

## ► Assembly conformity inspection in the connector industry

Our partner GPVision has used our imaging systems to develop several inspection applications for the world leader of connector technology, Radiall ([www.radiall.com](http://www.radiall.com)). This article highlights one of these applications for assembly conformity inspection. Radiall is internationally recognised for its high quality products and services and is regularly named best supplier of the year by its world renowned customers including: Boeing, Airbus, Thales and Nortel to name just a few.

## ► Application

Product: Connector boxes for transmitting electrical, optical and high frequency signals in the aviation field.

This application verifies the correct assembly of connector boxes for aviation. For this purpose, the assembly parameters stored in a database are extracted via a barcode. This database contains several connector box series with a multitude of associated references. The database is coded, so that a product reference can be created in a few minutes.

The application uses this information to parameterise the imaging tools of the Sherlock 7 environment, which then scan the contents of a box as soon as it passes on the conveyor. Image acquisition with a monochrome line scan camera takes place in two phases, and software-controlled illumination is used for each phase. Some

inspections are performed using only backlight illumination, while others use a combination of dark field plus backlight illumination.

The application is interfaced with a PLC controlling the test bench. All data exchanges are handled by the Modbus Ethernet protocol.

The user interface guides the operator through all phases of the inspection by means of messages and other visual indicators. The nature of the fault is thus transmitted to the operator for correction. All of the manipulations and results are saved in files for statistical and diagnostic analysis.

It is notable that the entire application can be operated using a touch screen, i.e. without keyboard and mouse.

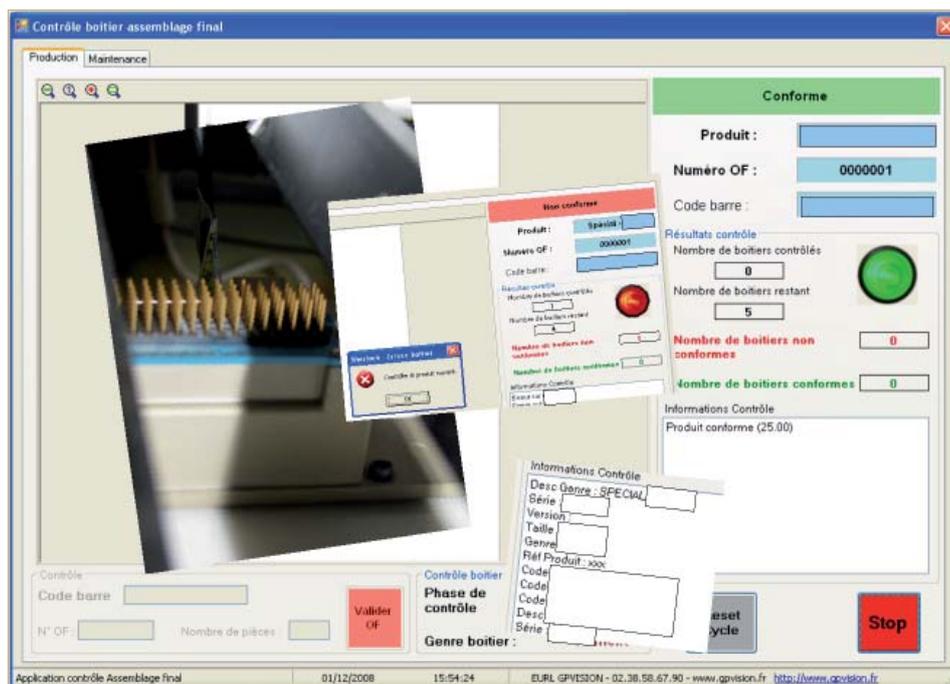


Illustration: Inspection screen



## ► Comment by Yvan Leclerc, continuous improvement manager at Radiall

"The task of providing the tools that enable Radiall to maintain and improve their performance level has always been assiduously pursued at any level.

Although defects are rarely detected by customers, we at Radiall seek to avoid them by any means. Therefore, in order to ensure the reliable control of an entire product range, we decided to use an industrial image processing system.

After considering previous successful installations undertaken in cooperation with STEMMER IMAGING in France plus their local system integrator, GPVision, which has specialised in advanced image processing products for more than 20 years, we were able to carry out this complex project with confidence.

The objective in this application, which was to eliminate human errors as much as possible, has been fully achieved. Seven of the nine characteristics to be inspected, including the most delicate and critical ones, are processed by the machine. After a start-up period, the overall duration of the inspection process was significantly reduced.

Radiall's strong point is providing each customer with exactly the right product. This makes it necessary to manage a multitude of references for special products, of which only few pieces are produced. This difficult task forced us to find the appropriate solutions that allowed us to make these multiple configurations compatible with the image processing software. It has finally been possible to process data using simple tools, which enables us to create new references in a very easy and fast way.

By setting up this system, we have also been able to demonstrate its relevance for other applications. The "standardisation" of software tools and user interfaces offers a substantial advantage, facilitated by the privileged relation with our partner GPVision."

GPVISION



### ► FACTS

**Industrial sector:** Connector technology  
**Task:** Assembly conformity inspection  
**System integrator:** GPVision

#### Imaging components supplied by STEMMER IMAGING:

- |   |  |
|---|--|
| <input type="checkbox"/> Illumination       | <input type="checkbox"/> Acquisition         |
| <input type="checkbox"/> Optics             | <input checked="" type="checkbox"/> Software |
| <input checked="" type="checkbox"/> Cameras | <input type="checkbox"/> Systems             |
| <input type="checkbox"/> Cabling            | <input type="checkbox"/> Accessories         |

### ► OUR PARTNER GPVISION

GPVision ([www.gpvision.fr](http://www.gpvision.fr)) is a systems engineering company that specialises in industrial image processing and provides innovative imaging solutions for R&D processes, production or final inspection. You can choose your individual service package according to your specific needs, internal resources and work habits.

#### Mission:

- definition of the imaging system
- software development or imaging software parameterisation
- imaging system installation
- commissioning of the installation