

HOME OF DR+ONES



Switzerland.

HOME OF DRONES

PROGRAMME OF THE
SWISS VOLIÈRE
@VIVATECHNOLOGY
MAY 24 – MAY 26, 2018

homeofdrones.org

EDITORIAL

Why is Switzerland a key player in the world of drones? Because we're a 360° drone nation! Our researchers and entrepreneurs don't just manufacture drones, they also produce sensors, engines, apps or guidance to the world bank. Few countries cover "dronistics" in this manner and that places Switzerland among the world's leading nations. Switzerland can hardly compete in the field of leisure drones where the retail price is the key to making sales. In professional drones however, the stability and the quality of the research involved are of utmost importance, and the effect of everything Swiss Made is an appreciated added value. A Swiss drone is a reliable drone that brings tangible solutions to existing problems by using and integrating the most advanced technologies. It is therefore an image booster for our country. It allows us to go beyond the clichés and talk about our research and technology centers, our industry, the role of the State or the opportunities to invest in Switzerland.

Welcome to the Swiss Volière (or aviary) at VivaTech. It houses these strange birds that embody innovation and embrace that part of whimsy so typically Swiss!

Nicolas Bideau
Ambassador
Head of Présence Suisse

Traffic management
flarm
involi
sita
skyguide
skysoft

Defence and security
drone detection sys
droptec
ruag
swiss aerobatics ag
teamnet

Governance
federal office of civil aviation
Présence Suisse PRS Presenza Svizzera PRS Presence Switzerland PRS
présence suisse
drone industry association switzerland
global utm association
swiss federation of civil drones

Analytics
gamaya
meteomatics
picterra
pix4d
precision vine

Safety and security
certx
sgs
swiss re
uaw aero
zurich

Sensors
distran
insightness
sensima technology sa
sensirion
sky aware

Research and technology centers
epfl
eth zurich
swiss national centre of competence in research
università della svizzera italiana
university of zurich
zurich school of management and law

Humanitarian
fondation suisse de déniage
swiss fang
we robotics
Swiss association for search and rescue dogs - sfcd
Energy
skypull
twingtec
Entertainment
aerotain
léman tech
anabatic
verity studios

Electric and solar propulsion
faulhaber
atlantik solar
evolaris aviation
h55
maxon motor
mecaplex

High Altitude
open stratosphere
solar stratos
Transport
aurora
deldro
dronistics
Energy
skypull
twingtec
Entertainment
aerotain
léman tech
anabatic
verity studios

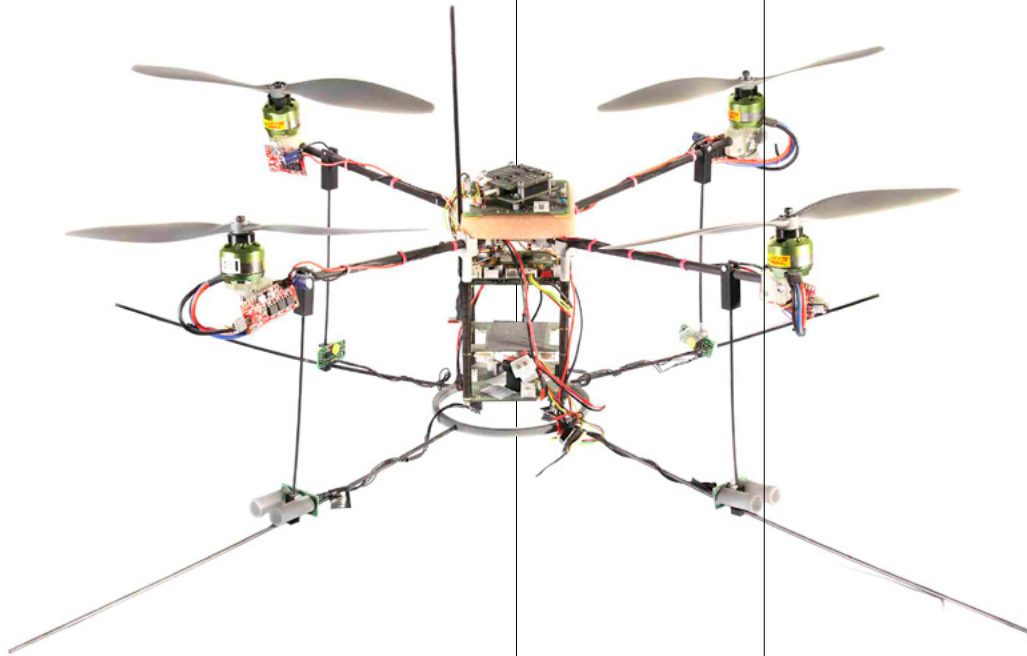
Flight systems
auterior
daedalean
drone harmony
drone logbook
embotech
fixposition
foldaway
motion pilot
px4 autopilot
relasys
uaventure
ublox
ums skeldar
viasat
wecontrol
windshape

