THE FUTURE OF AVIATION

2020

PRODUCTION | PROTOTYPES | CONCEPTS | NEW TECHNOLOGIES

ICAO

START-UPS & COMPANIES

AERION
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AUTONOMOUS FLIGHT
BARTINI
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HYBRID-AIRPLANE TECHNOLOGIES
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SDU (UNIVERSITY OF SOUTHERN DENMARK)
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LEGAL DEPOSIT : December 2020

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ICAO

PRODUCTION

PROTOTYPES

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PRODUCTION

THE SKYDIO 2

by DRONEDEPLOY + SKYDIO

DroneDeploy

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
Autonomous	775 g	1640 feet	Battery: lithium ion polymer	23 min	36 mph	1.5 km

$ $999

The Skydio 2 has sophisticated sense-and-avoid technology that allows for enhanced autonomous performance. With DroneDeploy and Skydio you have the confidence to fly lower and perform more detailed inspections. You can then analyze all photos, videos, and panoramas captured with the Skydio 2 drone to quickly assess any issues or changes that need to be made on site.

The DroneDeploy solution with the Skydio 2 is a leap forward in drone mapping and asset inspection. This combination offers advanced autonomous flight which allows us to capture an unparalleled level of detail with enhanced flight safety.

Founded by researchers who previously pioneered autonomous drone flight a decade ago as graduate students at MIT, and drawing from top university research groups and the best consumer electronics teams in Silicon Valley, Skydio is the global leader in aerial autonomy. Skydio drones enable safe flight close to structures and in GPS-denied environments with computer vision-based sense-and-avoid in all directions. Customers trust solutions based on Skydio drones to achieve higher-quality data capture for inspection, mapping, and situational awareness tasks.

«It does the flying; you do the doing.»

WING

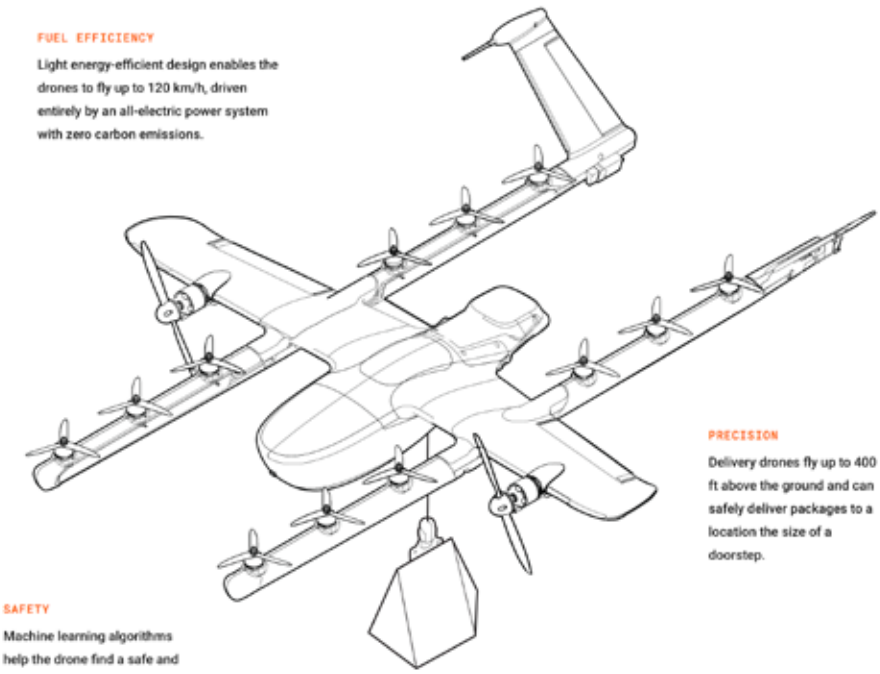
by WING AVIATION

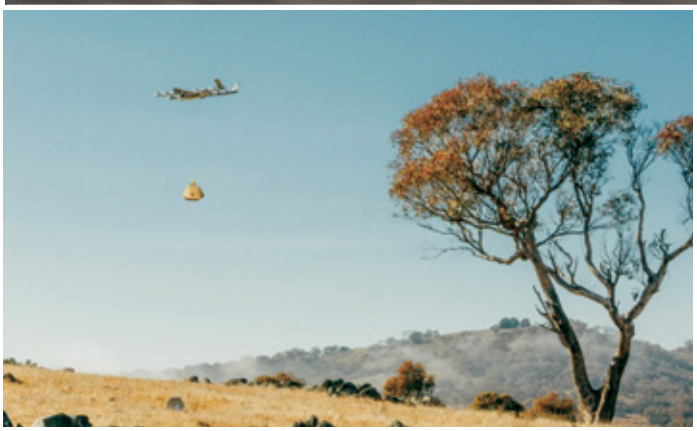
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	1.5 kg	400 ft.	14 motors	n/a	113 km/h	20 km

Wingspan : 1 meter

Wing has developed a new method of transporting goods that's faster and more environmentally friendly than what's possible today with delivery on the ground. Wing is delivering a range of food, pharmacy items, and other goods to the yards of households across three continents.

The aircraft is designed with both fixed wings and hover propellers to seamlessly transition between an airplane and a helicopter – keeping the package steady and level so it can deliver things like coffee without a spill. The 1m wingspan allows the aircraft to fly farther, faster, and more efficiently. Wing's flight operations software was built to provide UTM services and allows Wing, as well as recreational drone operators and aviation service providers, to manage complex flight paths and monitor the aircraft in real time.





«Transforming the way goods are transported»

ZIPLINE DRONE

by ZIPLINE

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
Autonomous	1.75 kg (3.85 lb)	400 to 500 feet	Wind	n/a	100 km/h (60 + mph)	160 km (599 mi) roundtrip

Zipline delivers critical and lifesaving products precisely where and when they are needed, safely and reliably, every day, across multiple countries. They have made 30,540 commercial deliveries – and counting.

Zipline's mission is to provide every human on Earth with instant access to vital medical supplies. Recent advances in logistics — like instant, on-demand delivery — mainly serve those in the biggest, wealthiest cities.

Zipline is a transformational change in logistics. They provide equal access to on-demand delivery, globally, and for the deliveries that matter most. Zipline partners with our customers to serve each of their delivery points across an entire region or country, making products available quickly while minimizing waste. Our system can either complement or replace existing delivery networks. Zipline understands that quality storage and handling are paramount, particularly for medical products that require cold chain and other special conditions.

Our healthcare expertise informs end-to-end product storage and handling that meet the industry's high standards. Zipline designs, tests, manufactures, and operates our cutting-edge technology.

Our drones and autonomous navigation systems have been custom developed to meet your delivery needs, and we never stop improving them.

Gas combustion vehicles break down, get stuck in traffic jams that prevent urgent response, and put human drivers at risk behind the wheel, particularly when the route is rough and treacherous. Zipline's drones are battery powered and fly quickly and directly to their destinations, leaving ground vehicles behind.

«Vital, On-Demand Delivery for the World Enabled by the fastest and most experienced drone delivery service»

HP DRONES

by HP DRONES

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	3,5 KG Max Lift / 5.0 KG Max hold / lower			up 240 minutes		

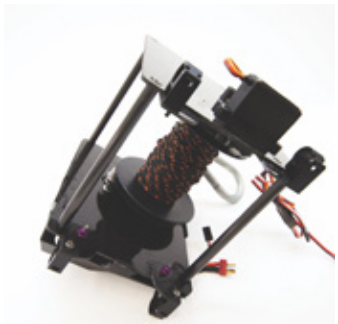
HP Drones is a leading brand in Portugal, in knowledge, marketing and services provided by drones. It provides consulting, hardware and software solutions necessarily to the specific needs of each client. HP Drones developed the 360º concept, unique in Portugal, which provides customers personalized monitoring of their drone.

The 360º concept considers counselling in the process of choosing a drone, training in its use, preventive and corrective maintenance and facilitate the exchange of the drone for a more updated model. Thus, our customer is always followed-up, his drone is always at the best conditions, has easier access to the new models available and, in case of emergency, can replace is drone through the temporary rental of another model.

We grabbed in what we had and improved it: we had a drone which is capable of transporting objects. This drone was sucessfully tested in a beach in the North of Portugal in delivering a DAE in order to respond to a cardiac arrest.

HP Drones had manufactured a payload that can be attached to the equipment and is composed with a cable that allows the pilot to pull and deliver objects.





L I S B O A

AGRAS MG-1

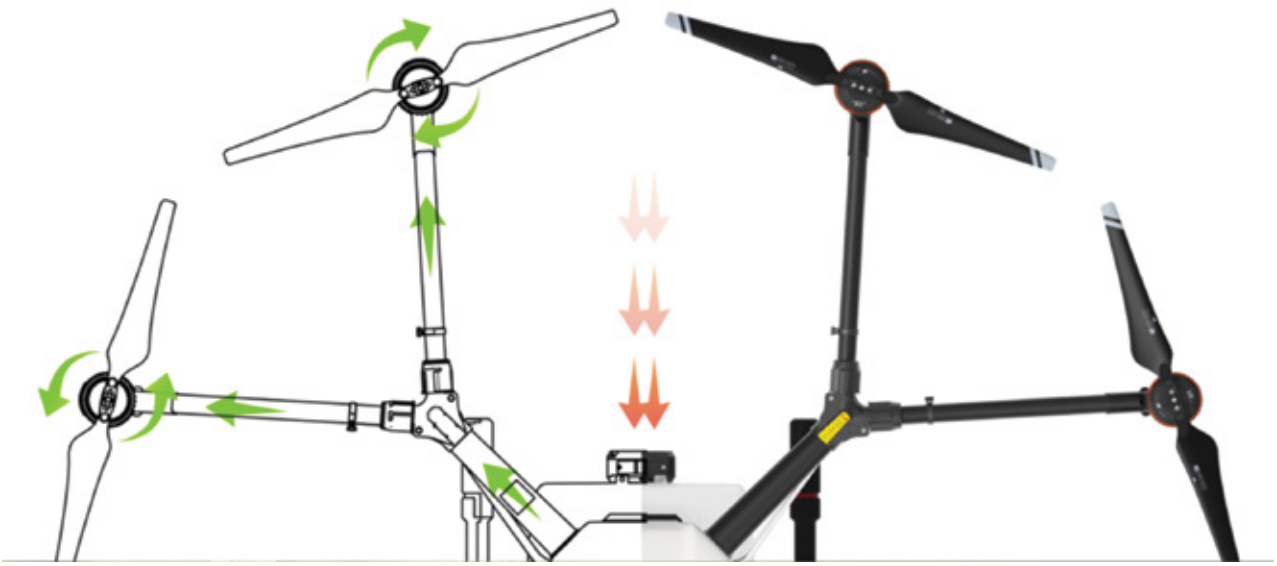
by DJI

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
Unmanned	10 kg	10 ft.	n/a	10-24 min	79 km/h	10,000 m²

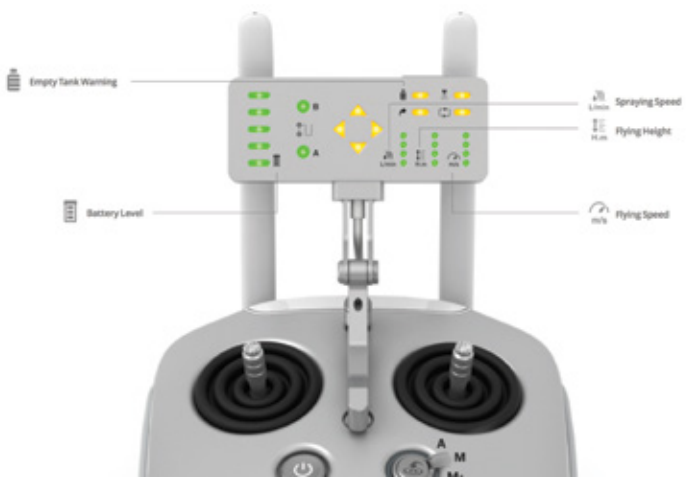
$18,000

The DJI AGRAS MG-1 is an octocopter designed for precision variable rate application of liquid pesticides, fertilizers, and herbicides, bringing new levels of efficiency and manageability to agriculture. The advanced flight controller integrated with the aircraft instantly and precisely responds to pilot inputs. Therefore, it is possible to choose between three flight modes: Smart mode, Manual Plus mode and Manual mode, according to terrain and the specific requirements of each mission.

Additionally, the MG-1 automatically records its current coordinates and remembers its past coordinates as it makes its way across the field. In case an operation is interrupted, for example due to depleted battery or spraying liquid, users can quickly land and resume flight from the last recorded point after changing the battery or refilling its tank.



