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The European Coordination Hub for Open Robotics Development

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Experiments Call II Kick-Off

Experiment Presentations

Palma de Mallorca, Spain

3 May, 2016

Bristol Robotics Laboratory

RUROBOTS
Cognitive Science at Work

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The European Coordination Hub for Open Robotics Development

FlexSight - Flexible and Accurate Recognition and Localization System of Deformable Objects for Pick&Place Robots

Partners: IT+Robotics, ROBOX motion control, Sapienza Università di Roma

End user: Europack

Presenter: Alberto Pretto
Sapienza University of Rome

RUROBOTS Cognitive Science at Work

Seventh Framework Programme

Brief Experiment Description

Goal: design a perception system based on an integrated smart camera that is able to recognize and localize several types of deformable objects that can be commonly found in many industrial and logistic applications.

CAD model + deformation parameters

Upload

The FlexSight smart camera

Guide

Pick&Place

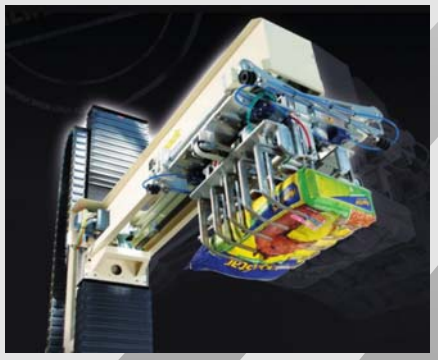
Deformable object:
1) Can change its shape due to a stress, or;
2) Can be obtained by applying a resize operator along one or more directions.

Novelty/Objectives

First smart camera that explicitly deals with deformable objects: our system will search over a parameters set that not only includes the class and the position of the object, but also its deformation/rescaling parameters.

Main objectives

- Implement a prototype of a **compact industrial sensor** that integrates all the required sensors (depth sensor, stereo RGB camera, …) and processing units (CPU+GPU) suitable to run the implemented algorithms.
- Integrate the FSS inside a working system that will be tested in **3 use cases**:



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Impact

- Expected results:
  - To introduce robotics technologies in new application domains
    - Introduction is application-driven, i.e. by validating technology on actual use-cases
  - To create an off-the-shelf product that can be sold to system integrators world-wide
    - Reduction of manufacturing costs
    - Increase plant safety
  - Increase industry-academia cross-fertilization

After the end of the project:
Create a new startup that will produce and commercialize the FlexSight sensor