



Interreg
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Fondo Europeo de Desarrollo Regional



UNIÓN EUROPEA



Centro Ibérico para la
Investigación y Lucha contra
Incendios Forestales

Firefighting
Open Innovation Lab



**LUCHA CONTRA EL
CAMBIO CLIMÁTICO**

**CATALOGUE OF ACCELERATED COMPANIES
AND TECHNOLOGIES**

1st Edition
2021

FIREFIGHTING OPEN INNOVATION LAB CILIFO

The first accelerator in the forest fire and forest management sector.

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GENERAL INFORMATION

WHAT IS THE FIREFIGHTING OPEN INNOVATION LAB - CILIFO?

Firefighting Open Innovation Lab – CILIFO is the first accelerator in the forest fire and forest management sector. This accelerator is part of the CILIFO project, funded by the Interreg POCTEP programme (2014-2020).

www.innovation.cilifo.eu



WHAT IS CILIFO?

CILIFO (Iberian Centre for Research and Fight against Forest Fires) is a European project funded by the European Programme for cross-border cooperation Interreg VA Spain-Portugal (Interreg POCTEP 2014-2020).

With a duration of three years (01/01/2019 to 12/12/2021) it aims, through the results expected in its activities, to become a permanent Centre for the promotion and development of training, awareness, research and cooperation in the fight against forest fires.

www.cilifo.eu



FIREFIGHTING OPEN INNOVATION LAB - CILIFO'S MISSION

Through this accelerator, CILIFO supports the initiatives of entrepreneurs and companies in the areas of forest fire prevention and extinction, forest management and climate change adaptation and mitigation.

The accelerator offers entrepreneurs and companies:

- a) A workspace to settle in the CILIFO Centre, in Seville (Spain), where you can work in a network within a Public-Private Partnership.
- b) The possibility of testing innovative technologies in a real environment.
- c) An online and face-to-face advisory service, through specialised mentors, for the search for European funding, with the aim of bringing innovative products, processes and services to market.
- d) Support for developing an innovative idea in a European project.
- e) Search for international partners for the replication and exploitation of results.
- f) Support in the field of legal advice to start-ups in the field of legislation and combating legal barriers, assistance in internationalisation, and mentoring and training in European funding.



ACCELERATED COMPANIES *1st edition*



CLOSING NUTRIENT'S CYCLE FOR A BETTER TOMORROW

A unique fertilizer

AGRISTAR**BIO**

PROJECT SUMMARY

Agristarbio aims to produce a fertiliser that regenerates soil, protects water and avoids greenhouse gas emissions from organic biosolids, recycling all organic matter and nutrients without producing by-products or emissions as a result.

PROBLEM

Poor clearance of fuel materials in forests causes and increases forest fires, exposing poorly resistant soils to drought and erosion.

SOLUTION

Production of fertilisers with up to 60% organic matter that regenerates the soil, helping to prevent fires, through the use of forest cleaning biomass in the production process.

DESCRIPTION

Agristarbio's innovation is an organo-mineral fertilizer production system in a closed pressure reactor, which takes advantage of all the nutrients and organic matter from biological sludge from treatment plants, or livestock sludge, to produce a highly efficient, customizable fertilizer with no emissions or by-products. It takes full advantage of Lavoisier's Law, recycling all the carbon and nutrients from the biosolids.

MARKET: Public and private sector.

TIYPE OF COMPANY: S.L.

BUSINESS MODEL : Fertiliser design and development.

PROJECT DEVELOPMENT STAGE: Pilot project.

TARGET CLIENTS / USERS: Public administration and private sector.

AGRISTAR**BIO**

Agristarbio is a successful case of innovation for better forest management and forest fire prevention, boosting the green economy.

In the European Union alone, more than one billion tons of effluent and manure are produced each year. Without proper treatment, this causes major environmental problems: emissions of greenhouse gases and nitrates, contamination of soil and streams, and eutrophication of riverbeds and freshwater supplies.

On the other hand, the increased use of chemical fertilisers to meet production targets to feed our population is desertifying and depleting our soils which are losing their organic matter and reducing their productivity.



Therefore, Agristarbio aims to protect the soil and water atmosphere by producing the best fertiliser from organic biosolids and exploiting the full potential of organic matter and the circular economy.

Agristarbio's solution solves both problems with its organo-mineral fertiliser production system in a closed, pressurised environment, which means no emissions, and no by-products, making full use of Lavoisiers' law, recycling all the carbon and nutrients in the biosolids.

This product will help reduce atmospheric emissions; provide greater resilience to drought by retaining water in the soil; soil recovery and reforestation; and fire prevention through the use of forest clearing biomass for self-fuel material.

This solution is perfect for the use of secondary biological slats of paper mills because it allows to return all organic matter and nutrients to the forest by means of composting, implementing a perfect circular economy, eliminating the need for chemical fertiliser as it uses biomass from forest residues. It also has great application to the use of chicken manure, in a process that avoids the problem of self-combustion of the same.

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PROJECT SUMMARY

ARATOS World Fire Alarm System™ is an integrated safety system against wildfires that provides information near real-time through geostationary satellites (NASA, ESA) that offers an 80% of successful detection of fires.

PROBLEM

Lack of access to efficient and cost-effective solutions for early warning of wildfires for real estate in areas at risk.

SOLUTION

Cost-effective services for early warning, by SMS and email, as well as information at regular 15-minute intervals during the event.

DESCRIPTION

ARATOS World Fire Alarm System™ is an integrated safety system against wildfires designed to provide near real-time information through the constant surveillance of the whole world via geostationary satellites (NASA, ESA). In the event of detection of fires, indication points will be generated in the map. The data received and processed is updated at most every 15 minutes, which guarantees a quick and effective update.

MARKET: Wildfire Market.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : Subscription-based services.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: Land, building and property owners; societies.

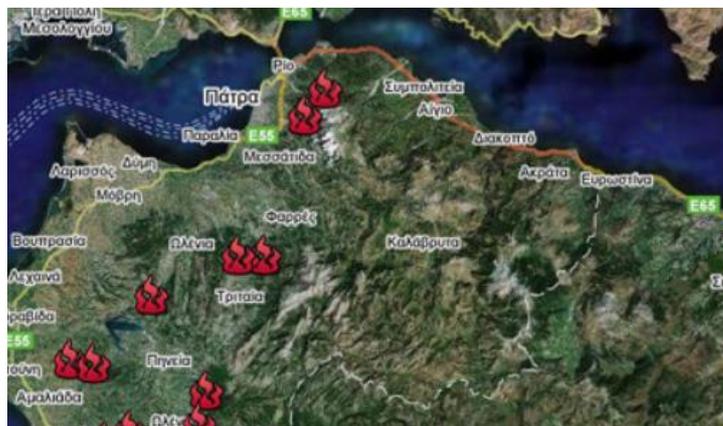
Aratos

Group

Aratos Systems relies on an integrated safety system against wildfires that provides near real-time information via geostationary satellites (NASA, ESA). The data received and processed is updated at most every 15 minutes, which guarantees a quick and effective update.

h citizens and companies that own real estate in areas at risk do not have access to efficient and cost-effective solutions for early warning and the continuous update during the phenomenon.

To solve that, ARATOS World Fire Alarm System™ has developed a system to protect those properties, offering an 80% success rate.



AratosWorld Fire Alarm System™ is an integrated safety system against wildfires designed to protect both the facilities and human lives. It provides near real-time information through the constant surveillance of the whole world via geostationary satellites (NASA, ESA). The information received is processed and, in the event of detection of fires, indication points will be generated in the map.

The data received and processed is updated at most every 15 minutes, which guarantees a quick and effective update. The system can cover a radius of 15 to 40 kilometres around the customer's facilities, providing very high spatial and temporal resolution.

This means that if a fire incident is detected by the satellites near the client's premises, the client automatically receives notification alerts by SMS and e-mail, as well as information at 15-minute intervals during the event.

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Control Foc

Control de incendios forestales



ares tic



PROJECT SUMMARY

Working hand in hand with Alcoi City Council, Aures TI Consultors SL has developed Control Foc, a tool that provides traceability of agricultural burns to forestry agents and firefighters so that they can be geolocated, which prevents fires caused by uncontrolled burning.

PROBLEM

The immediacy to locate the source of a fire, being in a large rural area and surrounded by two natural parks.

SOLUTION

Oriented technologies in a platform that allows to coordinate agricultural burning with all fire prevention and firefighting forces.

DESCRIPTION

- Digital tool available to administrations. It allows to request burning permits and inform the administration with a single click.
- Through geolocation, it allows monitoring of the day's burning activity and timely action when a user has an incident.
- Ensures more effective communication between administrative staff and users, notifying them of the most recent updates at burning level.

MARKET: Public and private sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : Provision of services.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: Public administration, fire brigades and users.

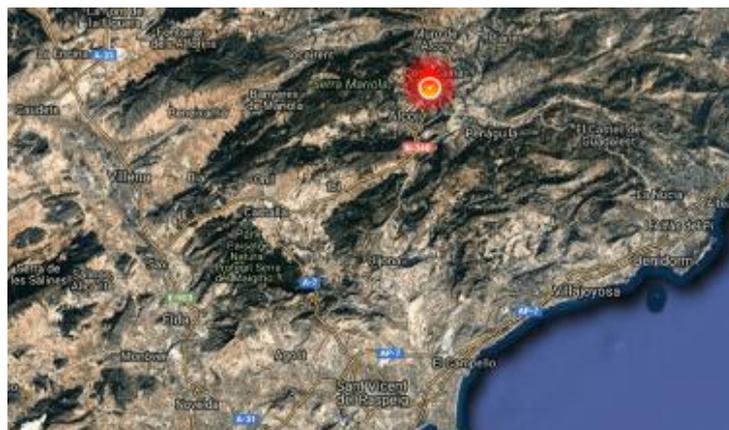


aures tic

Control Foc is an app designed for the public organisms responsible for the management of controlled burns that makes it easy to monitor and reduce the risk of forest fires.

AURES TIC participates in the CILIFO project with the ControlFoc App, a software developed to monitor the management of controlled burns, thus reducing the risk of forest fires.

Control foc is an application designed for the bodies responsible for fire management. It is a way to prevent forest fires, since most of these fires are caused by man, as a consequence of uncontrolled agricultural burning.



Through the Control Foc platform, more effective communication is possible between users, administration, firefighters, police and forestry brigades. The procedure is simple and consists of four steps:

First, the user requests a burning report. After this request, the administrative staff registers the user and creates the corresponding notifications. The user can then activate the burns quickly and easily from his or her mobile application. Finally, an operator monitors the burns from the control panel, which ensures their safety.

Thanks to the map view, operators (police, fire brigade and forestry personnel) can receive real-time notifications of burning activity, indicating the user and their personal details to contact in the event of an incident.



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PROJECT SUMMARY

Creation of circular and carbon-negative economies around the pyrolysis of forest residues. Transformation of forest residues into biochar and application to improve the health of degraded agricultural soils or optimise ecological restoration processes. The project contributes to climate change mitigation and adaptation, and to the regenerative development of rural areas.

PROBLEM

Three problems: forest fires caused by poorly managed biomass, climate change and problems of erosion and loss of nutrients in our soils.

SOLUTION

Revalorisation of forest residues, transforming them into biochar, which returns organic carbon to degraded soils and improves their long-term health and fertility.