«DJI's first agriculture drone»



BLACKFLY V3

by OPENER

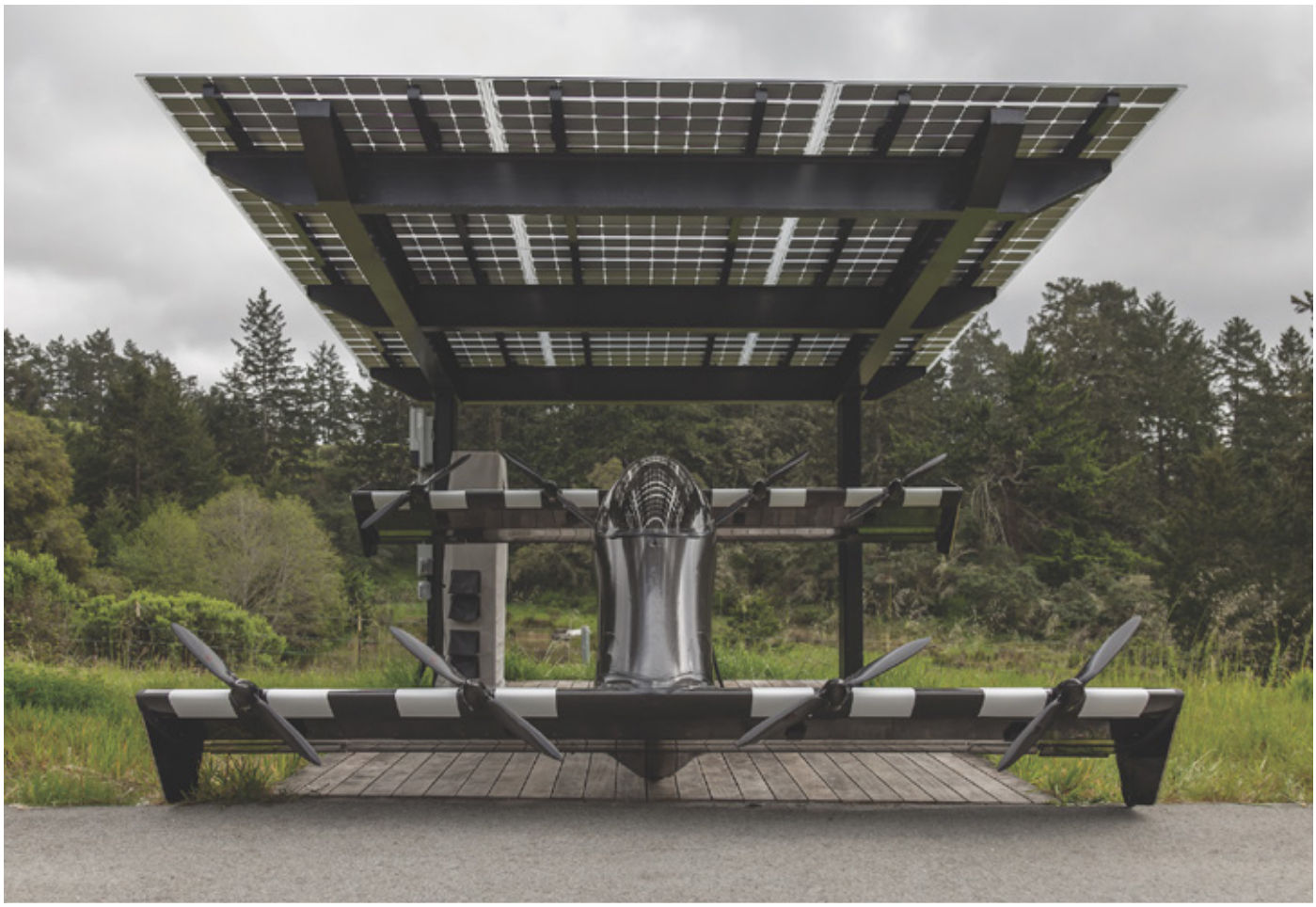
OPENER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	113 kg	n/a	8 motors	n/a	128 km/h	64 km

$ $70,000

The BlackFly V3 is a single-seat personal aerial vehicle (PAV) designed and built for a new world of three-dimensional transportation. It is simple to master and requires no formal licensing (in USA) or special skills to operate safely.

BlackFly primarily is designed to operate from small grassy areas. However, Opener's long-term vision is to integrate this highly-efficient vehicle into a rural/urban commuting network. These networks would be powered by renewable energy sources requiring only a fraction of the transportation energy used currently.



«Envision the future of transportation, personal freedom a new dimension of travel»

HOVERBIKE S3

by HOVERSURF

HOVERSURF

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	115 kg	5 m	4 motors	10 to 25 minutes with pilot	96 km/h	64 km

$150,000

The Hoverbike is an all-electric, four-rotor flying vehicle, utilizing various types of carbon fiber technology. Its entire frame is constructed from a single element, reducing its weight compared to Hoversurf's previous aluminum model.

The dimensions of the hoverbike allow it to be rolled in a standard doorway and take off from a common parking space. Additionally, the Hoverbike has auto-take-off, auto-landing, altitude hold, and can be flown manually or with radio control.

«Designed with you in mind»

VOLOCITY

by VOLOCOPTER

VOLOCOPTER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	160 kg	1,981 m	18 motors	27 minutes	100 km/h	n/a

$330,000

The VoloCity will become the first commercially licensed Volocopter, developed according to the high standards and requirements of the European Aviation Safety Agency (EASA). Our intensive testing programme has shaped the innovative design and outstanding overall performance of the VoloCity. Quiet, safe, and comfortable, the VoloCity engenders Urban Air Mobility

«Volocity the superior air taxi for the inner city»

CORA
by KITTY HAWK

wisk

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	181 kg	3000 ft.	Electric Motors: 13	19 minutes	180 km/h	100 km

Cora is an air taxi that combines electric power, self-piloting software and vertical take-off to pioneer an entirely new way to fly. It all began as a dream: a personal flying vehicle that could take the everyday trips that define our lives and bring them to the sky. Cora isn't just about flying. It's about the time you could save soaring over traffic. The people you could visit. The moments that move you.

The vehicle was designed with the planet in mind from day one. It's part of the electric revolution that's leading us to a sustainable future. And with the power to rise above the road, Cora will help ease the pressure that traffic places on all our lives.

«We've arrived The journey toward safe,everyday flight begins here.»

TRANSITION

by TERRAFUGIA

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	227 kg	9000 ft.	n/a	120 minutes	160 km/h	644 km

$400,000

The Transition brings the dream of the flying car to life. It seats two and converts from drive mode to flight mode in under a minute with just the push of a button. Eliminating the hassle of hangar storage, ground transportation, and aviation fuel, the Transition fuels up with automotive gas and can be stored in your home garage.

The Transition is the only aircraft that incorporates the required safety features for both autos and aircraft. Setting a new standard for safety, the vehicle includes an airframe parachute, crumple zones, advanced avionics, rearview cameras and more.

«The Flying Car is Here»

AEROMOBIL 4.0

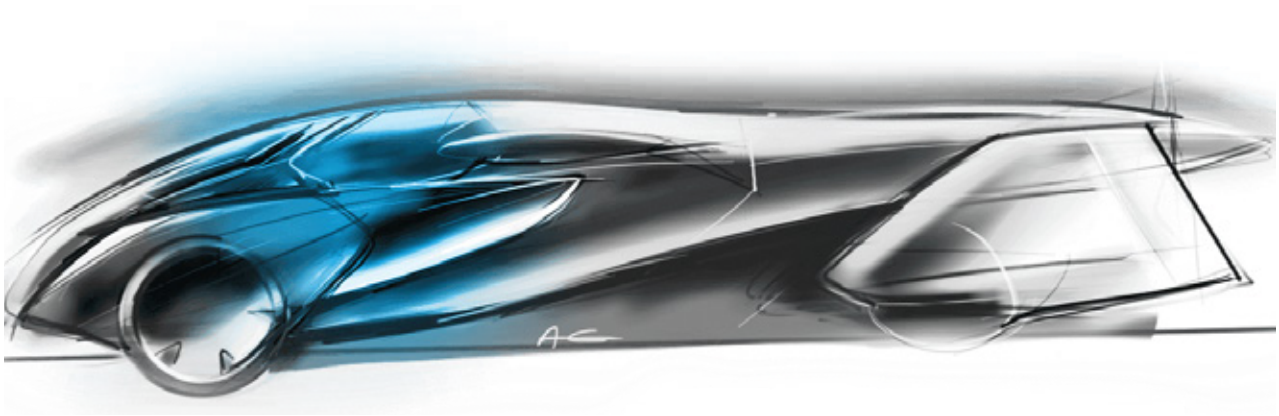
by AEROMOBIL

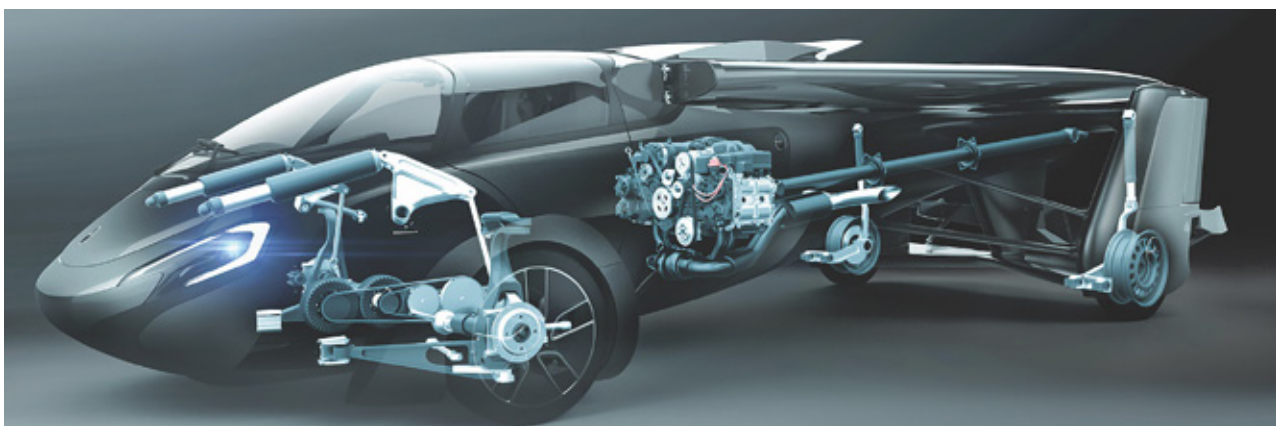
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	240 kg	n/a	n/a	n/a	360 km/h	750 km

Wingspan: 29 feet | Transition: 3 min | $ 1.6 million

The AeroMobil 4.0 is an exceptional STOL vehicle. A real flying car, with all that a car and an airplane have to offer. It cuts travel times compared to traditional airline alternatives, while its powerful engine provides greater range and a more efficient use of energy than most civil helicopters and personal drones. Also, the vehicle incorporates the very latest in vehicle recovery ballistic parachutes, designed to bring an airborne vehicle back to ground safely should the pilot choose to deploy it

Really exciting news are that AeroMobil is already working in the upcoming version of the vehicle, the AeroMobil 5.0 VTOL, which will be launched in 2025.





«Flying Car»

PAL-V LIBERTY

by PAL V

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	246 kg	11,500 ft.	n/a	4.3 h	160 km/h	500 km

Landing roll: 100 feet

$399,000

Inspired by nature, engineered by men and evolved over time, the PAL-V Liberty is a ground-breaking product that inaugurates the age of the flying car. It is a marriage between safety and fun, designed to satisfy the most demanding customers.

The PAL-V Liberty in flight is an autogyro or gyrocopter, with a foldable pusher propeller providing forward thrust and a free-spinning rotor providing lift. The company also offers a pioneer edition for those that wish to be part of a unique group. In fact, only ninety flying cars of the Pioneer Edition will be made which distinguishes itself from the normal Liberty by the full carbon package.

«World's first flying car»

EHANG 216

by EHANG

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	260 kg	3,200 ft.	n/a	30 min.	130 km/h	35 km

$ 330,000

EHang is a dominant player in the quadcopter drone market. The company hopes to extend its unmanned electric VTOL technology to manned applications. The EHang 216 is based on the EHang 184, yet it has eight arms instead of four. This allows for the vehicle to seat two passengers instead of just one.

The EHang 216 autonomous aerial vehicle (AAV) was first announced in February 2018. Manned and unmanned flight testing was conducted in China in 2017, and a manned flight test took place at the Amsterdam Arena in April 2018.

«The future of transportation: White paper on urban air mobility systems»

PHENOM 300E

by EMBRAER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
6-10	1,196 kg / 2,636 lb	45,000 ft / 13,716 m	Pratt & Whitney Canada PW535E1	n/a	464 kt / 859 kmh	3,723 km

Engine thrust: 3,478 lbf | **Manufacturer: Pratt&Whitney Canada**

How do the world's top athletes go from being good to being great? How do they go from being great to becoming legends? They never stop improving. And it's in this spirit that the most successful business jet of the past decade, the best-selling light jet for seven years running, and the fastest and longest-range single pilot aircraft in business aviation just got better — again.

