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Third point of view Augmented Reality for robot intentions visualization

E. Ruffaldi, **F. Brizzi**, F. Tecchia, S. Bacinelli
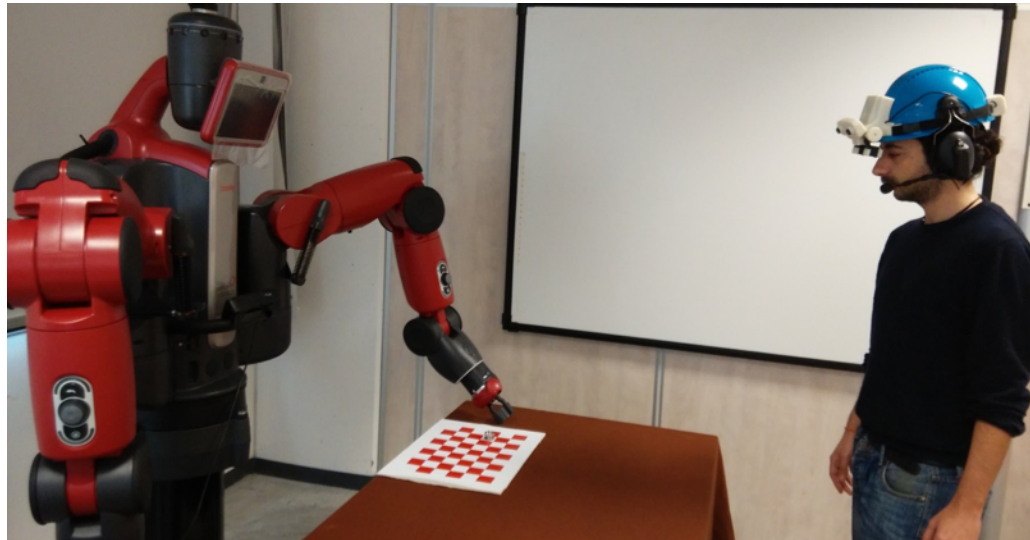
Scuola Superiore Sant'Anna, Pisa

REMEDI

TAUM

SEVENTH FRAMEWORK
PROGRAMME

Regione Toscana

POR CREO 2007-13

REPUBBLICA ITALIANA

Unione Europea

Context and Motivation

Industrial scenarios

- A new generation of robotic systems is being introduced in working environments (Industry 4.0)
- **Cooperation** with human workers in the execution of tasks, Human Robot Communication (**HRC**).
- Understanding the **intention** of the robot contextualized over the working environment.
- **Augmented Reality** to highlight robots intentions.
- Eye-wear display integrated in a **working helmet**.

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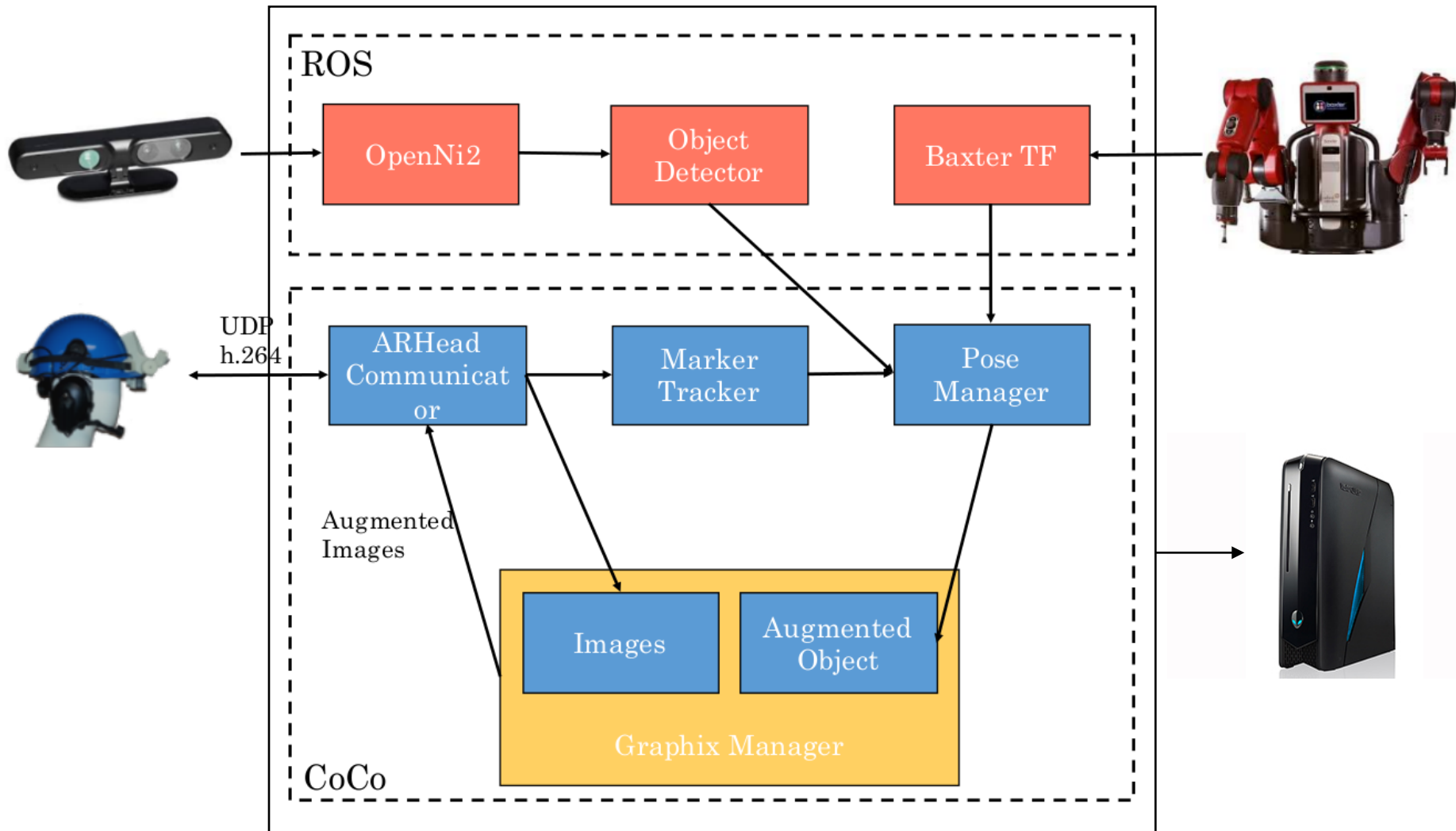**PERCRO** Perceptual
Robotics Laboratory