DESCRIPTION

The project consists of using biochar as a tool for forest fire prevention and post-fire ecological restoration. The pyrolysis process transforms forest residues into biochar, a carbon-negative product that regenerates the health of degraded soils, generating healthier ecosystems and communities that are more resilient to climate change.

MARKET: National.

TIYPE OF COMPANY: Start-up.

BUSINESS MODEL : B2C, B2B and B2B2C.

PROJECT DEVELOPMENT STAGE: Prototype/MVP.

TARGET CLIENTS / USERS: Municipal and regional governments, forestry companies, park and reserve management entities, and conservation and restoration organisations where synergies can be found; companies in Voluntary Carbon Market sectors.



Carbón Emergente is dedicated to the production of biochar from plant waste and its application as a regenerative development tool.

Carbón Emergente (emerging coal) is a company dedicated to the production of biochar from plant waste and its application as a tool for regenerative development.

Through a pyrolysis process, they transform plant waste into biochar and apply it to degraded soils, promoting a circular economy. The process sequesters carbon in the long term and improves multiple properties of soils - such as aeration, fertility or water and nutrient retention, generating more resilient ecosystems and thus contributing to both climate change mitigation and adaptation.



In addition, this generates multiple benefits for rural communities, particularly agricultural communities, where biochar can reduce or even eliminate reliance on agrochemicals, generating savings while increasing yields and the nutritional quality of food. In this way, rural development is being promoted that goes beyond the sustainable to the regenerative.

Their project consists of using pyrolysis as a tool to jointly address forest fire prevention and post-fire ecological restoration. This is achieved by disposing of forest clearance residues and transforming them into a multifunctional product that generates added ecosystem value. The biochar produced can be used in post-fire reforestation activities to increase the survival rate of trees, and prevent erosion and nutrient leaching.

The technology they use for pyrolysis is simple, cheap, and replicable, so, by training local actors, it can become a tool that contributes to their socio-economic development. In addition, the project has a high potential for synergy, as it only requires plant residues and can therefore be coupled with existing forest management or forest clearance initiatives. Finally, as the projects are carbon-negative, they are working to offer them as a carbon footprint offsetting or Corporate Social Responsibility mechanism.

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DIAGNOSIS SISTÉMICA

PROJECT SUMMARY

Integration of environmental strategy solutions, based on the efficient use of water and solutions that promote the regeneration of ecosystems, supported by Big Data analysis and the optimisation it offers in the implementation stages.

PROBLEM

Increase in wildfires, which entails high costs in terms of economic and natural resources.

SOLUTION

Use of Big Data to implement environmental strategy solutions based on the latest technological advances.

DESCRIPTION

Diagnosis Sistémica is the technological implementation and integration of environmental strategy solutions to cope with fires and other natural disasters. With a holistic approach it enables a collaborative approach using Big Data, integrating solutions and measuring their efficiency, so that implementation phases improve the probability of success and simplify performance in other scenarios. The right information with the right focus enables accelerated results.

MARKET: Public and private sector.

TIYPE OF COMPANY: Start-up.

BUSINESS MODEL : B2B

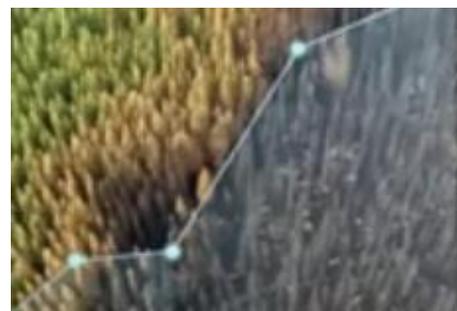
PROJECT DEVELOPMENT STAGE: Early stage.

TARGET CLIENTS / USERS: Anyone with a need to apply sustainable solutions or with an interest in measuring and optimising at implementation stages.

DIAGNOSIS SISTÉMICA

Diagnosis Sistémica uses environmental strategy solutions, based on water use and ecosystem regeneration solutions, supported by Big Data.

Diagnosis Sistémica (Systemic Diagnosis) consists of the technological implementation and integration of environmental strategy solutions to cope with fires and other natural disasters. From an environmental approach and a cooperative integration approach using Big Data, it allows to include solutions and measure their efficiency, to facilitate the implementation stages, and facilitate scalability or better application.



The values of Systemic Diagnosis are transformation, lean methodology, prevention and regeneration of natural spaces. Through a comprehensive and technology-based approach, it allows solutions to be integrated into a timeline by means of real-time diagnosis and optimisation of factors that may be the most decisive. This makes it possible to establish and specify pilot projects for a specific territory and their effective future implementation of protocols.

Faced with the environmental problem of wildfires in Andalusia and the Algarve, Diagnosis Sistémica proposes a holistic approach to protect, restore and promote sustainability and collaborate in the fight against climate change. This proposal is based on acting with a medium and long-term approach, focusing on prevention, early detection and regeneration, evaluating and optimising applications in the field where the implementation of the know-how of specific parameters is key to achieving reliable results. With the right focus and filtering of information, we achieve the optimisation of concrete results.

To this end, it is based on a system for monitoring and analysing processes in real time using Big Data and an interface that allows KPIs - soil humidification, temperature, environmental factors and other variables - to be analysed using algorithms. In addition, the effectiveness rate of these parameters and their optimisation can be determined. An example of application is the regeneration and implementation of the "Miyawaki Reforestation method", which allows for the reforestation of at-risk areas in a shorter period of time. Acting on the causes, such as the density of forests and their degree of humidification as a determining factor. The implementation of solutions, avoiding the causes, allows for an effective approach which, when measured and optimised, guarantees the implementation phases.

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PROJECT SUMMARY

Comodín devices are the only ergonomic handles on the market that adapt to all types of utensils and can be adjusted to the height of the professional.

PROBLEM

Work absenteeism due to musculoskeletal injuries caused by poor handling of firefighting equipment and tools.

SOLUTION

Ergonomic handle design with directional articulation reduces the ergonomic risks of manual work, reducing fatigue and increasing performance.

DESCRIPTION

The Comodin devices have improved ergonomics, grip, handling and transport, prevent injuries and allow better control and technique, increased performance, reduced muscle fatigue. In addition, they correct incorrect postures of the back and extremities and are suitable for both left and right-handed users. In terms of fire protection, they have TOT-TRITON, devices for forestry tools and spearhead maneuvering tools that relax the force thanks to its silentblock system that allows it to absorb vibrations and shocks, thus achieving higher performance while reducing fatigue time.

MARKET: Public and private sector.

TIYPE OF COMPANY: S.L.

BUSINESS MODEL : Design and development of ergonomic handles.

PROJECT DEVELOPMENT STAGE: Sales Expansion.

TARGET CLIENTS / USERS: Professionals in the sector, public and private entities.



The company designs ergonomics with directional hinges that reduce the ergonomic risks of manual work and operator injuries.

Dispositivos Comodín (Comodín Devices) is a company dedicated to the manufacture of universal instruments designed to reduce musculoskeletal injuries for work tools that require effort. The company manufactures ergonomic handles on the market that adapt to all types of tools and can be adjusted to suit the needs of professionals.



Its innovative products in ergonomic matters are the Universal TOT Model, designed for tools related to lever work; the Universal TEC Model, created for tools that require technique and power; the Universal LIG Model, for all types of tools that require more efficient work due to the speed in the functionality of the tool, and the Universal VIT Model, aimed at all types of tools related to painting, gardening, cleaning floors, walls and glass, etc. In terms of fire protection, they have TOT- TRITON v2, a spearhead maneuvering device that saves water, reduces the number of operators, reduces stress in high-risk circumstances and provides ergonomic assistance in line transfers. In addition, they are designed for both left and right-handed users.

Thanks to improved ergonomics, grip, handling and transport, these handles prevent injuries and allow for better control and technique, increased performance, reduced muscle fatigue. In addition, they correct incorrect postures of the back and limbs. This reduces absenteeism from work due to musculoskeletal injuries caused by poor handling of equipment and tools in firefighting, especially due to incorrect postures when carrying out the usual tasks of the professional in forest fires, such as lifting weights that cause trauma to the head, arms, legs, hands and back.

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PROJECT SUMMARY

Drone Hopper designs and produces high payload drones to replace the aerial means used to date in firefighting, making it possible to carry out many aerial jobs that are not being done today and to replace other more expensive ones that already exist.

PROBLEM

Increase in wildfires, which entails high costs in terms of economic and natural resources.

SOLUTION

DRONE HOPPER develops a pioneering platform, a multi-rotor UAV, which uses disruptive and proprietary technology that allows it to differentiate itself from the rest of the solutions offered by competitors in the sector.

DESCRIPTION

Drone Hopper works in the design and manufacture of high payload drones for firefighting, with night operation, logistics solutions for heavy cargo transport and urban mobility, as well as aerial spraying of large crops. With a unique differential proposal and patented technology, Drone Hopper has an SME Instrument - Horizon 2020, phase 1 and 2 approved by the European Commission.

MARKET: Public and private sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : B2B.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: Firefighters, civil protection, forest brigades, governments.

DH

DRONE HOPPER

Drone Hopper works in the design and manufacture of high payload drones for firefighting. A novel, efficient and viable solution for the market.

DRONE HOPPER is a Spanish aeronautical engineering company that manufactures industrial drones with high load capacity and autonomy thanks to the use of thermal engines. Specialised in the manufacture and commercialisation of drones for fire control and extinguishing, with night operation, logistics solutions for heavy load transport and urban mobility, as well as aerial spraying of large-scale crops.



The EU-funded WILD HOPPER project is developing a pioneering platform for forest firefighting, a multi-rotor UAV, using proprietary technology capable of overcoming the main technological barrier in the sector, the lack of electric batteries capable of delivering the necessary payload and flight time.

DRONE HOPPER has developed a unique attitude control system capable of stabilizing the aircraft using high inertia, low response motors and a patented water misting system critical to ensuring the viability and success of the project.

The WILD HOPPER can transport 600 liters in a 30-minute operation, covering an area of 2,000m², which would be equivalent to the performance of a 5,500-litre seaplane, all without putting human lives at risk (while a seaplane needs a pilot, with drones, a single person can remotely pilot the device or devices). Moreover, with these conventional aircraft, it takes 30 to 40 minutes between launches, whereas our solution would reduce this to 20 minutes.

Its unique value proposition makes Drone Hopper one of the most innovative, efficient, viable and cost-effective aerial firefighting solutions available on the market.

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PROJECT SUMMARY

EHS VR offers virtual reality experiences so companies can provide risk situations training to their employees without actually risking their lives. The training includes situations of first aid, fire and evacuation, among others.

PROBLEM

Danger of training in real risk situations, as well as lack of time and the high costs that those trainings imply.

SOLUTION

Virtual reality platform to offer quality training for dangerous jobs in a shorter period of time and at a lower cost, without risking human lives.

DESCRIPTION

EHS VR offers virtual reality experiences so companies can provide risk situations training to their employees without actually risking their lives. EHS VR virtual reality applications present dangerous and life-threatening situations in a safe and controlled environment under professional supervision, combining high-quality 360-degree video images taken with teams of professional actors and specialists on the locations.

MARKET: Public and private sector.

TYPE OF ENTERPRISE: SME.

BUISNESS MODEL: B2B.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS Corporate and SME clients and health and safety training providers.



EHS VR helps companies reduce the number of accidents at work by providing a virtual reality platform for training in risk situations.

