SYSTEM FOR INSPECTION AND FAILURE DETECTION IN CHROME-PLATED SURFACES

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RESUMEN

A Spanish research group has developed a prototyping tool for reflective surfaces inspection systems. It can simulate all inspection process phases. It gives realistic images from surroundings, motif and gauging and implements the inspection defined in the model. Once simulated, it extracts conclusions about the perception scale of objects, angles, illumination conditions, etc. that allow defining the prototype. The group looks for partners to adapt the technology to their specific industry needs.



DESCRIPCIÓN TÉCNICA

At present, there are only a few systems for visual inspection of reflective surfaces that can be used only in very limited cases, so the development of this kind of systems is a problem still not solved as a general application.

The prototyping tool for reflective surfaces inspection systems that has been developed can simulate all the inspection process phases. So, it gives realistic images from surroundings, motif and gauging (Figure 1). Moreover, it implements the inspection defined in the model. Once simulated, it extracts a series of conclusions about the perception scale of the objects, angles, illumination conditions, etc. that allow defining the prototype.

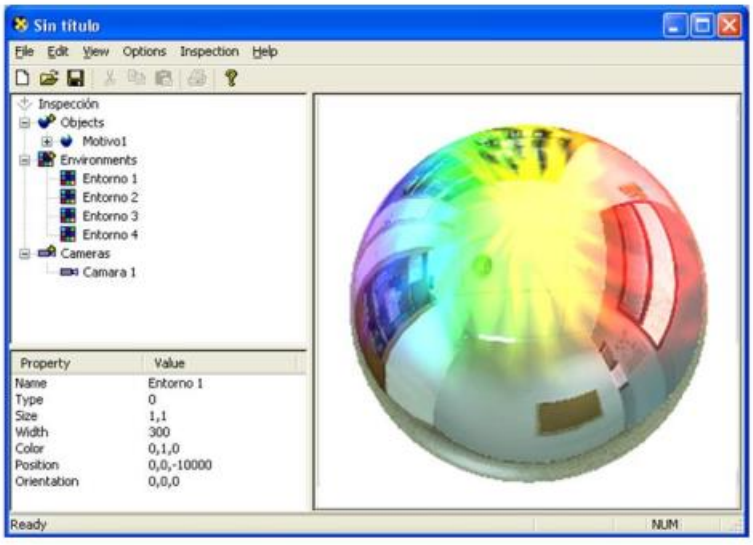


Figure 1

From the conclusions extracted of the study done with the tool, the group is capable of designing the inspection prototype that will have as test bench the motifs of the respective industry (for example the electroplate of chrome on plastics) (Figure *2).*



The prototype must consider the conditions (environmental, positioning, cameras, processing, etc.) to cover the system efficiency. About the speed, two solutions with different cost and yield are proposed. On one hand, we will use accelerators as a less expensive solution and on the other hand specific designs with reconfigurable hardware (Figure 3). For this, and profiting the experience of the group in this field, it will be developed a prototype using reconfigurable hardware that will allow us evaluating the inspection system architecture to open the way to more ambitious high yield designs.

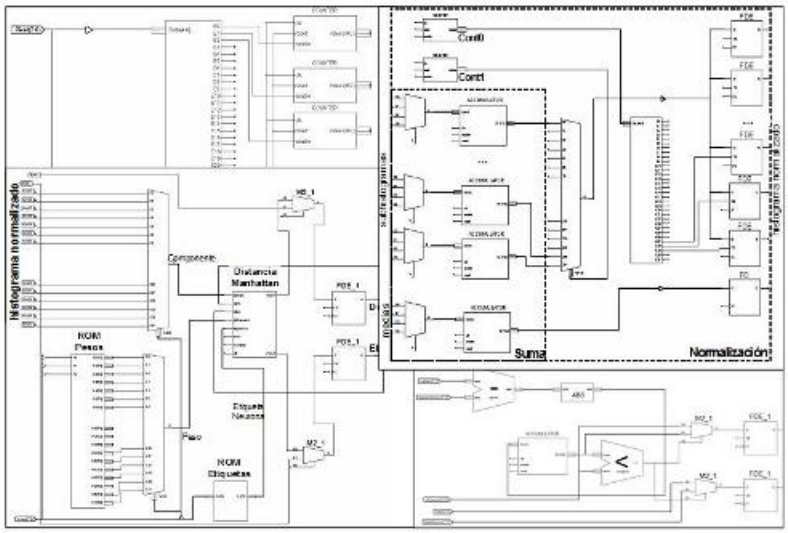


Figure 3

ESTADO ACTUAL

The prototyping tool for reflective surfaces inspection systems is currently under development.

APLICACIONES DE LA OFERTA

The interest is in the development and implantation of quality control systems for plastic or metallic objects with chrome coating and with any volumetric shape.

Specific sectors could be wall fitting, strips and components from the automotive or cocks industry among others.

COLABORACIÓN BUSCADA

The group looks for companies or entities interested in adapting the technology to their specific applications.

DERECHOS DE PROPIEDAD INTELECTUAL

The software is protected by copyright.

PERFIL DEL GRUPO DE INVESTIGACIÓN

The research team of this project belongs to the research group of “Industrial Computing and Computer Networks” of the Computer Technology and Computing Sciences Department from the University of Alicante. The research fields of the group are artificial intelligence, control, vision and networks. They have carried out several contributions that are applicable in industrial contexts (artificial vision systems, mobile robots control, design and computer-assisted manufacture) and in images and systems modelling with biomedical origin (diagnostic and classification).

The team is formed up by four doctors and three computer engineers that are now finishing their doctorate thesis in issues related to the image treatment and computer vision. The team members have a high experience in managing and participation in research projects with funding both public and private.

The former projects and the current ones in which the researchers have participated have been financed by public organizations as the Ministry of Education and Science, the Ministry of Science and Technology or the Presidency and the Culture, Education and Sport Department of the Valencian Government. At present, the group has four projects: “Vision by outer intelligent robot for autonomous mobile systems” financed by the Ministry of Science and Technology, “Computing Palaeontology: data management and computing applications development in palaeontology”, “Architecture model specialized in computing geometry processing” and “Quality control of glossy and reflective surfaces by artificial vision” financed by the Culture, Education and Sport Department of the Valencian Government.

SECTORES DE APLICACIÓN (7)

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