

Five reasons why you should get into cobotics

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There are plenty of scenarios where robotics can be deployed to increase productivity and precision while removing people from the drudgery of repetitive tasks. Cobots take this a step further by being able to work alongside human operators in a truly collaborative way.

Barry Weller, Robot Product Manager at Mitsubishi Electric, looks at five reasons why businesses should consider installing cobots.

When looking at the adoption of future technology, it is acknowledged that robots will play an ever-increasing role. Industrial, cooperative and collaborative robots can be gamechangers for businesses in the manufacturing, processing and assembly sectors, where they can boost productivity and flexibility. The technology has never stood still and robots are now more versatile than ever.

The latest innovation in the sector is the collaborative robot, otherwise known as the cobot. This means that robots can now operate alongside people, utilising the same workspace, opening up many applications that have not been possible before.

However, this is not the only reason to use a collaborative robot:

1. Advanced technology

When new technology becomes available it can either have a disruptive influence on the established way of thinking, or it can reignite interest in an area that had maybe slipped from people's attention, the latter is definitely true with cobots.

Key elements fuelling this interest include visual programming, direct teaching, collision detection, integrated vision and extended safety functions, which means that cobots can be used in applications without the need for physical guards. These allow collaborative machines to match the level of sophistication of industrial robots while increasing productivity on the factory floor as well as backing data-driven, smart operations, where the information generated by cobots can provide actionable insights to maintain peak performance.

Add to this the fact that they look good, with a sleek design that has no pinch points or sharp corners, then they make for an attractive option for any application.

2. Ease of use

As the robot technology has advanced, so has its ease of use and how it integrates with peripheral devices. What was the preserve of the "expert" is now expected to be available to everyone and this is actually one of the biggest advantages of using cobots.

The technology behind cobots means their programming can be graphically based, featuring icons for functions and flow charts for the sequencing of the process. This reduces programming complexity as well as development and engineering time.

The configuration of the cobot arms can be completed manually by guiding the cobot arm to the desired positions. The configuration of the robot 'hands' is achieved using graphical parameters. If vision systems are needed, a solution such as Mitsubishi

Electric's Assista offers users the ability to set up cameras by using an intuitive software wizard which guides the user through each step of the process. It is also able to automatically perform other key functions, such as the calibration of a coordinate system using Artificial Intelligence (AI).

Ultimately, businesses that install cobots on their production lines do not initially require the same level of robotic or programming expertise as for standard industrial robots.

Quick setup can dramatically cut the time required to get the system up and running while also enabling fast changes going forward.

3. Expandability

It is not just the cobots that are easy to use. Auxiliary equipment, such as vision systems and end effectors, is being designed to meet the same level of user-friendliness. More precisely, many components offer 'plug and play' functionalities, so they can be easily interconnected with the robotic arms.

No wiring needs to be carried out and no adaptors need to be designed and manufactured, further simplifying the overall automation infrastructure while also supporting flexibility. In effect, users can easily exchange components to support a variety of different applications.

4. Flexibility

The benefits discussed above, particularly how easy it is to program, install, use and equip cobots, also leads to extremely flexible production cells and machines. Businesses can change the way collaborative robots function and behave in just a

few intuitive steps. In addition to this, their end effectors can be exchanged very quickly.

These capabilities are extremely beneficial, allowing cobots to be swiftly repurposed from one task to another. As a result, it is possible to benefit from highly flexible and agile systems that can help automate mixed product assemblies and small batch runs. Furthermore, by enabling users to adjust and optimise the cobots' programs over time, these solutions make it particularly easy to constantly increase productivity, helping to realise continuous improvement strategies.

5. The business case

When it comes to getting a project approved, it can be challenging to make it stand out from all the other budget requests. This is not the case for cobots, as they can unlock several new opportunities for businesses of any size, while offering a quick return on investment (ROI), typically in less than a year.

Furthermore, the use of collaborative machines can help users grow their confidence and skills in factory automation. As a result, companies can develop in house expertise, supporting the use of more complex, faster or heavy-duty payload industrial robots on their production lines. Ultimately, businesses can evolve over time to use different types of robots to perform key activities and processes as the applications require.

Conclusions

With all the benefits that a cobot can bring the question must be asked, does this mean that there is now no longer a need for a traditional industrial robot?

Of course, the answer is no, where speed is important then the industrial robot is still the best choice. Cobot technology is however influencing industrial robot development, for example, many of the safety functions that were first seen on the collaborative robots are now standard features on industrial versions. Collaborative robots are often found on the same production lines as industrial robots so it is very important to choose an equipment supplier that can offer both, such as Mitsubishi Electric.

The right choice of cobot should provide all the simplicity of programming already described but should also come with more sophisticated features such as an advanced scripting language, so that as the knowledge of the user grows, the applications tackled by the cobot can get more sophisticated and demanding.

It is clear that robot technology is advancing at great pace and the adoption by industry will also follow suit. The question is not collaborative robots versus industrial robots but the marrying of the two and matching the correct technology for the right application. If this is achieved successfully, then the further adoption of robots in manufacturing is inevitable and will allow humans either to interact with them as part of the task or be redeployed on less mundane tasks elsewhere in the process.

Image captions:



Image 1: Able to work alongside human operators, cobots are a highly versatile option for businesses in the manufacturing, processing and assembly sectors. [Source: Mitsubishi Electric Corporation, Japan]



Image 2: Mitsubishi Electric's cobots are as user-friendly as they are sleek. Users can easily set up and change their components to meet any automation requirement. [Source: Mitsubishi Electric Corporation, Japan]

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*U.S. dollar amounts are translated from yen at the rate of ¥221=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2022.

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