EHS VR has developed a platform with several virtual reality (VR) applications to facilitate the training in health and safety. Through the use of VR, users are plunged in immersive worlds to complete step-by-step scenarios and learn security best practices through hands-on experience. The scenarios are specifically designed to convey emotions, so the level of memory retention increases, as well as the confidence of employees to apply new knowledge in real life.



EHS VR virtual reality applications depict dangerous and life-threatening situations in a safe and controlled environment under professional supervision. Training topics include: first aid, fire training, evacuation, treating burns, fractures, best practices and hazards of forklift trucks operation, and evacuation.

EHS VR virtual reality headsets are autonomous, portable, and easy to deploy in remote locations without the need for additional hardware. This enables you to streamline workforce onboarding and training at scale in multiple locations at once .

EHS VR experiences combine high-quality 360-degree video footage shot with teams of professional actors and specialists on the locations. In this way, 3D virtual scenes are used instead of real environments, allowing the highest possible quality training to be offered in the shortest time and at the lowest cost.

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AIOSAT

Autonomous Indoor/Outdoor Safety Tracking system



PROJECT SUMMARY

IntegrasyS has participated in the H2020 project AIOSAT, an autonomous indoor and rural rescue and security equipment location system, to create an integrated solution that enables communication and tracking in any location and in difficult conditions, while facilitating deployment and interoperability.

PROBLEM

Data communication system deficiencies in isolated rural and adverse urban spaces, such as basements, and their exposure to being destroyed by fire.

SOLUTION

Combination of short/medium communications to facilitate communication in any location and in harsh conditions, deployment and interoperability with various sensors, including positioning sensors.

DESCRIPTION

AIOSAT (Autonomous Indoor and Outdoor Security Tracking System) creates an integrated solution to address the limitations of rescue communication infrastructures, through an innovative tracking and alerting system based on the combination of different technologies (Galileo, GPS, EGNOS inertial sensors, and RF signal) which, together with a self-deployable communication network, makes the location of operators accurate, robust, immediate and available in very adverse conditions.

MARKET: Public and private sector.

TYPE OF ENTERPRISE: SME.

BUSINESS MODELL: B2B.

PROJECT DEVELOPMENT STAGE : Prototype.

TARGET CLIENTS / USERS: System integrators selling communication solutions to emergency responders (fire setters, rescue and lifesaving teams).



AIOSAT is a stand-alone indoor security tracking system to create an integrated solution that enables communication in any location and in challenging conditions, while facilitating deployment and interoperability.

Establishing a communications infrastructure in emergency response is as necessary as it is challenging in firefighting. Data communications systems rely heavily on deployed national networks, which may have shadows in rural settings. In addition, such infrastructure can be destroyed by the fire itself.

The current communication infrastructure used by professional teams is mainly prepared for voice transmissions, and makes it difficult to transport digital information from different sources, so there is no interoperability with new communication systems. This means that very expensive proprietary solutions are currently needed to establish a minimum communication infrastructure.



Given the shortcomings of the communication system, AIOSAT was born, an autonomous indoor and outdoor security tracking system that provides an integrated solution to address the limitations of communication infrastructures for rescue, through an innovative tracking and alert system based on the combination of different technologies (Galileo, GPS, EGNOS inertial sensors, and RF signal), which make the location of operators accurate, robust and available in very adverse conditions.

It is a single integrated solution that could gather information from all types of sensors - body, vehicle or fixed deployed sensors - and transmit it to a central location anywhere in the world. This solution is satellite-integrated, which is especially necessary in very isolated areas.

This combination of communications infrastructure and tracking system makes AIOSAT one of the most promising positioning systems for firefighting, working in an environment where other systems do not work.

INTEGRASIS S.A.

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I-SEE

PROJECT SUMMARY

I-SEE designs and manufactures low cost but high-performance airborne (light aircraft and drone named IC-10) capable of intervening in the 3 segments (prevention, detection and management) in the fight against wildfires.

PROBLEM

Need for technologies capable of intervening in the three areas of forest fire fighting: prevention, fire detection and mass attack and fire management.

SOLUTION

Use of innovative technologies to enable data analysis using advanced sensors, aerial detection patrol using I-SEE aircraft or drones and communications operator with the Operational Fire and Rescue Centres.

DESCRIPTION

The intrinsic innovation of the scientific aerial observation covered by I-SEE lie in the use of light and inexpensive airborne means (aircraft & UAV), made possible by the recent miniaturization of the latest airborne sensors, without compromising their performance. These innovative tools respond to the need for more precise, rapid and efficient management of phases A (Prevention), B (Fire Detection & Massive Attack) and C (Wildfire Management), by collecting, processing and analysing the aerial data with the latest advance technologies, such as Big Data, Augmented Reality and Artificial Intelligence.

MARKET: Public and private sector.

TYPE OF ENTERPRISE: Start-up.

BUSINESS MODEL: B2B.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: System integrators selling communication solutions to emergency responders (fire setters, rescue and lifesaving teams).

I-SEE

I-SEE designs and manufactures low-cost, high-performance aircraft capable of intervening in the prevention, detection and management phases of forest fires.

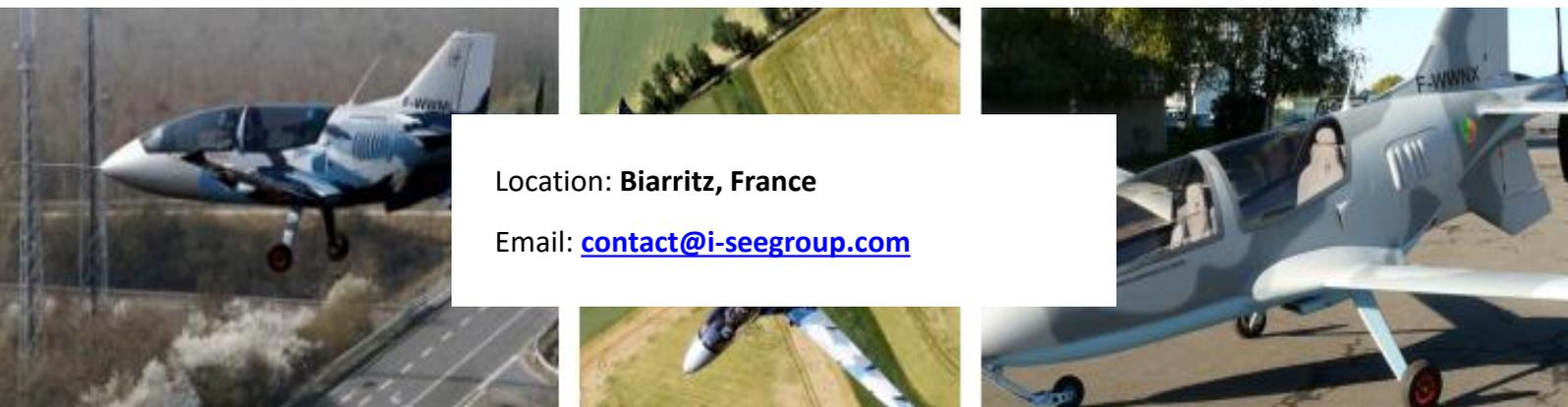
Each year, global wildfires burn roughly 350 million hectares of land — an area more than five times the size of Texas. The current scientific consensus is that wildfire risk will increase in many regions of the world as climate change leads to warmer temperatures, more frequent droughts, and changing precipitation patterns. Fires are expected to become more frequent and intense, and fire seasons are projected to last longer. Additionally, more areas are expected to face fire risk, and scientists expect an increase in fire sizes (in terms of area burned).



To cope with this situation and taking into account the high costs involved, both economic and human security, I-SEE designs and manufactures low cost but high-performance airborne (light aircraft and drone named IC-10) capable of intervening in the prevention, detection and management areas in the fight against wildfires.

I-SEE airbornes cover the 3 main fields of scientific aerial observation: development, manufacturing and operation of high-performance light airborne (aircraft & drone) and sensors for scientific aerial work; processing and analysis of aerial data collected to feed various sustainable development platforms (i.e. collection of "Big Data"); and post-processing and presentation of the data collected is then adapted to the user (in real time if necessary), by using the latest advance technologies in terms of augmented reality (AR) and decision support provided by Artificial Intelligence (AI).

The innovation of its products lies the use of light and inexpensive airborne means (aircraft & UAV), made possible by the recent miniaturization of the latest airborne sensors, without compromising their performance. The 3 areas mentioned above that have been developed by I-SEE provide innovative tools responding to the need for more precise, rapid and efficient management of phases A (Prevention), B (Fire Detection & Massive Attack) and C (WildFire Management).





PROJECT SUMMARY

Kowat has developed an unmanned vehicle that travels long distances across firebreaks, detecting and attacking vegetation that starts to grow on firebreaks, thus preventing the formation of weeds and keeping the firebreaks clean and safe.

PROBLEM

Accumulation of vegetation fuel in increasingly arid forests, leading to mega forest fires.

SOLUTION

Development of an unmanned vehicle that prevents the formation of vegetable material through thermal control and artificial vision, keeping firebreaks clean.

DESCRIPTION

Kowat has developed a rover that prevents the formation of vegetation on firebreaks using an innovative thermal control system and artificial vision with RGB models. The vehicle is guided by satellite to position itself above the weeds and attack it, causing intensive damage and desiccation sufficient to prevent their development.

MARKET: Public sector.

TIYPE OF ENTERPRISE: Start-up.

BUSINESS MODEL: Sale and maintenance of unmanned land vehicles.

PROJECT DEVELOPMENT STAGE: R&D in sales.

TARGET CLIENTS / USERSS: Public administration.



Kowat has developed a rover that prevents the formation of vegetable material through thermal control and artificial vision with RGB models, in order to keep firebreaks clean.

Climate change and the abandonment of the countryside are causing the accumulation of plant fuel in forests that, subjected to extreme aridity, have led to a new generation of mega wildfires that are becoming more intense, more virulent and more difficult to extinguish.

To prevent the spread of these fires, Kowat has developed a system that keeps fire breaks clean.



The system consists of an unmanned forestry vehicle that, through thermal control and without herbicides, attacks weeds during the early stages of germination, preventing the formation of vegetable material to keep firebreaks clean

This autopilot-driven vehicle uses RGB models that search for the material to be combated. When its vision cameras locate the plant to be exterminated within a predetermined radius, the rover is guided by satellite to position itself on top of the plant, causing enough intensive damage and desiccation to prevent it from growing.

The Kowat rover is electric/solar powered and can travel hundreds of kilometres, preventing forest mass formation in firebreaks by thermal methods. This represents a major cost saving for public administrations, allowing millions of hectares and thousands of kilometres of forest roads to be protected with the use of a single system.

Kowat develops sustainable solutions based on nature. To do so, it researches and develops natural systems and ecosystems that have been functioning for millions of years, copying the biotopic laws in which it must intervene. Using biometrics, its designs optimise nature's obsolete but robust technology.

Kowat is currently developing an unmanned land vehicle based on hymenopteran behaviour that reduces the virulence of sixth-generation fires, which could exponentially improve the system's performance.

