



Omron automation solution ensures 30% greater productivity and fewer failures at fruit and vegetables wholesaler

Combilo, a leading fruit and vegetables wholesaler in the Netherlands, specializes in the import, export, packing, storage, shipment, and distribution of fresh fruit and vegetables to retailers. The company's packaging hall houses five lines that make millions of packages every year. One of the products Combilo packages is the "traffic light" bell pepper set, which is a packet containing one red, one yellow and one green pepper.

Prior to the introduction of automation, this line was staffed by seven employees. One person would fill the trays with peppers of each color, and three people would place them on the belt in the correct color order by hand. The peppers were then sent

through a flow packer in sets of three, where they were packaged in film. An operator would stand by the packaging machine to check the supply and remove any failures. Once the peppers were packaged, the weight was checked, and if a package was too light, it was removed from the line. Two employees would stand at the end of the line to place the "traffic lights" in a crate before stacking them on pallets.

This process was extremely slow and labor-intensive, so Combilo realized it needed to invest in a new robot-assisted packaging line to improve efficiency and reduce failures.

Business need

Fruit and vegetables wholesaler Combilo needed to automate time-consuming manual processes on its "traffic light" bell pepper packaging line.

Unique solution

Combilo worked with systems integrator EasyPack Technologies to install a new robot-assisted packaging line with delta robots and vision from Omron.

Customer benefits

Immediately upon implementing the new line, Combilo saw productivity increase by 30% while failures became much less frequent.

The solution

A robot-assisted packaging line



The need

According to Combilo Production Manager Marcel Villerius, working with bell peppers is especially difficult because their shape varies dramatically and their stems are rigid. This means that the peppers much face inwards to avoid ripping the packaging. The automated system would need to be able to position peppers in this manner.

The system also needed to ensure that the vast majority of packages would come out at the desired weight. Packages that are either too heavy or too light will be rejected, and rejected packages must be unpacked manually and returned to the start of the line. This is an extremely time-consuming process that also risks damaging the peppers through excessive handling.

The technology

Combilo tapped systems integrator EasyPack Technologies to build a new line using Omron R6Y Delta-3 robots and FH-5010 vision. The robots pick and position the peppers on the belt in the correct color order before they are sent through the flow packer. The three-camera vision system relays pepper position, location, and stem shape to the system to calculate how each should be packaged.

The robots' control mechanism is underpinned by an intelligent concept that ensures optimal package weight. The starting point is a weight of 500 grams per package. Peppers are sorted and then delivered in weight classifications of 140–160, 160–180 and 180–220 grams. Integrated load cells relay the weight of each pepper to the weight converter. The first two robots to pick up a pepper can choose between two conveyor belts. There are four belts for the last color, so that robot has more options to bring the total weight as close to 500 grams as possible.

The outcome

After a year of test runs and a few adjustments, the performance of the new line is outstanding. The robots save on manpower, and the robot-assisted line provides a productivity that is 30% higher per FTE than a traditional line. The robots also reduce the number of rejected packaged products and use less packaging material. Thanks to the ingenious system comprising the load cells and the weight converter, most packages now come out at the desired weight.

The three Omron R6Y Delta-3 robots also happen to be waterproof variants that can be cleaned thoroughly, which is very important in an industry that sets high standards for hygiene and requires frequent equipment washdowns.

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