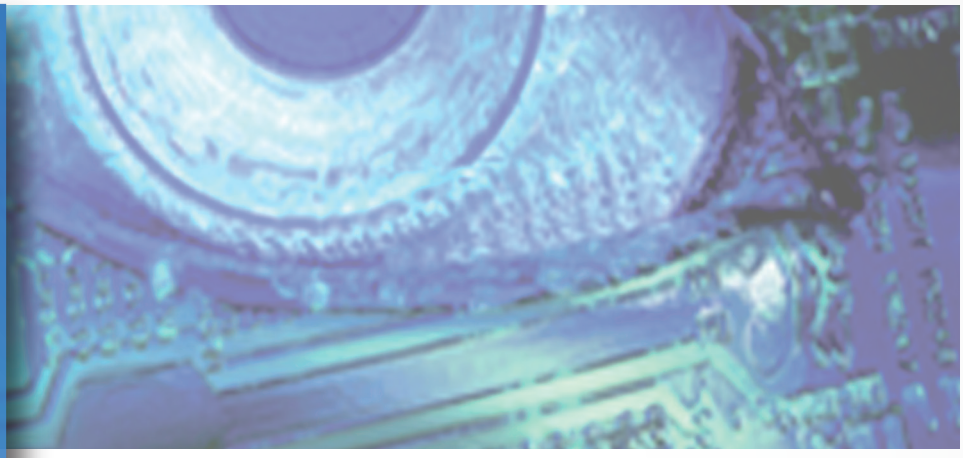
Efficient 3D Completeness Inspection



PROJECT DETAILS

Funding Programme:
7th Framework Programme (FP7)
Sub-Programme:
SME
Funding Scheme:
Small or medium-scale focused research project
Project Reference:
262009;
UE-12-3DCOMPLETE-262009
Project Duration:
26 Months (From 2010-09-01 to 2012-11-30)
Total Project Value:
€ 1.126.817
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€ 862.408
Funding to UniOvi:
€ 117.370

Website:
http://cordis.europa.eu/projects/rcn/95749_en.html

PROJECT DESCRIPTION

In Europe there are about 3000 SMEs working in the field of machine vision. These SMEs provide services and products to another 300.000 SMEs in the machine building and automation sector. One important application of machine vision is quality control and in particular checking the completeness (presence/absence of parts, correct type, position, orientation,) of assemblies.
Existing systems usually apply 2D cameras that provide a monochrome or color image. These images lack the information of depth and consequently have problems when dealing with non-rigid objects (hoses, cables) or low contrast between background and part and they often do not provide an optimal view on each single part of the assembly. This project aims at developing efficient 3D completeness inspection methods that exploit two different technologies.
The first one is based on calculating arbitrary views of an object given a small number of images of this object, the second one aims at combining 3D shape data with color and texture information. Both of the technologies will cover the full chain from data acquisition via pre-processing to the final decision-making.
They will focus on using standard hardware to create a cost efficient technology.
The participating SMEs all have substantial resources for R&D and long experience in their own research activities, however, in order to develop 3D completeness inspection they want to subcontract RTD performers working in image acquisition, 3D/2D data combination and pattern recognition/matching. 3D Completeness inspection is a technological gap in the machine vision market. The SMEs expect substantial growth from entering into this market by integrating this new technology in their range of existing products. They expect a total additional turnover of more than 3 Mio EUR per year. Furthermore, this technology will strengthen the European machine vision market with its 3000 SMEs.

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