Location: **Calle Esteve Terrades, nº 1. Edificio
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Barcelona, Spain**

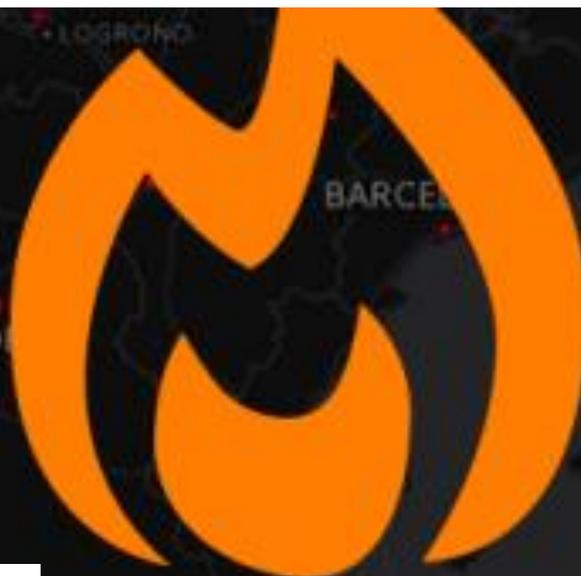
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INCENDIOS en TIEMPO REAL



PROJECT SUMMARY

Drawing of maps via satellite that allow to follow in real time the evolution of forest fires.

PROBLEM

Wildfire rise and inability for their rapid detection and tacking.

SOLUTION

Maps via satellite that allow to follow the evolution in real time.

DESCRIPTION

The map combines the use of official data on fires in Spain collected by NASA's VIIRS (Visible Infrared Imaging Radiometer). A sensor that allows, among other things, to detect fires. The satellite allows you to follow the information in real time and analyse the data in different time zones.

MARKET: Public and private sector.

TYPE OF ENTERPRISE: Freelance.

BUSINESS MODEL: Custom map design.

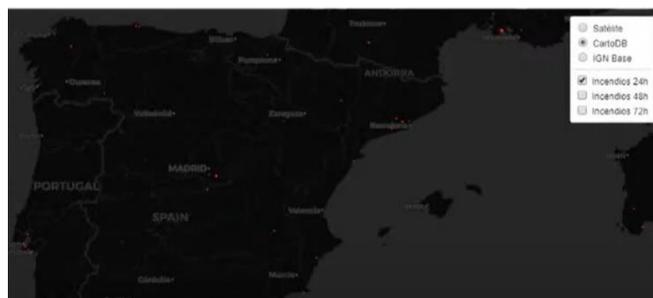
PROJECT DEVELOPMENT STAGE: Finished Product.

TARGET CLIENTS / USERSS: Public administration and private sector.



Drawing of maps via satellite that allow to follow in real time the evolution of forest fires.

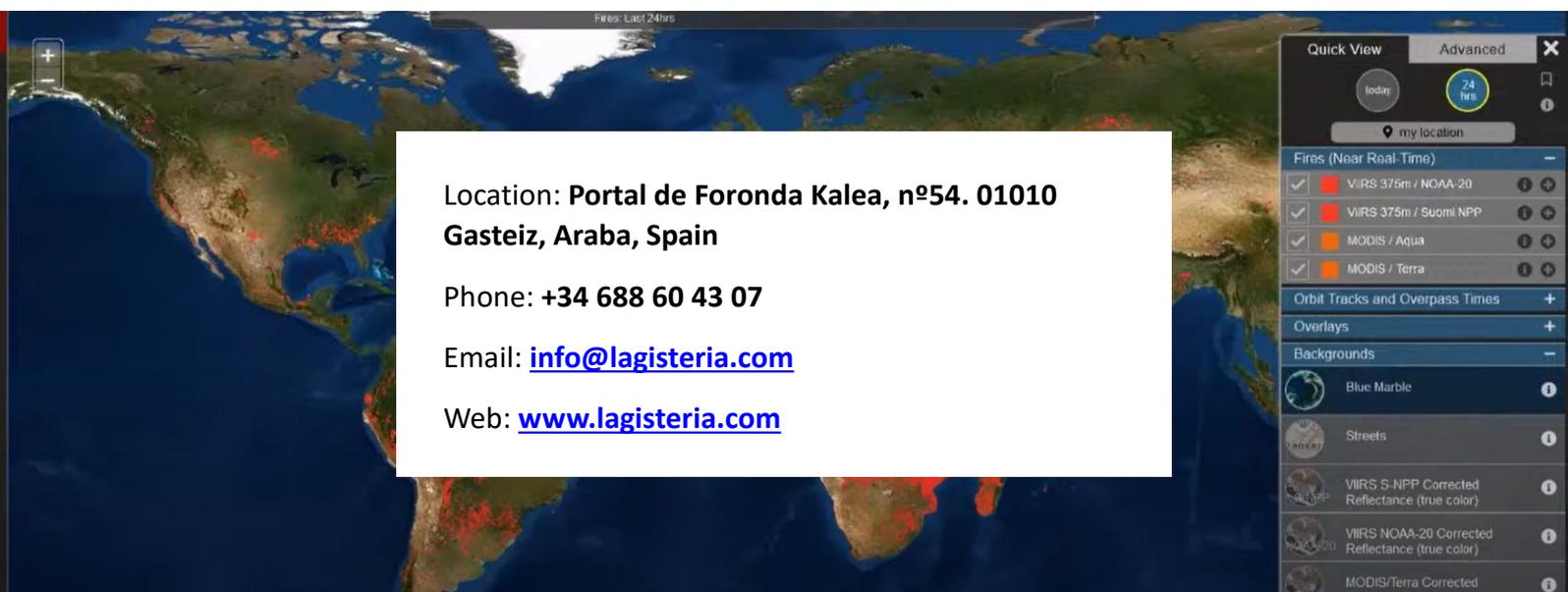
La GISTería has created a satellite map that allows to follow in real time the evolution of fires. The company is an expert in preparing all kinds of satellite maps: current affairs, location, routes, roads, events, political, meteorological, toponyms and, as already mentioned, fires.



The map combines the use of official data on fires in Spain collected by NASA's VIIRS (Visible Infrared Imaging Radiometer), a sensor that allows, among other things, to detect fires and that is hosted on the Suomi NPP satellite.

The map allows you to select the time interval - 24h or 48h - to visualise how many fires are being recorded and in which exact locations in Spain.

According to La GISTería, 80% of the information can be found on a map. Therefore, the role of their maps is to make this information more accessible and easier to follow for users who need it.





CAMPO

Reduce el Riesgo de Pérdida



PROJECT SUMMARY

Lluvia Sólida is a potassium-based, degradable, non-soluble and non-toxic granular powder that, when in contact with water, expands and can adsorb up to 400 times its weight in water. It is an alternative to extinguish fires safely and without risking lives.

PROBLEM

Increase in wildfires, which entails high costs in terms of economic and natural resources.

SOLUTION

Innovative product as an alternative for a life-saving way of extinguishing of fires.

DESCRIPTION

Lluvia Sólida is an innovative product with the capacity to retain up to 400 times its weight in water and which acts as a fire-stopping stream. Due to its characteristics and proven experience, it is expected that, when dropped from the air, it would achieve the objective of extinguishing fires, as an alternative to existing methods. This product can be used to rehabilitate damaged areas, increasing the survival rate of reforested trees by 60%.

MARKET: public and private sector.

TYPE OF ENTERPRISE: SME.

BUSINESS MODEL : Conferences, consultancy, direct sales, e-commerce and distributors (7 nationals and 3 foreigners).

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: Firefighters, Civil Defence, forestry brigades, municipal, state and federal governments, non-governmental organisations and private and public reforestation campaigns.



Potassium-based, degradable, non-soluble and non-toxic granular powder that, when in contact with water, expands and adsorbs up to 400 times its weight in water.

Firefighting is not only an environmental problem, it also consumes economic resources and puts the lives of firefighters and volunteers at risk. In the process, thousands of hectares of forests and woodlands are lost, as well as the lives of animals and people get. On top of all this, there is an enormous waste of water, time and resources.

In response to this problem, Lluvia Sólida (Solid rain) was created, a potassium-based, degradable, non-soluble and non-toxic granular powder which, when it comes into contact with water, expands and allows it to adsorb up to 400 times its weight in water.



This allows the fire to be extinguished by the retained moisture in the product, acting as a firebreak when it comes into contact with the fire.

In addition, Lluvia Sólida can be used to rehabilitate the damaged area for reforested trees, increasing the survival rate by up to 80%. Its method of use is very simple: it consists of dropping the granular powder from the air to extinguish fires, as if it were water from seaplanes. In addition, this product can be used to rehabilitate disaster areas.

The aim of the product is not only firefighting as such, but also to create a culture of appreciation and optimisation of water savings. In fact, Lluvia Sólida allows a reduction of crop irrigation of up to 90%. In this way, Lluvia Sólida offers its customers sustainable quality product solutions and services that help to promote environmental care.

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MTCSoft
 software a medida

PROJECT SUMMARY

Forest fire fighting system based on a swarm of large drones coordinated by a control software to systematically launch bags of water over the fire, 24 hours a day, without risking the lives of the pilots and at a much lower operational cost.

PROBLEM

Necessity to introduce new tools and technologies to fight against forest fire in a safer and cheaper way.

SOLUTION

Use of drones in extinguishing work, replacing traditional means, with a software for systematic water discharge at the chosen point.

DESCRIPTION

Innovative solution for the extinction of forest fires through the use of unmanned vehicles (drones) to replace the firefighters themselves or traditional aerial means (helicopters and airplanes). These drones are coordinated by a control software to systematically launch bags of water over the fire, 24 hours a day, without risking the lives of the pilots and at a much lower operational cost.

MARKET: Public and private sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : Prototype.

PROJECT DEVELOPMENT STAGE: Project idea.

TARGET CLIENTS / USERS: Firefighting teams; national, regional and local entities.



MTC Soft is developing a forest fire fighting system based on a swarm of large drones coordinated by a control software to systematically launch bags of water over the fire, 24 h/day, without risking the lives of the pilots and at a much lower operational cost.

Forest fires are a major problem in countries of the Mediterranean arch, not only because of their environmental consequences, but also because of the great economic and social impact in the areas where they occur.

The extinguishing of some fires is extremely difficult and expensive due to the difficulty of access to the front of the fire, frequently in mountainous areas with a difficult or impossible access for conventional fire teams. With regard to aerial means, these are extraordinarily expensive and relatively efficient, besides the fact that they put pilots at risk.



For this reason, MTC Soft is developing a forest fire fighting system made up of drones. These are coordinated by a control software to systematically launch bags of water over the fire, 24 hours a day, without risking the lives of the pilots at a much lower operational cost. Although the use of drones in firefighting is not new, they are mainly used in fire detection, through infrared cameras, to support firefighters in identifying the fire with video cameras.

The main novelty of the MTC Soft project is to use drones in firefighting tasks, replacing the firefighters themselves or traditional aerial means. In this way, a squadron is created and regulated by air traffic control software that, operated by one or two pilots, allows the 15-25 drones to be managed in a coordinated manner.

The software must not only take into account the position and speed of each drone at all times, but also anticipate emergency situations to act semi-automatically in the event of any eventuality. In addition, the software is key to achieving a very high rate of continuously unloading water bags at the point chosen by the pilots, 24 hours a day. This system allows a much faster loading than the regular systems used in helicopters and a much greater precision in the discharge over the flames (or the surroundings). The use of biodegradable water bags is another important novelty, since it allows the quick recharge of the drones and that the water reaches the base of the flames, to the ground, without evaporating in the air, which is one of the problems of the discharge of water from helicopters.