dufour aerospace
hb drones
matternet
swiss drones operating ag

Scouting
aeroscout
agro fly
flyability
fotokite
horizon drone
sensefly
sunflower labs
wingtra
yuneec

SWITZERLAND HOME OF DRONES

Bird No1



OS4

First ever quadrotor system in free flight

Year of birth

2004

Place of birth

Lausanne, VD

Measurements

62 × 62 × 30 cm

Weight

0.6 kg

Function(s)

Research platform

OS4 was the worldwide first freely flying quadrotor drone, that was developed by the Autonomous Systems Lab at EPFL (now at ETH Zurich) in 2004. This pioneering work by Samir Bouabdallah, Roland Siegwart and others triggered many new research in the field and resulted in the current boom of the multicopter marked with millions of systems sold in the last years. After the successful integration and demonstration of the OS4 control, some first concepts of collision avoidance, height control and automatic landing were developed in the following years and demonstrated in 2006.

Contact

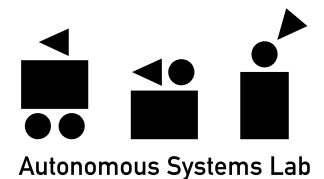
asl.ethz.ch

Autonomous Systems Lab

Leonhardstrasse 21
8092 Zurich, Switzerland

Website

asl.ethz.ch



Bird No2

ATLANTIKSOLAR

Towards low-altitude multi-day endurance

Year of birth

2013

Place of birth

Zurich, ZH

Measurements

560 × 200 × 45 cm

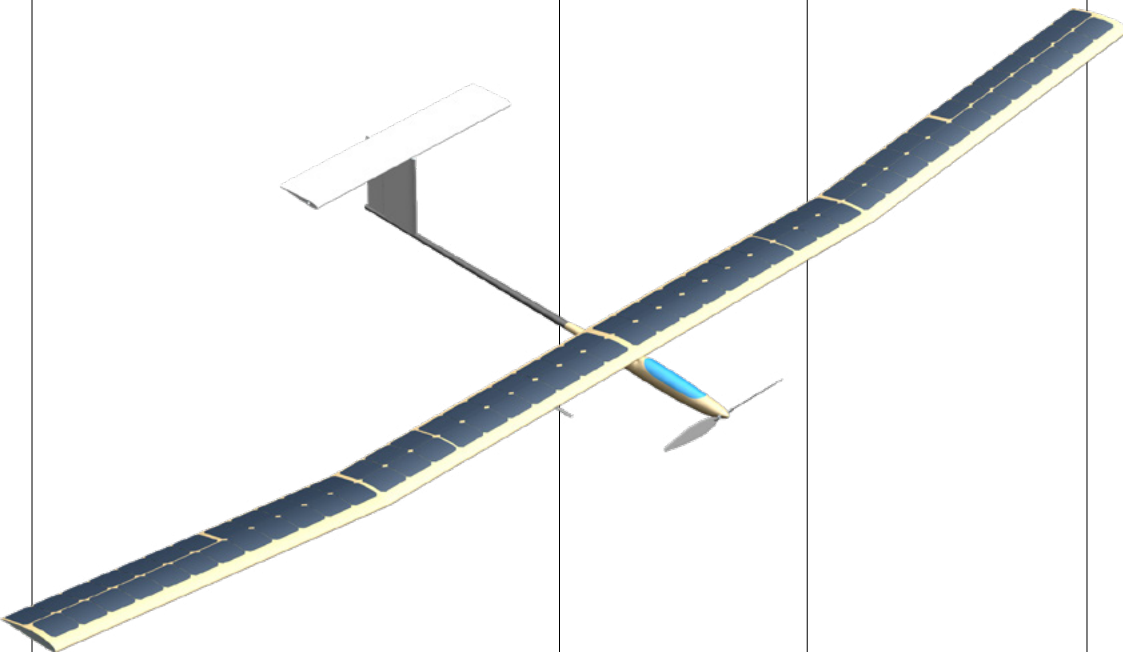
Weight

6.7 kg

Function(s)

Multi-day sensing, mapping

Originally built for the very first Atlantic crossing of an unmanned solarpowered aircraft (thus its name), AtlanikSolar could demonstrate its longendurance capabilities multiple times: Its non-stop flight of 82 hours in summer 2015 set a new world-record in flight-endurance for UAVs of its size. By taking high-resolution images of remote glaciers in the arctic region in summer 2017, AtlantikSolar contributed to the research of glaciologists of ETH Zurich.



Contact

asl.ethz.ch

Autonomous Systems Lab

Leonhardstrasse 21
8092 Zurich, Switzerland

Website

atlantiksolar.ethz.ch



Bird No3



WINGTRAONE

The VTOL drone for Mapping & Surveying

Year of birth	2016