That's right. It's even better. With even more performance. Even more comfort. Even more technology. The Phenom 300E becomes the first true light jet to reach Mach 0.80 and the first and only business aircraft to have approach and landing assistant technology, which provides a warning advisory if the runway approach is too steep or too fast.

The Phenom 300E offers the ultimate experience in business aviation, with stunning performance, comfort and technology. Along with Embraer's iconic airstair and oversized windows, the 17-ft-2-in-long Oval Lite® cabin features wonderful head room and aisle space, as well as innovative seating with enhanced cushioning and custom sew styles for truly exceptional in-flight comfort and style. The forward-thinking cabin design also includes a cutting-edge "backbone of technology" with proximity-activated controls, adjustable lighting, touchscreen monitors and patented flush gaspers. Multiple zones of personalization and the addition of nice®HD by Lufthansa Technik, an advanced cabin control system that offers portable device integration and wireless audio/video streaming, further add to the sophisticated interior enhancements. Plus, passengers can also enjoy the best cabin altitude in the category (6,600 ft at FL450) along with a generously-sized baggage compartment.

«Flying is a marvel that can be constantly improved upon.»

DASSAULT FALCON 8X

by DASSAULT FALCON

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
12-16	33,133 kg	15,545 m	n/a	n/a	685 kph	11,945 km

Stretching the boundaries of what can be achieved is a preoccupation that drives us. For us, it means on-going innovation, enabling us to deliver ever better, ever more capable Falcons.

The latest result is the Falcon 8X. A new Falcon that can fly you farther, in greater comfort, and with even more efficiency.

Its ultra-long range connects Hong Kong and Paris, London and Cape Town, Los Angeles and Beijing. Its cabin — the longest in the Falcon family — provides more comfort and a stunning choice of more than 30 distinct layouts. And thanks to overall design enhancements, the 8X is every bit as fuel efficient as the Falcon 7X. The Falcon 8X continues Falcon traditions of efficiency, performance, flexibility and comfort, while saving millions in total life cycle costs versus any rival. Once again, we are stretching the boundaries of what a business jet can do for you, helping you accomplish more.

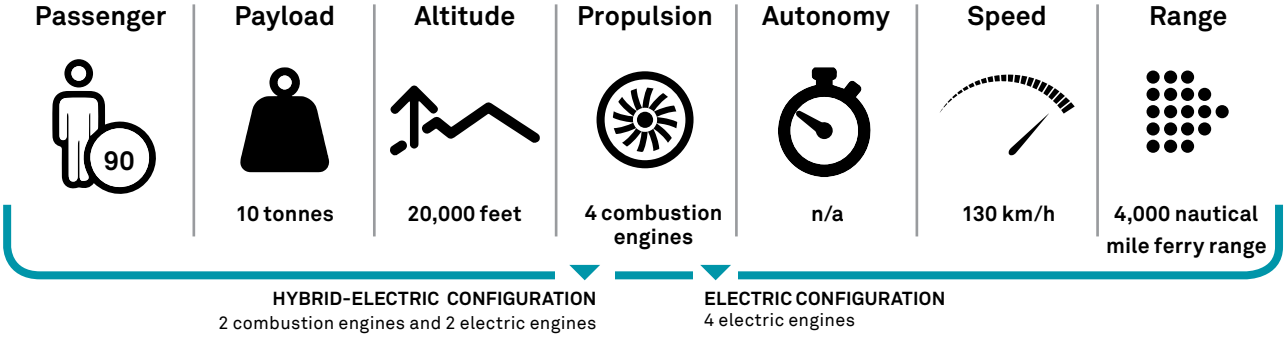
When designing the Falcon 8X, Dassault rethought all major structures and systems, adapting and optimizing them into an integrated, efficient airframe. New internal wing architecture both lightens the wing structure and provides more room for fuel. New winglets reduce drag to boost efficiency. The fuselage houses more fuel without reducing passenger space. Landing gear has been reinforced to provide for additional payload.

«Our new flagship. The freedom to fly where you want, as you like.»

AIRLANDER 10

by HYBRID AIR VEHICLES

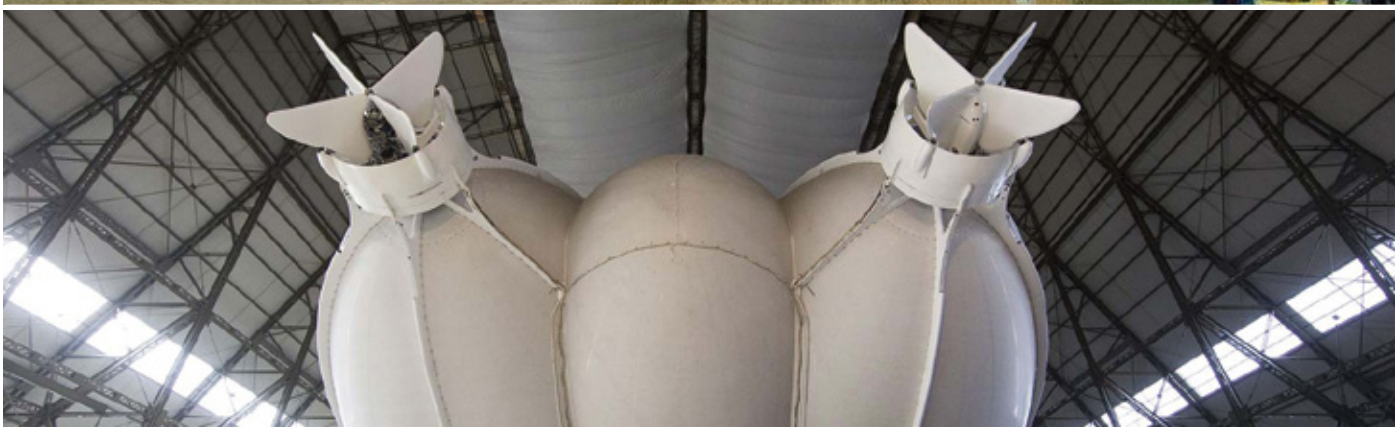
HYBRID Air Vehicles



Hybrid Air Vehicles is the company behind the innovative Airlander hybrid aircraft. From 2025 we will offer a hybrid-electric Airlander 10, with two combustion engines and two electric engines, which will reduce carbon emissions by 90%. By 2030 we will have an all-electric Airlander 10, with four electric engines, producing zero carbon emissions.

Airlander can take off and land from virtually any flat surface and offers a powerful combination of flexibility, persistence, payload capacity, and efficiency through technology. Airlander's characteristics make it a compelling option in Mobility, Logistics, Experiential Travel and Communications & Surveillance roles.

Airlander is an aircraft that encourages customers to Rethink the Skies and consider new approaches to solving some of the toughest challenges facing aerospace today.



«Rethink the Skies»

H-AERO

by HYBRID-AIRPLANE TECHNOLOGIES

The h-aero is a small European hybrid electronic UAV sponsored by the German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt - DBU). It was developed for professional and commercial use. Due to the moderate sizes of the h-aero® flight systems (e.g. 2.6m x 2.6m x 1m for 1kg payload) the handling requires little effort in comparison to any other existing LTA UAV. [1, 2]. Bigger sizes can source their energey completely from renewable sources via solar cells. The aerial vehicle combines static and dynamic lift, mirror or symmetric rotation flight modes and flies like a balloon, airplane and/or a helicopter.

The simultaneous acquisition and evaluation of chemical components in the air (e.g. the measurement of particulate matter) is also possible via multimodal sensors. The systems carry a single board computer (SBC) and have programmed abilities of autonomous hovering. The SBC can be connected to the internet and target values can be controlled over a user defined graphical user interface. The access to the SBC via SSH allows the remote programming of the system as long as it is connected to the internet (Debian GNU/Linux OS). The communication options comprise WLAN, mobile networks (up to 5G), satellite communication modem and radio modem (863 to 870 MHz range). Already implemented payloads comprise 4K cameras, thermal cameras, mobile Phones, Gimbals, LiDAR, proton magnetometer, loudspeakers and drones (DJI Mavic 2). The internet connection of the system can be spread to other surrounding users via the self-created hotspot of the SBC and connected antenna. The gained data is sent too cloud servers and is visualized there.

[1] Singer, Cs.: "Ultralight Solar Powered Hybrid Research Drone." The Smithsonian / NASA Astrophysics Data System, June, 2012, URL: https://ui.adsabs.harvard.edu/abs/2012LPICo1679.4059S/abstract

[2] Christian Schultze, Cs. Singer: "PROTOTYPING OF A LONG ENDURANCE UAV APPLYING A SOLAR LTA CONCEPT", Proc. 11th AIRTEC Congress AEAT2016, Munich, Germany, 2016

«A new concept of flying»

LILIUM JET

by LILIUM

Capacity	Altitude	Propulsion	Autonomy	Speed	Range
4 passengers + 1 pilot	up to 10,000 ft	36 electric-powered ducted fans	1 hr	300 km/h	300 km

Lilium is an aviation company developing an emissions-free regional air mobility service. It has designed and prototyped the Lilium Jet, a brand-new type of aircraft that will enable it to deliver regional journeys that are considerably faster than rail or road, yet competitive in price. The demonstrator aircraft first flew in 2019 and is a five-seater, fully-electric aircraft that can take-off and land vertically (eVTOL). Lilium expects to service a sizable global market demand by connecting communities at a fraction of the cost of conventional high-speed infrastructure, with zero operating emissions.

Co-founded in 2015 by four visionary engineers, Daniel Wiegand (CEO), Sebastian Born, Matthias Meiner and Patrick Nathen, Lilium has attracted more than $375m in funding from world-class investors such as Atomico, Tencent, Baillie Gifford, LGT, Freigeist and Obvious Ventures. Lilium is headquartered in Munich and currently employs more than 500 people.

LOON

by LOON

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
	75,000 ft.	Solar	n/a.	Wind speed	80 km

Billions of people around the world are still without internet access. Loon is a network of balloons traveling on the edge of space, delivering connectivity to people in unserved and underserved communities around the world.

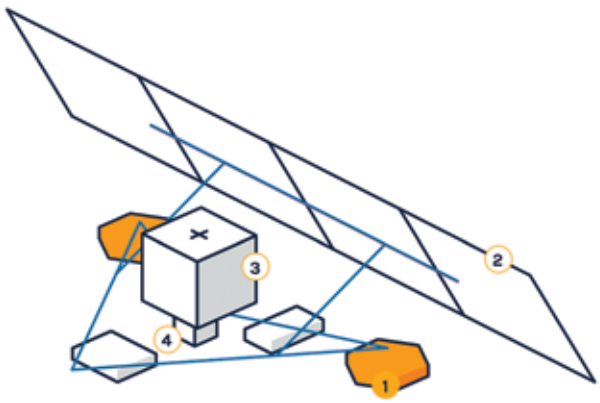
The company partners with mobile network operators globally to expand the reach of their LTE service.

Together, they help expand coverage to places that lack it, supplement existing networks, and provide expedient coverage after natural disasters.

The current connectivity ecosystem consists of just two basic methods to deliver a connection: signal from space and signal from ground; and while connectivity becomes more integral to our daily lives, the expansion of internet access is slowing, leaving billions of people unconnected

In the last few years, we've seen a dramatic slowdown in the growth of internet access: from 19% in 2007 to less than 6% in 2016. Traditional connectivity technology has its limits and Loon has created solutions to expand coverage beyond the reach of ground-based infrastructure.

If we want to connect more people, places and things, we need something more. We need a third layer to the connectivity ecosystem. That's where Loon comes in: we're building a new layer of connectivity technology in the stratosphere to connect regions once thought of as unservable.



