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# PIEZO AND COMPACT SYNTHETIC JET ACTUATOR

## PROJECT OBJECTIVE

Flow control will enable the civil and military aircrafts to reduce their energy consumption, to be safer and more efficient. The ASPIC project, coordinated by Cedrat Technologies and performed with the help of ONERA, aims at such improvements with the development of a robust and efficient synthetic jet actuator (SJA) which will be evaluated inside the vertical fin of an aircraft.

## INNOVATION

The ASPIC actuator would be based on an electo fluidic and innovative structure using a dedicated amplified piezo actuator APA (Fig1). The ASPIC actuator development will focus on the fluidic actuator structure, its control and its energy harvesting switching amplifier (Fig2) in order to obtain high efficiency and optimal compactness. Resistance tests will be performed in compliance with the conditions required by this application. Finally, a model of aircraft tail fin composed of ASPIC actuators will be manufactured and tested under wind tunnel. This test will allow to evaluate the actuators behaviour in the system and the benefits generated in terms of energy and aerodynamic performances.

## APPLICATIONS

- aerodynamics
- solenoid valves
- injectors
- fast, precise & compact actuation

## ASPIC & VIPER PROJECT

The experience gain on the innovative piezoelectric pulsed jets (Fig3) developed in the framework of the Cleansky VIPER project will be used for synthetic jets (zero net mass flux) investigated through the ASPIC project.

## PARTNERS

Cedrat technologies - ONERA

Funding via Rapid project from DGA, French Ministry of Defence.

Fig1: Amplified Piezo Actuator APA1000L

Fig2: Switching amplifier SA75D

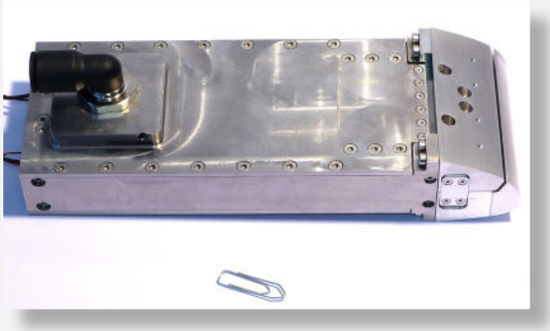

Fig3: VIPER valve assembled

For more information, please contact:

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