

# SPID: SYSTÈME de PROTECTION INTÉGRÉ anti-DRONES



**ANTI DRONE INTEGRATED SYSTEM**

**Project Leader Eric GEORGES, ROBOOST/BYBLOS Group**



# A consortium of active partners

## • Industrial



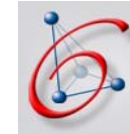
Project Leader



Scientific & Technical Project Manager



Acoustic Detection



DYNI LSIS Research Laboratory in Acoustic



Optronic Detection



Radiogoniometry Detection & Neutralization



C3I & HMI Conception



Mkg & Communication



Strategic Legal & Societal Research



Drone operators

## • End User





# SPID Project

- **From design to set up** of a system based on several sensors for the detection and the localization ...and... the countermeasure
- **State of the art study** on other potentials neutralization solution
- **Operational campaigns** to build up a signature data base, to test and qualify our system
- **Juridical and societal study** to propose concept of use
- **Technical and operational analysis** to identify the threats and the target to handle with high priority and evaluate the scenarios

**=> A CHALLENGING PROJECT OF 1,163M€ WITH 374k€ FINANCED BY SGDSN**



# Real Challenges

- **Coordination and project management** of 18 partners
- **Integration** of all the various sensors
- **Simplicity** of GUIs
- **Build-up** a relevant signature base and updating it
- **Conformity** to current legal constrains and the coming evolution
- **Realistic site** for the qualification tests

# What we achieved

- **Reliable & performing solution**

Power of complementary technologies

- **Modular Architecture**

For both stationary and tactical uses.

Sizable (small to big area)