«Connect people everywhere»

MAKANI KITES

by MAKANI

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
	Tethered	Wind	n/a	n/a	n/a

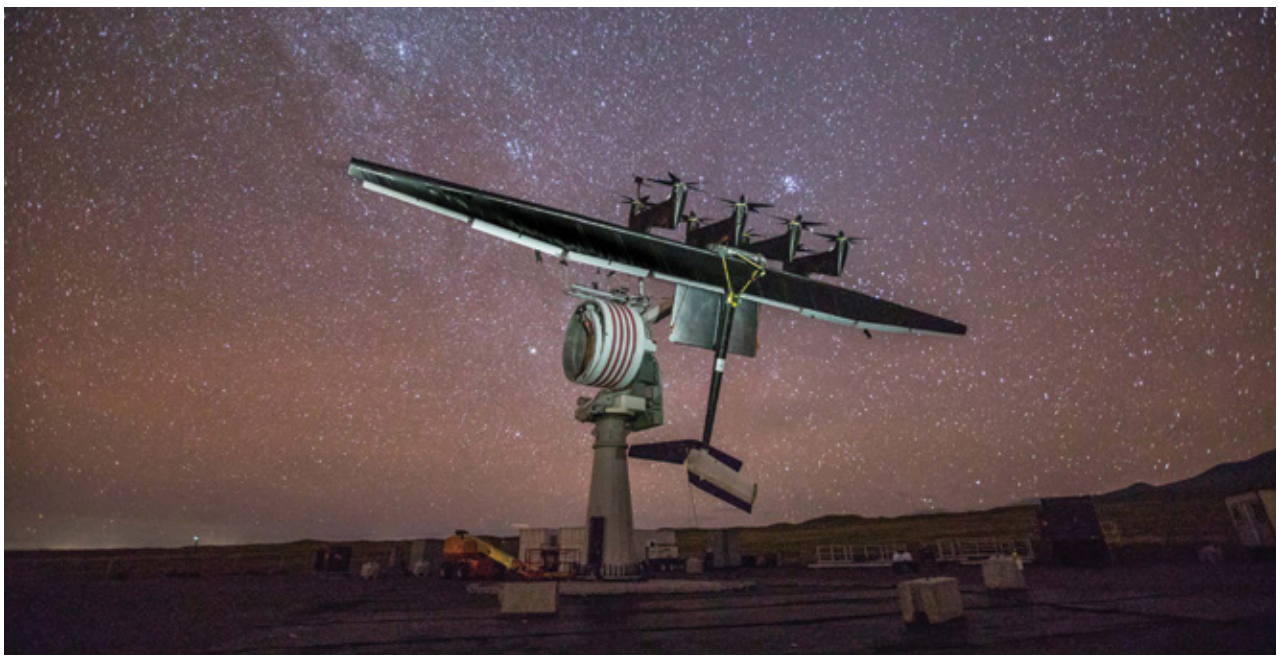
Wingspan: 85 feet

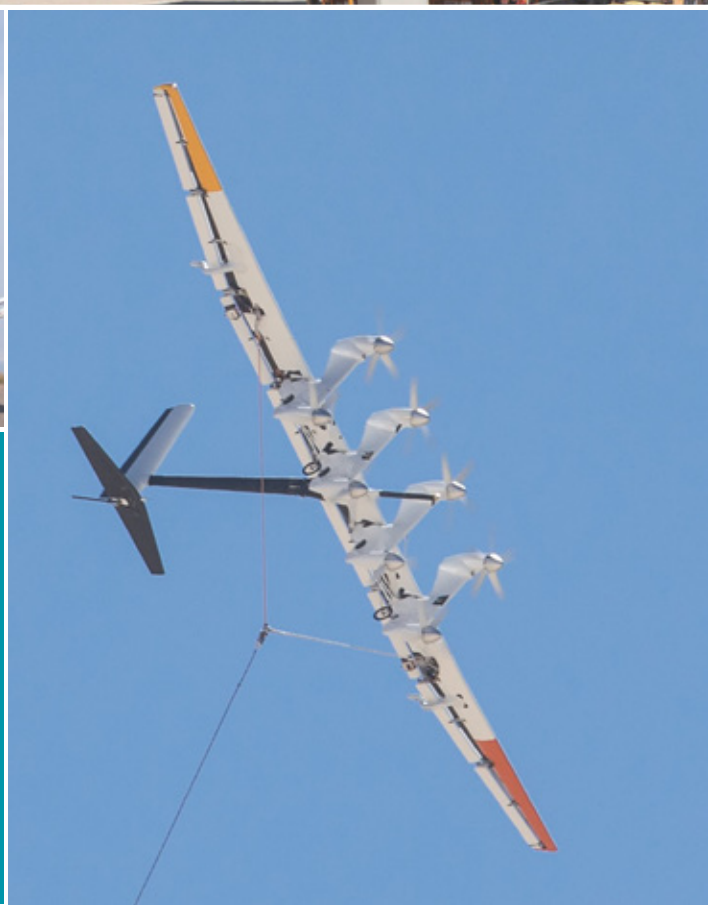
Makani is developing energy kites that use a wing tethered to a ground station to efficiently harness energy from the wind, generating electricity at utility-scale. As the kite flies autonomously in loops, rotors on the wing spin as the wind moves through them, generating electricity that is sent down the tether to the grid

Wind energy has the potential to power the world 100 times over, yet only 4% of the world's electricity comes from wind. The Makani energy kite system integrates advances in aerospace engineering, materials science, and autonomous controls to create a lightweight design that is easy to transport and install.

The low mass of Makani's system unlocks wind energy resources in areas offshore that are not economically viable for existing technologies. Harnessing energy from the wind in new places means more people around the world will have access to clean, affordable wind power.

Makani has over a decade of experience designing, building, and testing energy kites. In 2015 we began testing our current prototype which is designed to transfer up to 600 kilowatts of electrical power—enough to power about 300 homes. We successfully demonstrated our airborne wind power system offshore in 2019.





«Airborne wind energy»

A350 - 800

by AIRBUS

AIRBUS

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
270	n/a	n/a	n/a	n/a	n/a

The most perfect designs are often found in nature. That's why Airbus looks to learn from the natural world when designing and improving upon its aircraft. As the newest member of the company's wide-body family, the A350 XWB is an example of how this inspirational blend of science and nature represents another significant evolution in the ongoing mission to conceive and manufacture the perfect aircraft.

The A350 XWB has learned from nature to help ensure a healthy future for the planet, whether it's the revolutionary adaptive wing design – inspired by birds – which morphs while airborne to achieve maximum aerodynamic efficiency by optimising wing loading, reducing drag and lowering fuel burn; or the savings generated by innovative technological advances.

Designed with passengers and airlines at heart, the A350 XWB benefits from being built with over 70% advanced materials; combining carbon composites (53%), titanium and modern aluminium alloys, to create a lighter and more cost-efficient aircraft while also reducing maintenance requirements. The latest-generation Rolls-Royce Trent XWB engines are quieter and more efficient.

The combination of these advantages result in 25% lower operating costs, fuel burn and CO2 emissions when compared with previous-generation aircraft – showing Airbus' commitment to protecting the environment while remaining at the cutting edge of air travel.

«Shaping the future of air travel»

B787-8 DREAMLINER

by BOEING

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
248	n/a	n/a	n/a	n/a	13,530 km

The industry-leading technology of the 787 Dreamliner is creating remarkable opportunities for airlines around the world and dramatically improving the air travel experience. We call it the Dreamliner effect. The airplane's unparalleled fuel efficiency and range flexibility enables carriers to profitably open new routes as well as optimize fleet and network performance. And for their passengers, an experience like none other in the air, with more comfort and less fatigue. The Dreamliner effect. That's a better way to fly.

«It Reinvents Fleet Plans and Transforms Business Plans.»

GLOBAL 7500

by BOMBARDIER

BOMBARDIER

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
19	15,545 m	n/a	n/a	0.85 mach	14,260 km

The Global 7500 aircraft stands alone as the world's largest and longest range business jet. Within its luxurious interior are four true living spaces, a full size kitchen and a dedicated crew suite. Elevate your flight experience and discover the uninhibited freedom and tailored luxury of the Global 7500 aircraft—a new class of business jet.

Step aboard and into a Club Suite that means business. Featuring the revolutionary Nuage seat and extra-large windows, this bright and inviting living space creates the perfect environment for quiet reflection, conversation and business productivity.

With new larger and evenly spaced windows, the Global 7500 aircraft provides more natural light than any other cabin in business aviation, as well as providing every passenger with a window seat.

With comfortable seating for six, the elegant Conference Suite of the Global 7500 jet features a distinct design with sophisticated style. Bring guests together for a business lunch or a family dinner and savour fine cuisine, meticulously prepared in the industry's largest and most well-appointed kitchen.

The kitchen on the Global 7500 aircraft is as elegant as it is functional. Developed in consultation with the world's top cabin crews, the remarkable kitchen was designed with intent to prepare the industry's most varied meal selections.

«A new class of business jet»

ATR AIRCRAFT

by ATR

ATR is the world leader in the market for regional aircraft up to 90 seats.

Established in November 1981 and based in Toulouse, ATR is a joint partnership between two major European aeronautics players, Airbus and Leonardo.

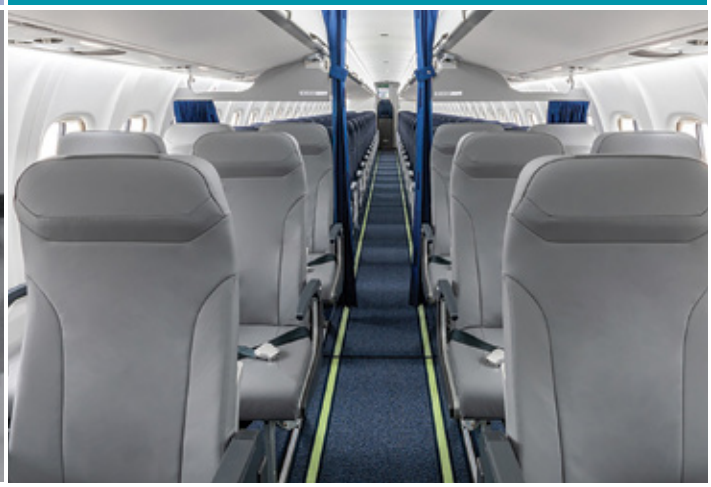
ATR has sold nearly 1,700 aircraft and has over 200 operators in more than 100 countries. Every 8 seconds, an ATR turboprop takes off or lands somewhere around the world.

ATR manufactures two sizes of turboprop aircraft, the 70-seat ATR 72 and the 50-seat ATR 42. Both aircraft benefit from fuel, emissions and cost efficiencies provided by turboprop engines.

ATR turboprops provide airlines with the best opportunities for operating short-haul routes at a low operating cost. Airlines servicing smaller markets desperately need more fuel efficient-aircraft to continue operating regular flights between regional airports and to main airports and hubs.

Manufacturing Advanced Turboprops!
ATR's only business is turboprops – making ATR the industry experts in producing efficient, high-tech aircraft for regional airlines. ATR uses the latest manufacturing techniques and high-tech engines. ATR utilizes the highest amount of advanced, composite materials among regional aircraft. Approximately 20 percent of the ATR 42 and ATR 72 structure is made of composites, which helps reduce fuel burn and emissions.

«Propelling the new connection»



INVENTING NEW HORIZONS

by SAFRAN

PRODUCTION

Safran develops innovative solutions to anticipate our customers' evolving requirements, and provide the technologies, products and services needed for tomorrow's aerospace and defense markets.

One of the initiatives focuses on inventing tomorrow's sky. New-generation aircraft engines help make air travel safer and more environmentally-friendly: they're quieter, cleaner and use less fuel.

The use of new materials, from advanced metallic alloys to composites, means lighter and stronger parts. Safran is developing exciting new materials to increase product performance in terms of strength, weight and environmental impact.

Expertise in production processes is a key to making increasingly effective and innovative aircraft equipment.

One of the latest processes is additive manufacturing, more popularly known as 3D printing. It can make parts with complex shapes, faster and at lower cost than with conventional processes

At Safran, we're working to foster the development of «more-electric» aircraft, because we are firmly convinced that tomorrow's planes will have to be even more reliable, powerful and economical, while offering greater energy efficiency.

Allow aircraft to taxi without using their jet engines, replace the traditional hydraulic and pneumatic lines with electrical wiring... These and other advanced solutions are all under study or already being applied by Safran, the world leader in electrical interconnection systems for aircraft.

Efforts to increase the use of electrical systems on aircraft also concern helicopters. Give rise to endless possible applications, from reduced operating costs to predictive maintenance.

Our industry is entering a whole new era. Tomorrow's airplanes will probably be very different from the ones we see today.

«Inventing tomorrow's sky»

CELERA 500L

by OTTO AVIATION

OTTO AVIATION

The Celera 500L is designed for transcontinental range with operating costs equal to or better than commercial airline ticket pricing on a per passenger basis. This criteria requires extremely low drag across the entire aircraft with a highly fuel efficient propulsion system. To achieve this, extensive use of laminar shapes was used for the wings, fuselage, and tail sections.

