



# Automation and robotics

## Background

The benefits of process automation have been demonstrated in many aspects of the engineering manufacturing industry. There are also many potential benefits for the food sector although these have yet to be commercially realised. Many business reasons are typically cited for the introduction of automation and robotics, including improved product quality and reductions in unit production costs. For the food industry the extra benefits are improved quality, better hygiene, more repeatable processing, and reduced labour costs.

Commercial conditions are leading more and more organisations to consider adaptive automation systems. Automation reduces the error and effort associated with humans performing the tasks. Hard physical effort can be removed by the introduction of mechanical muscle. Errors made due to boredom in repetitive tasks can be minimised. Automation can be beneficially applied to all aspects of the business, from manual handling to record keeping, from harvesting to dispatch.

Many food processing machines are already available but these cannot bring automation benefits to all processes, as no two processors' methods are exactly identical. 'Off-the-shelf' robotic systems are available for applications where the product being handled is of uniform size and shape such as boxes or packaged components. However the full benefits of using robots are in the inherently flexible nature of the machines to adaptively process real food materials directly.

## How frperc can help

Introducing processing automation is not easy. Food products vary tremendously in size, shape, texture, flexibility, etc. and intelligence is needed to optimise processing. Relatively advanced sensors such as machine vision are commonly required to assess product variation and often artificial intelligence is required to make correct processing decisions.

frperc is actively involved in introducing and developing these exciting new technologies for the food sector. We have been carrying out basic research, developing equipment prototypes, and performing consultancy in this field since 1988.

**If you are considering introducing automated systems, need to improve performance of existing equipment, or just want some unbiased advice, please contact us on +44 (0)1472 582400 or email us on [frperc@grimsby.ac.uk](mailto:frperc@grimsby.ac.uk)**