ALADDIN

NEWSLETTER #1

DECEMBER 2018

Introducing the project

ALADDIN

Advanced ho**l**istic **A**dverse **D**rone **D**etection,
Identification & **N**eutralization

European Commission

Horizon 2020
European Union funding
for Research & Innovation

aladdin2020.eu

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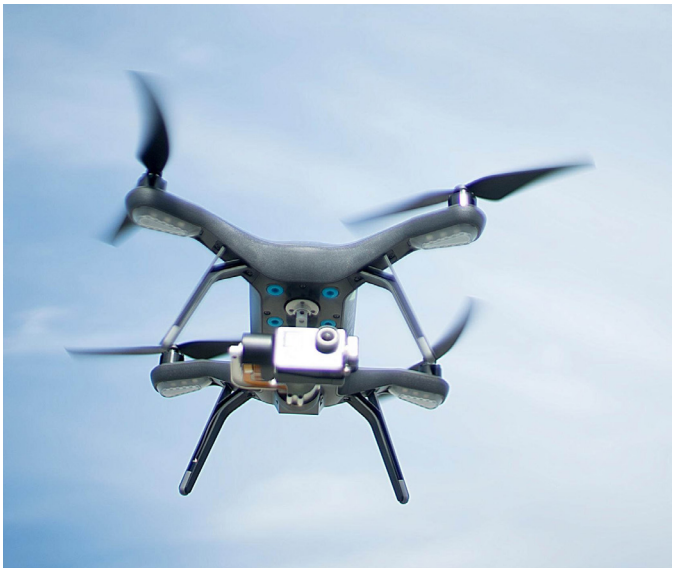


WELCOME

Dear Reader,

Welcome to the first edition of the ALADDIN project newsletter.

A lot of activities occurred since the Kick-off in September 2017 with the objective to develop an innovative platform to counter malicious drones flying over restricted areas.

The project team is now preparing the pilot experiment of the first release of the system: the Beta version will be demonstrated in Spain in early February 2019. This will be a good opportunity to show case the suite of sensors and neutralisation means as well as the innovative techniques such as Filtering and Deep Learning modules, fusion algorithms and virtual reality devices.

Based on the results and lessons learned on the evaluation of this pilot, the operational concept and system design will be enhanced in view to produce and deliver the final version that will be tested in Greece in June 2020.

This newsletter provides insight into the project and its activities and events.

Wanting to know more about the project? Go through this newsletter. Interested in getting involved? Have a look at the Counter-Drone group managed by ALADDIN and at the External Advisory Board sections.

Looking forward to get you on board this project.

The Project Coordinator

THE ALADDIN PROJECT

Project name: ALADDIN - Advanced hoListic Adverse Drone Detection, Identification and Neutralization

Start date: 1 September 2017

Duration: 36 months

Coordinator: Diginext (DXT)

Partners: 18 partners

H2020 Call: SEC-12-FCT-2016-2017 –
Sub-topic 2: Detection and neutralization of rogue/ suspicious light drone/UAV flying over restricted areas and involving as beneficiaries, where appropriate, the operators of infrastructure.

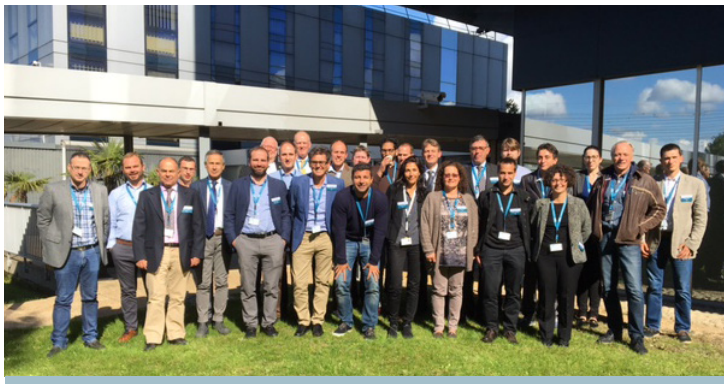
Concept: ALADDIN will study, design, develop, and evaluate, in series of complementary pilots, a counter UAV system as a complete solution to the growing UAV threat problem, building upon a state-of-the-art system and enhancing it by researching on various detection and neutralization technologies and functionalities.

Project objectives:

- Develop a counter-drone system with enhanced performance in detection and neutralization
- Take into account Operational Constraints
- Enhance Security and provide tools for operational support to LEAs and Critical Infrastructure operators

ALADDIN meetings:

Two plenary meetings already occurred since the KOM in September 2017: in February 2018 to finalise the definition of the system and to launch the development phase of the Beta version and in October 2018 to assess progress and prepare the pilot experiment.