Place of birth	Zurich, ZH
Measurements	125 × 68 × 12 cm
Weight	3.7 kg
Function(s)	Mapping, surveying

What started as an ambitious student project resulted in an easy-to-use product that's being used all around the world. Combining the advantages of multicopters and fixed-wing aircrafts, the WingtraOne is able to take off and land vertically on spot while still offering the high endurance needed to cover large areas with a professional grade payload.

Contact

hello@wingtra.com

Wingtra AG

Giesshübelstrasse 40
8045 Zurich, Switzerland

Website

wingtra.com



Bird No4



VOLIRO

Free multicopters from any restrictions

Year of birth

2017

Place of birth

Zurich, ZH

Measurements

110 × 110 × 30 cm

Weight

3.2 kg

Function(s)

Inspection, entertainment

A novel aerial platform that combines the advantages of existing multi-rotor systems with the agility of omni-directionally controllable platforms. Voliro is a hexacopter with tiltable rotors. As the rotor orientation can be fully controlled, this system allows for decoupling the control of position and orientation. This allows new kind of applications such as manipulation tasks (e.g. inspection of bridges) or stunning flight acrobatics.

Contact

contact@voliro.ch

Voliro

Tannenstrasse 3
8006 Zurich, Switzerland

Website

voliro.ethz.ch



Bird №5



SKP125

An innovative drone to enable sustainable and affordable wind energy production

Year of birth	2017
Place of birth	Lugano, TI
Measurements	135 × 105 × 45 cm
Weight	8 kg
Function(s)	Airborne wind energy

Skypull is an autonomous tethered drone that climbs to and captures the power of altitude winds that are stronger, more abundant and continuous than the winds that drive conventional wind turbines. It operates like a kite and transforms the wind into kinetic energy that in turn is converted into electricity by a ground generator. By reaching higher altitudes and by avoiding heavy and cumbersome infrastructure, Skypull is cheaper and better deployable than current wind energy technologies.

