



THE RISE OF ROBOTICS AND AUTOMATION IN THE FOOD INDUSTRY

In the midst of the global pandemic, Andy MacPherson, Industry Manager for Food & Beverage at Festo GB, emphasizes the opportune moment for the food industry to embrace robotics and automation.

The pandemic has brought about significant changes in both our personal and professional lives. Notably, it has sparked a surge of interest and opportunities in automation and robotics. This trend is particularly relevant to the food manufacturing and logistics sector, as emerging patterns accelerated by Covid have impacted it directly.

One such pattern is the increasing demand for customized products ordered online, with speedy delivery. Achieving cost-effective operations while meeting these demands can only be made possible through the integration of robotics and highly automated, flexible production processes. Additionally, the implementation of highly automated intralogistics fulfillment centers, employing numerous pick and place devices, contributes to record-breaking levels of order fulfillment.

The scarcity of flexible labor in the food industry is another significant factor driving the widespread adoption of robotics and automation solutions. The costs associated with labor-intensive operations have risen, adding pressure to already tight profit margins. In contrast, the cost of implementing automation solutions has decreased, making the potential return on investment more promising than ever before.

Lockdown restrictions have also spurred the development of new applications. Festo, for instance, has provided cartesian-based robot solutions ranging from compact systems the size of an A4 sheet of paper to gantries spanning over 30m². The key to success in delivering such solutions lies in seamlessly combining axes with suitable motors and motion controllers, ensuring the required speed, force, and precision for each task.



Streamlined Design Solutions

Having spent over thirty years in the automation industry, I have never witnessed such an urgent demand for the rapid design and delivery of handling systems. Fortunately, Festo has been able to respond to this demand by developing a design and selection package called Handling Guide Online (HGO). Through HGO, we can swiftly generate design concepts for customized multi-axis handling solutions in a matter of hours. This package allows us to input the application requirements using the customers' language, such as stroke lengths and mass to be moved. HGO then generates all feasible solutions based on factors like feed forces, inertia, and mechanical bearing specifications, prioritizing them accordingly. Price, power requirements, and safety factors are among the critical considerations.

The models created within HGO encompass simulations, mechanical design, and bill of materials. Multiple 3D CAD drawings in various formats are generated simultaneously, including documentation for electrical wiring and programming I/O allocations. This data can seamlessly transfer into preferred documentation software like EPLAN. Furthermore, kinematic models can be integrated into higher-level simulation packages, enabling the simulation of complete stations. The operating (PLC) program can be pre-written and virtually commissioned, all before any physical construction takes place. In summary, the design and implementation of automation solutions have never been simpler.

The Time for Change is Now

While the global pandemic has been disruptive to the food sector, it also presents an opportunity for positive transformation. With many consumers embracing the convenience of fast online services, it is clear that the trend toward accelerated robot design and delivery will persist. Moreover, the availability of user-friendly software tools like Festo's HGO empowers food manufacturers and machine builders to quickly and accurately specify robotic handling and automation systems, expediting the adoption process. It is crucial to shift our perception away from the notion that robotics and automation are complex, expensive, and challenging to maintain. In reality, the food sector cannot afford to overlook the benefits of automation.