Kick off meeting in Paris, France (September 2017)

Second Plenary Meeting in Brussels, Belgium (October 2018)

An End User workshop gathered in UK in November 2017 to elicit operational requirements and Concept of Operations. Subsequent workshops will be organized in the course of the project.

THE ALADDIN CONSORTIUM

Diginext (DXT) / FRANCE www.diginext.fr	**Centre for Research and Technology Hellas** (CERTH) / GREECE www.certh.gr
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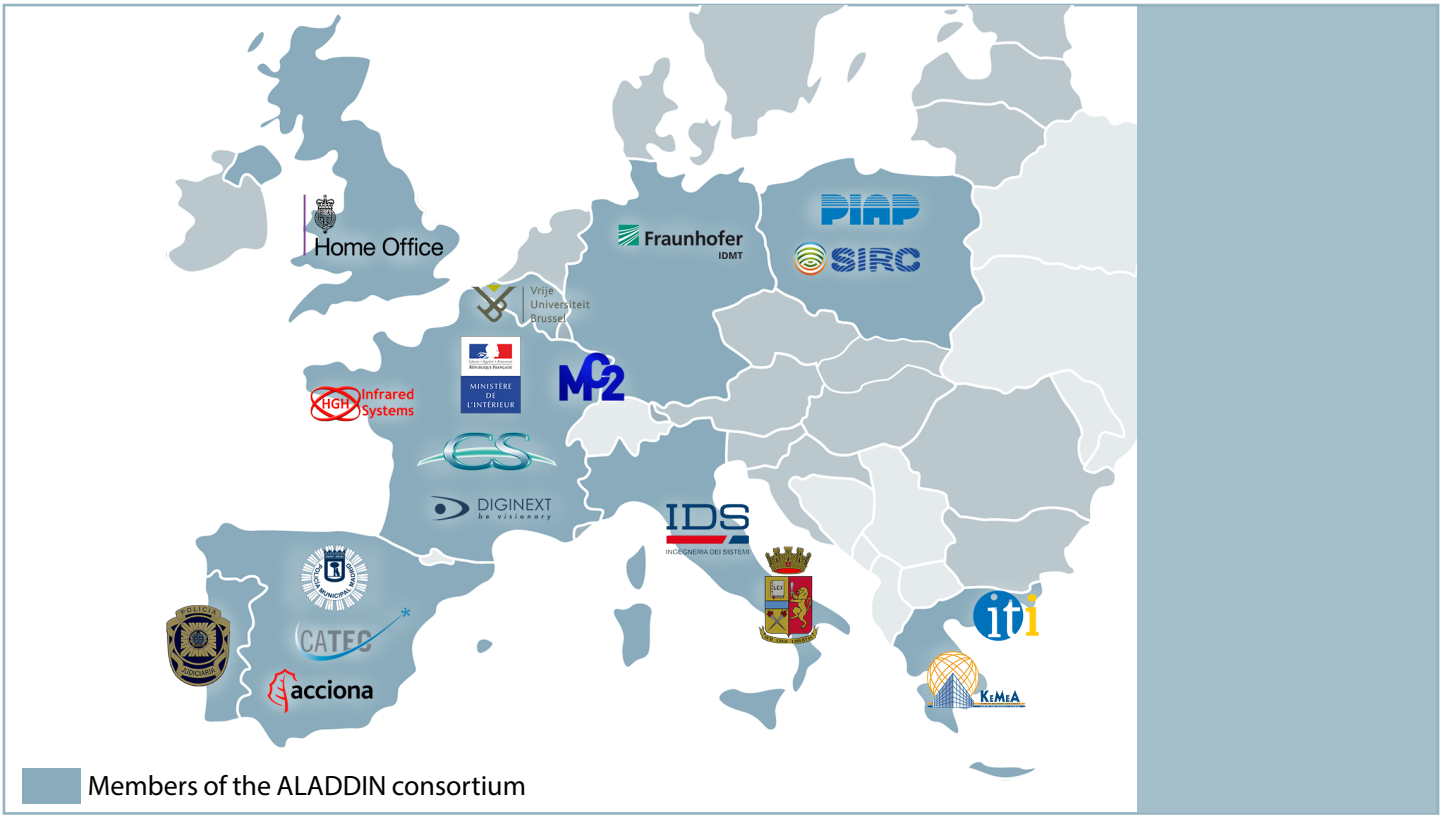
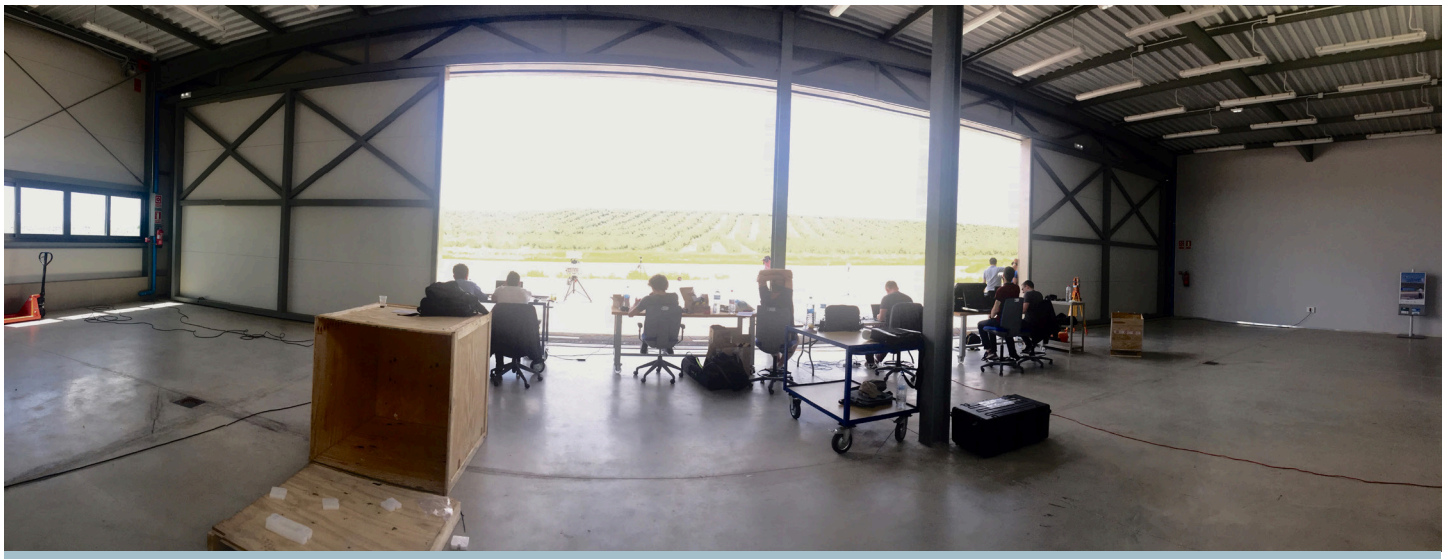