- **Scalable and open**

Integrate new sensors or neutralization technologies

- **Easy to use and deploy**

Weight <75kg, deploy in <30 min

- **For all needs / scenarios**

Civil and military, cities and countryside

- **Cost effective**

Optimized cost of ownership

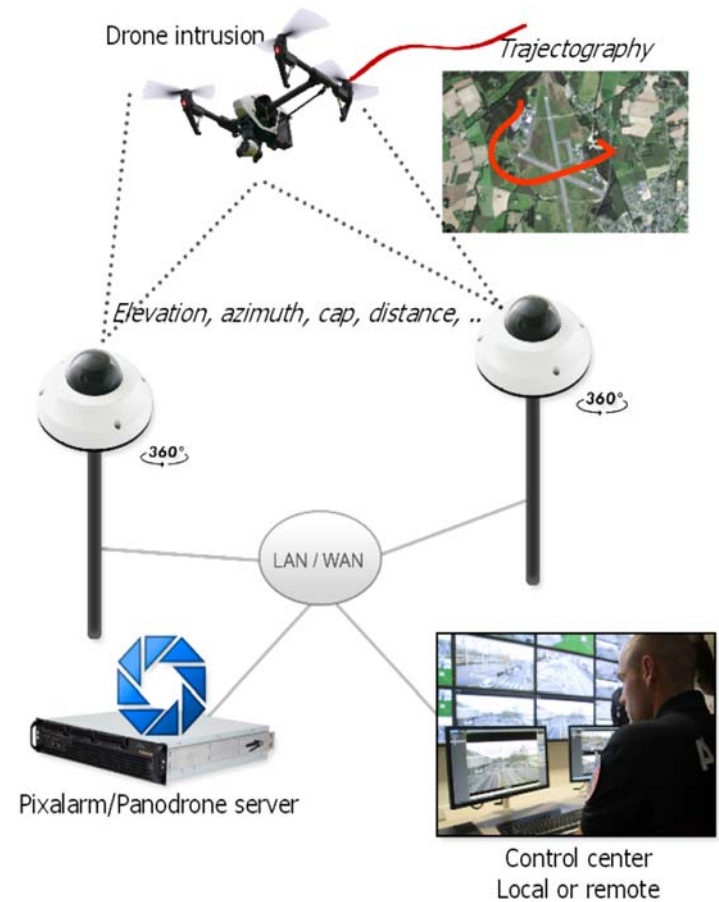
⇒ **INDEPENDENT SENSORS, DEPLOYABLE AS A FULL INTEGRATED SYSTEM**

⇒ **TARGET THE DRONE AND ITS PILOT**

# Optronic – InPixal

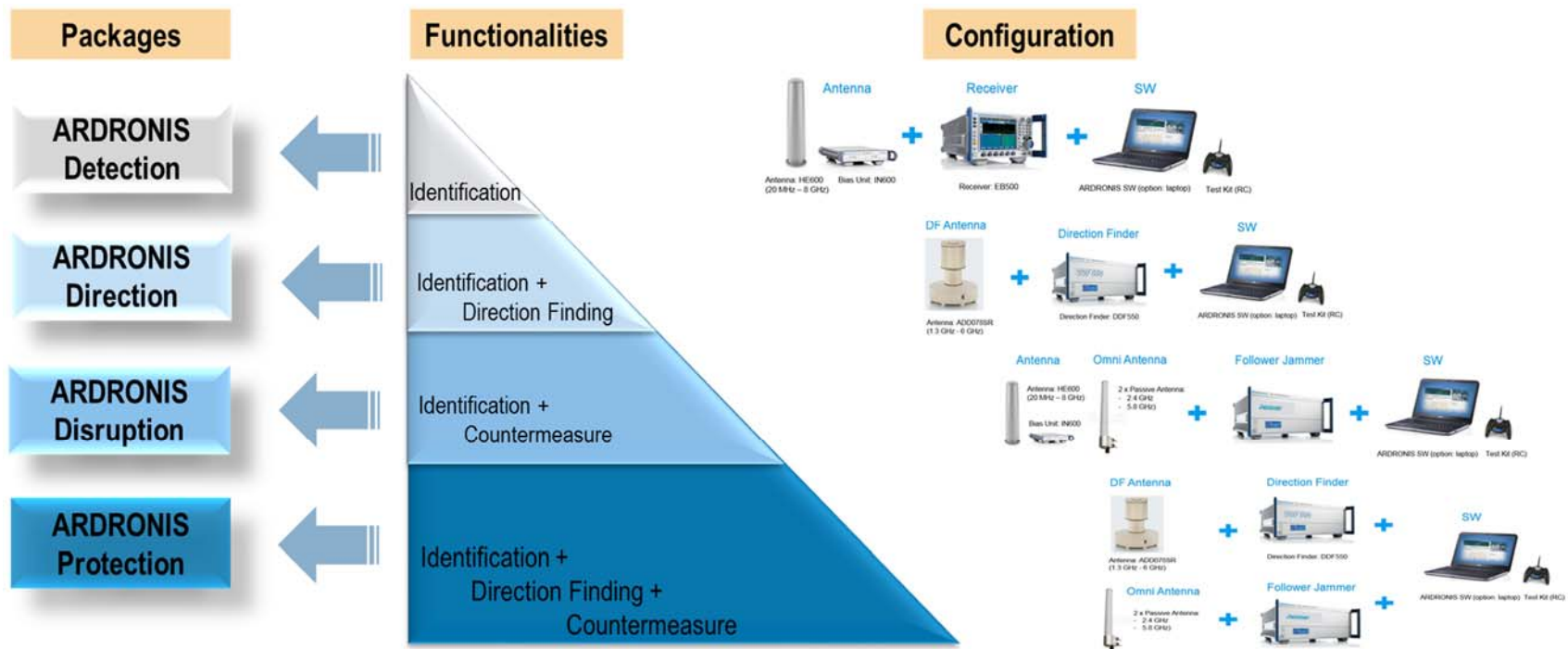
## PanoDrone solution

- 360° optronic system
- Multi drones detection capacity
- Short & Medium range



# Radiogoniometry – Rohde & Schwarz

- ARDRONIS solution for Detection, Direction, Disruption and Protection
- 360°, multi drones capacity, short to high range



# Wifi+hybrid drones – TrustComs

- **Passive Detection:** Detect, Localize, Identify on 360°, short and long range
  - Record everything for legal evidence
  - Multi-Drones and Pilots simultaneously
- **Neutralization:** Innovative countermeasures to ensure safe neutralization
- **Operational.** Tested and used in real situations
  - Works in cities, night, bad weather...
  - Straight deployed, mobile / embedded and fixed setups



*Light to deploy and even run embedded on driving vehicle (size reducing in progress)*