Contact

info@skypull.com
nicola.mona@skypull.com

Skypull

Via Maderno 24
6900 Lugano, Switzerland

Website

skypull.com



Bird №6



ELIOS

Safe drone for inaccessible places

Year of birth

2018

Place of birth

Lausanne, VD

Measurements

40 × 40 × 40 cm

Weight

1.4 kg

Function(s)

Industrial inspection

Flyability introduces the first collision-tolerant flying robot designed for industrial inspection professionals. Allowing for the first-time access to complex, cluttered or indoor places, Elios is unleashing the potential of UAVs in a number of applications where their use was previously too dangerous or simply impossible. Inspection can be performed at lower costs, downtime, and risks.

Contact

sales@flyability.com

Flyability SA

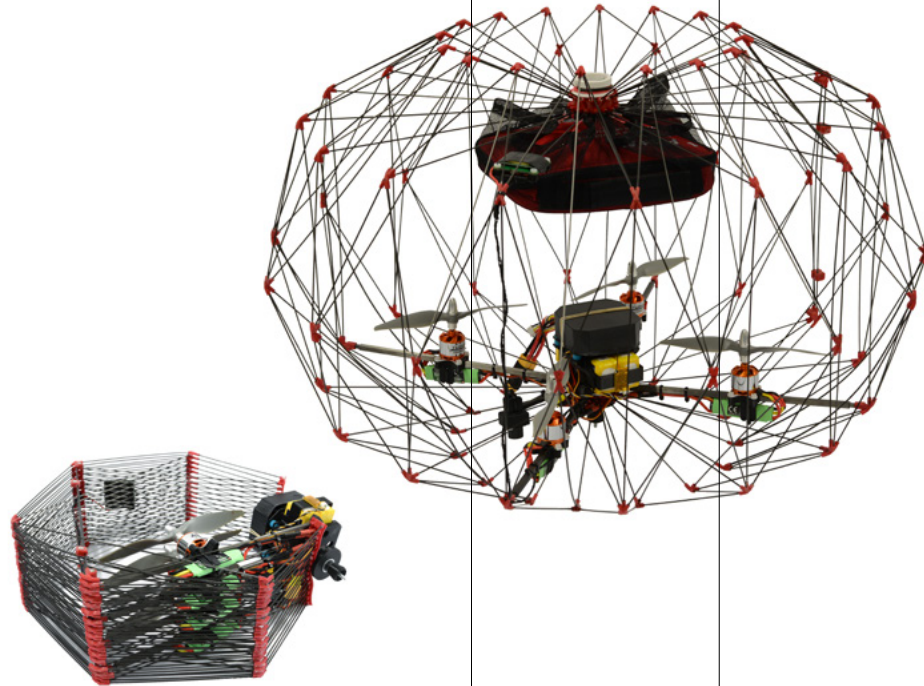
Av. de Sévelin 20
1004 Lausanne, Switzerland

Website

flyability.com



Bird №7



PACKDRONE

A human-friendly transportation drone

Year of birth

2018

Place of birth

Lausanne, VD

Measurements

65 × 65 × 43 cm (deployed)

Weight

1.4 kg

Function(s)

Delivery

Dronistics is an EPFL spin-off company that develops a human-friendly drone delivery system. The company's product, PackDrone is a patented foldable drone that can carry 500 grams of payload for the distance of 2km. The PackDrone has a cage that protects people from its spinning propellers. The foldable design reduces storage volume by 92%. Additionally, Dronistics developed a web application for portable devices that enables inexperienced users to send the drone from person-to-person in an intuitive manner.

