

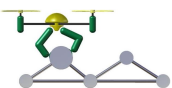
Aerial RObotic system integrating multiple ARMS and advanced manipulation capabilities for inspection and maintenance (AEROARMS)

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Ambition:

**First aerial robots with multiple articulated arms
Application to inspection and maintenance in oil and gas plants**



AEROARMS Approach

ARCAS FP7 results

First helicopters and multi-rotors with 6/7 DOF arms



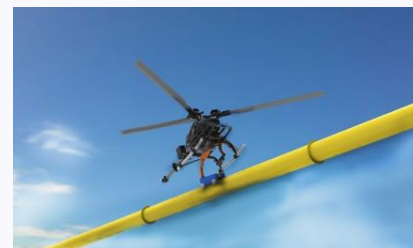
Control, perception and planning for multiple aerial robots

Objective 1: Aerial manipulation methods and technologies for industrial inspection and maintenance

O1.1. Evolution of existing aerial manipulation

New aerial robots to perform dexterous accurate manipulation

- Multirotors with fully-actuated aerial platforms
- Helicopters with dexterous arm + simple sensor arm.
- Telemanipulation with haptic devices



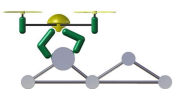
O1.2 Development of new methods and technologies

- Multi-rotor platform that can fly and manipulate with the coordinated motion of two arms

Applications better performed with two hands

Fixed contact point with one arm while operating with the second arm



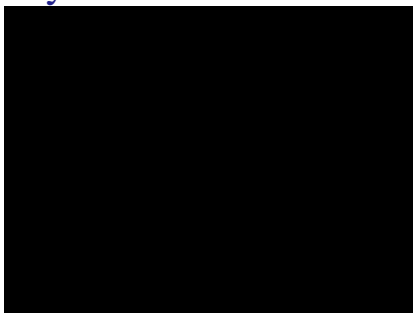


AEROARMS Application

Inspection and Maintenance of oil and gas industries

Objective 2: Validation in the following oil and gas applications:

- Installation and maintenance of permanent Non Destructive Tests (NDT) sensors on remote components
- Deploying and maintaining a mobile robotic system permanently installed on a remote structure



AEROARMS first technology results:



[TorqueCompensation_I](#)
[ROS2016.mp4](#)