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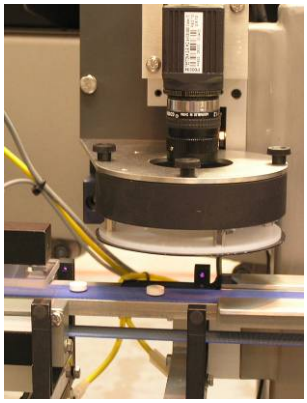
N E W S

World leaders in handling and feeding technology

VIEWPOINT

Industrial vision

Automating quality control



Vision systems can offer fast, accurate and reproducible inspection capabilities at a highly competitive cost. They can introduce automation into the production process at a number of different levels, from simply speeding up the inspection process to levels not possible using human inspectors through to being an integral part of a statistical process control system that can identify when a manufacturing process is moving out of specification. While using vision as a final inspection process on finished product can ensure no defect product reaches the end-user, using it earlier in the process can bring real added value by bringing improved quality throughout the process, major savings in waste, improved process efficiency through energy saving and possibly all three!

This article was first appeared in the Autumn 2011 issue of Innovation into Success, edited by John Haddon, UK Industrial Vision Association

If you are interested in more details of **RNA *Vision Inspection Systems*** *or* have a process that needs improving please contact sales on **+44 (0)1217492566.**

Vision Systems Overview

Vision systems typically consist of an illumination system and video camera or set of cameras linked to computers. The computer provides the platform for the image processing and decision making. These PC-based systems can be used for simple single camera applications or the most sophisticated multi-computer, multi-camera configurations. For many applications, a *smart camera* offers a cost effective solution. This is a self-contained, standalone vision system with image processing capabilities built into the housing of the camera, removing the need for a local PC. These systems are ideal where only one inspection view is required. A third variant is the *compact vision system,* where all processing capabilities are housed in an industrial controller which can be connected to multiple cameras. The choice of which system will be the most suitable will be determined by the requirements of the application. A good way of understanding just how vision can make a difference is to take a look at examples from three very different industries.

INDUSTRY 1
Automotive Engine Assembly

In this highly demanding industry, an automotive engine manufacturer was faced with the problem that they were getting too many engines failing their final performance tests due to operator errors during assembly. A detailed examination of the problems showed that the part complexity, combined with the extensive teardown and rework required if an error is made, justified the use of vision-based inspection. The solution to the problem was to install three smart camera-based vision inspection stations to carry out a range of tasks from absence/ presence to gauging/measurement. The first station featured a single smart camera to verify that the crank gear and water pump gear are aligned properly. The second station features 4 smart cameras. Cameras 1 and 2 both verify the presence and location of eight water seals. Camera 3 determines

the presence and location of a drainback seal, another gasket, and eight water seals. Camera 4 verifies that only a single head gasket is installed. The final station features a single smart camera to verify that the timing mark (painted line) on the idler gear is between two painted teeth on the crank gear. The implementation of the vision systems has led to a reduction in engine failures and subsequent rework in a way that wasn't possible with the existing human inspection and plans are in place for further vision systems to monitor many more assembly processes.

Welcome to the November issue of the RNA newsletter

In this issue

Forward
If you have friends or colleagues you think would like to receive a copy of e-News, subscribe their name and email address to us via rna@rnaautomation.com

We will forward them the latest issue and add them to our quarterly distribution list.

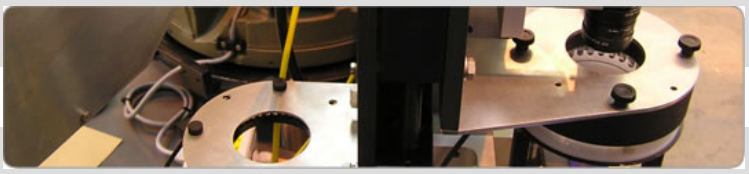
Continues ►

INDUSTRY 2
Plastic Moulded Components In The Food And Beverage Industry

A global leader in the food and beverage industry had a requirement for a fully automated quality control and inspection system to handle and inspect two plastic moulded components that differ in size and shape. In addition to meeting food and GMP standards, the system needed to be able to accommodate either component with a minimum tooling changeover as well as meeting a number of stringent requirements The inspection solution had to:

