PICKING ROBOT:

A 100% ROBOTIC LOGISTICS PLATFORM FOR INCREASED PERFORMANCE

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SAVOYE

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INTRODUCTION

Previously intended for the industrial world, robots are expanding their scope of action and increasingly integrating logistics warehouses. In an article published in 2019, ABI Research estimated that by 2025, 50,000 warehouses would be robotized, compared to 4,000 in 2018[1]. The pandemic has clearly accelerated this movement[2] and today more and more warehouses are looking to increase their performance through this process.

[1] https://www.abiresearch.com/press/50000-warehouses-use-robots-2025-barriers-entry-fall-and-ai-innovation-accelerates/
[2] https://ifr.org/ifr-press-releases/news/presidents-report-by-milton-guerry-1-2021

WHAT IS A PICKING ROBOT?

Although the element that catches our attention is the robotic arm, the picking robot or item picking robot, consists of several elements:

An integration environment. Both hardware and software, the robot's environment allows it to operate under the best conditions. Thanks to a dedicated architecture, we organize the arrival and departure of bins and cartons, so as to optimize the operation of the robot, and allow it to work continuously.

The robotic arm itself. Chosen for its speed and precision, the robotic arm, coupled with a gripper, picks and places the products.

The vision system. These are the eyes of the system. Using machine learning algorithms, a branch of artificial intelligence, the vision system identifies the products to be collected (size, weight, color, rigidity, texture, etc.) quickly and reliably without human intervention thanks to a self-learning system. Highly accomplished, it can integrate new products continuously 24/7 with a computational time of less than a second.

WHAT IS THE FUNCTION OF THE PICKING ROBOT?

A picking robot addresses strategic challenges. In a logistics warehouse, coupled with an automated Goods-to-Person system, the main function of the picking robot is to pick items from a source bin and place them in a destination bin. This action may meet an order-preparation need or logistical process-related needs, such as stock densification. The only constraint: the robot cannot handle products that are too heavy or too large. The products must fit into bins. Even if expectations cannot be the same for medicines that are stored in 300x400 mm boxes as for brake pads, the picking robot addresses all sectors of activity (textile, auto parts, industrial supplies, office, retail, etc.) and very many types of products (pens, medicines, wiper blades, preserves, perfumes etc.)

USE CASE:

Pick and Drop

this is the most common use case. The robot picks the product from a source bin and drops it into a destination bin. Approximately 90% of objects are eligible for this process.

Pick and Place

In this case, the robot does not drop the product, but places it optimally. This feature is essential in certain situations:

- Keeping empty space to a strict minimum in parcels for individuals,
- Placing several products in a package very precisely,
- Optimizing requirements internal to the logistics processes, such as stock densification.. **80% of objects are eligible for this process**

WHAT IS THE PERFORMANCE OF A PICKING ROBOT?

The robot's performance is determined by two elements:

The complexity of the product to pick: indeed, a cardboard box, such as a box of medicine, is much easier to pick than a deformable or light-reflecting product.

Ambitions in terms of the compactness of the destination box: it is much easier to go fast by picking an item, dropping it into a bin (what we call a Drop) than to position it optimally (what we call a Place). The greater the expected compactness of the destination bin, the slower the robot will be.

In general, however, we can say that, for item picking, we achieve the same performance as that of a posted operator.

Pick and Drop : 500 to 750 cycles per hour
Pick and Place : 200 to 500 cycles per hour

WHAT ARE THE DIFFERENT TYPES OF ROBOT?

Currently, Savoye incorporates two types of robot:

The industrial robot capable of reaching very high speeds. To deploy this type of robot, the regulations require the implementation of a certain number of safety mechanisms in order to prevent any contact with an operator.

The cobot, or collaborative robot capable of working with operators. The cobot operates at a reduced speed. It is equipped with a number of sensors that allow it to work safely with or next to operators.

Whether our customer chooses a cobot or a robot, the deployment of this new technology allows them to gain flexibility and agility.

WHAT ARE THE ADVANTAGES OF A PICKING ROBOT?

While overall the cycle time is equivalent to that of an operator, the picking robot finds its advantage in working continuously 24/7, freeing itself from the problems of arduousness.

Stock-densification type tasks, which are not essential to the activity, can thus be performed at night and operators can be assigned to higher value-added tasks during the day.

Its return on investment fluctuates, depending on the products and configurations of customer sites. It is reached in 3 years in a B2C environment with high flows.

CONCLUSION

Until recently, in highly automated environments, only the picking operation remained manual due to a lack of technological maturity. As this technology is now mature and available, Savoye is able to offer fully robotic retail order preparation platforms.

The last link in the automation chain, the picking robot is becoming increasingly attractive to the logistics world. Currently, on the market, the main solution providers offer «Pick and Drop» applications. With more than 30 years of experience in the field of logistics, Savoye offers not only a Pick & Drop solution, but also a Pick & Place solution.

SAVOYE:
BEST IN CLASS AUTOMATION FOR YOUR LOGISTICS AND SUPPLY CHAIN NEEDS

ADVANCED TECHNOLOGIES

Order preparation of light loads
X-PTS Goods-to-Person solution, smart conveyors, high-speed sorting systems, robotics

Automation of shipping packaging
JIVARO, e-JIVARO, PAC 600, lidding, cardboard wedging

Automated storage of heavy loads
MAGMATIC

ADVANCED SOFTWARE

Warehouse management and flows control
OMS, WMS, WCS, TMS, EDI

EXPERTISE MÉTIER

SAVOYE operates in key business sectors and has specific expertise in each area.

The SAVOYE service offer is built on high-level “professionspecific” expertise. We provide tailor-made solutions for every type of logistics warehouse, from the simplest to the most complex layouts.

Retail logistics: 3PLs, specialist distribution
Multi-channel logistics: retail, e-commerce, mail-order
Industrial logistics: food, health and pharmaceutical industry, industrial supplies

SAVOYE
SUPPLY CHAIN SOLUTIONS