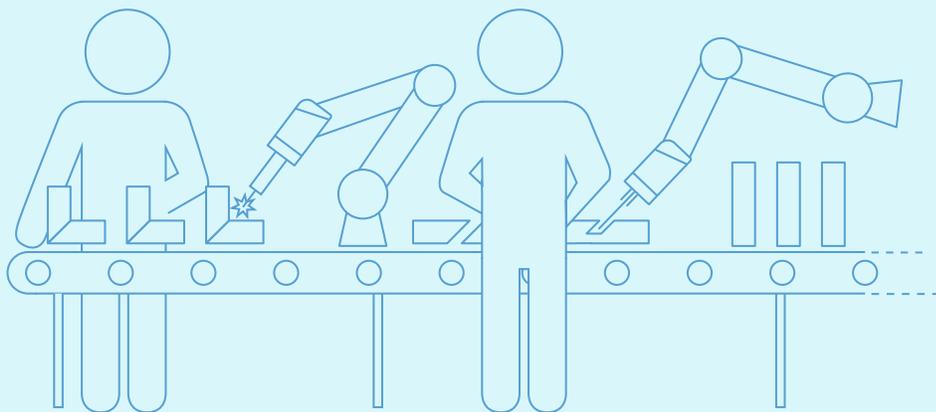
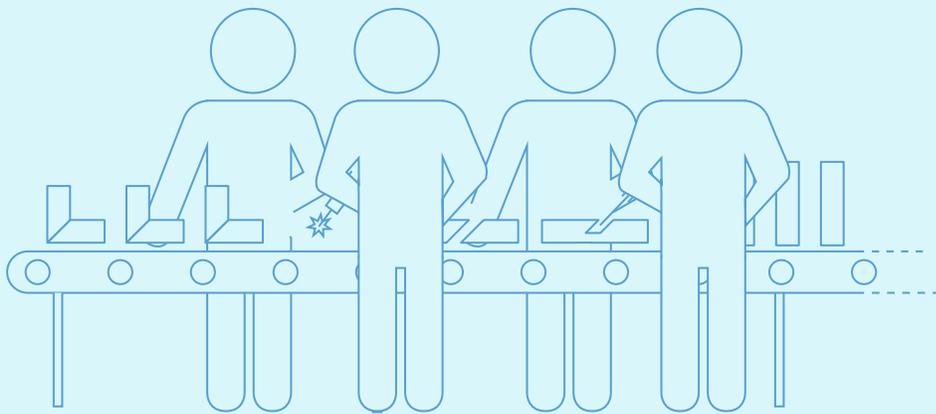
19-based challenge that encouraged small groups of employees to join forces to design a face shield that could be produced quickly and in high quantities. Once the final design was chosen, the team quickly set up a manufacturing cell with a human operator and two UR10 cobots.

The process begins when one of the cobots grabs a plastic sheet and places it on a station. The second cobot then picks up a foam piece that's glued to cardboard and places it on the plastic sheet.

The same cobot then takes an elastic piece and pulls it over the foam to the other side, and a pneumatic mechanism staples the elastic to the cardboard and plastic. Then the first cobot takes the plastic sheet and moves it to the next position to be stapled and finally places the completed face shield in a box.

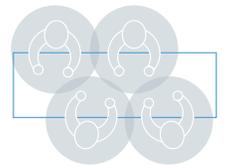
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## What if your workforce could adapt to changes as they happen?



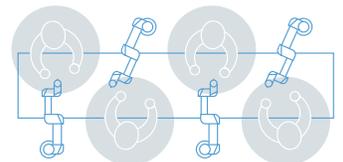
### Normal production line

- Repetitive tasks = unsatisfied employees
- Labor dependant
- Inflexible
- Difficulty implementing social distancing
- Lack of space for traditional automation



### Cobot production line

- Allows workforce to add value in other areas
- Increases capacity and output
- Easy re-deployment - adapt to changing demands
- Allows for social distancing
- Small footprint, fits into existing layout