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ODDITY

Analytics

Transforming unexpected events into opportunities



ODDITY

Analytics

PROJECT SUMMARY

Oddity Analytics helps to maintain the environment in a cheap and safe way, preventing wildfires, keeping forest rangers safe and optimising forest maintenance costs.

PROBLEM

Increase in wildfires, which entails high costs in terms of economic and natural resources.

SOLUTION

Innovative product as an alternative for a life-saving way of extinguishing of fires.

DESCRIPTION

Oddity's technology would make it possible to locate fires and unusual occurrences in the forest in a very cheap, fast and safe way by using appropriate algorithms through the most modern and advanced techniques on the market. Firefighting-wise, they intend to pilot a forest condition tracking, a monitoring and management system for the prevention of forest fires by detecting fire in aerial images.

MARKET: Public and private sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : B2B.

PROJECT DEVELOPMENT STAGE: Prototype.

TARGET CLIENTS / USERS: Rangers, national parks, areas open to tourism.



Oddity Analytics helps to maintain the environment in a cheap and safe way, preventing wildfires, keeping forest rangers safe and optimising forest maintenance costs.

OdOddity Analytics is an advanced data processing company using Machine Learning and AI to find anomalies in structured and unstructured data in advance in all kinds of situations using specialised algorithms. These algorithms can be used in all kinds of situations: in companies to detect fraud, for predictive maintenance on machines, in cybersecurity, for the detection of harassment on social networks, for the detection of fake news and, above all, to detect fire at its earliest stage.

Oddity's algorithms make it possible to detect in advance, characterise, predict, visualise and prescribe actions to take the best solution when anomalies arise. When it comes to firefighting, they intend to pilot a forest condition tracking, a monitoring and management system for the prevention of forest fires by detecting fire in aerial images. These images will be captured by drones.



With this monitoring system, forest fires can be prevented and, in the event that one does occur, it could remain as a simple outbreak of fire due to the speed of action offered by the solution. In this way, the efficiency of resources inherent in tracking and firefighting tasks is improved by monitoring the condition of forests and firebreaks.

Thus, Oddity's technology would make it possible to locate fires and unusual occurrences in the forest in a very cheap, fast and safe way by using appropriate algorithms through the most modern and advanced techniques on the market.

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Transforma tu proyecto
en una aventura




Play&go
experience

PROJECT SUMMARY

App which includes multiple functions, aimed at raising public awareness of forest fire prevention, at controlling agricultural burning and at specialised training for forestry brigades.

PROBLEM

Need for dynamic and innovative tools for education, awareness-raising and sensitisation of citizens for fire prevention.

SOLUTION

Use of gamification as a tool to improve user experience and interaction with the environment.

DESCRIPTION

Play&go has developed an educational gamification platform on firefighting to provide the necessary knowledge for both forest brigades and citizens through an interactive training system. Gamification is especially useful in the field of IoT for fire early warning, as it transfers the mechanics of games to the educational-professional field in order to achieve better results.

MARKET: National, regional and local.

TIYPE OF COMPANY: Start-up.

BUSINESS MODEL : B2C.

PROJECT DEVELOPMENT STAGE: In the market.

TARGET CLIENTS / USERS: Forest brigades, citizens.



App which uses gamification to raise public awareness of wildfire prevention, control of agricultural burns and specialised training for forest brigades.

Play&go Experience is a company that creates gamified experiences that connect the physical and digital worlds. The company designs and develops gamified guides, intelligent platforms and online training that offer a different experience, connecting the physical and digital worlds.



The company's activity is focused on programming, design, development and exploitation of technological solutions. The products it offers are based on improving the user experience and the results of organisations, gamifying the real world and obtaining data (anonymised and aggregated) of great value for improving decision-making.

The innovation and value proposal is given by the combination of gamification, geolocation and augmented reality in a unique way to improve the user experience and their interaction with the environment. This use of digital tools makes it possible to motivate and retain knowledge in an innovative and disruptive way that adapts to the new times and the latest technologies.

Through these game dynamics, the user is emotionally linked to a product, service or territory, while their behaviour as a player allows us to get to know them, improve their experience and increase their level of commitment.

Through the game, aggregated data on user behaviour is obtained, which is transformed into knowledge with algorithms based on artificial intelligence and Business Intelligence tools, to improve the product and help decision-making.

This is especially useful in the field of IoT for fire early warning: Play&go has developed an educational gamification platform on firefighting to provide, through an interactive training system, the necessary knowledge for both forest brigades and citizens. Gamification is a learning technique that transfers the mechanics of games to the educational-professional field in order to achieve better results.

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Pyro Fire Extinction

Improve your Safety



PROJECT SUMMARY

Pyro is a company specialised in forest fire extinction and prevention, working on the design and manufacture of proprietary technologies that enable safer actions, with greater control and effectiveness against forest fires.

Pyro has new, highly efficient, scalable and economically viable technologies that improve safety, the accuracy of the information captured from the environment, rapid fire detection and prompt intervention.

PROBLEM

Improvement of available technologies for fighting forest fires.

SOLUTION

A set of fire prevention, detection and extinguishing solutions, providing new capabilities in each of the phases of a fire emergency.

DESCRIPTION

Pyro is a company specialised in the design and manufacture of its own products applied to the field of Wildfires Control and Extinction, with the aim of introducing new tools that allow safer actions to be carried out, with greater control and efficiency in the protection of natural spaces against the threat of forest fires.

MARKET: Public and private sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : B2B.

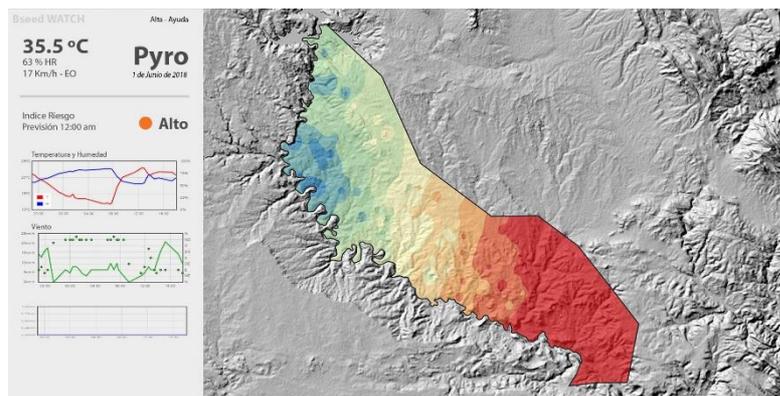
PROJECT DEVELOPMENT STAGE: Commercialisation and scaling-up phase.

TARGET CLIENTS / USERS: Private owners and public administrations.



Pyro Fire Extinction develops control and extinguishing technologies that offer greater capacity to anticipate and respond to fires, creating safer spaces for people and the environment.

Pyro Fire Extinction, S.L.U. specialises in the development of new, highly efficient, scalable and economically viable technologies that improve safety, the accuracy of the information captured from the environment and infrastructure, rapid fire detection and early intervention on the fire. Pyro currently markets its forest fire fighting products in Spain, Mexico, Brazil and Chile.



Bseed WATCH is a forest fire detection system that uses monitoring technology, composed of forest sensors and an on-line platform that collects, stores and displays information in real time. Each sensor is totally independent, capable of measuring, analysing and sending information and alerts autonomously. Bseed WATCH generates local fire risk maps in real time. Risk levels are notified via SMS, email or through an app, allowing appropriate and effective migration measures to be put in place.

On the other hand, the LADO forestry backpack and the Nub-e forestry fire extinguisher are portable equipment that allow highly effective barriers to the advance of the fire, in a few seconds and for a very long duration. This equipment is designed to facilitate a rapid response, increasing safety and performance during containment and extinguishing tasks. Pyro is currently developing sensor systems on board UAVs for forest fire management, within the ETHON-2 project co-funded by the Valencian Innovation Agency.



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PROJECT SUMMARY

Strategy which prevents wildfires and other emergencies, active since October 2018 to date, involving and organising the leaders of the various communities living in areas at risk from forest fires.

PROBLEM

Preventing quickly wildfires breaking out.

SOLUTION

Strategy for remote risk prevention (free of charge) in risk-prone communities through the use of WhatsApp.

DESCRIPTION

Redarquía Preventiva Digital is a new form of collaborative organisation, where we work in networks, in a horizontal and participatory relationship, taking advantage of the boom in the use of basic and simple WhatsApp technology to send messages as quickly as possible and covering large distances, with the active participation of communities living in risk areas to prevent wildfires.

MARKET: National.

TIYPE OF COMPANY: University research project.

BUSINESS MODEL : B2B.

PROJECT DEVELOPMENT STAGE: Early stage.

TARGET CLIENTS / USERS: Communities living, working, transiting or having active links in high fire risk areas.



The project uses the basic and simple technology of WhatsApp, with the active participation of communities living in at-risk areas to prevent wildfires.

Redarquía Preventiva Digital is a new strategy to prevent wildfires and other emergencies, active from October 2018 to date, by involving and organising the leaders of the different communities living in areas at risk from wildfires. The strategy uses the basic and simple technology of WhatsApp, with the active participation of communities living in risk areas to prevent forest fires.



Redarquía is a new form of collaborative organisation, where people work in networks, in a horizontal and participatory relationship, taking advantage of the boom in the use of WhatsApp groups in every organisation (government, diplomats, companies and also in communities living in at-risk zones).

Redarquía's information network brings timely risk prevention to communities living in interface zones by using the most popular global social network (WhatsApp) to deliver messages to communities, taking advantage of its versatility and different sub-applications (text, calls, video calls, GPS and videos).

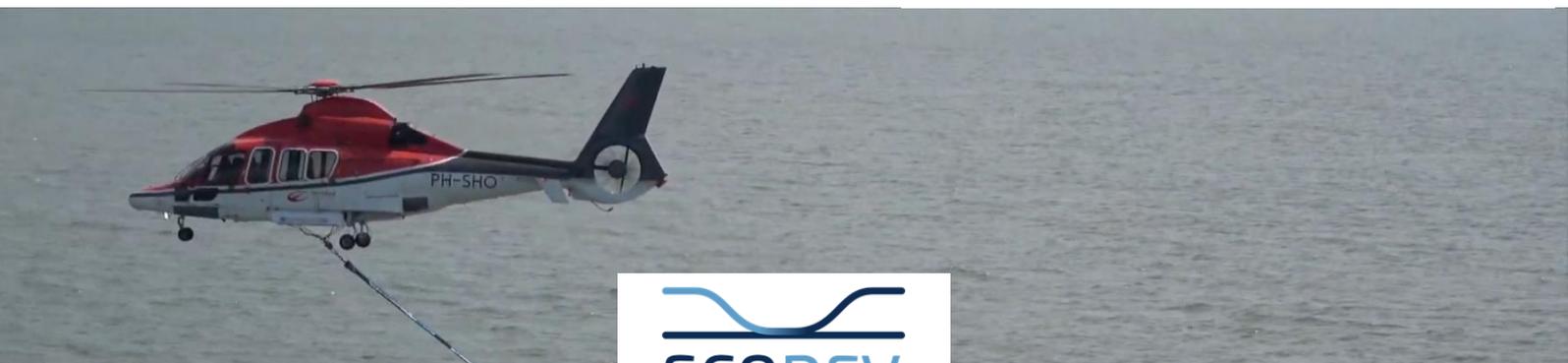
This is a new strategy for remote risk prevention (free of charge) in communities at risk from forest fires. WhatsApp should be used as an additional dissemination tool. Most fire prevention solutions are face-to-face or online workshops, door-to-door leaflet delivery, radio and TV advertisements... However, Redarquía Preventiva Digital uses WhatsApp as a mass medium to send a preventive message that can reach millions of people worldwide.

