

1. Robotization of the food industry

Oleksii Shumylo, Halyna Lukianets

National University of Food Technologies, Kyiv, Ukraine

Introduction. The automation of the food industry is an important topic in the modern world as it impacts the efficiency, safety, and quality of products, as well as employment and economic development.

Materials and methods. Analytical review of informational resources.

Results. Well-known companies in the food industry, including: Nestlé, PepsiCo, Mondelez International, Danone, Kraft Heinz and others, use automated lines and systems for the production of a wide range of products, robotic packaging lines and machines for the production and bottling of beverages.

The following types of robots in the modern industrial environment perform a variety of tasks for sorting and placement:

✓ Palletizers are used for automated assembly of products on pallets, transportation and storage.

✓ Delta robots are used to sort and place products such as cookies, candies, snacks, etc.

✓ Pick and Place robots can be used to remove products from the production line and place them in packaging containers or on vehicles.

✓ SCARA robots are often used to place products on a packaging line or to sort products according to their size and shape.

✓ In the production of food products such as pizza or sushi, robots are used to automatically apply sauces and toppings to the main ingredients.

The dairy industry uses ABB Robotics, FANUC, KUKA Robotics, Yaskawa Motoman robots for packaging, lifting, sorting, moving products, labeling, palletizing, shelving and many other tasks.

Unfortunately, to date, the use of 3D printing in the food industry by Ukrainian companies is not yet widespread. However, some Ukrainian companies are beginning to study the possibilities of this technology and introduce it into their production processes. Food 3D printers are mostly suitable for creating complex shapes and designs, not for preparing complete meals. Usually, after creating a food "model" on a 3D printer, it is baked in an oven or on a grill.

Robots are used to perform tasks that require a high level of hygiene and safety, such as packaging, washing and handling products, which helps prevent contamination and contamination. In dairies, automatic systems are used to wash and clean equipment such as milk lines, milk storage tanks, milk tanks, pipelines, pumps and other equipment.

Conclusions. Robotization of production processes can increase productivity, quality and safety in the food industry, as well as reduce labor costs and increase the competitiveness of enterprises, but requires a balanced approach and consideration of various social, economic and ethical aspects.

References:

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