Interaction

- Robot localizes the target object (LINEMOD) fusing hand cameras
- Live calibration between Robot and operator's helmet through marker
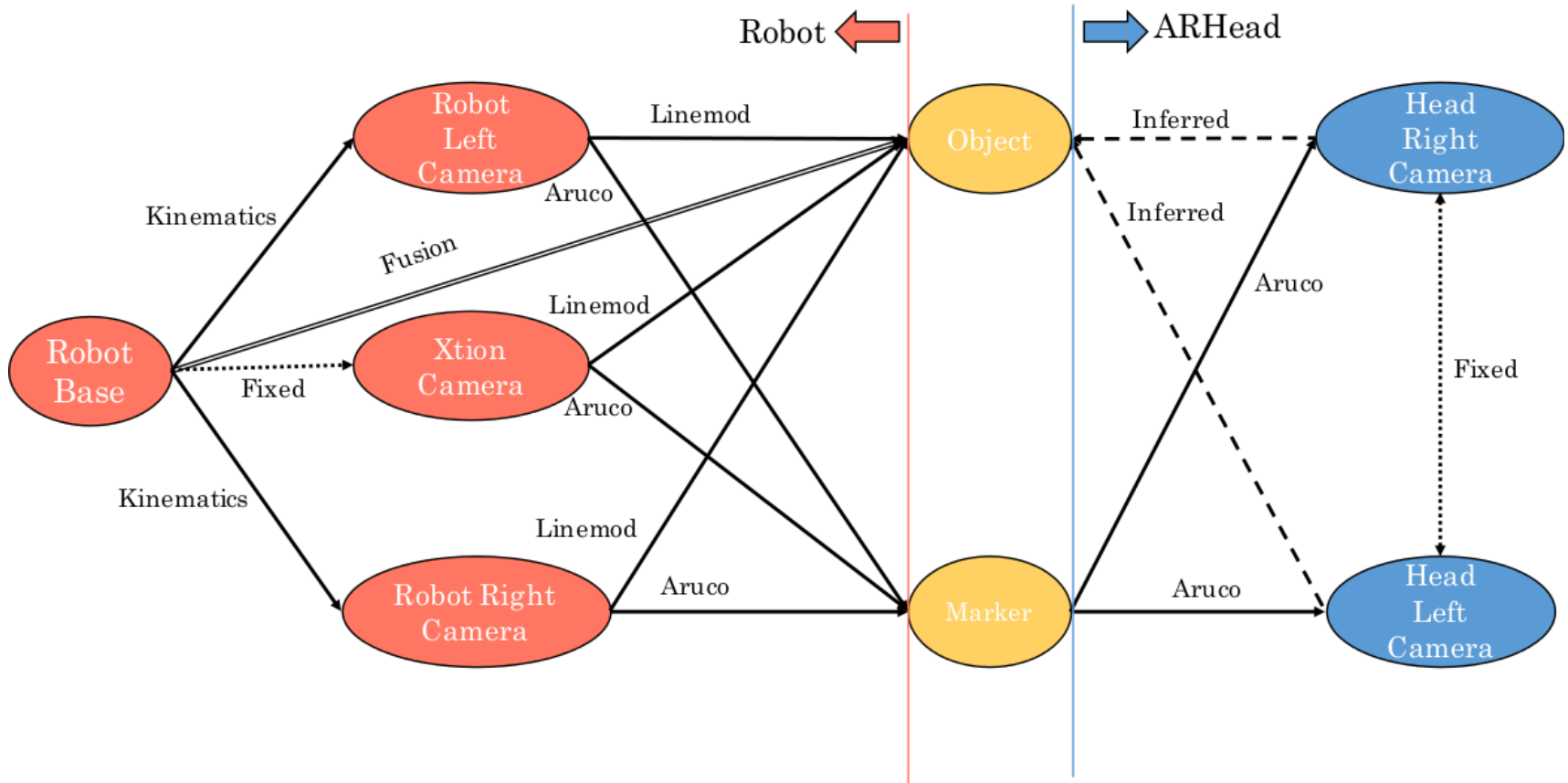
Possibility to display any poses for which the transformation from the robot base frame is known

Architecture

ROS

OpenNi2 → Object Detector → Baxter TF

UDP h.264

ARHead Communicator → Marker Tracker → Pose Manager

Augmented Images

Images   Augmented Object

Graphix Manager

CoCo

Demo

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