Location: **Metropolitan Region of Chile.**

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PROJECT SUMMARY

The Scodev is a scooping device that allows non-amphibious aircraft to scoop water from the sea, lakes, rivers or canals flying at an altitude of 10 to 15 metres, in order to discharge it on wildfires an average rate of 5 times per hour.

PROBLEM

Non-amphibious aircraft need to land after each dropping to refill their tanks and return to the burned area, unloading only once per hour.

SOLUTION

Turning non-amphibious aircraft into aircraft that can load tanks by taking water directly from the sea, rivers, canals or lakes, increasing the discharge rate to 5 times per hour.

DESCRIPTION

Scodev is able to adapt non-amphibious aircraft so they can be able to load scoop water inflight and unload water over areas affected by wildfires. This system allows tanks to be loaded over all types of water surfaces, be they sea, rivers, lakes or canals, flying over them at a height of 10 to 15 metres. The water discharge rate of non-amphibious aircraft is increased from 1 to 5 discharges per hour, and in addition, the extinguishing effectiveness is 8 times higher than average. The increased dropping capacity prevents forest fires from becoming uncontrollable.

In addition, Scodev developed the Roll-on Roll-off Tank platform with two tanks and the SCODEV scooping device on top, which can be shifted inside a military or civil cargo aircraft through the rear ramp-door in only one hour and swap role from regular mission into forest fire suppression mission. This increases the worldwide fleet of waterbombers and opens a new service activity for civil cargo aircraft operators.

MARKET: Public Sector.

TIYPE OF COMPANY: Consortium formed by Scodev International BV, Sonaca SA and Jakob Eschbach GmbH.

BUSINESS MODEL : Scodev Operations bv is responsible for worldwide sales of the SCODEV collection device and the RoRo Tank platform. Production is outsourced to aerospace manufacturing companies.

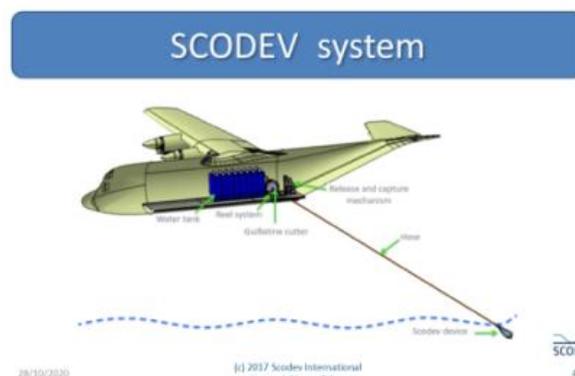
PROJECT DEVELOPMENT STAGE: Testing Phase.

TARGET CLIENTS / USERS: Firefighters, Civil Defense, civil airtanker operators, Air Forces, brigadiers, municipal, state and federal governments.



Scodev system prepares non-amphibious aircraft designed to firefighting tasks by adapting them so that they can scoop water from sea, lakes, rivers or canals from a height of 10 to 15 metres and discharge it on fires up to 5 times per hour.

Firefighting is not only an environmental problem, but also an economic one, as it involves the costly mobilisation of several personnel, including aerial devices specialised in firefighting tasks. For this reason, Scodev has created a cost-saving system that also has an advantage over the control of the fires themselves. This system allows direct attack with water on wildfires in a much faster and more effective way, thus limiting their spread.



This project makes it possible to convert non-amphibious aircraft into aircraft capable of fighting fires. It is a portable device that, when attached to the aircraft, allows the water tanks to be refilled without the need to land, allowing to collect the water needed from the sea, rivers, lakes or canals quickly and safely, to return as quickly as possible to the burned area. In addition, Scodev's system allows up to 5 drops per hour on the fire, a major advance over the hourly drop rate of today's aircrafts. This improves fire suppression efficiency by up to eight times, since the higher the frequency of fire suppression, the better the results.

Scodev's system for this adaptation of non-amphibious aircraft consists of two water tanks inside the fuselage, which are filled by a hose long enough to allow the tanks to be filled while flying at an altitude of 10 to 15 metres.

In addition, Scodev presents a Roll-on Roll-off Tank Platform system that would allow any aircraft, whether for civil or military use, to be converted into a forest firefighting aircraft, which could be a game-changer in the event of large fires.



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PROJECT SUMMARY

The “Firefighter of the Future” Platform is one of key products of SIGMA Consulting. It is an Emergency Management Platform, a Cloud System for supporting and managing emergencies, with a support tool system for the management and coordination of intervention teams in condition of emergency in large outdoor areas and inside buildings.

PROBLEM

There is a need for effective response to emergency situations while protecting forces' health through using of new technologies and communication methods.

SOLUTION

The platform intends to enhance the safety of team members; to minimize damages in the affected areas/buildings; to optimize the action of the employees involved and the use of other emergency tools, and to reduce the cost of intervention service.

DESCRIPTION

The system consists of the following macro-elements:

- 1) a web platform of Lead and Control (a geographic informative system, a documental platform, a DBMS of non-relational objects).
- 2) a mobile Android app, that manages Sensors for the monitoring of biometrical condition and environment variables, means of transport and a system of bidirectional communication.

The main functionalities are: Localization, Communication, Biometric parameters, Environmental conditions. The characteristics are: fitting (wearable, light, compatibility with different situations), Usability, Flexibility, Maintenance.

MARKET: Prevention, Protection, Safety Sector.

TIYPE OF COMPANY: SME.

BUSINESS MODEL : B2B, B2C.

PROJECT DEVELOPMENT STAGE: First customers/market tests.

TARGET CLIENTS / USERS: Prevention, Protection, Safety Sector: Public Security Guard Corps, police, fire fighters, civil protection, relief specialized teams, units for rescue service and emergency operations.



With the modular system of The “Firefighter of the Future”, SIGMA CONSULTING aims to support and manage emergencies, helping the coordination of intervention teams in many levels, both in large outdoor areas and inside buildings.

SIGMA CONSULTING Srl is an Italian System Integrator Company, founded in 1998 by highly experienced electronic and information engineers with technical and management skills in the civil and military applications, acquired from top technology companies. Sigma is composed of Electronic and Information engineers with deep experience in systems design and integration.



One of the key products of SIGMA Consulting is “Firefighter of the Future”, an Emergency Management Platform that consists of a Cloud System for supporting and managing emergencies, with a support tool system for the management and coordination of intervention teams in condition of emergency in large outdoor areas and inside buildings. It is composed of a web platform of Lead and Control –a geographic informative system, a documental platform, a DBMS of non-relational objects– and a mobile Android app that manages Sensors for the monitoring of biometrical condition and environment variables, means of transport and a system of bidirectional communication. Its main functionalities are: location, communication, biometric parameters and environmental conditions.

The platform intends to enhance the safety of team members; minimize damages in the affected areas/buildings; optimize the action of the employees involved and the use of other emergency tools, and reduce the cost of intervention service. To this end, this system is characterised by its suitability (wearable, light, compatibility with different situations), usability, flexibility and ease of maintenance.

In addition, the platform allows Real-time Positioning and Tracking of all firefighters of the team, in open areas and within buildings, also in absence of GPS signal; Near real-time update rate toward the ICO and the global network, and Heterogeneous data transfer (voice, small data, videos). Also, a set of signal routers (beacons) can be carried by the firefighter and deployed in case of excessive communication degradation. Finally, the platform provides Remote monitoring of physical parameters (ex. heart rate, body temperature, breathing rate available for ICO and firefighter him/herself) and automatic alert generation by out-of-threshold physic parameters.

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Web: www.sigmaconsulting.it



PROJECT SUMMARY

This project aims to manage forest fires, both in terms of prevention and extinction, based on the collection of data through sensors on board UAS/UAV drones (LiDAR, hyperspectral/multispectral, thermographic, RGB) and the application of AI tools and innovative technology that will allow the analysis of all this physical/biological data for efficient forest management.

PROBLEM

A large part of the forest mass in Spain and other territories are not well related and there is no practical knowledge of their forest inventory and assessment (dasometry) and biomass stock.

SOLUTION

This project aims to provide information on the state of the forest areas under study, which can be applied in the prevention of forest fires and also to generate knowledge and assistance in the procedures for action in the event of active forest fires.

DESCRIPTION

The idea of this project is to automate processing and increase precision in order to estimate key indicators in forest management through artificial intelligence. To do this, Tecnofly uses drones with remote sensing sensors to provide valuable information to forest managers to avoid as far as possible the fatalities caused by forest fires. Aerial remote sensing can be used to estimate the stocks of phytovolume, the state of vegetation and forest biomass inventoried in the sampling area, for the correct management in order to avoid the so feared and catastrophic forest fires.

MARKET: Forest management.

TIYPE OF COMPANY: SME.

BUSINESS MODEL: Prototype.

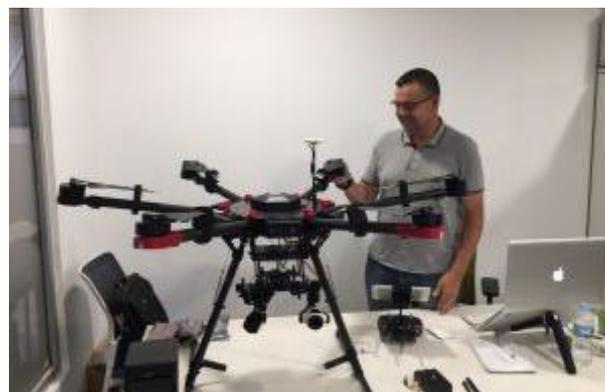
PROJECT DEVELOPMENT STAGE: First customers/market testing.

TARGET CLIENTS / USERS: Managers of forest environments, both public and private.



Tecnofly uses drones with remote sensing sensors that provide key information on the state of the phytovolume and biomass to forest managers.

A large part of the forest stands in Spain and other territories are not well related and there is no practical knowledge of their forest inventory and assessment (dasometry) and biomass stock. This lack of information leads to a less effective management of forest environments, exposing them to fires and other fatalities.



For this reason, Tecnofly aims to provide information on the state of the forest areas under study, which can be applied to forest fire prevention and to generate knowledge and assistance in the procedures for action in the event of active forest fires.

To do this, Tecnofly uses drones with remote sensing sensors to automate processing and increase precision in order to estimate key indicators in forest management through artificial intelligence. This automation of processing increases the accuracy of forest management. It can greatly help to extrapolate volume and biomass densities generated by field-based measurements obtained in repeated assessments over time, in order to estimate changes in volume and biomass and to stratify the analysis of field data.

By capturing data using different types of sensors (LiDAR, hyperspectral/multispectral, thermographic, RGB) and applying AI tools, Tecnofly obtains sufficient data to estimate the phytovolume stocks, vegetation status and forest biomass inventoried from the sampling area.



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UFFIRE

PROJECT SUMMARY

UFFire was created to help tackle the threat of wildfires. By developing lightweight, self-contained high-tech solutions, UFFire is creating a new category of fire suppression technology as an alternative to conventional means.