The Celera 500L is a revolution in private aviation. It offers a drastic reduction in drag over traditional aircraft. The results are in:

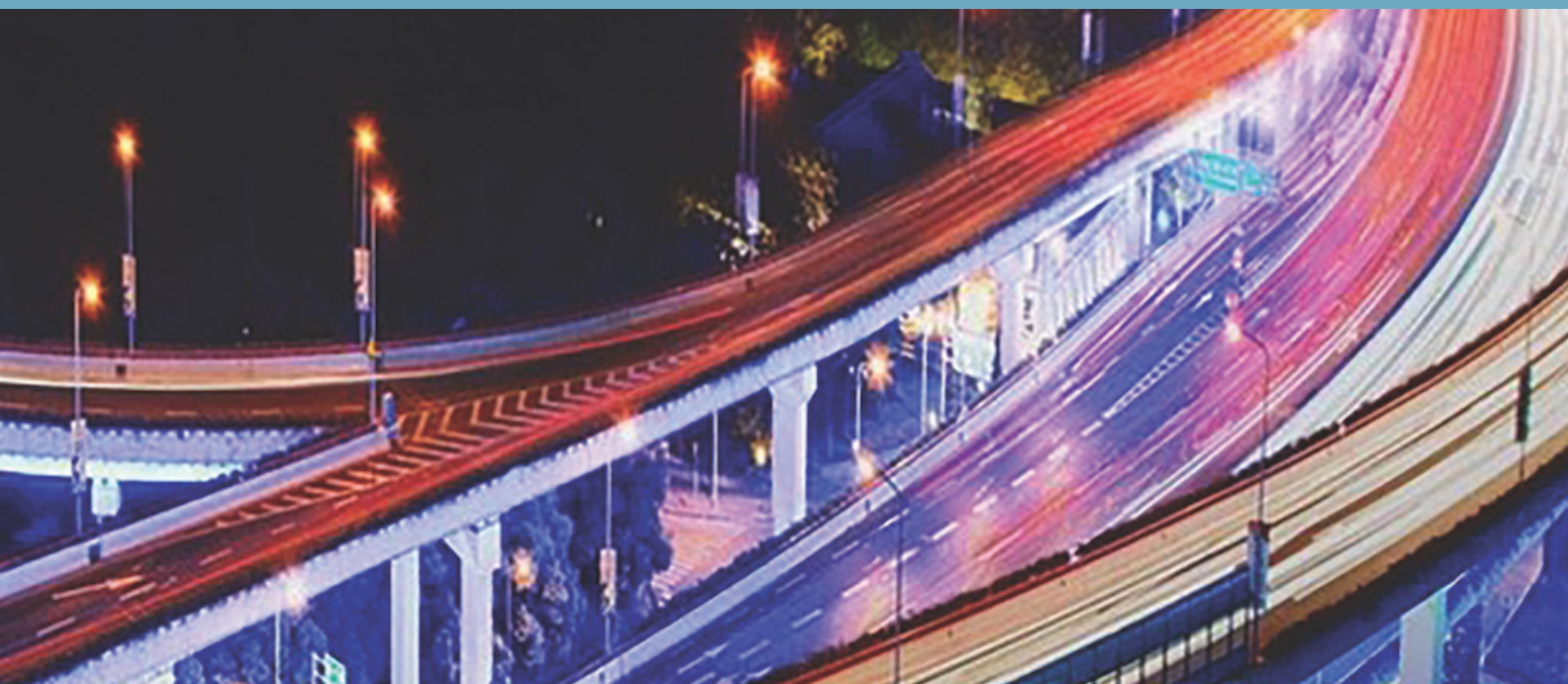
- 5-7 times reduction in operating cost
- 8 times lower fuel consumption
- Cruise speeds equivalent to similar-sized jet aircraft
- 4,500 nautical mile range

THE 4,500 NAUTICAL MILE RANGE MEANS THE CELERA 500L CAN SERVICE VIRTUALLY ANY CITY PAIR IN THE U.S. WITHOUT REFUELING.

The Celera 500L is designed with safety in mind. No fuel in wings. Mechanically linked flight controls. Plus, reliable and redundant aircraft systems including the RED A03 engine. The engine effectively operates as two 6-cylinder engines, allowing for continued power and operation of all critical systems under numerous failure scenarios. All of this and more ensures the highest level of safety and compliance within FAA regulations.

«It started with an idea of what air travel could be.»

PROTOTYPES



THE SKYGAUGE

by SKYGAUGE ROBOTICS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	2 kg	400 m	Rotorcraft	Semi-manual piloting	40 kph	1 km

Skygauge Robotics has reinvented the drone to perform work not possible with drones today. Drones are increasingly being used by companies to collect data. They've mainly been used for mapping, collecting video, and taking pictures.

Why haven't drones been used for more physical jobs like painting, pressure washing, or for construction? The problem is that drones today have design limitations preventing them from doing these jobs. They are configured with fixed rotors. The drone is only able to move by tilting the frame in the direction of travel. This tilting frame is a slow way to react to wind or other forces that act on the drone. These stability limitations are why we've mainly seen drones only collecting data with cameras.

The Skygauge has solved these stability problems by reinventing the drone. Their new design flies by tilting the rotors to move while the center frame remains stable. Tilting the rotors offers instantaneous response to wind or other forces that act on the drone. Using this stable platform, this new design aims to perform all types of jobs like painting, sanding, drilling, pressure washing, and attaching a robot arm to perform any type of job. Skygauge aims to perform all manner of dull, dirty, and dangerous jobs in the air.

The company believes they can use this drone design to bring a wide range of work automation to the sky. The first application for the Skygauge is conducting industrial inspections requiring contact. Large industrial infrastructure like refineries, offshore platforms, ships, and bridges are important because they make and transport the goods we use every day. These large metal structures corrode over time and they need to be inspected regularly. To monitor for corrosion, inspectors contact a sensor to these metal surfaces to measure metal thickness. They detect metal thinning over time and use this information to decide when and where to make repairs. Since these structures are tall, workers currently use ropes or scaffolding to inspect all areas of the structure. This puts worker lives at risk, wastes months of time, and costs companies hundreds of thousands of dollars. Using the Skygauge,inspectors will perform their jobs 5-10x faster, more cost effectively, and safer because workers stay on the ground. Once Skygauge builds a drone to perform any inspection, they will branch out to creating drones for any type of work.

«Skygauge, the drone for any inspection »

ZEPHYR 7

by AIRBUS

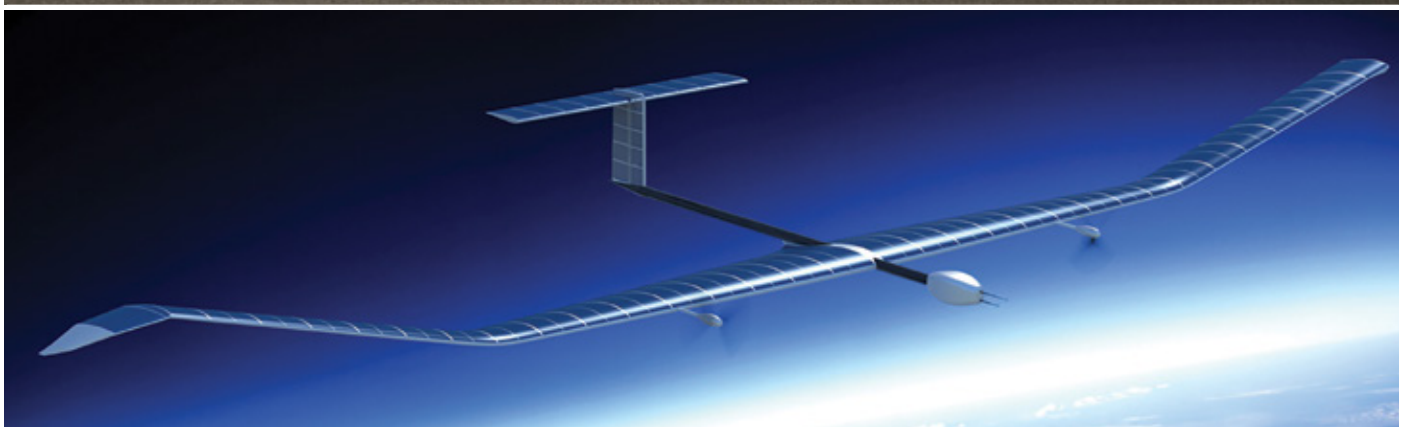
AIRBUS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	2.5 kg	n/a	n/a	14 days	56 km/h	n/a

Airbus Defence and Space announced the opening of the world's first High Altitude Pseudo-Satellite (HAPS) flight base serving as the launch site for the Zephyr UAV in Wyndham, Western Australia.

This site has been chosen due to its largely unrestricted airspace and reliable weather and is the result of significant investment by Airbus into its Zephyr programme.

Zephyr is the world's leading, solar electric, stratospheric Unmanned Aerial Vehicle (UAV). It harnesses the sun's rays, running exclusively on solar power, above the weather and conventional air traffic; filling a capability gap complimentary to satellites, UAVs and manned aircraft to provide persistent local satellite-like services.



PARCELCOPTER 4.0

by WINGCOPTER

WINGCOPTER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	6 kg	5000 m	20 min.	n/a	150 km/h	45 km

Revolutionising the delivery of medicines to remote areas using drones – the pilot project Deliver Future proves that it's not science fiction.

Three experts in their respective fields are making it happen: The German drone manufacturer Wingcopter, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and DHL. Over a six-month period, they successfully tested the delivery of health commodities using a drone flying to Ukerewe Island in Lake Victoria. During the trials, the autonomous DHL Parcelcopter 4.0 completed the 60 km flight from the mainland to the island in 40 minutes on average. A total of 2,200 km were flown and roughly 2,000 flight minutes recorded during the pilot project.

«One WINGCOPTER. Multi-Purpose.»

JETQUAD

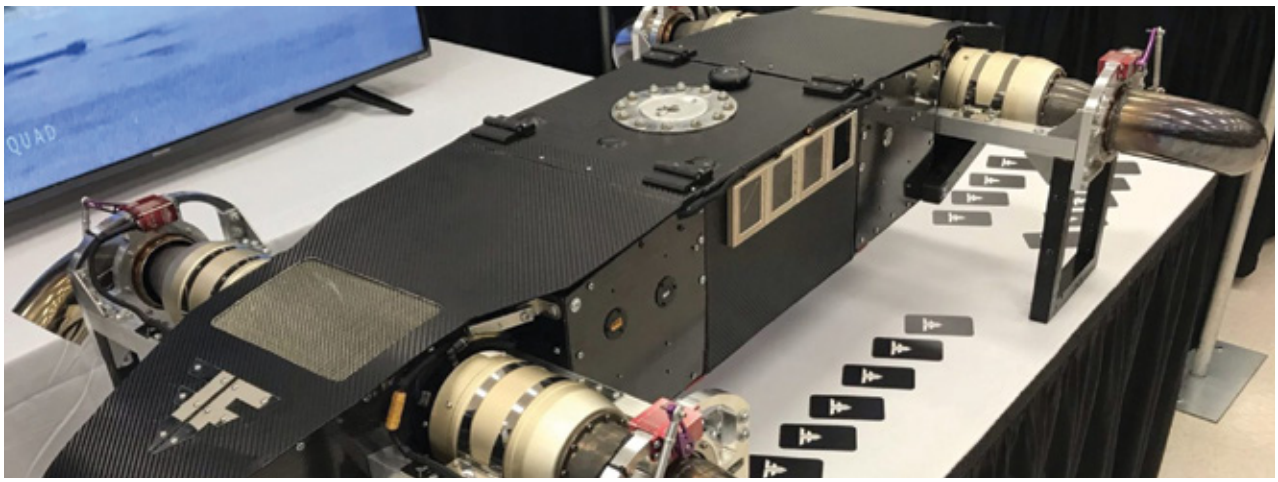
by FUSION FLIGHT

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	40 lb	n/a	4x Microturbine Jet-Engine	30 min	300 mph+	25 miles

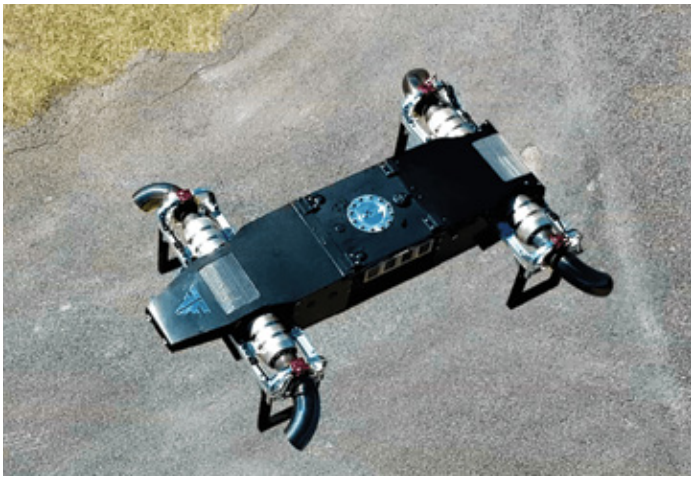
JetQuad is the world's smallest and most powerful jet-powered drone with vertical take-off and landing capabilities. It is like an unmanned, scaled-down version of the Harrier Jump-Jet

At its foundation, the AB5 JetQuad is a drone, also known as UAV (Unmanned Aeriel Vehicle) or UAS (Unmanned Aerial System). However, the JetQuad relies on new type of propulsion - it is not a quadcopter, nor a helicopter, nor an airplane. Four micoturbine jet-engines produce a combined 200-Horsepower at full throttle and are all coupled with proprietary Thrust Vectoring Systems. We refer to this design as the «H-Configuration» - this is the first ever configuration in which the jet-engines alone provide the power for both vertical and horizontal flight as well as complete attitude control of the vehicle. The result is a compact, fully-autonomous, all-diesel drone, that can take-off and land virtually from any surface and capable of high speeds and payload capacity. FusionFlight has been developing JetQuad since 2016, check out some of the articles published over the years.