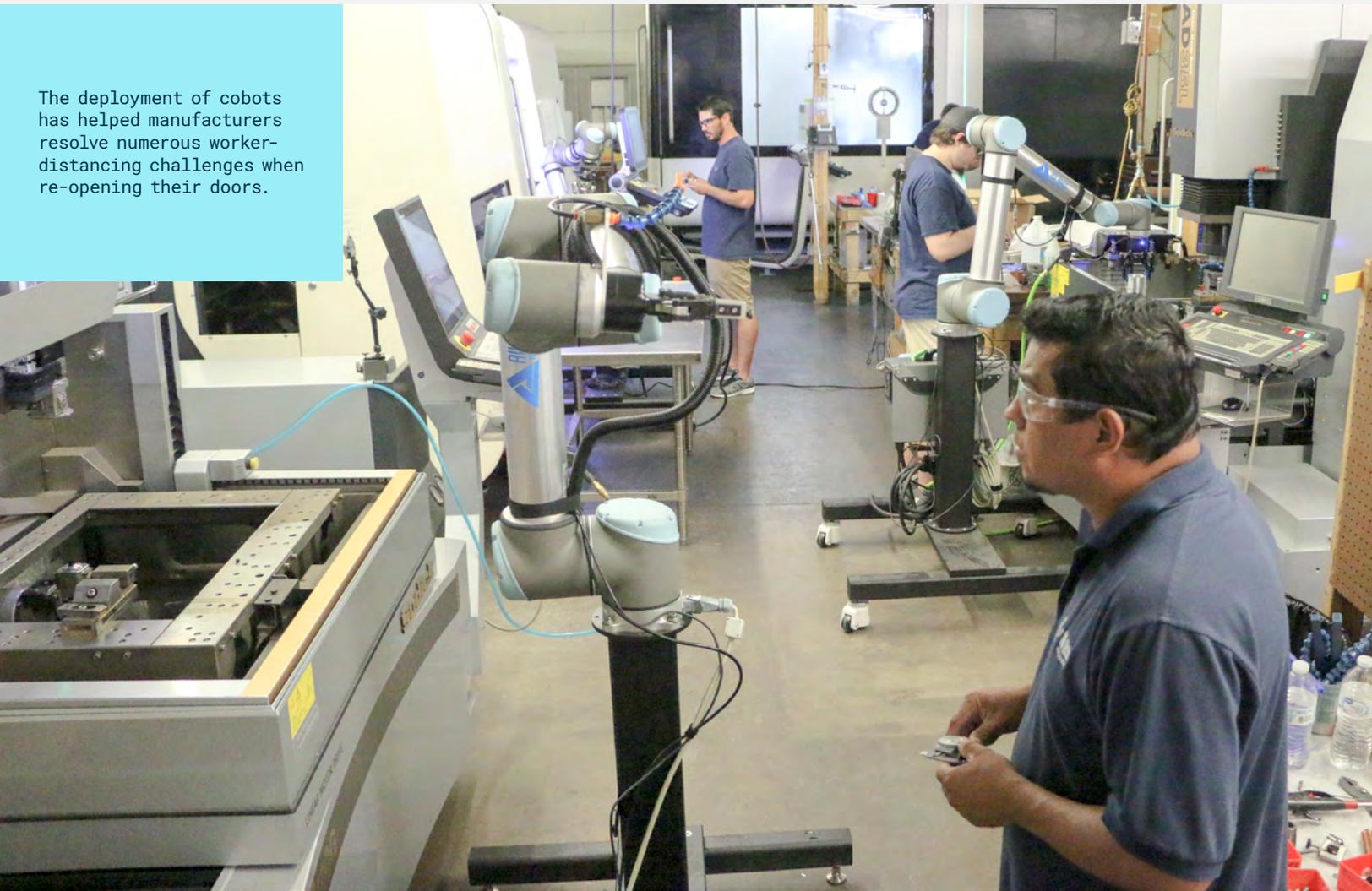
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## What if you could build a workforce unaffected by social distancing?

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The importance of physical distancing during COVID-19 has made infection control a new priority, and for many manufacturers this new reality will continue indefinitely. The deployment of cobots has helped manufacturers resolve numerous worker-distancing challenges when re-opening their doors. This is achieved by inserting UR cobots within standard production lines to offset face-to-face risks and to create safe distance between workers while keeping output levels high.

The deployment of cobots has helped manufacturers resolve numerous worker-distancing challenges when re-opening their doors.





