



**A Holistic Approach to Sustainable, Digital EU Agriculture,
Forestry, Livestock and Rural Development based on
Reconfigurable Aerial Enablers and Edge Artificial
Intelligence-on-Demand Systems**

Newsletter

November 2022 | Vol. 1

Welcome to the first issue of the CHAMELEON Newsletter

This newsletter will be published twice per year, bringing the latest news and advances of the CHAMELEON project.

You can subscribe to receive this newsletter in your email by registering:

Here

Get to know the project

CHAMELEON is a Horizon Europe Project that aims to optimise production and identify potential problems in agriculture, livestock, forestry and rural areas.

To achieve this, the CHAMELEON Project will use a novel reconfigurable drone, able to modify its configuration and sizing upon demand, which can be deployed in homogeneous or heterogeneous groups to support complex scenarios, as well as a set of existing heterogeneous, modular, interoperable, networked unmanned vehicles systems.

Approach

CHAMELEON offers an **integrated solution** in:



Agriculture



CO2 sequestration and biomass estimation



Behavioural analysis and protection of livestock



Plant health assessment toolkit



Irrigation and water stress monitoring and management



Early and non-intrusive lameness detection



Selective spraying application for low-risk fertilization and forest health protection



Pilot Use Cases

Spain: The pilot will be focused on supporting the analysis of forest fires impact in urbanized areas, with AI-based prediction of the state, evolution, risk and maintenance analysis of the interface area between urbanized and forest areas.

Greece: The pilot will assess the capacity of CHAMELEON platform and the corresponding UAV agents for monitoring of herds of sheep and/or goats in the area of Western Crete.

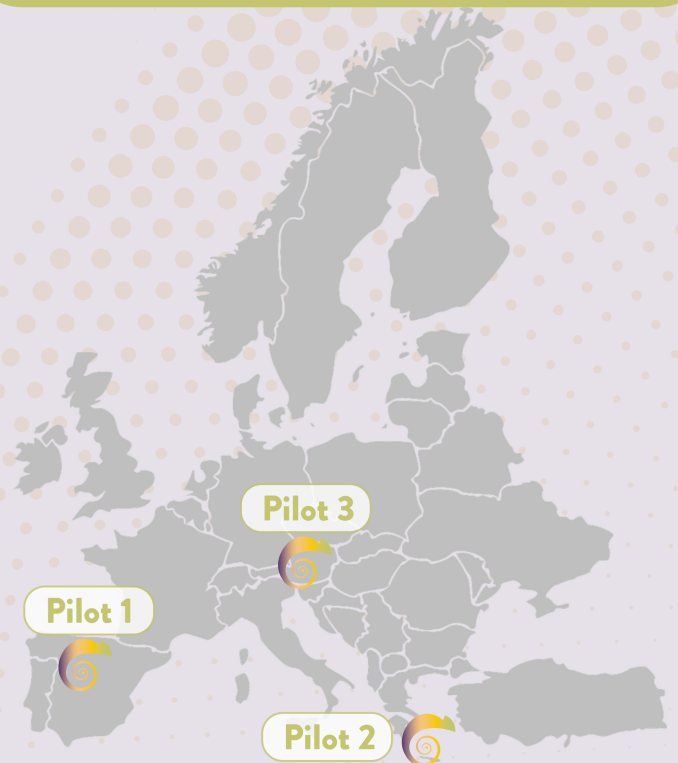
Austria: Drones shall be used to monitor the area for potential dangers and reduce the stress for the owners to check by themselves in a dangerous area.

Additional sensors on the drone could support with IR cameras and other sensors a better monitoring throughout the year of the development of plants and identify early signs of vermin.

Spain: Forest fire defense plans for rural areas

Greece: Livestock monitoring and management

Austria: Forest monitor for potential dangers & Vineyards monitoring



Kick-off Meeting



The inaugural event of the CHAMELEON project was held on 12-13 July in Athens, Greece. More than 30 experts from 9 European countries participated in this face-to-face kick-off meeting, which was also streamed online for all partners.

Over the next 3 years, the 12 project partners will work together to optimise production and identify potential problems in agriculture, livestock and forestry, using drones with on-board AI decision-making packages.

