

# THE CURSOR PROJECT

*Coordinated Use of miniaturised Robotic equipment and advanced Sensors for search and rescue Operations*

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Journée de coordination stratégique consacrée au call H2020 Défi Sécurité – appels 2020  
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<https://www.cursor-project.eu/>





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and advanced Sensors for search and rescue  
Operations*

## **CURSOR – Accelerating Search and Rescue operations**

A new European research initiative will develop CURSOR Search and Rescue Kit using drones, miniaturised robotic equipment, and advanced sensors reducing time for detection and rescue of victims trapped under debris while increasing the personal safety of the SaR teams

# CURSOR in figures

Horizon 2020

Call: H2020-SU-SEC-2018-2019-2020  
(Security)

Topic: SU-DRS02-2018-2019-2020

Type of action: RIA

16 partners

Duration: 36 month (KO September 2019)

Requested budget ~ 6,99 M€

Requested budget CEA ~ 340 k€

# The team

## Practitioners



German Federal Agency for Technical Relief (Project coordinator)



Entente pour la Forêt Méditerranéenne



Merseyside Fire & Rescue Service



Service Départemental d'Incendie et de Secours de la Savoie



Hellenic Rescue Team of Attica

## Research institutes



Institute of Communication and Computer Systems (Scientific coordinator)



Tohoku University



SINTEF Digital



Commissariat à l'énergie atomique et aux énergies alternatives



The University of Manchester

## Small-to-medium enterprises



EXUS



C4Controls Ltd



International Security Competence Centre GmbH



Trilateral Research Ltd

## Non-for-profit association



German Institute for Standardisation

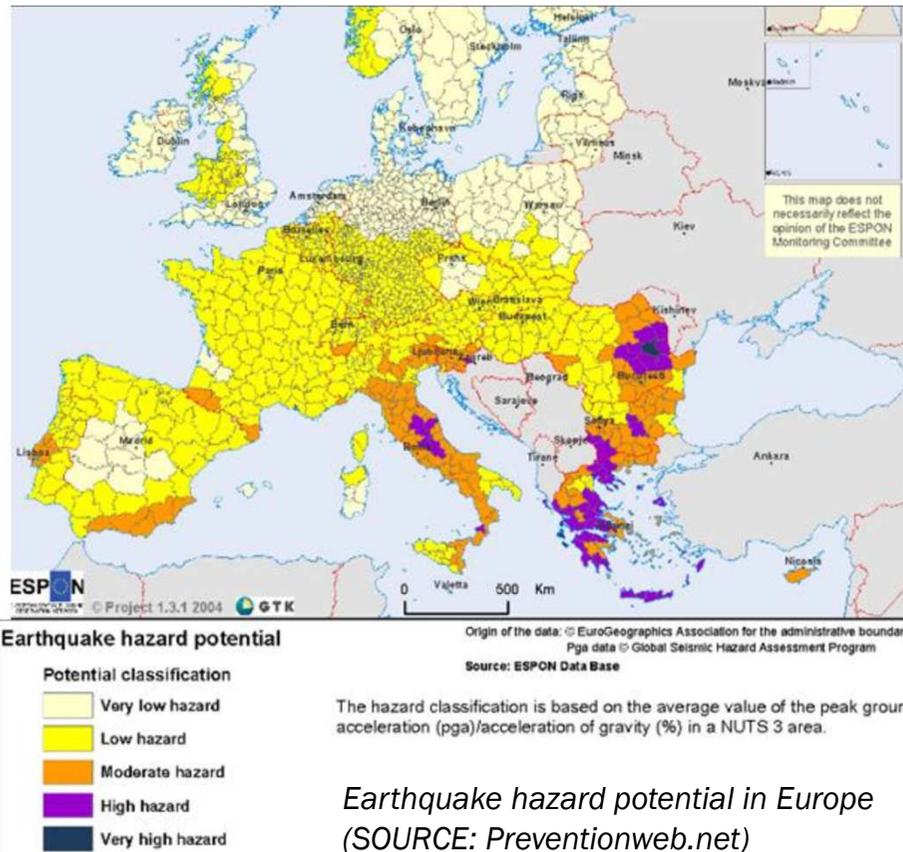
## Industry



ARTIC S.A.S., France (Project office)

# Why CURSOR?

## 1. Earthquakes do happen in Europe!



## 2. Equipment is limited and inefficient!



*Quince, a MINIATURISED ROBOT used in Fukushima-Daiichi Nuclear Power Plant accident in 2011. Photo was taken at a field test in Disaster City, Texas, USA*