PROBLEM

Wildfires boom that implies high costs of economic and natural resources. Inefficiency of conventional methods.

SOLUTION

Wildfire fighting technology without water. Very convenient to use with drones and fire trucks.

DESCRIPTION

Innovative solution as an alternative to traditional wildfire fighting: forest fire smoke is filtered, then pressurized and gases are used to alleviate the fire, the lack of oxygen in the gases reduces combustion. A more effective and resistant extinguishing system is created especially in those places where water is scarce in vulnerable landscapes. It is a less physically demanding and longer lasting tool.

MARKET: National.

TIYPE OF COMPANY: Start-up.

BUSINESS MODEL : Prototype.

PROJECT DEVELOPMENT STAGE: 2 patents and a pilot.

TARGET CLIENTS / USERS: Military forces and firefighters.

UFFIRE

By developing lightweight and self-contained high-tech solutions, UFFire is creating a whole new category of fire suppression technology as an alternative to conventional means, without the need to use water.

The rise in wildfires, which involve high costs of economic and natural resources, and the proven inefficiency of conventional methods to deal with them, have led UFFire to develop an innovative technology that uses the smoke from the fires themselves to extinguish the flames, as an alternative to traditional wildfire fighting.



This technology consists of a 9 kg portable backpack that filters forest fire smoke to pressurize it and use its own CO₂ to interrupt the combustion process and alleviate the fire. The process is developed and patented, does not consume water or chemical agents and it lasts for more than 5 hours before the battery needs to be recharged. No chemicals are consumed or released by the device and it does not generate extra CO₂, it only uses CO₂ already generated by the fire.

This makes it possible to create a more effective and resistant extinguishing system, since it allows it not to be vulnerable to logistics problems. This is an entirely new category of wildfire fighting equipment that will be very important in remote or dry regions where water is not available to fight fires, either due to proximity or inaccessible terrain. In addition, this tool is less physically demanding and has a longer duration.

UFFire's technology can be expanded for mounting on drones or Quad ATVs, and even heavy fire trucks. In these cases, the pressure acts as an additional tool to quickly cut through firebreaks and clear vegetation.

By developing lightweight and self-contained high-tech solutions, UFFire is creating a whole new category of fire suppression technology as an alternative to conventional means and in a more efficient, durable, and inexpensive way.

Location: **Madrid, Spain.**

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Web: www.uffire.com/es.html

ORGANISATIONS AND PROJECTS THAT COLLABORATE WITH THE ACCELERATOR





Balkan-Mediterranean
DISARM

PROJECT SUMMARY

DISARM (**D**rought and **f**ire **ob**Servatory and **e**Arly **wa**Rning **sy**ste**M**) is an Interreg Balkan-Mediterranean project aiming to develop, validate and apply state-of-the-art observation and modelling techniques to help forest authorities to better prevent, address and mitigate the adverse impacts of droughts and forest fires, as well as to monitor their increased intensity due to climate change. DISARM uses state-of-the-art observation and modelling techniques in order to build a common prevention and mitigation framework for the south-eastern Mediterranean, integrated in a unique platform: the "DISARM Early Warning System".

GENERAL AIM

To provide an innovative and integrated observation and early warning system that serves as a key tool to protect the environment and, consequently, to promote sustainable development in the vulnerable south-eastern Mediterranean region.

SPECIFIC OBJECTIVES

1. Taxonomy of the environmental conditions and landscape metrics prevailing in the affected areas.
2. Assessment of rural land change due to urbanisation.
3. Spatial and temporal assessment of current and projected climate change, including its impacts.
4. User 's needs analysis.
5. Promoting transnational cooperation to harmonise existing tools and practices and to develop new ones.
6. Joint planning and pilot testing of new services.

EXPECTED RESULTS

1. Drought and forest fire risk assessment indices derived from the use of ground and satellite data. These indices will be developed through trans-national cooperation with the aim of harmonising existing methods and developing new ones.
2. Modelling system for long-term (monthly) and short-term (up to 5 days) forecasting of drought and forest fire risk. This system will be jointly planned and implemented in all participating countries.
3. Rapid response modelling system for very short-term prediction of forest fire behaviour. This system shall be jointly designed and operated for all participating countries.
4. Platform for future (decadal) drought and wildfire risk assessment based on climate change scenario analysis.
5. Desktop and mobile application. It will be used to disseminate the project's products, but, above all, it will act as a means of crowdsourcing. In particular, the proposed mobile application will allow citizens to report on the presence and location of accumulated dead biomass, as well as on the notification of forest fires.
6. Comprehensive documentation reporting on all aspects of the activities carried out. This documentation shall include both technical reports and articles published in international peer-reviewed scientific journals.
7. Raising public awareness and promoting active public participation in environmental protection, through the use of web and mobile technologies.
8. Validation of the integrated observatory and warning system.
9. Developing a community of practice.



WORK PACKAGES

WP1.- It includes all management actions required by the project: organizing, monitoring and acting on all WP activities, ensuring the overall integrity of the WP and the collaboration between partners (both during and after the project), reporting on the progress of the work, checking and reviewing all results, organizing regular meetings and carrying out the financial administration of the project.

WP2.- It includes dissemination actions that aim to promote the publicity of the project and increase public awareness of the project results. Specific tasks to be carried out include organization of at least 1 training workshop per country with the participation of public and/or private authorities, organization of public inclusion events, press releases, dissemination of promotional material, development of the project website, participation in national/international conferences and submission of publications to international scientific journals.

WP3.- Includes all actions related to the design, development and integration of the observatory and early warning system, as well as the procurement of all necessary software/hardware and other scientific equipment.

WP4.- Includes estimation of drought/fire risk in the study area for the next 50 years, based on available regional climate simulations, as well as procurement of software/hardware and other scientific equipment.

WP5.- It includes the realization of the observatory and the early warning system. A desktop and mobile application will be developed. This application (available in all partner languages) will include information on current status and forecasts of fire/drought vulnerability, high-resolution simulations of fire spread in case of significant events, estimates of drought/fire vulnerability for the future, and pre-defined options for users to upload in situ information on dead biomass accumulation and observed fires. In addition, the existing network of weather stations will be extended and/or improved.





KEY COMPONENTS

- forest fire risk assessment tool that will include long- and short-term fire danger forecasting
- near-real-time observatory of forest fire activity
- rapid response forest fire modelling tool to support firefighting operations
- a drought observatory and early warning system for improved drought risk management

END USERS

- regional public authorities,
- civil protection agencies and fire services,
- private sector investors and stakeholders, and
- general public.

BUDGET

1.028.547,50 euros.

LOCATION ACTIVITIES

The project covers the entire territory of the three participating countries: Greece, Bulgaria and Cyprus.

Its successful implementation can serve as an example for the rest of the Balkan region and produce positive long-term results for the entire Balkan and Mediterranean area.

DATES

Project start date: 15-09-2017.

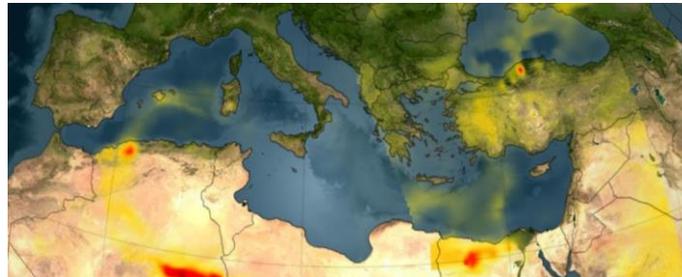
Project end date: 31-12-2019.

PARTNERS

1. National Observatory of Athens, Institute for Environmental Research and Sustainable Development (Greece).
2. National Institute of Meteorology and Hydrology (Bulgaria).
3. Cyprus Meteorological Department (Cyprus).
4. National and Kapodistrian University of Athens (Greece).
5. Cyprus Institute Ltd. (Cyprus).

Better prevent, address and mitigate the adverse impacts of droughts and forest fires.

The DISARM (Drought and fire ObServatory and eArly waRning system) project aims to create an innovative and integrated observation platform and early warning system to serve as a key tool for environmental protection, thus promoting sustainable development in Greece, Bulgaria and Cyprus.



Using state-of-the-art approaches, DISARM contributes to drought and forest fire risk prediction in the Balkan and Mediterranean area, as well as to risk assessment in a changing climate. It also foresees the development of a rapid response system for short-term prediction of forest fire behaviour and the creation of an observatory for near real-time monitoring of forest fire activity. The system is based on the use of high-resolution weather forecasts, forest fire spread models, satellite data for fire detection and biomass estimation, surface observations and monthly forecasting systems. In addition, DISARM includes a desktop and mobile application to disseminate the project results, thus increasing public awareness. This application provides users with a simple tool to report forest fires and the presence of dead biomass, which is of great importance for the ignition of a fire.

Regional authorities, civil protection agencies and fire services increase their capacity to fight forest fires using this system. For their part, the general public and private sector stakeholders will benefit from DISARM using the interactive mobile application, which provides citizens with useful information while actively involving them in the information generation process. Ultimately, the project creates an integrated framework that goes beyond existing practices, uses modern technologies in a smart way and includes civil protection services and the general public in the acquisition and sharing of information.

Location: **Observatorio Nacional de Atenas Instituto de Investigación Medioambiental. Lofos Koufou, Penteli, Atenas, Greece.**

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Web: www.disarmfire.eu



PROJECT SUMMARY

GEFRECON (Joint forest management in order to reduce the risk of forest fires) is a European project of the operational programme EP - INTERREG V A Spain Portugal (POCTEP), led by the Diputación de Ávila, which aims to develop innovative actions to reduce the risk of forest fires in the POCTEP territory, implementing joint plans, raising awareness and informing the population on self-protection or encouraging the creation of forestry companies.

The joint work will be carried out over two and a half years, until 2021, with a budget of 1,000,324.53 euros.

GENERAL AIM

The ultimate objective is to reduce the risk of forest fires in the POCTEP territory, thanks to a joint innovative forest management and the mobilisation of the general population, companies and actors of the territory through awareness raising, information and training.

EXPECTED RESULTS

1. It is expected that more than 300,000 people will be made aware, informed and trained through the activity in the territory where the actions will be carried out, which will be multiplied by three for the population indirectly affected through the maintenance of actions after the end of the project and through the dissemination work carried out.
2. In addition to the population that will benefit from joint plans developed in their territory, joint fire prevention plans will be developed that will include innovative tools and actions, as well as awareness-raising, information and training plans for the general population, companies and actors in the territory.



WORK PACKAGES

WP1.- Development and implementation of joint plans and actions to prevent fires: development of a biomass supply and demand analysis tool in POCTEP territory and courses on its use; identification of best forestry practices for fire prevention and the agents to be involved in their management; development of shared machinery and logistics.

WP2.- Actions to raise public awareness about fires and fire prevention: Awareness-raising plan for the general public and training plan for the creation of forestry companies.

WP3.- Information and training on self-protection against forest fires: Information plan for the general public and training plan for local stakeholders.

WP4.- Management and Coordination.

WP5.- Communication.

END USERS

- general population,
- Companies, and
- stakeholders in the territory.





BUDGET

1.000.324,53 euros.