[Read more](#)



1st Scientific Paper and Press Release

The 1st CHAMELEON Scientific Paper "**Machine Learning-Based Processing of Multispectral and RGB UAV Imagery for the Multitemporal Monitoring of Vineyard Water Status**" was published in September 7, 2022 by **Universidad de Castilla - La Mancha** partner in "Agronomy": an international, scientific, peer-reviewed, open-access journal published by MDPI.

[Read more](#)

The 1st CHAMELEON Press Release was published on September 30, 2022, to announce the launch of the Project, and inform about its goals and technologies to be developed.

[Read more](#)

New Topic in MDPI



A new topic for the publication in MDPI journals has been created by our partner **Grupo de investigación TIDOP from Universidad de Salamanca** and the CHAMELEON Dissemination Manager Diego González-Aguilera, within the project approach: **Unmanned Ground and Aerial Vehicles (UGVs – UAVs) for Digital Farming**.

This Topic aims to keep up with progress on the latest applications derived from the use of unmanned ground and aerial vehicles (UGVs-UAVs) within the digital farming framework, including the evolution of integrating precision crop management systems and smart operations, as well as pointing out the challenges still ahead.



[Read More](#)



Synergies



CHAMELEON is in collaboration with other projects dealing with the same topic. This synergy will benefit all these projects by making joint progress. Some of the projects that have clustering with CHAMELEON are:

TREADS **CALLISTO** **ISOLA** **Search and Rescue**
AURORAL **CA16219-Harmonious** **CA20118-3DForEcoTech**

Should you be interested in joining forces and discuss potential synergies, please do not hesitate to contact our Project Coordinator and/or our Communication & Dissemination Manager [Here](#).

Brochure

The CHAMELEON Brochure presents a general overview of the project.

Download it [Here](#).



Stay in contact

<https://chameleon-heu.eu/>
@ChameleonHEU
@Chameleon_HEU
CHAMELEONHEU
chameleonheu@gmail.com

Pantelis Velanas
Accelligence Ltd.
Project Coordinator
pvelanas@accelligence.tech

Diego González Aguilera
University of Salamanca
Communication & Dissemination Manager
daguilera@usal.es

Project Facts

Work programme:
Horizon Europe

Duration:
36 months | Starting from 1 July 2022

Total cost:
€ 5.949.747

Coordinator:
ACCELIGENCE LTD.

Consortium

UNIVERSIDAD DE SALAMANCA
Adrestia
LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY
CIHEAM
DIPUTACIÓN DE ÁVILA
AIDEAS
DELAIR
SQUAREDEV
UCLM
Universidad de Castilla-La Mancha
UNPARALLEL
ACCELIGENCE
DIE JOHANNITER



CHAMELEON

A Holistic Approach to Sustainable, Digital EU Agriculture, Forestry, Livestock and Rural Development based on Reconfigurable Aerial Enablers and Edge Artificial Intelligence-on-Demand Systems





Funded by the European Union.
Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency.
Neither the European Union nor the European Research Executive Agency can be held responsible for them.

The project

CHAMELEON is a Horizon Europe Project that aims to optimise production and identify potential problems in agriculture, livestock, forestry and rural areas.

To achieve this, the CHAMELEON Project will build a novel reconfigurable and multipurpose drone platform ecosystem featuring heterogeneous UV (Unmanned Vehicle) agent networks operating in air with its supporting communication protocols, navigation and control strategies and monitoring station, capable of autonomously operating on any area efficiently and cost-effectively.

Advanced Supporting Technologies

Able to support diverse functionality and cover the requirements of different operational missions in agriculture, livestock, forestry and rural areas.

Expandable and configurable UAVs

A highly novel UAV solution that is on demand and multi-purpose.

Three layered approach

Data from low altitude drones, high altitude fixed wing UAVs and satellites.

Universal support of aerial platform (UAVs, RPAs)

Through the implementation of the CHAMELEON App Store.

AI algorithms execution on board

Assisted by the on-board NVIDIA GPU delivering incredible AI performance.

Holistic agroforestry solution

Maximise the probability of potential problems identification across heterogeneous sources and networks.

Pilot Activities

CHAMELEON advances will be validated in three pilot use cases in Spain, Greece and Austria.