Contact

dronistics@epfl.ch

Dronistics

EPFL

1015 Lausanne, Switzerland

Website

dronistics.epfl.ch

Bird No8



EBEE PLUS

Aerial efficiency, photogrammetric accuracy

Year of birth

2018

Place of birth

Lausanne, VD

Measurements

110 × 60 cm

Weight

1.1 kg

Function(s)

Surveying, agriculture, engineering and humanitarian aid

senseFly drone solutions simplify the collection and analysis of geospatial data in surveying, agriculture, engineering and humanitarian aid allowing to make better decisions, faster. Founded in 2009, senseFly is the commercial drone subsidiary of Parrot Group.

Founded in 1994 by Henri Seydoux, Parrot is the leading European group in the industry of drones. World's number 2 of the consumer drone market, Parrot is also offering 'End to End' business solutions, covering drones, software and services focusing on : (i) Agriculture, (ii) 3D Mapping, Surveying and Inspection and (iii) Public safety.

Contact

sensefly.com/about/contact-us

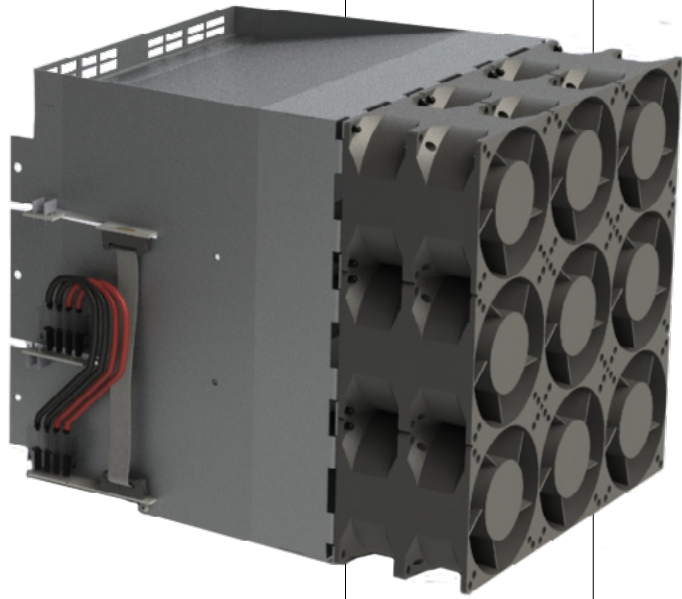
senseFly

Route de Genève 38
1033 Cheseaux-sur-Lausanne, Switzerland

Website

sensefly.com

senseFly
Parrot Group



WINDSHAPE

WIND & WEATHER TEST FACILITIES

Year of birth	2017
Place of birth	Geneva, GE
Measurements	24 × 24 × 29 cm
Weight	4.8 kg
Function(s)	Testing, certifying drones

Nowadays, drones are present in more and more professional applications for which reliability, robustness, and stability under various weather conditions are paramount. Tracking and understanding the behavior of a drone in its natural environment is the key to a safe and optimized development. WindShape is the very first solution for testing flying machines in controlled and variable wind, thanks to a highly innovative and modular technology.

Contact

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WindShape SàRL

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Website

windshape.ch



INSTITUTIONAL PARTNERS



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Swiss Confederation

Bundesamt für Zivilluftfahrt BAZL
Office fédéral de l'aviation civile OFAC
Ufficio federale dell'aviazione civile UFAC
Federal Office of Civil Aviation FOCA

The Federal Office of Civil Aviation (FOCA) strives for high safety standards and the sustainable development of Swiss civil aviation. Its activities are conducted in the interests of Swiss society and the economy and are internationally integrated and coordinated. As an independent regulator, the FOCA is responsible for ensuring the highest safety and security standards in Swiss civil aviation. It takes measures to promote civil aviation and strives for its sustainable development.

For many years, FOCA has recognised that a radical transformation is occurring in the traditional avi-

ation with emerging technologies requiring a revolutionized enabling foundation and legal framework. To tackle the challenges of this new aviation era, FOCA has established an Innovation Management Office. The agile, risk-based legal framework therein developed and perfected over the years with the fast development of drones has allowed the authority to enable these new technologies in the most effective and efficient way. FOCA's approach has proven to provide a good balance between all the needs of the society and supported the flourishing drone ecosystem that has developed in Switzerland in the past decade.



