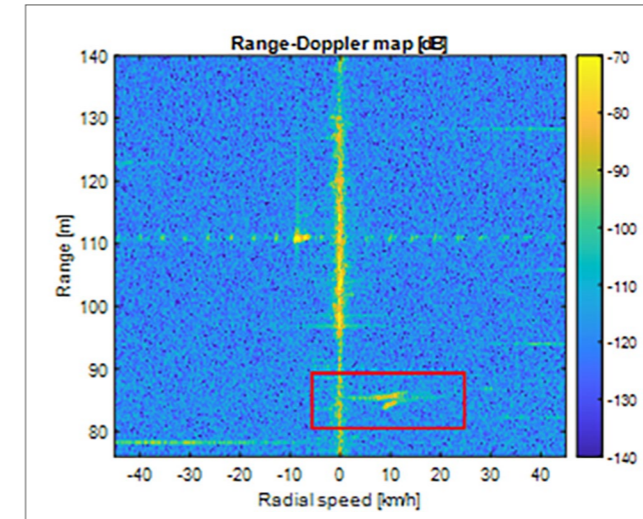


# PROJECT ANTI-DRONES

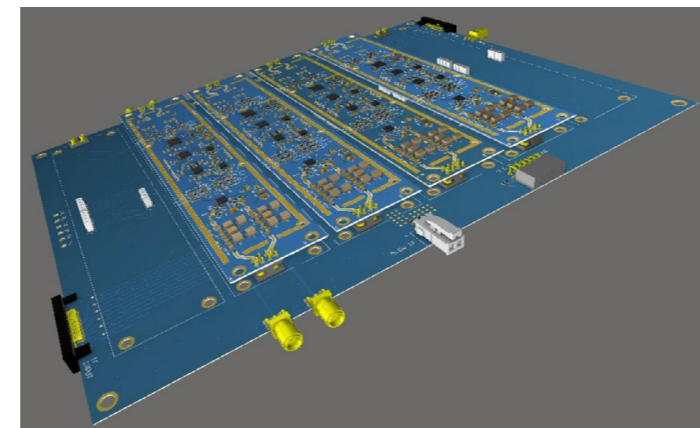
Innovative concept to detect, recognize and track "killer-drones"

The project focuses on the development of a new concept of anti-drone system, which is able to detect, recognize and track killer-drones – mini/micro UAVs - in order to facilitate their neutralization and, at the same time, to minimise risks for people and assets. The realization of Anti-Drones' goal requires the integration of different competencies, such as system design and integration, design of antennas and transceiver, development of advanced signal processing algorithms, as well as development of software and firmware. The system is based on the use of software defined technologies and software engineering techniques to guarantee flexibility and re-use of existing technology. Anti-drones will move forward the current state of the art of anti-drone systems through the use of mini-radar technology and signal processing, which will improve current system performances with minimal environmental impact (e.g. visual impact and EM pollution) to the urban environment. The Anti-Drone's radar demonstrator has been tested during the measurement campaigns. The radar capabilities have been successfully verified through the detection of three different drones: DJI Spark, Sigma ingegneria HELIX, Sigma ingegneria horus (<https://www.sigmaingegneria.com/robotica.php>).

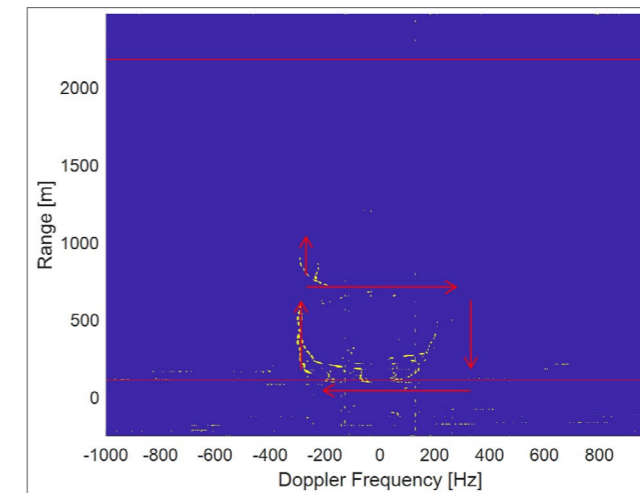
Technical Sheet	
<b>Funding institution:</b>	NATO – ESCD – SPS Programme
<b>Project partners</b>	CNIT-RASS, Mother Teresa University (MTU), North Kazakhstan State University (NKSU)
<b>Project duration</b>	September 2019 - March 2023
<b>Involved countries</b>	Italy, North Macedonia, Kazakhstan