Pilot 1: Avila, Spain

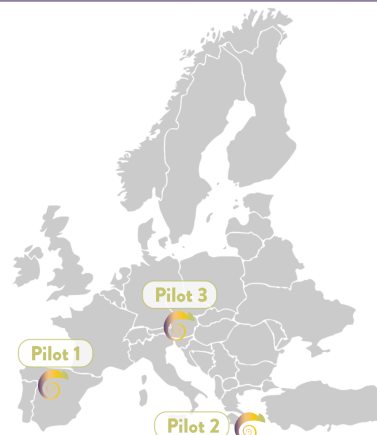
Automate the generation of forest fires defence plans for rural areas, especially in those areas with high risk in their urban-forest interface.

Pilot 2: Crete, Greece

Validate the capacity of the CHAMELEON platform for tracking and health assessment of individual animals and assess its operational feasibility for a range of breeders, according to the size of their animal capital.

Pilot 3: Austria

Validate the capacity of the CHAMELEON platform ecosystem for tracking water status, health of plants, health assessment of vineyards, the potential to generate a range of ecosystem services at multiple scales including mitigation of greenhouse gas emissions through long-term carbon storage and intervention strategies.



Roll-up Banner

The CHAMELEON Roll-up banner will be used in the events. Download it [Here](#).



The banner features a dark purple background with a pattern of small white dots. At the top, the CHAMELEON logo is displayed in yellow and white. Below the logo, the project's mission statement is written in white text. Social media handles for LinkedIn, Twitter, and YouTube are listed on the left. A QR code is positioned next to the text 'Able to support diverse functionality and cover the requirements of different operational missions in agriculture, livestock, forestry, and rural areas.' The right side of the banner contains the start date '1st JULY 2022' and a list of project features with diamond icons. At the bottom, the consortium members' logos are arranged in a grid, and a disclaimer is provided.

CHAMELEON

A Holistic Approach to Sustainable, Digital EU Agriculture, Forestry, Livestock and Rural Development based on Reconfigurable Aerial Enablers and Edge Artificial Intelligence-on-Demand Systems

@ChameleonHEU
@Chameleon_HEU
CHAMELEONHEU

Contact us
chameleonheu@gmail.com

Start date
1st JULY 2022

ADVANCED SUPPORTING TECHNOLOGIES

Able to support diverse functionality and cover the requirements of different operational missions in **agriculture, livestock, forestry, and rural areas.**

- Expandable and configurable UAVs** ♦
A highly novel UAV solution that is on demand and multi-purpose.
- Three layered approach** ♦
Data from low altitude drones, high altitude fixed wing UAVs and satellites.
- Universal support of aerial platform (UAVs, RPAs)** ♦
Through the implementation of the CHAMELEON App Store.
- AI algorithms execution on board** ♦
Assisted by the on-board NVIDIA GPU delivering incredible AI performance.
- Holistic agroforestry solution** ♦
Maximise the probability of potential problems identification across heterogenous sources and networks.

Project Coordinator
Pantelis Velanas
Accelligence Ltd.

Communication & Dissemination Manager
Diego Gonzalez Aguilera
University of Salamanca

Duration: 36 months
Total cost: € 5,949,747

Consortium

UNIVERSIDAD DE SALAMANCA
Adrestia
Equilibrium in Research & Development

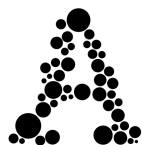
LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY
DIPUTACIÓN DE ÁVILA
A I D E A S

UNPARALLEL
CIHEAM
MAI CHANIA

DELAIR
SQUAREDEV

UCLM
Universidad de Castilla-La Mancha
ACCELIGENCE
DIE JOHANNITER

CHAMELEON is funded by the European Union under grant agreement No. 101060529. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the European Research Executive Agency can be held responsible for them.



ACCELIGENCE



A I D E A S



DIPUTACIÓN
DE **ÁVILA**



JOHANNITER



LITHUANIAN
RESEARCH CENTRE
FOR AGRICULTURE
AND FORESTRY



CIHEAM
MAI CHANIA



Universidad de
Castilla-La Mancha



**VNIVERSIDAD
D SALAMANCA**

Follow Us



<https://chameleon-heu.eu/>



<https://www.linkedin.com/in/chameleonheu/>



https://twitter.com/Chameleon_HEU



chameleonheu@gmail.com



Funded by the
European Union

Funded by the European Union.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency.

Neither the European Union nor the European Research Executive Agency can be held responsible for them.