

CASE STUDY

Plastics Industry

Component: Disposable plastic spoons

Performance: Correct placing plastic spoon into a cap at a rate of 120 components per minute

Introduction

A specialist supplier of plastic injection moulded components for the food industry approached RNA to automate a production line for disposable plastic spoons. Some of the industry's largest food and snack manufacturers use this type of spoon in ready meals and convenience snacks.

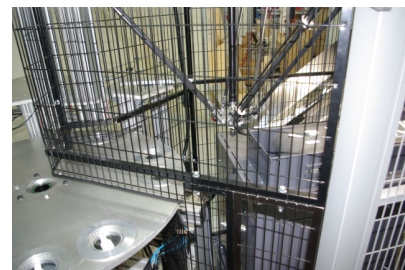
For this particular project a foldable spoon needed to be placed into a cap, the cap is supplied to a manufacturer of milk based fast foods. A disposable plastic spoon is very difficult to orient due to the design of the moulding especially at 120 parts per minute.



Solution

The solution chosen was a vision guided robotic system equipped with an RNA step feeder, a bulk storage hopper and a 6 axis robot.

The spoons are automatically fed from the hopper, into the step feeder and then on to a conveyor belt. A brush positioned above the out feed conveyor separates the spoons under a camera system. The image processing software pinpoints the exact location of the spoons and sends the information to the robot. The robot utilizes conveyor tracking software so the components can be picked without stopping the conveyor belt. In order for the assembly to work correctly the spoons need to be fed with the oval side facing down. Components lying on the wrong side are therefore automatically recycled into the step feeder via camera recognition.



The robot is fitted with a special gripping unit which picks the spoon and places into the waiting cap positioned on the existing production line.

The spoon handling system has been running successfully since the beginning of 2009 and the customer is investing in further systems to cut operating costs and improve production.

The vision guided robotic system replaced manual handling by operators, and was designed to supply assembly machines, sorting equipment and other machinery that require short cycle times with multiple component handling.

As a standard in the RNA range delivery is also short thus reducing lead times and improving payback periods on the investment. RNA can offer alternative vision guided robotic systems, each of which is developed to match almost any specifications as an off the shelf package.

Another main advantage of the system is the simplicity to teach in new components. To teach the system a new component takes just a few minutes. The teach-in is menu guided from windows PC software and requires no prerequisites. The vision guided robotic system is robust, compact and prepared for 4 or 6-axis robots, Scara robots and suspended picker robots, offering new opportunities to automate the feeding of components.

If you are interested in more details in RNA and robotics handling or have a process that needs improving please contact Andy Perks (andyp@rnaautomation.com).