*Active Scope Camera, a soft serpentine robot for search in debris cones developed by Tohoku. Photo was taken at Tachikawa Training Site of Tokyo Fire Department.*

# Project structure

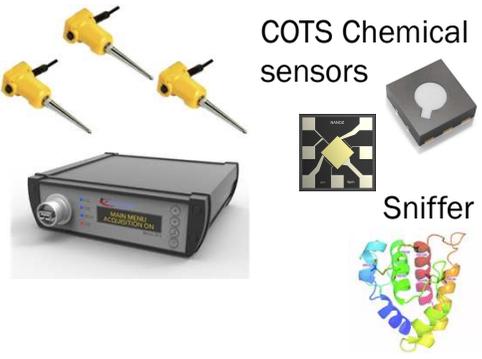
(CEA: WP2 leader)

geophones

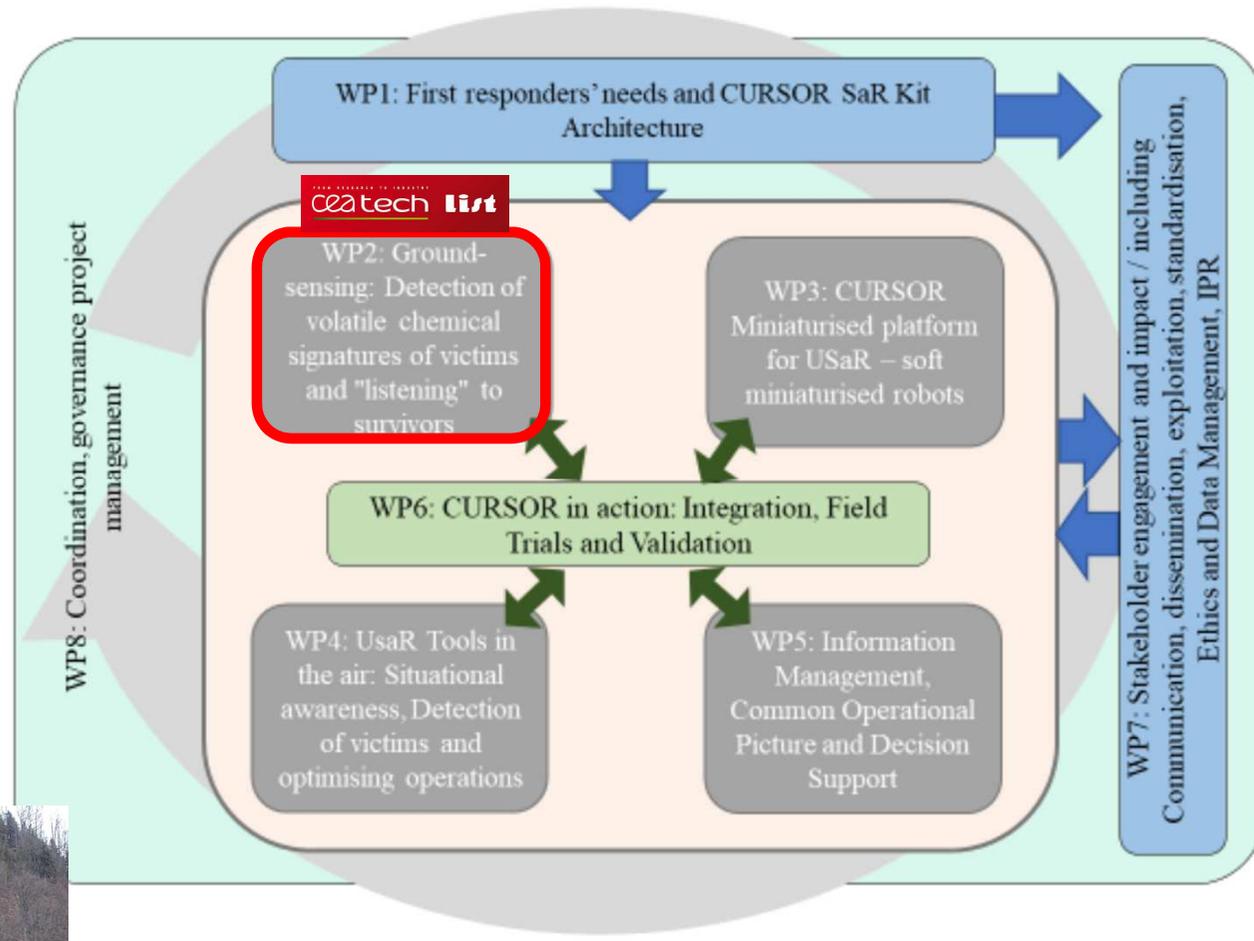
camera

COTS Chemical sensors

Sniffer



Mothership drone (tethered)  
Ground Penetrating Radar drone  
Transport drones

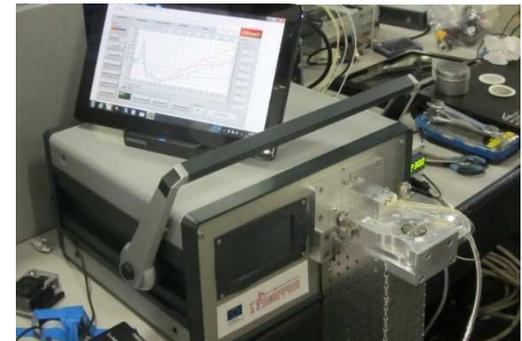
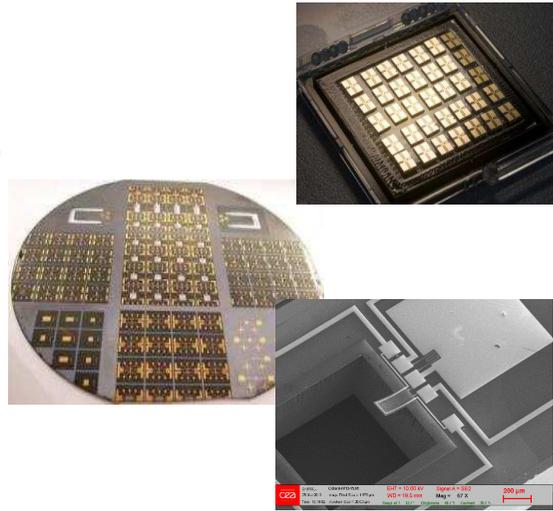


Miniaturized robots



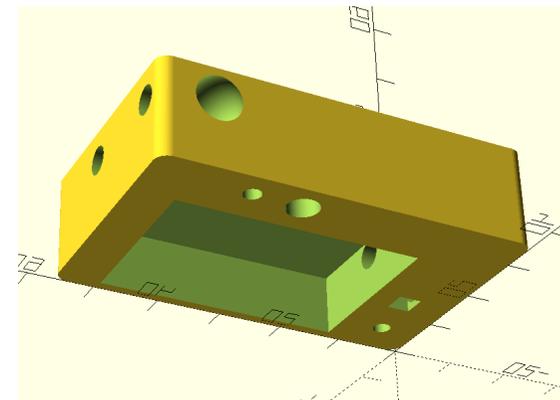
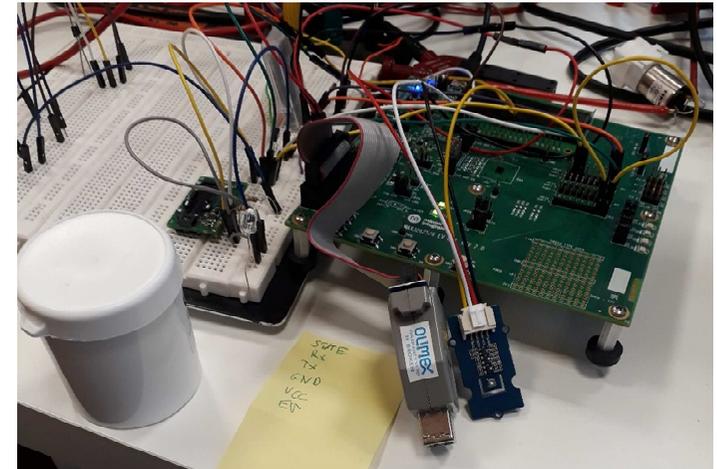
# CEA role in CURSOR

- Expertise in chemical sensing
- Gas rig facilities
- Instrumentation/integration
- Leading of WP2



# Work progress (CEA)

- ✓ Database of chemical markers of victims (alive and deceased)
- ✓ Selection of COTs sensors
- ✓ Selection of suitable odorant binding proteins for target volatiles from live and deceased subjects)
- ✓ Generation of vapours in the lab for sensor validation on-going
- ✓ Integration of COTs sensors and “home-made” sniffer on-going
- ✓ Integration of geophones on-going
- ✓ Lab validation of V0 sensors May 2020
- ✓ Field trials of V0 sensors June 2020
- ✓ December 2020: miniaturization of sensors/integration to robot



# Thank you!

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