Swiss National
Centre of Competence
in Research

The National Centre of Competence in Research (NCCR) Robotics is a Swiss nationwide organisation funded by the Swiss National Science Foundation pulling together top researchers from all over the country with the objective of developing new, human oriented robotic technology for improving our quality of life. The Centre was opened on 1st December 2010, and binds together experts from five world-class research institutions; École Polytechnique Fédérale de

Lausanne (EPFL) (leading house), Eidgenössische Technische Hochschule Zürich (ETH Zurich) (co-leading house), Universität Zürich (UZH), Istituto Dalle Molle di Studi sull'Intelligenza Artificiale (IDSIA) Lugano and University of Bern (UNIBE) for a period of up to 12 years.

We are at the forefront of robotics research and develop robots that co-exist symbiotically with humans in order to enable them to help both individuals and society.

digitalswitzerland

digitalswitzerland is a combined initiative by business, public and academic institutions which aims to establish Switzerland as a leading international centre of digital innovation. digitalswitzerland is already active in a wide range of fields, including knowledge transfer, ed-

ucation, start-up ecosystems and political frameworks. The association's members include more than 100 of the most prominent companies, organisations and innovative locations in Switzerland. The initiative was founded in 2015.



Switzerland is the most stable country in the world and home to the highest concentration of technological excellence. For years, it has occupied top positions in renowned global rankings in terms of innovative capacity, talent attraction, framework conditions, competitiveness, and quality of life. It is therefore not surprising that companies of all sizes, in all sectors, from any country choose Switzerland as their preferred business location. GZA (Greater Zurich Area Ltd) and the GGBa (Greater Geneva Bern area) offer tailor-made, confidential, and free of charge services to companies seeking to grow internationally.

As the official investment promotion agency of the Greater Zurich Area, GZA acts as an intermediary, door opener and facilitator by guiding companies through the ecosystem of the Greater Zurich Area and



networks them with the relevant companies, research institutes, incubators, authorities, specialized service providers, associations and platforms. This creates added value for the companies' strategic expansion.

The Greater Geneva Bern area is the official investment promotion agency for Western Switzerland, bringing together the cantons of Bern, Fribourg, Vaud, Neuchâtel, Geneva and Valais. Its mission is to provide support to foreign companies allowing them to get established quickly and develop their activities in the region. Since its creation in 2010, the GGBa, in cooperation with the cantonal economic promotion agencies, has guided hundreds of companies from around the world in launching successful business operations in Western Switzerland.



École polytechnique fédérale de Lausanne (EPFL) is emerging as a hotbed of aerial robotics research. Drones are at the center of cutting-edge technological innovations in fields ranging from humanitarian aid to agriculture and medical delivery, not to mention high-speed racing. At the first-ever EPFL Drone Days, in 2017, some 5,000 visitors learned all about drones over the course of three days of demonstrations, talks and spectacular races. The next Drone Days will take place from 31 August to 2 September 2018.




ETH Zurich is one of the world leading universities for engineering and the natural sciences. ETH Zurich was founded in 1855 and today counts 20,600 students, including 4,100 doctoral students, from over 120 countries, 530 professors and can be proud of the 21 Nobel Prize winners who have made the history of the institute.

The Master's Program in Robotics, Systems and Control is one of the most competitive master programs offered by ETH Zurich. Drones, flying robots, are part of the curricula. The Autonomous System Lab, run by Prof. Roland Siegwart and the Institute for Dynamic Systems and Control, headed by Prof. Raffaello D'Andrea, have contributed with groundbreaking technologies and a number of successful spinoff companies to the booming drone's industry.

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POST TENEBRAS LUX

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Expanding business horizons

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FEATURING



 Autonomous Systems Lab











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