# VISUAL INSPECTION FOR A QUALITY PRODUCTION

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## RESUMEN

A Spanish University has developed a product inspection technology through artificial vision that can be used to check quality in production lines, and consequently, to automatically classify products according to their quality and characteristics. It is fully developed; laboratory and field tested, and ready to be applied under particular specifications. The researchers are looking for partners to joint further development or industries that need to set up these systems in their facilities.



## DESCRIPCIÓN TÉCNICA

Visual inspection systems are based on the employment of pictures, both in the visible and infrared or ultraviolet spectrums. They can also make use of sonar images or adding structured light to the environment in order to analyze defects and shapes in products.

A Spanish research group has been working in inspection systems that use one or more cameras, together with the adequate illuminating systems to capture the necessary images. These pictures are then sent to a computer that processes the information to perform the classification according to the quality criteria and characteristics requested by the production process.

The figure shows an image obtained by means of a range camera that allows distinguishing an object by its depth. Thus, its position and defects can be determined through its volume.

The technology is totally developed and has been laboratory and field tested, although, it requires a particular specification for each case. The technology can be used for real-time inspection of production processes, both for the recognition and for the classification and quality inspection.

## VENTAJAS Y ASPECTOS INNOVADORES

The main advantages of these techniques are:

- No direct contact.
- Constant quality in inspecting products.
- It only depends on the parameters fixed for a production process.
- If correctly designed, it allows a product quality inspection similar than a visual inspection carried out by an expert operator.

Meanwhile, the major innovative aspect of this technology is the use of advanced image processing techniques to obtain higher quality inspection systems. Thus, problems with brightness and shadows of images can be avoided.

## ESTADO ACTUAL

Development phase (laboratory tested). The technology is ready and has been tested in laboratory and in various agreements with companies, but requires a particular specification for each productive case.

## APLICACIONES DE LA OFERTA

The technology can be applied in a large number of industrial facilities in many fields. Among the different industrial sectors, it can be highlighted the Agrofood sector or any industry requiring classification or a system that guarantees quality in the process that is being performed.

For instance, the technology has been successfully employed for:

- detection of defects due to vibrations in aluminium sheets;
- automatic detection of defects in flat glass; or,
- quality control of labels in flowpack wipes.

## COLABORACIÓN BUSCADA

The research group is looking for companies interested in acquiring this technology for its commercial exploitation.

- Type of partner sought: Industries
- Specific area of activity of the partner: any industry requiring classification or quality control in their processes.
- Task to be performed: Joint further development through R&D projects; collaboration for adapting the know-how to their specific necessities.

## DERECHOS DE PROPIEDAD INTELECTUAL

The method is protected by know-how. The research group has published several scientific articles.

## SECTORES DE APLICACIÓN (1)

Engineering, Robotics and Automation