In addition, the high-precision Thrust Vectoring Systems (TVS) offer numerous advantages over modern multicopters. The TVS are actuated by high-torque servos which have significantly faster response time then the brushless motors/propellers used on ordinary electrical drones. As a result, the JetQuad is more agile and more controllable. The TVS also allow the channeling of engine exhaust from all four turbines in the aft direction of the drone during horizontal flight. Consequently, the JetQuad can utilize the power of all four engines to attain top-speeds unimaginable for similar-by-size VTOL aircraft.



«Quad Turbine VTOL Drone»



X5

by VAYU

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	23 kg	n/a	n/a	n/a	23 m/s	n/a

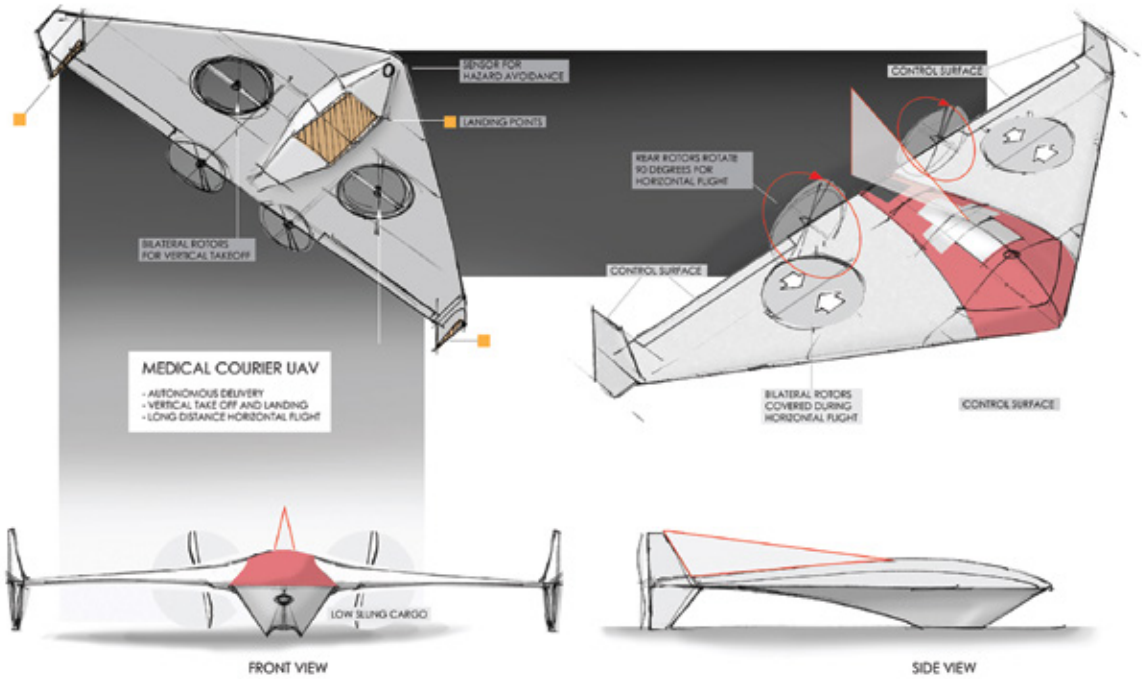
Vayu's mission is to solve the hardest and most critical logistics challenges, anywhere in the world. We aim to set the standard and lead the market in safe, reliable, and affordable VTOL aircraft.

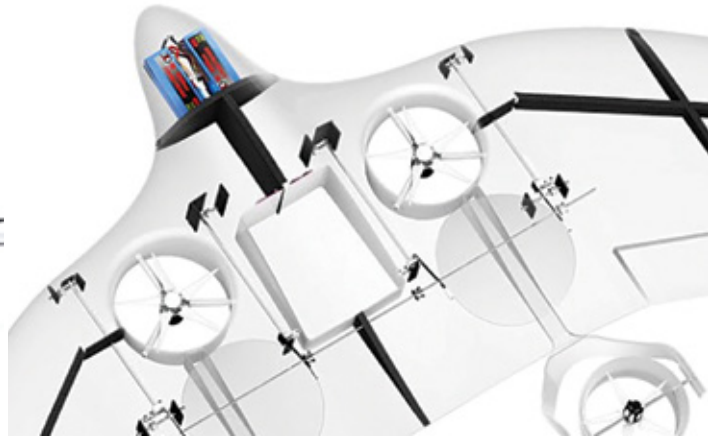
Medical: Blood products for transfusion. Time-sensitive anti-venoms. Critical medications, vaccines, and surgical supplies - delivered.

Logistics: Mail. Spare parts. Consumer electronics. Time-sensitive documents. Last mile delivery.

Disaster: Compromised infrastructure. Earthquake. Hurricane. Flooding. Reaching populations in need.

Energy: Open-pit mines. Offshore oil platforms – delivered.





www.vayu.us/product | ANN ARBOR, MI, USA

AUTONOMOUS POD TRANSPORT

by BELL

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	55 lbs	n/a	n/a	5.2 min	100 mph	10 miles

Autonomous Pod Transport offers a whole new level of operational efficiency enabled by our expedited services.

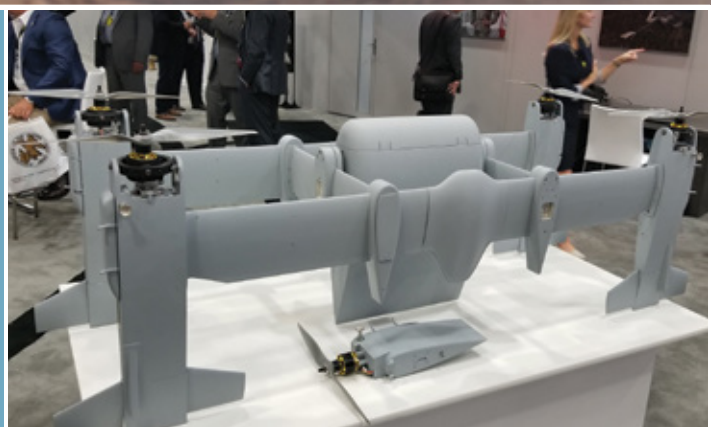
Delivering what you need, wherever you need it. Endurance is improved by autonomous vertical take-off which uniquely transitions to wing-borne flight, providing Multi-copter payload capability with fixed wing speed.

Intuitive modular design and rapid battery swap & recharging, streamline system deployment and rapid reconfiguration.

Go further, faster. Carry payloads at increased ranges and speeds reinforced by the unique tail-sitter design that optimizes energy consumption through its transition to wing-borne flight.

Keep mission objectives in check. Three times faster than a ground vehicle, reliably transport what you need within minutes.

«Redefining on-demand delivery»



Drone4Agro V2

by Drone4Agro

DRONE4AGRO

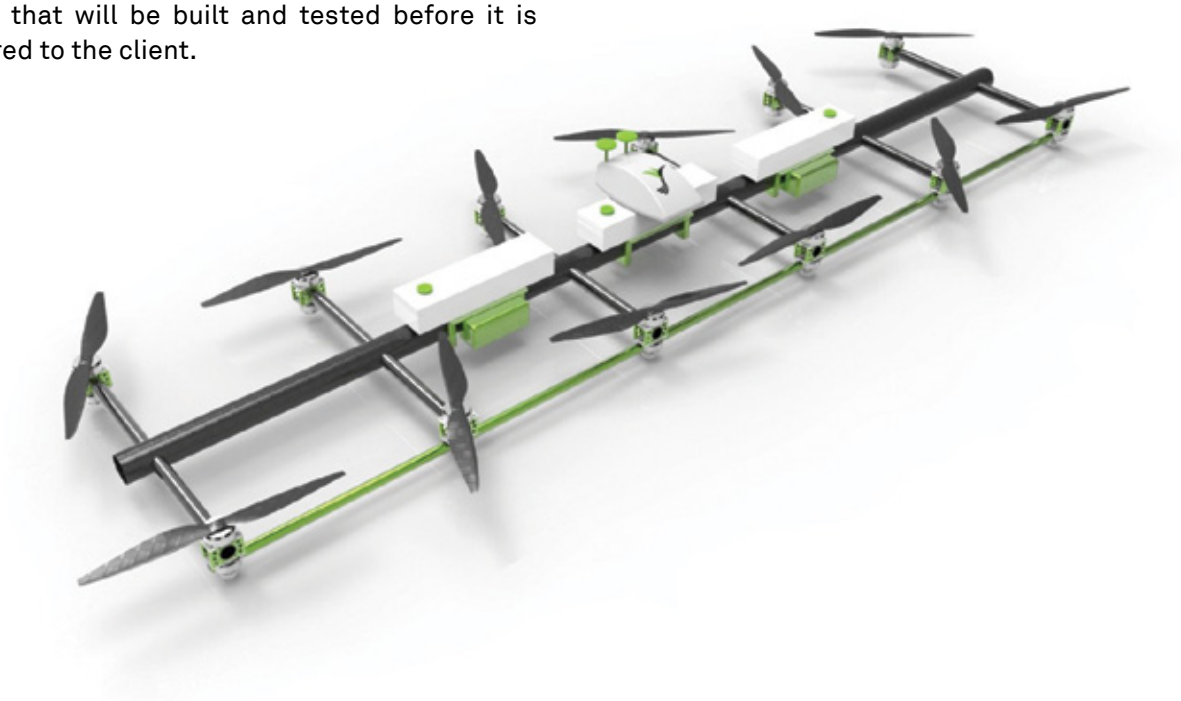
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	40 kg	1 m	16 motors	n/a	n/a	n/a

Empty drone weight: 40 kg | Length of spray drone: 1.9 m | Span of spray drone: 6.0 m

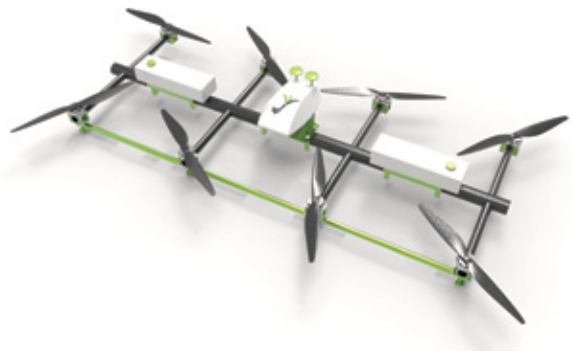
Drone4Agro is a start-up in the Netherlands working on drones for agriculture for different applications, such as spraying, fertilizing, sowing, etc.. The company makes drones for 5 to 100 liter payload. We prefer working with biological control means like bacterial mixes, nematodes, etc..

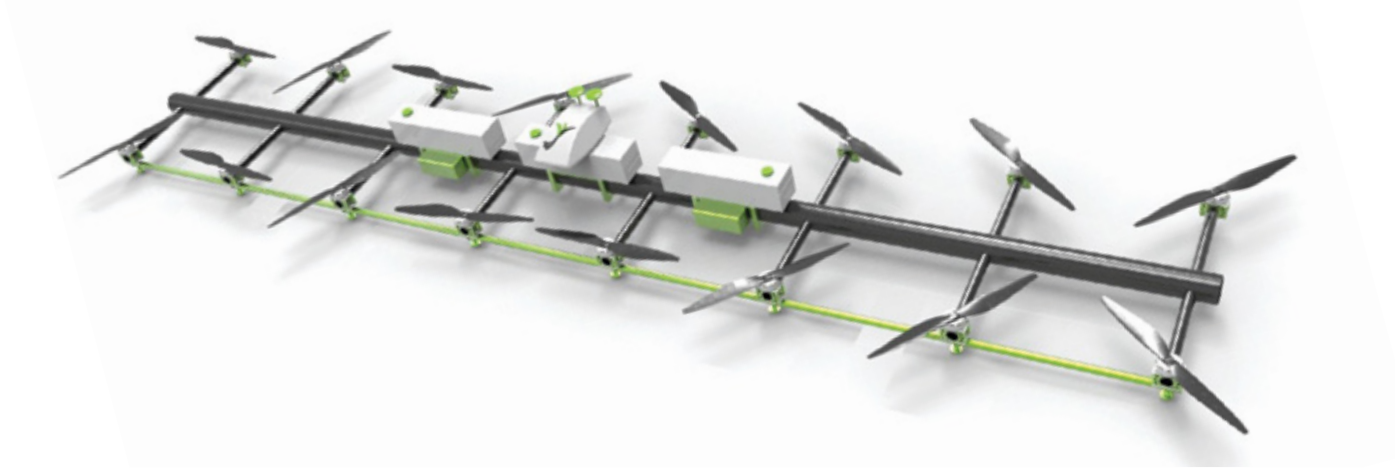
The Team consists of a number of aeronautical engineers, software engineers, mechanical engineers, and agricultural engineers. This team works out the specific customer requests (eg drone with XX payload and spraying 5 ha per hour) in a concept and next after discussion with the client, start with the development of the prototype that will be built and tested before it is delivered to the client.