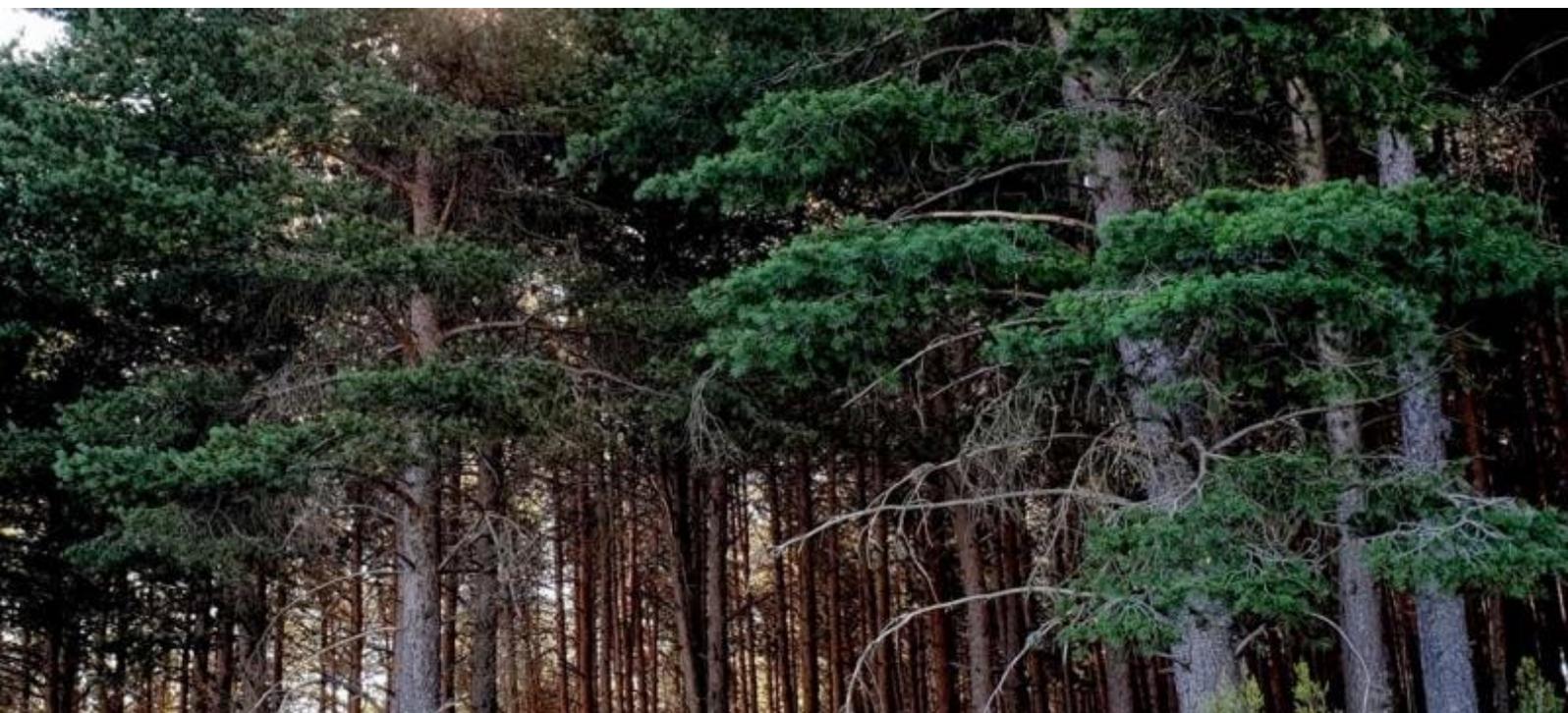
DATES

Project start date: 01/10/2018.

Project end. date: 01/04/2022.

PARTENERS

1. Ávila Provincial Council (Spain) - Lead Partner.
2. Montes de las Navas SA (Spain).
3. CIM Alto Minho (Portugal).
4. Technological Institute of Galicia (ITG) (Spain).
5. Biomass for Energy Centre (CBE) (Portugal).
6. ENERAREA - Inland Regional Energy and Environment Agency (Portugal).
7. RNAE - Association of Energy and Environment Agencies (National Network) (Portugal).
8. Castilla y León Regional Energy Public Entity (EREN) (Spain).
9. Santa María la Real Foundation (Spain).
10. A Coruña Provincial Council (Spain).





Joint Forest Management to reduce the risk of forest fires.

GEFRECON is an Interreg V-A Spain-Portugal (POCTEP) project that aims to promote Joint Forest Management in order to reduce the risk of forest fires between Spain and Portugal, through the mobilisation of resources and promotion to achieve the management of forest territories.

GEFRECON develops innovative joint actions in the cross-border territory to reduce the risk of forest fires through the development and implementation of joint plans, raising public awareness, information and training in self-protection and promotion of forestry companies.



Thanks to the project, the existing barriers between countries in relation to cross-border cooperation are minimized, which hinder the generalization of joint actions in forestry, due to different legal, economic, fiscal or property conditioning factors, among others.

El proyecto se desarrollará durante dos años y medio, hasta abril de 2022, con un presupuesto de 1.000.324,53 euros. El consorcio que lo conforma se compone de un total de diez entidades españolas y portuguesas: Diputación de Ávila, Montes de Las Navas AS, CIM Alto Minho, Instituto Tecnológico de Galicia (ITG), Centro de Biomasa (CBE), ENERAREA, RNAE, EREN, Fundación Santa María la Real y Diputación A Coruña.

The project will run for two and a half years, until December 2021, with a budget of 1,000,324.53 euros. The consortium is made up of a total of ten Spanish and Portuguese entities: Diputación de Ávila, Montes de Las Navas AS, CIM Alto Minho, Instituto Tecnológico de Galicia (ITG), Centro de Biomasa (CBE), ENERAREA, RNAE, EREN, Fundación Santa María la Real and Diputación A Coruña.

In addition to the population that will benefit from joint plans developed in their territory, joint fire prevention plans will be developed that will include innovative tools and actions, as well as awareness-raising, information and training plans for the general population, companies and actors in the territory.

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Web: www.gefrecon.eu

OTHER INFORMATION

DATA OF INFORMATION

22

ACCELERATED
COMPANIES

2

PARTNER
PROJECTS

9

COUNTRIES



FINNOVA AT CILIFO

The Finnova Foundation is one of the 15 beneficiary entities that, led by the Junta de Andalucía, form the public-private partnership of the INTERREG-CILIFO Project.

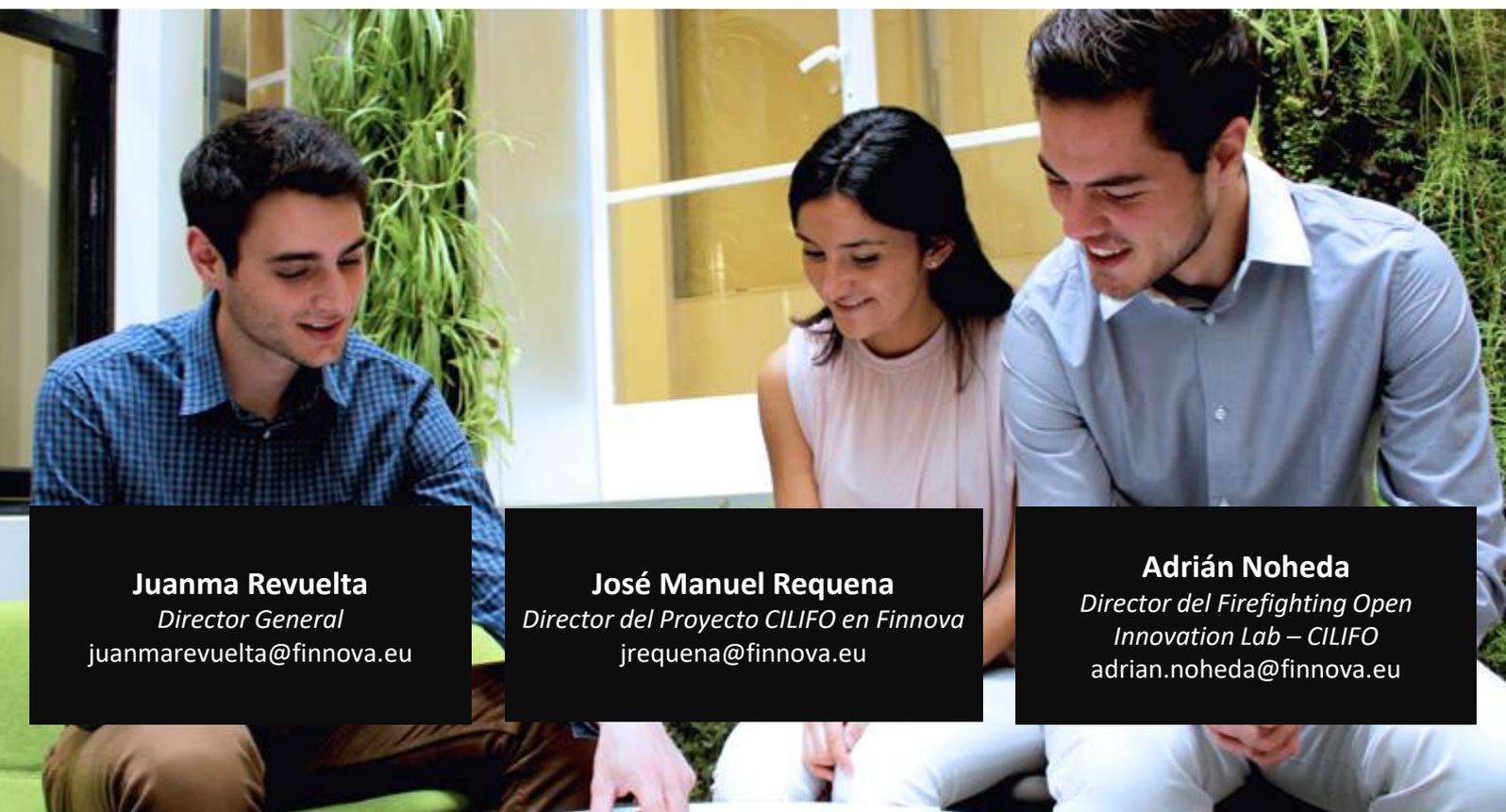
Within the number 1 activity of the project, Finnova manages the accelerator Firefighting Open Innovation Lab - CILIFO, the first accelerator/incubator for start-ups, companies and entrepreneurs in the climate change sector. The objective is to attract innovative companies and technologies that provide solutions that promote adaptation and mitigation of climate change, especially in the forest fire sector: prevention, extinction and regeneration of burned areas.



ABOUT FINNOVA FOUNDATION

Finnova is a private European not-for-profit foundation with headquarters in Brussels (Belgium) and with headquarters and offices in Andalucía, Comunidad Valenciana, País Vasco, Islas Canarias y Castilla y León (Spain). Finnova's mission is to assist in the creation of innovative initiatives (Innova) through appropriate funding and support (Fin). Finnova facilitates communication and information between different public and private entities with the aim of supporting and promoting EU funding streams in the thematic areas of environment, water, health, public works, energy, tourism, ICT and entrepreneurship.

Finnova accompanies innovation projects, creating valuable synergies, so that barriers along the innovation path can be overcome including public funding; identification of regulatory issues and barriers; lobbying and promotion; and international or regional expansion and collaboration. Finnova promotes innovation both regionally and at a local level across Europe, and internationally through partner countries.



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Centro Ibérico para la
Investigación y Lucha contra
Incendios Forestales

Firefighting
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