• Ultrasonic waves are widely used in industrial non-destructive control. The controlled pieces pass through the ultrasonic scan equipment and the result of this scan is often represented as an numeric image called c-scan. C-scan is inspected by a controller who can release the piece or judge it as unfulfilling conformity specifications.

• This method is performed but an ultrasonic controller formation is long and expensive. An automatic system which executes a part c-scans’ control could be a source of time and money gain.

• The objective of our project is to create an informatics process which, on the base of c-scans, is able to sort the pieces (wing leading edges for Airbus) on two categories: 'certainly conforms' and 'others'. Appartenance to the 'others' category would require further inspections by a human controller.

Main steps:

The system is divided on three parts: image processing, data extraction and decisional process.

The goal of image processing is to show the dangerous zones, detected on the c-scan image. These zones appears as the white objects while no suspicious part of image became black.

While the data extraction phase, the information about the dangerous zones are calculates. The information needed are: the surface area of the dangerous zone, its position, form descriptors, etc.

The decisional process is build on a neuronal net. On the base of information provided by data extraction, the net has to decide about the conformity of the controlled piece. The construction of neuronal net requires a period of training performed on several example pieces.