ATLAS DATA CAPTURING SESSION

During May 2018, the ALADDIN technical team executed a data recording campaign on the ATLAS premises. ATLAS (Air Traffic Laboratory for Advanced unmanned Systems) is a Test Flight Centre located in Villacarrillo (Jaen, Spain) operated by ALADDIN partner FADA-CATEC. The ATLAS centre offers the international aerospace community an aerodrome equipped with excellent technological and scientific facilities and airspace ideally suited to the development of experimental flights with light and tactical Unmanned Aircraft System (UAS) or Remotely Piloted Aircraft Systems (RPAS). With around 1000 square kilometers of segregated airspace until 5000 ft. available jointly with a main runaway of 600 m and auxiliary one of 400 m, it is specially designed for light and small UAS/RPAS operations.

Recordings were captured by ALADDIN's sensing arsenal. Namely, a 2D long range radar developed by IDS, two Infrared cameras developed by HGH, one PTZ camera and one digital optical camera developed by PIAP as well as three eight channel microphone arrays developed by IDMT.



ALADDIN team from inside the hangar at ATLAS Test Centre (Spain)

DJI Phantom 4

Parrot Disco

Target drones

2D radar

IR camera

Microphone arrays

PTZ camera

ALADDIN sensing arsenal

ALADDIN's sensors were deployed to capture multiple drone flights, utilizing a DJI Phantom 4 and a Parrot Disco. The purpose of this campaign was to produce a dataset that will support the training of the deep learning methodologies to produce classifier and detector for each different sensor capability as well as multi-sensor information fusion. The flight plans were designed according to threat scenarios established by end users and included two main cases:

1. Drone coming from far away.
2. Drone standing nearby (grounded), taking off and invading to the protected target.

The resulting dataset includes 26 sessions performed from three distinct operation sites around ATLAS. The delivered dataset comprises five different modalities. Each modality has its own unique characteristics, which implies that several file formats are utilized to store the captured data. The total size of the dataset is 1.1 TB of data and captures approximately 5 hours of flying time. Overall, the diversity of the captured data will aid in training robust deep learning methodologies that will provide best threat's identification.

ALADDIN DEMO & WORKSHOP

The first Pilot exercises will be performed to evaluate and demonstrate the first release of the ALADDIN platform (beta release). As representative of 'open-field' use case, these experiments will take place in ATLAS airport and test flight centre, in Villacarrillo, Jaen, Spain, in January-February 2019.

