

# Lightweight Chemical Sensor for Robotic Aerial Vehicles

A lightweight and cost-effective C sensor for mini-RAVs, based on pre-concentration and dispersive IR analysis of vapours, suitable to detect and identify with ppm sensitivity and low false alarm rate a wide range of volatile threats, including low-mass molecules that commonly go undetected by IMS sensors.

Size (case included): < 25 x 15 x 10 cm;

Weight: < 0.5 Kg  
< 1 Kg (case included)

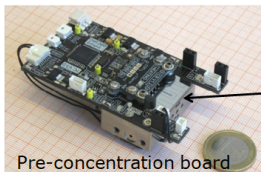
Power needs (average): < 7 W

Targets: a wide range of volatile toxic compounds (NH<sub>3</sub>, PH<sub>3</sub>, H<sub>2</sub>S,...)

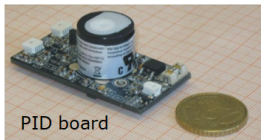
Detection range: 1-1000 ppm

Sensing cycle-time: < 3 min

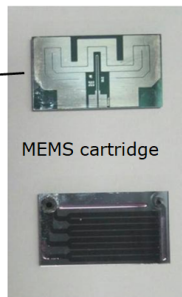
Warm-up time: < 1 min



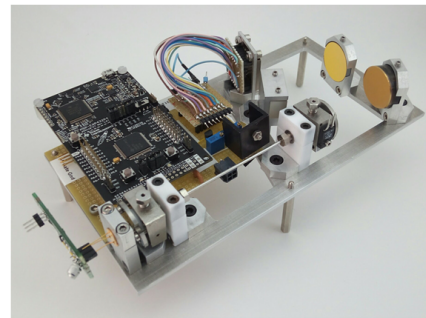
Pre-concentration board



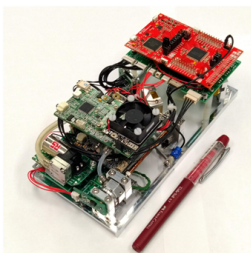
PID board



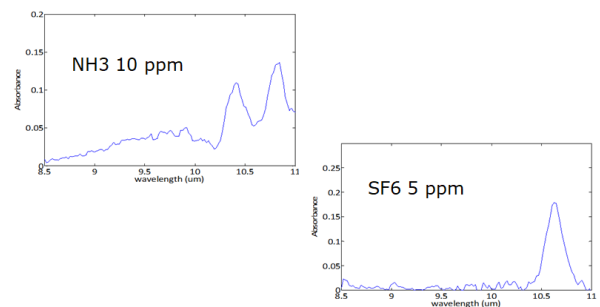
MEMS cartridge



InfraRed analyzer



Lightweight C sensor prototype



Measured IR absorption spectra