Unique is that the client can make a size selection (between 3, 4.5 and 6 width) and type selection based on the needs. Small open field horticulturists and flower companies have different needs as larger crop producers like corn or potato producers. So for all applications one can choose an optimal selection saving money for the client and bringing about the optimal result.



«Tailor made agricultural drones for spraying and fertilizing crops.»





OPENSKY M-02

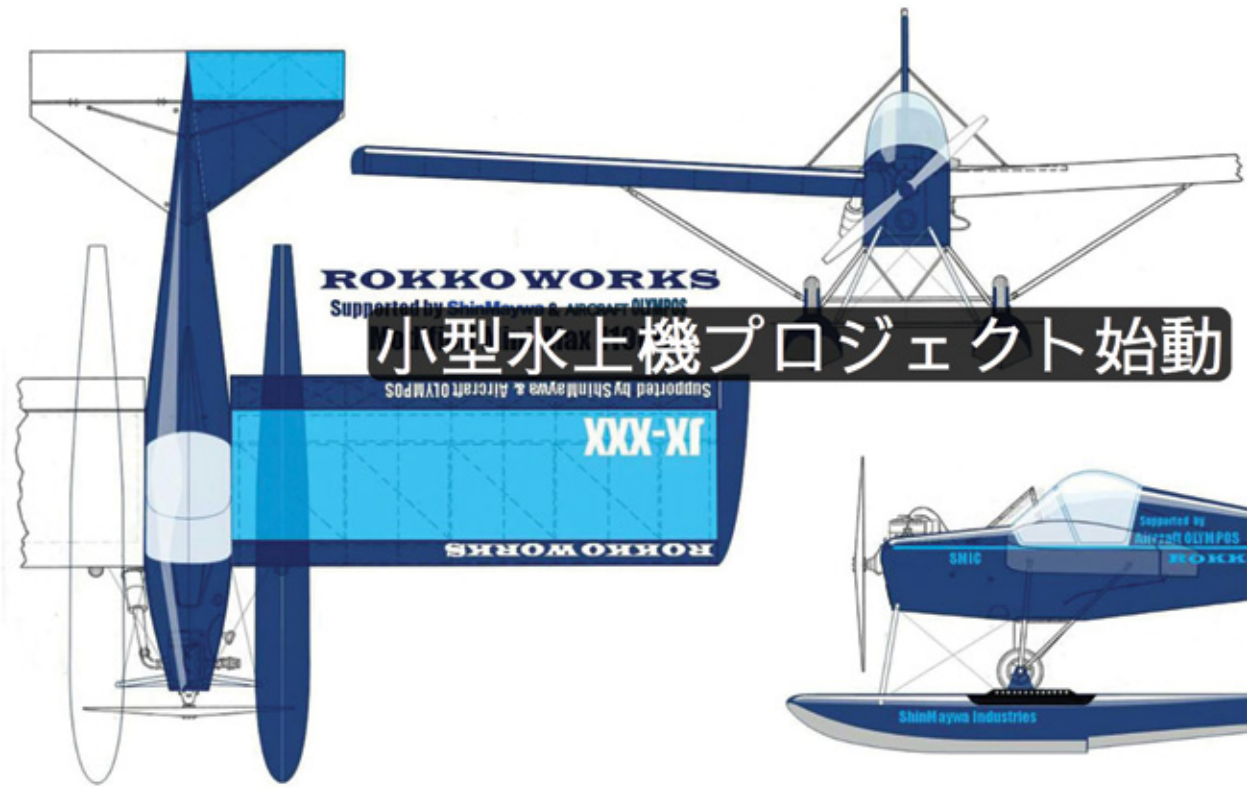
by AIRCRAFT OLYMPOS

AIRCRAFT OLYMPOS

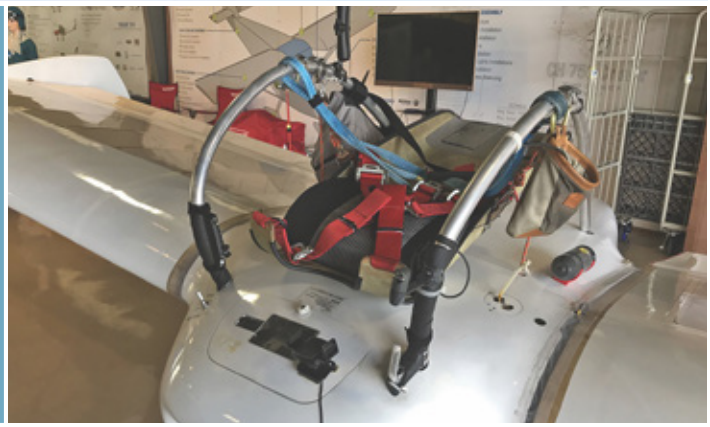
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	50 kg	n/a	n/a	15 minute	90 km/h	n/a

The OpenSky is a Japanese primary glider/ jet-powered motor glider inspired by the Möwe aircraft flown by the protagonist in the Hayao Miyazaki Japanese anime Nausicaä of the Valley of the Wind. It is a tail-less design intended to be powered on take-off and climb for a duration of 10 minutes, then flown unpowered as a glider.

When the movie was first released in 1984, a vehicle like that seemed like it could only exist in science fiction. Nevertheless, Kazuhiko Hachiya has spent the past decade designing and testing his own single-person glider in order to unveil a full-sized model with a working jet engine.



«The OpenSky M-02J, a Japanese-made, jet-powered glider that might make your dreams come true.»



RUAS-160

by BY INVAP - CICARÉ - MARINELLI

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	70kg (sensors and fuel) Multi-Payload EO/IR Gimbal, Agro Payload, Compact Radar SAR, LiDAR, Special Sensors for field ap	10.000ft	Single 39HP or Dual 23 HP piston	6 hs	150 km/h (80 kts)	360km (200nm)

The RUAS-160 is a compact, modular, long range, Rotary-wing Unmanned Aerial System with contra-rotating coaxial rotors.

The main components of RUAS-160 are the Unmanned Aerial Vehicle (Helicopter), the air-to-ground communications link, and the Ground Control Station. A configurable suite of specific airborne payloads provides the capabilities required for each mission.

For Defense and Security activities, the system is equipped with the proper combination of gyro-stabilized EO/IR sensors, SAR Radar, LiDAR, making it able to detect, recognize and identify moving and stationary targets, both on land and sea.

For the agricultural industry, RUAS-160 is configured with a hyper-selective spraying and imaging payload, designed to obtain information to determine the health of the soil and the crops and act accordingly.

The system can be used also in several civil applications like Oil & Gas, Forestry, Mining, Fire Fighting support activities, logistics, organ transport, medical kits or food distribution in emergency response operations and Search and Rescue missions on land or sea, among others.

Due to its compact and lightweight design, it can be easily transported, deployed and operated in adverse weather conditions.

The Ground Control Station is based on a robust portable control system for minimal logistics operation, or on an immersive control console system with long range communication capabilities.

«Ultra-Versatile Rotary-wing Unmanned Aerial System»

www.invap.com.ar | Av. Cte. Luis Piedrabuena 4950, San Carlos de Bariloche, Río Negro, Argentina
www.cicare.com.ar | Av. Augusto Cicaré 5300, Saladillo, Provincia de Buenos Aires, Argentina
www.marinellitechnology.com.ar | Mariño 41, Venado Tuerto, Santa Fe, Argentina

MARK-1

by OMNI HOVERBOARDS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	80 kg	15 feet	12 lithium polymer batteries	1.5 minute	11 km/h	0.3 km

$ 20 000$

The Mark-1 is an octocopter with engines oriented down, getting a clear and sure top platform in which, the pilot can be. Additionally, the control of the power makes it through a remote control connected directly to the hoverboard, horizontal stabilization is achieved with a flight controller similar to other multirotor, and changes of direction are made by the inclination of the body.

In 2015, Catalin Alexandru Duru broke the world record for the longest hoverboard flight. Duru flew up to five metres above a lake for a distance of 0.2759 km aboard his homemade hoverboard in a trip that lasted more than 1.5 minutes. Thereafter, Duru created Omni Hoverboards and he is currently working on a next-generation version of his invention.

«Omni Mark-1 is a Propeller-Based Hoverboard»

CEZERI

by BAYKAR

BAYKAR

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	80-100 kg	2000 m	8 x Brushless DC motor	1 hour	100 km/h	70-80 km

Time required to fully charge the batteries:	**1 hour**	**Take-off / Landing:**	Vertical take-off
Dimensions (width X length X height):	**3730 x 4070 x 1870 mm**	**Maximum Take-off Weight:**	241 kg

The Cezeri Flying Car, will make a radical change by providing totally Green urban air transport. The Cezeri, is being developed to bring a reliable solution to aerial delivery of time critical packages and medicines in congested urban cities. In addition the Cezeri can be used in remote areas for search and rescue and for military supply missions.

The Flying Car is a totally Green, renewable Urban Air Transport (UAT) concept that offers the alternative of automobiles in urban transportation. Urban Air Transport is a reliable and effective passenger and cargo transport ecosystem covering city centers and suburbs. Besides, Cezeri Flying Car, which can be used for autonomous logistic support including the health sector with its built-in artificial intelligence system.

The vehicle is designed to fly with minimum technical and aviation knowledge.

Cezeri Flying Car is a single-seat, rotating wing aircraft consisting of 8 Brushless DC motors and propeller pairs. The electric vehicle is powered by rechargeable batteries.

It is also controlled with Vehicle control lever, altitude control lever, touch command screen, two physical buttons (Emergency In, Stop) and two switches (Engine Battery Switch, Avionic System Switch).


CEZERi
CEZER


CEZER

FLYBOARD AIR EXP
by ZAPATA

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	102 kg	1524 m	Fuel	10 min.	150 km/h	n/a

Zapata's Flyboard Air EX is the next generation of advanced individual mobility. An embedded stability program uses vectored thrust from six small turbine engines to create an intuitive, responsive, and imminently stable flying platform. Engineered for safety, the Flyboard Air EXP incorporates multiple redundancies to provide graceful degradation and safe landing in the event of control channel interruption or multiple engine-loss. With Zapata's proprietary balance methodology, fail-safes, and patented designs, the Flyboard Air is superbly safe and stable in the air and can reach speeds of over 90 mph, allowing the user to fly with exceptional confidence.

«The next generation of advanced individual mobility»

JB-11

by JETPACK AVIATION

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	104 kg	4,572 m	Fuel	10 min.	193 km/h	0.64 km

$ 340 000$

The JB-11 is powered by six turbo jet engines specially modified for vertical flight. A sophisticated engine computer balances thrust between engines and in the unlikely case of an engine failure it will enable the pilot to maintain control and land. Additionally, all computer hardware and code are designed and written respectively in-house.

The JB 11 can carry a heavier fuel load and hence has longer endurance than the JB 10, the past version. Moreover, it can be operated either in the Ultralight or Experimental category.

«A beast» in the words of pilot and CEO David Mayman

JET-WING

by JETMAN

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	105 kg	1,981 m	Fuel	10 min.	257 km/h	1,981 m

$ 150 000$

Jetman is the culmination of 25 years of innovation and is set on the path to achieving what has long been thought as impossible. Driven by his desire to “fly like a bird,” Swiss military-trained pilot and aviation enthusiast, Yves Rossy, designed and built what is today known as the Jet-wing.

When Rossy flies, he goes up 1,981 meters in a helicopter and for 10 minutes, he knows what it is to fly. The only instruments Rossy uses are an altimeter and a timer mounted on his chest. Other than that, he simply uses his skin and ears as airspeed indicators without making use of any other mechanism.

«That is one of the best moments, this pass from vertical to flying»
– Yves Rossy

THE RED HUMMINGBIRD HOVERBIKE

by FLYT

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	250 lbs	Governed to 10ft, technically capable of flying to 4,000ft	Battery powered	20 min	Governed to 60 mph	n/a

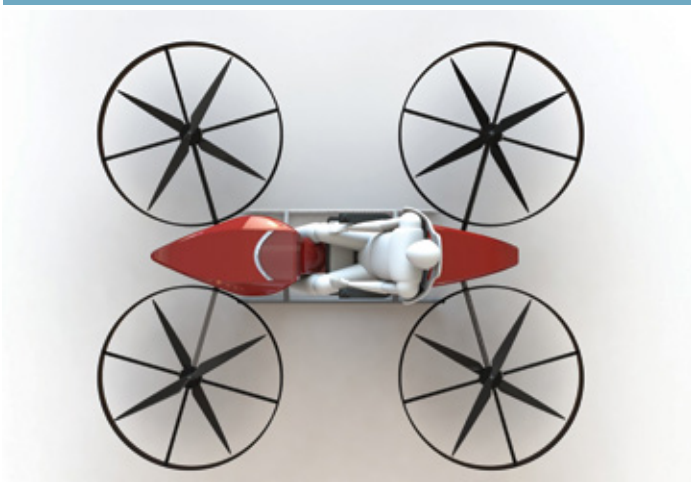
$2.40 per flight in electricity costs

A hoverbike like no other; simple to fly, easy to maintain and a whole lot of fun to ride. Designed for low altitude joy-rides, the Hummingbird is one for enthusiasts and fleet services alike. Our vision of the Hummingbird is one of playful exuberance. Whether it is used for the sheer joy of flying or as a fleet vehicle set within a racecourse style environment, the Hummingbird is safe, quick, and responsive.