↑ The company deployed UR cobots in two identical cells where they each tend two dual-spindle CNC lathes in the same cycle.

“ In terms of following the social distancing guidelines, this proved effective as we only need one roving inspector to oversee the operation of these cells now.”

**Mike Higgins**  
Sales and Marketing Director  
RCM Industries

[RCM Industries](#), a manufacturer of die casting parts with four production plants in the Chicago area of the US, says that they planned for the worst-case scenario to help them weather the COVID-19 storm. With several customers in the medical, military, and automotive industries deemed essential, the company needed to maintain operations, even if they were limited.

The company deployed UR cobots in two identical cells where they each tend two dual-spindle CNC lathes in the same cycle. “In terms of following the social distancing

guidelines, this proved effective as we only need one roving inspector to oversee the operation of these cells now,” says Sales and Marketing Director Mike Higgins.

“In times like these, our automated cells have been truly beneficial,” Higgins adds. “The crew that we kept on staff had a broader skillset and were not familiar with the direct operation of the cobots, but since the day-to-day operation of the cobots is fairly easy to learn, handle and monitor, this has not been an issue.”

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## Adaptable production starts today.

In times of uncertainty, flexibility paves the way to business continuity, innovation, and the future-proofing of key processes. Cobots offer the flexibility to perform a range of tasks, with easy programming and flexible peripherals that allow cobots to be quickly moved between applications without the need for expensive and disruptive integration. Even if your workforce is impacted, cobots can help meet demand for essential products.

Irrigation equipment is critical for Indian agriculture and demand is high, but many firms have been hit hard by staff absences due to COVID-19. Krishi Group, one of India's leading agricultural equipment manufacturers,

was faced with a 40 to 50 percent reduction in its workforce, and struggled to keep up with demand until it introduced a UR cobot to its facility. The cobot now works alongside a human worker on quality control tasks that previously required two workers to complete.

Arun Bhat, Krishi Group Director, said, "During the COVID lockdown, the government has given us permission to manufacture irrigation products as they fall under the 'essential' category. There is a huge market demand for these products from farmers, dealers, and distributors. Although there is less labor, the cobot has benefitted us by enabling us to meet our production requirement."

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**Learn more:**

[universal-robots.com/blog/cobots-vs-covid-19-part-iii](https://universal-robots.com/blog/cobots-vs-covid-19-part-iii)



**“ Although there is less labor, the cobot has benefitted us by enabling us to meet our production requirement.”**

**Arun Bhat**  
Director  
Krishi Group

“ We are turning our staff into experts with their skills level on the increase.”

Aurelio Tornero  
General Industrial Manager  
RNB Cosméticos.



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## What if you could turn untapped potential into increased productivity?

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Companies are looking to reduce recruitment costs, ensure consistent quality, and achieve higher levels of productivity. These factors are making the affordability and availability of cobots particularly attractive. Quick to deploy and easy to program, cobots complete repetitive and mundane tasks with precision, increasing quality and reducing overall operating costs. Cobots can work around the clock, with or without human intervention, so they can make up for lost productivity by manufacturing products of consistent quality throughout the night and during other typically unproductive times.

Because of the increase in productivity, employees upstream and downstream of the cobots can perform more intelligent tasks that require a higher level of thinking and add more value to the company. In this way, cobots

should be considered for their ability to boost not only profit margins but can also create high-value jobs to stimulate local economies.

This was the case for RNB Cosméticos in Spain. The company uses six UR10 cobots in its packaging plant to perform end-of-line palletizing tasks. With the cobot cells, the company has ramped up production rapidly and efficiently.

After working with humans on a six-package-per-minute production cycle and adapting to more than 350 different items, the system is so effective that new staff had to be hired to handle the jump in production. At the same time, existing staff were relieved from non-ergonomic tasks and raised their professional skillset. Instead of packaging and palletizing, workers now handle the cobots' operations.



**We are not hiring expert staff to handle a high-tech robot. We are turning our staff into experts with their skills level on the increase."**

**Aurelio Tornero**  
General Industrial Manager  
RNB Cosméticos.



**Find out more:**

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case-stories/rnb-  
cosmeticos](https://universal-robots.com/case-stories/rnb-cosmeticos)



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## What if your workforce could stop accidents before they happen?