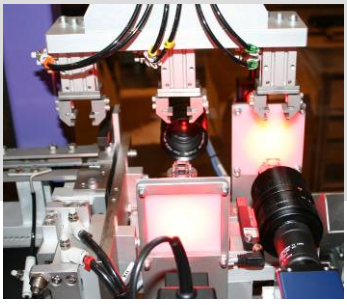
- not cause any damage to the components
- inspect from all three planes-
  - Top for damage and optical character recognition
  - Bottom for diameter and damage
  - Side for damage, height and profile.
- be capable of operating at up to a rate of 1200 parts/minute
- be able to handle components either cold from storage (minimum 10 ˚C) or directly from a moulding machine (maximum 40 ˚C)
- detect and reject 100% of components that are outside the specified limits and generate the minimum amount of waste due to either damage caused to the components by the vision system or rejections that are not outside the limits of the specification (false rejects)

A specialist in handling and feeding technology combined with a vision systems integrator to address these challenges with a novel approach to component handling. The resulting vision system can achieve repeatability of measured values to 20 microns accuracy over 10,000 measured parts, with a one micron resolution. This system has given the customer a huge benefit in terms of reduced percentage of false rejects, and reduced damage incurred during manufacture, helping them maintain their lead in a hugely competitive market place.



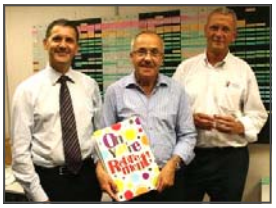
INDUSTRY 3
Medical Dressing Materials

A manufacturer of medical devices was experiencing difficulties with the thin film that is used as part of the process, due to biological, dirt and debris contaminants. Unfortunately the supplier could not guarantee the quality of the material and hundreds of thousands of metres were awaiting processing into a high value product and multiple production lines were stalled as no material was available. Manual inspection of the film is impossible and the only other solution would be 100% inspection of the finished product with costly waste if a contaminated product is manufactured. An inspection system capable of detecting minute defects running at 100m per minute was engineered with a short lead time by a vision systems integrator and smoothly integrated into the batching line. When a defect was detected, the line could be stopped, the contaminated section cut out and the good sections spliced together with information on the defects found fed back to the film manufacturer. The vision system allowed the device manufacturer to continue production knowing that quality was built into the process with minimal cost, orders were met on time and high quality product was being delivered.



Case studies of RNA *Vision Inspection Systems* can be found at:
RNA Website >> RNA Product >> RNA Specialist Handling >> Vision Inspection

PEOPLE ON THE MOVE



A valued member of the RNA team, Ken Cotterill celebrated his retirement day at the end of August 2011 after more than 22 years with RNA.

Ken, one of the company's longest serving employees, first joined RNA in 1989 as part of the sales department, he witnessed a lot of changes and growth at RNA over the last two decades. A popular member of the team he was held in high regard by customers who were often keen to be updated with his latest cruise ship holiday adventures .

All members of the RNA team wish Ken the very best during his retirement and thank him for the hard work and contribution he has given to RNA during his time here.

Alan Edmonds (Pictured) has joined RNA and will replace Ken's sales role in the southern territory. Alan brings RNA a wealth of experience in the automation sector with a career starting in 1983. We welcome Alan as a new member of the RNA family and are very happy to have him on board.

Please contact Alan with any requirements please email alane@rnaautomation.com.

RNA EVENTS

Southern Manufacturing 2012
15th - 16th February 2012
FIVE, Farnborough UK
@ Booth P31
Equip. to display: RNA Robotic system

NPE 2012
April 1st – 5th, 2012
Orange County Convention Center, Orlando, Florida USA
@ Booth #36023
Equip. to display: RNA ZE System

Pack Expo 2012
October 28th - 31st, 2012
McCormick Place, Chicago, Illinois USA
@ Booth #N-4404
Equip. to display: RNA ZE System

Visit RNA website for details
Contact Ying Zhang at yingz@rnaautomation.com to learn more about RNA events.

MAXIMISE THE PERFORMANCE OF YOUR EQUIPMENT

Keep Spares In-Stock

- Spring Assembly (springs & shims)
- Magnets/Coils
- Conveyor Belts
- Motor/Gear box
- Control Boxes
- Sensors

To contact Chris Mills with any spares requirements please email chrism@rnaautomation.com