*Immediate detection and identification of drones and pilots*



# Central Management System – Cedarnet

- **SPID CMS** for centralization of the alerts with an ergonomic GUI
- Easy to connect sensors
- SPID CMS is capable of integration with an external security system



# Acoustic -LSIS

- **Demonstration** of detection, path tracking and classification, R&D to be continued

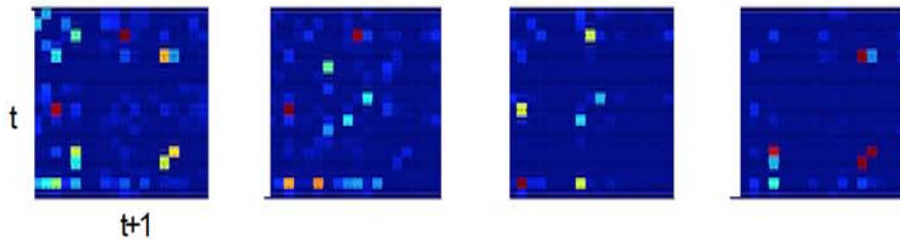
## Identification of the AUV type Transition matrices (t, t+1)

Ebee

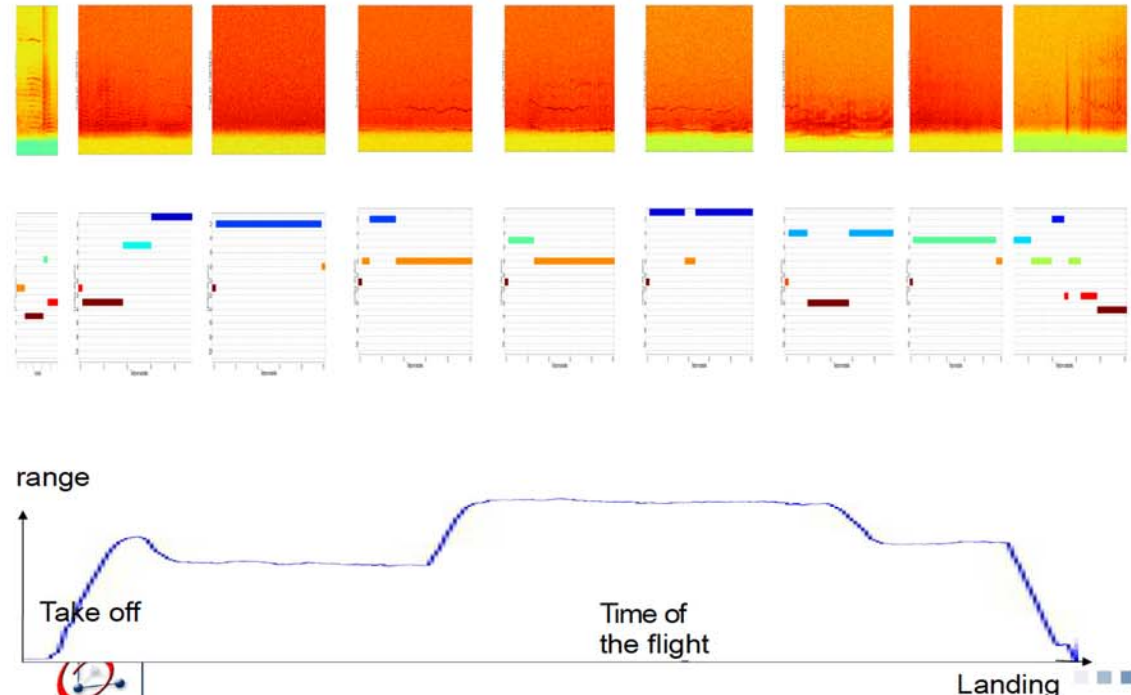
Novadem

X100

DT18



The clusters evolution during the flight (below the spectrograms)





# Conclusion

- **SPID, a relevant and efficient solution**
  - **Innovative**
  - **Scalable**
  - **Easy to deploy**
- **A Big Thank to SGDSN and ANR to have selected our project**
- **Thanks to Angelas and Boreades for this common demo**

**Visit our booth for further information!**



# The demonstration

- **Detection, identification and localization**
  - PanoDrone, Ardronis and DroneBlocker
  
- **Neutralization** with DroneBlocker of standard Beebop
  - Control intake to put the drone down.