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The definition of a safe working environment has likely changed forever, with disinfecting, ventilation, and physical distancing added to the long-term concerns of physical safety around equipment and ergonomic safety for workers faced with repetitive tasks. Cobots are emerging as innovative foundations to improve worker safety.

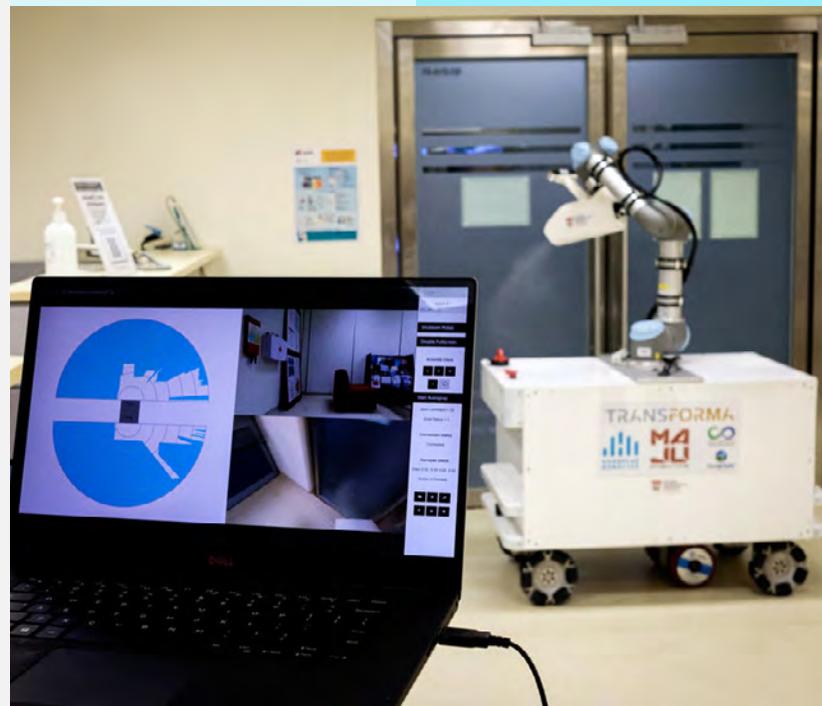
The global pandemic has seen massive demand for effective deep cleaning and disinfection technologies that don't involve direct human contact with potentially infected areas. Researchers at Nanyang Technological University in Singapore (NTU) presented their solution to this problem with the unveiling of the eXtremeDisinfection robot (XDBOT), which uses a UR5 cobot fitted with an electrostatic spray nozzle, all mounted on a mobile platform.

The XDBOT is semi-autonomous, allowing cleaners to remotely control the bot via tablet or laptop to avoid contact with potentially infected areas. Capable of running continuously for four hours on a single charge, XDBOT has been successfully tested in public areas in the NTU campus and the team is preparing to trial the technology at local public hospitals.

**Cobots are emerging as innovative foundations to improve worker safety.**

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## A better future starts today.

In many ways, we're navigating uncharted territory. Despite the challenges we're facing, however, the future looks promising. Thanks to collaborative automation, manufacturers are discovering innovative new opportunities to address a VUCA world and emerge smarter, sharper, and better prepared for any situation.

As you continue on this journey, we're looking forward to being at your side so you can stay open for business, even when the rest of the world is closed.



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## About Universal Robots

**Universal Robots (UR) was founded in 2005 to make robot technology accessible to all by developing small, user-friendly, reasonably priced, flexible collaborative robots (cobots) that are safe to work side by side with people.**

Since the first cobot was launched in 2008, the company has experienced considerable growth with the user-friendly cobot now sold worldwide. The company,

which is a part of Teradyne Inc., is headquartered in Odense, Denmark, and has regional offices in the United States, Germany, France, Spain, Italy, UK, Czech Republic, Poland, Hungary, Romania, Russia, Turkey, China, India, Singapore, Japan, South Korea, Taiwan and Mexico. In 2019, Universal Robots had a revenue of USD 248 million.

### Find out more

Click here to learn even more about automation using collaborative robots from Universal Robots.



### Contact us

For more information on Universal Robots, visit:

[universal-robots.com](https://www.universal-robots.com)

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