



CKF Systems utilise robot technology to pick fragile snack product at high speed

CKF Systems utilises ABB high speed robots to help customer perfectly pick and pack snack product

CKF were commissioned to install a robotic picking system featuring ABB's IRB360 FlexPicker robots and PickMaster vision software into one of the UK's largest food manufacturers in 2019 helping them to perfectly pick a consumable product at one of their major factories. The system is helping them to produce, pack and distribute a steady supply of their product to the UK's supermarkets.

The system replaces a previously installed robotic picking line which used older versions of ABB's FlexPicker, the IRB340. Originally installed in 2008 the old line had begun to experience reliability issues caused by various hardware and software problems. After one software issue that cost the company a substantial sum due to lost production, the decision was made in late 2017 to replace the line with a new and upgraded alternative.

The project was awarded to CKF Systems due to their extensive expertise, they installed four picking cells using ABB IRB 360 FlexPicker robots with new controllers and ABB's PickMaster 3 vision system. Together, this equipment ensures the product is carefully and accurately picked and arranged into stacks, ready for packing and dispatch to the nation's supermarket shelves.

A tight deadline

With production going into tens of thousands per day, the client was keen to minimise the time needed to get the new system installed and operational. For this reason, CKF had just 15 days to install, test and commission the complete system prior to the picking process resuming.

This posed a tough challenge for CKF's team. "Obviously, you always want to try to get as much time as possible for projects like these, especially where you've got a fragile product, which presents a high risk of breakage," explains Elliott Grice, project engineer for CKF Systems. "Fortunately, we've got a lot of experience in developing robotic systems for food applications. This, plus the fact that we had planned everything in advance and devoted extra resources to the install, helped ensure that the system was able to be installed, tested and made operational in time for our client's two-week deadline." and shape specification, or which are overlapping and may not be cooked properly.



Accurate high-speed performance

Since it started operating in 2019, the new system has delivered accurate, high-speed performance. With two IRB 360 FlexPicker robots serving the left side of the conveyor and two handling the right, the product is sucked into vacuum pods on the end of each robot arm, which retain them until a stack of four has been achieved. The position of each product is detected by the PickMaster software, which accurately identifies their location on the conveyor belt.

When a stack of four has been collected, the robots deposit them on to separate conveyors that run to the packing line. From here they are combined into a stack of eight before being manually packed into plastic trays which are then sealed and sent for dispatch.

To help minimise the risk of breakage and consequent wastage during the picking process, CKF Systems carefully fine-tuned the timing of the suction tool to ensure cycle time was as short as possible of the FlexPicker's vacuum pods. The PickMaster vision system is also programmed to reject any product that does not meet the correct size and shape specification, or which are overlapping and may not be cooked properly.

Continuous production

Running 24 hours Sunday to Friday, the FlexPicker robots handle up to 400 picks per minute, enabling the customer to produce a staggering throughput of 250,000 per day.

The client commented after the job had been installed that without using robots, it would have been impossible to keep production going on this sort of scale. Using robots enabled them to get the best out of both their production line and their people.

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