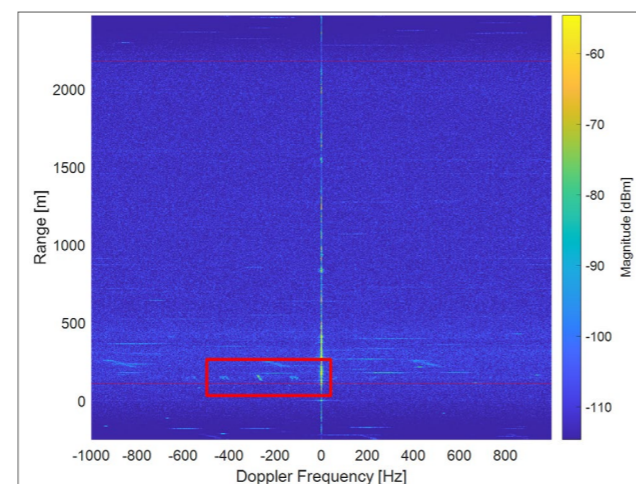
(d) Range Doppler map: birds (red box) spread in Doppler dimension and bales signature



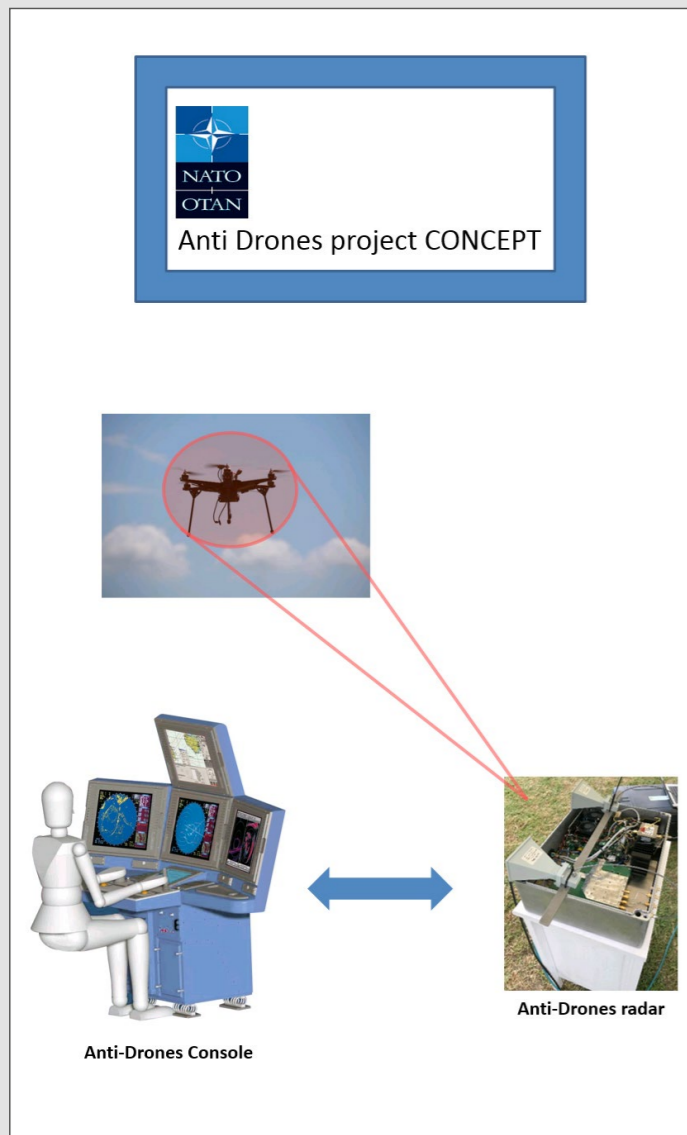
(b) 3D View of the IF board



(e) Range Doppler map: target trajectory



(c) Range Doppler map of a DJI Spark drone (weight 249g)



(a) Anti-Drones project Conceptual Diagram



(f) Final Trials at Krivolak NATO Training Center