

Study of packaging for online orders: How does e-commerce influence food packaging?

- **To be able to offer groceries online at a profit, automation of order picking is essential**
- **Today, robots are already capable of reliably picking most items**
- **The quality and design of packaging play a decisive role when it comes to picking by robots**

(Marchtrenk, Austria, August 28th 2024) Good news for grocery retailers: for the most part, there is no need to develop new packaging for online retail to enable modern picking robots to grip it reliably. Those are the findings of a study that TGW Logistics carried out together with the packaging specialist Greiner Packaging and with logistikum.RETAIL, the innovation and competence center of the University of Applied Sciences of Upper Austria.

Online grocery retail, also known as e-grocery, is growing steadily, and packaging plays a decisive role. It influences not only handling efficiency, but also customer satisfaction and carbon footprints. This study therefore saw experts turn their attention to the future of e-grocery packaging. They focused on the question of whether packaging that was designed for brick-and-mortar retail is suitable for online retail as well. In addition to analyzing general data, the project team interviewed retail companies and conducted intensive tests with the TGW picking robot RovoFlex. The study was co-financed by the state of Upper Austria as part of the Logistikum.RETAIL network of excellence.

Modern gripping technology and machine learning

"Although many different types of packaging were tested, RovoFlex's picking performance remained impressive. However, the prerequisite for such performance is that modern gripping technology and machine learning be implemented," emphasizes Michael Schedlbauer, Vice President of Business Development Grocery at TGW Logistics.

The main conclusion of the study of packaging for online orders was that in automated handling, problems arise from irregular shapes and sizes of packaging as well as from easily damageable materials. Lids also presented challenges during the first phase of testing, but now nearly all packaging can be handled successfully. Successful automated handling of items depends greatly on the following factors:

- **Standardization:** Consistent packaging sizes and shapes facilitate the automation of processes.
- **Choice of material:** Robust materials that offer protection and also simplify handling.
- **Design:** An optimized design for machine handling, simple closing mechanisms and clear gripping points.

Automation as a driver of efficiency enhancement

Analysis of the interviews with retail companies shows: the interviewees considered damage to goods to be a negligible problem. If damages occur, then usually due to mishandling of the products during the last mile. Customers most often complain of shattered glass bottles and torn thin plastic packaging such as tubs of yogurt.

Generally speaking, companies have a very positive attitude toward automation of the picking process because it increases efficiency and offers an answer to the severe labor shortage. If robots are going to be used for picking, the main prerequisite is that they be able to grip a wide variety of products. Those who specialize solely in online retail often balk at the cost of such projects, however.

Michael Schedlbauer insists: "Picking robots not only improve constantly and in a short time thanks to machine learning, in the future they could also be employed for such tasks as restocking shelves overnight, for example. There are special configurations for that."

Based on their analyses, those responsible for the research project expect automation to play a larger role in the packing and dispatch process in the future than it does today. The principal drivers will be the labor shortage and efficiency enhancements. Robots and humans will work together: robots will handle the physically demanding, repetitive standard processes. Humans will take care of special tasks, corrections and monitoring.

Success factor in the e-food industry

According to the study, grocery producers and retailers still do not have a strong interest in the subject even as online grocery orders are increasing, especially in urban centers. "Anyone who wants to succeed with e-food will not be able to avoid the subject of automation in the future" stresses Schedlbauer.

The automation of packing processes offers numerous advantages:

- **Speed:** Automated systems can have groceries packed and ready to ship faster, thus shortening the delivery time.
- **Error reduction:** Human error is kept to a minimum, customer satisfaction improves and the number of returned items drops.
- **Increased efficiency:** In the long run, automated systems reduce operating costs because they can remain active around the clock and without breaks.

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Press information



About TGW Logistics:

TGW Logistics is one of the leading international suppliers of material handling solutions. For 50 years, the Austrian specialist has implemented highly automated systems for its international customers, including brands from A as in Adidas to Z as in Zalando. As systems integrator, TGW plans, produces and implements complex logistics centers, from mechatronic products and robots to control systems and software.

TGW Logistics has subsidiaries in Europe, China and the U.S. and employs more than 4,400 people worldwide. In the 2022/2023 business year, the company generated a total revenue of 955 million euros.

Pictures:

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About Greiner Packaging

Greiner Packaging is one of the leading European manufacturers of plastic packaging in the food and non-food sectors. For over 60 years, the company has stood for a high level of solution expertise in development, design, production and decoration. Greiner Packaging meets the challenges of the market with two business units: Packaging and Assistec. While the former stands for innovative packaging solutions, the latter concentrates on the production of customised technical parts. Greiner Packaging employs over 4,800 people at 30 locations in 19 countries worldwide. In 2023, the company achieved an annual turnover of 845 million euros (including joint ventures). That is almost 40% of Greiner's total turnover.

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