The agenda includes two weeks of intense activity:

- 21st – 25th January: integration tests reserved to technical partners of the ALADDIN Consortium;
- 4th – 8th February: workshop and demonstration open to external participants.

In the first week, the technical partners will perform the integration tests of all the subsystems of ALADDIN. The second week features a workshop and training for Law Enforcement Agencies (LEAs) and end-users of ALADDIN systems with real demonstration tests. On February 7th, there will be a DEMO day to showcase the ALADDIN technology to external end-users and other interested people (aviation authorities, air navigation service providers, security forces, etc.) which will be invited to the event.

In the second week a wide representation of end-users, members of the ALADDIN User Group (AUG), will be trained on ALADDIN platform. External supporters of the ALADDIN project, interested in participating to the event, may join the community of end-users external to the consortium, the External Advisory Board (EAB). These boards (AUG and EAB) will remain open to new members throughout the duration of the project and after the acceptance by the Security Advisory Board of ALADDIN.

ALADDIN reaches the first critical phase of the project (the beta release), and thus we seek for useful feedback and efficient proposals to move on.

Thus, ALADDIN Consortium would like to invite potential and/or existing EAB members to join us for the workshop & demo in Spain.

We hope that you can participate in our first demonstration in February 2019 and witness a hands-on, interactive pilot demonstration. This interactive workshop & pilot will serve as an opportunity for each EAB member to become acquainted with the technological innovations of the ALADDIN system and it will help the Consortium to demonstrate the progress made so far and gather your feedback. If you are interested in joining us, or you need any further information, please contact us via e-mail (info@aladdin2020.eu).

But what exactly is the External Advisory Board?

External Advisory Board (EAB) is a group of prospective EU and State representatives in the domain of Aviation Safety and Security, Critical Infrastructure Protection and Independent Authorities for Telecommunications with a scope to maximize the influence on the project developments at all levels and to facilitate and extend cooperation with stakeholders. The EAB allows the consortium to get an independent external view, whilst enabling for flexibility in the composition.
The role of the EAB is to safeguard that the ALADDIN solution:

- is within the framework of the relevant EU and National policies,
- is integrated into the existing aviation system in a safe and proportionate manner,
- follows the existing EU and National regulatory framework related to aviation safety, drone operations and critical & sensitive infrastructure protection,
- ensures the safety of EU citizens and the protection of the environment, as well.

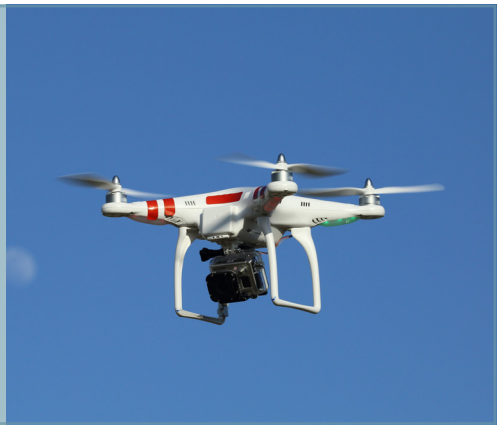
Venue:

ATLAS test flight center, Camino de Herrera, s/n 23300 Villacarrillo (Jaén, Spain).

https://goo.gl/maps/pAowwZXUBvP2

Agenda:

FEBRUARY 2019	Monday 4th	Equipment set up and workshop
	Tuesday 5th	LEA workshop and training
	Wednesday 6th	LEA workshop and training. DEMO DAY preparation
	Thursday 7th	DEMO DAY
	Friday 8th	Evaluation of ALADDIN and wrap-up



RELATED EVENTS

Security Research Event (SRE 2018), 5-6 December 2018, SQUARE - Brussels, Belgium.

https://www.sre2018.eu/

ICUAS'19 - The 2019 International Conference on Unmanned Aircraft Systems, June 11 - 14, 2019, Atlanta, GA, USA.

http://www.uasconferences.com/

SIAE 53rd International Paris Air Show, 17-23 June 2019, Aéroport Paris-le Bourget, France.

https://www.siae.fr/

Contact us:

For more information, please visit the ALADDIN website: https://aladdin2020.eu/

Send us an email to info@aladdin2020.eu

Join the LinkedIn group: Counter-Drone group managed by Aladdin

You may get involved in ALADDIN activities by joining the LinkedIn Counter-Drone group managed by Aladdin (CDGMBA). This professional group is created in order to exchange on anti-drones, anti-UAV technologies. This group brings together people that are working to reduce the misusage of drone/UAV via research, legislation, education, development and training. This group is a MANAGED GROUP with participants only under invitation. Send us an email (to info@aladdin2020.eu or through the ALADDIN contact form https://aladdin2020.eu/contact-us/) if you are interested in joining the CDGMBA.

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