The prototype production vehicle was completed in January, 2020 and conducted its first test flight on January 30th. After several weeks of testing we are performing upgrades to the vehicle and expect to be flying again in March, 2020 with our first human flights.

We expect to release our first photos and video in March, 2020 once we've completed its initial flight tests.

«The future of transportation»



MALLOY HOVERBIKE

by MALLOY

MALLOY AERONAUTICS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1 or unmanned	130 kg	3 m	Hybrid	6 min.	97 km/h	148 km

$ 40 000$

The Hoverbike by Malloy is a large quadcopter, the size of a small car, with an electronic flight controller brain and a simple all electric drive system. It can autonomously deliver aid, people, and equipment over buildings, rivers and mountains at the push of a button.

It is cheap, safe, and reliable. Moreover, this air vehicle can fly to the same speed and height as a typical light helicopter. However, unlike a helicopter it can operate safely close to the ground and around people, and can do so, with little or no training.

«World's first flying motorcycle»

AERO-X

by AEROFEX

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	140 kg	4 m	Gasoline	75 min	72 km/h	1.5 km

Aerofex is developing a portfolio of technologies that are enablers for aerial utility and urban air mobility. Fundamental to those efforts is the Aero-X - our next-generation manned demonstrator and test-bed for our latest innovations. The Aero-X is designed primarily for speed, safety, and reliability. Safety and reliability are inherent in its enclosed fans, intuitive pilot interface and redundant systems. Speed, because the goal is to get there fast - whether to the finish line, or to work.

The Aero-X by Aerofex is a surface-effect craft that rides like a motorcycle but gets you off the ground. The air vehicle could be adapted for a variety of uses such as surveying, search and rescue, border patrol, disaster relief, agricultural, ranching, and rural transportation. Because it responds to people's movements just as a motorcycle would, the Aero-X in intuitive to fly. And as it is built with very few moving parts, its cost of ownership is a fraction of the most basic airplane or helicopter.

«Our mission is to make private air mobility accessible to everyone.»

ELECTRIC AIR TAXI

by TECNALIA

tecnalia Inspiring Business

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	6 kg	5000 m	20 min.	n/a	150 km/h	45 km

The research and technological development centre TECNALIA has presented the first Spanish prototype in Donostia-San Sebastián, which is designed to cover short distances in cities without a pilot. TECNALIA's air taxi has an aerodynamic cabin measuring 1.8 metres by 2 metres with a door and window. It has four drones assembled on the top and underneath the aircraft which are used to displace the cabin. And this is where the main innovation lies: thanks to an advanced control system, these drones move independently but in a coordinated way, which favours the stability, efficiency, precision and controllability of the cabin and therefore the feeling of comfort on the inside.

The end product will be autonomous, incorporating positioning and communications technologies used in other pilot-less vehicles. It will also have precise landing and take-off capabilities for reduced spaces such as a parking space, it will be able to withstand adverse environmental conditions such as strong wind and rain, and unpleasant air flow created at take-off and landing will be minimised.

TECNALIA is currently negotiating with various industrial partners to develop and industrialise the end product, and it expects this type of aircraft to become a market reality in the skies of various cities within five years. At the same time, it is also working with various authorities involved in making the legislative changes required to make this possible. However, countries such as Germany and France are already positioning themselves with pilot projects, and the first experimental flights will be carried out in Los Angeles, Dallas, Dubai, Singapore and Tokyo in 2020.

«TECNALIA Develops the first air taxi for pilot-less city transport»

FLOWCOPTER

by FLOWCOPTER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
Unmanned	Up to 150kg	2000 m	Digital hydraulic transmission with 4 motors	>6 hours with 30kg payload	130 km/h	780km with 30kg payload

Energy source: Rotax 915is engine / Liquid fuel

$ £250,000

Today's electric multirotors have a common limitation: limited energy storage means short flight times. Flowcopter was founded by a group of innovators determined to break through this barrier - by an order of magnitude. Our goal is to provide a robust platform to enable Unmanned Aerial Systems to fly far enough and long enough to compete with manned helicopters, at a fraction of the cost and environmental impact - and without putting people at risk.

The Flowcopter is a next generation hybrid industrial multicopter, designed for heavy duty, all-weather applications. Powered by an EASA certified Rotax engine the unique lightweight Digital Displacement® distributed propulsion system is the key enabling technology of this platform. Robustness is assured by a motor technology proven in the toughest of outdoor environments for millions of running hours.

Demanding offshore applications such as Search and Rescue call for being able to fly for hours in any weather, maintain hover position in gusting wind and have the shortest possible turnaround time. Our pure VTOL platform unlocks this capability bringing more payload, more sensors and more equipment to help, and keeping it there for longer.

For logistics applications, the Flowcopter's light weight design and small footprint means it can be moved by a small trailer and land in tight spaces such as the deck of a ship, which is very useful for emergency supplies in disaster relief or remote logistics. The ability to fly for several hours and refuel in seconds in remote locations allows more deliveries when every second counts.

Flowcopter aims to bring this transformative capability to organisations with the toughest challenges in all application areas of unmanned aerial systems.

«Fly for hours, not minutes… refuel in seconds.»

HEXA

by LIFT AIRCRAFT

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	196 kg	366 m	Electric	15 min.	100 km/h	0.5 km

USD 250 / per flight

Meet Hexa, an entirely new type of aircraft that anyone can fly since all needed is an autopilot computer with a single, 3-axis joystick. The flying vehicle has eighteen independent electric motors and propellers which are the only moving parts needed for perfectly stable, controlled flight. In addition, four perimeter floats provide stability while a large central float provides buoyancy for safe water landings.

Moreover, with an airframe built entirely of carbon fiber, Hexa is compliant with the FAA's Powered Ultralight classification; therefore, no pilot's license is required to fly although plenty of training will be provided for safety reasons. Even though Hexa can fly and land safely with up to six motors disabled, it is comforting to know it possess an autonomous ballistic parachute and a whole aircraft airbag system.

«The world's first personal flying experience for everyone»

FLYER

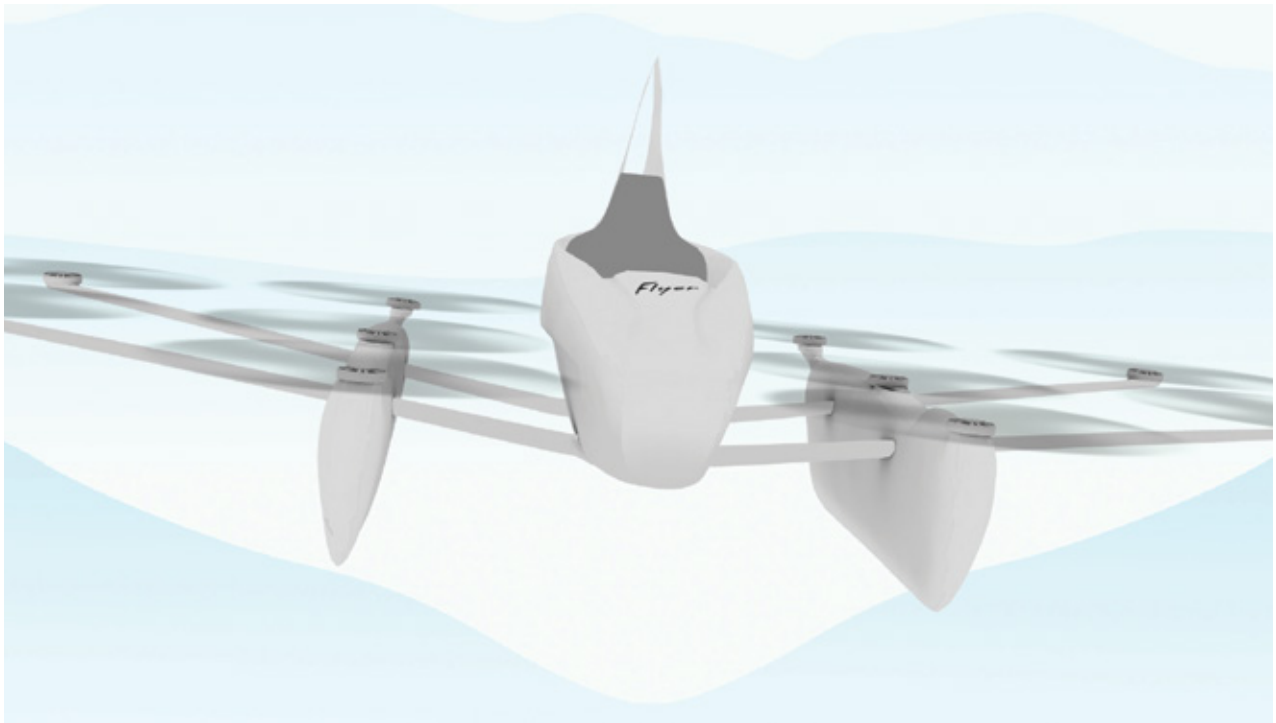
by KITTY HAWK

Capacity	Payload	Altitude	Propulsion	Autonomy	Speed	Range	Propellers
1	200 kg	6 m	Batteries	12 to 20 min.	48 km/h	10 km	10

Flyer is Kitty Hawk's all-electric VTOL (vertical take-off and landing) vehicle designed to give individuals the ability to experience what it feels like to glide above the water. The vehicle, powered by 10 independent lift fans, is a single-seater that operates between 3-10 feet off the water. Flyer has already traveled over 25,000 times.

The Flyer is a revolutionary design. Expertly crafted to operate above the water using highly durable composite materials that are lightweight and aerodynamic. Flyer is an all-electric vehicle powered by lithium polymer batteries. Innovative software that utilizes data from multiple smart sensors to keep you gliding smoothly above the water.

The flyer is not currently available for purchase since Kitty Hawk is currently focused on making personal flight accessible and affordable for everyone in the future.



«The Kitty Hawk Flyer is your own personal electric aircraft»

AERONES DRONE

by AERONES

AERONES

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	200 kg	350 m	Batteries	20 min.	n/a	350 m

The Aerones drone is a quadcopter, with 28 motors, 16 batteries and the ability to fly over 900 feet [275m] in height. By creating such a mighty machine, one may wonder what Aerones' intentions were when they were designing their drone.

One of the principal purposes of the Aerones drone was to give firefighters a safe means of extinguishing fires that had reached heights beyond human reach. To put this into some perspective, a firetruck's crane has a maximum reach of 70 metres. In approximately six minutes, the Aerone drone can reach 300 metres. A firefighting squad just needs to connect two attachments to the drone – one water hose and one electricity cable – and they can fight fire endlessly without risking human life.

Putting out fires is not the limit to the Aerones drone's potential, however. In a less dramatic environment, the drone can be used to clean and de-ice tall wind turbines and other buildings. Using a drone eliminates the chance of fault with the dangling platforms that are currently used. Few want to do their day job at 300 metres up in the air and this drone can keep our feet firmly on the ground.

«Fast, Safe, Cost-Efficient Robotic Solutions»

VOLODRONE

by VOLOCOPTER

VOLOCOPTER

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	200 kg	n/a	Electric	n/a	n/a	40 km

Sharing strong synergies with the existing Volocopter platform, the VoloDrone presents an unmanned, fully electric utility drone, capable of carrying an unprecedented payload. The VoloDrone has been designed and engineered to serve challenging missions across diverse industries, adding the third dimension to sustainable transport.

Agriculture - The VoloDrone increases productivity in the areas of plant protection, seed sowing, forest management, frost control and more.

Logistics - From last mile, retail to time-critical medical or spare part deliveries, the VoloDrone will get the package delivered safely, securely and on time.

Infrastructure - For construction, maintenance and site planning, the VoloDrone can assist in daily operations.

Public services - In the moments of need, the VoloDrone can be quickly deployed to provide disaster relief, air rescue, or support humanitarian aid.

The VoloDrone demonstrator performed its first flight in October 2019.

Now testing in real-life applications with lead customers. The commercial product will be available soon.

«Volodrone – the sustainable heavy-lift drone»

PAV

by AURORA FLIGHT SCIENCES

Capacity	Payload	Altitude	Propulsion	Autonomy	Speed	Range	Propellers
2	225 kg	n/a	Electric	15 min.	180 km/h	80 km	8

Aurora's PAV aircraft will provide on-demand transportation to minimize long commutes due to heavy traffic and urbanization in populated areas. While initially operated with a safety pilot, the VTOL aircraft is designed for fully autonomous operations, and the flight capability will be three times as efficient as a multi-copter aircraft.

The PAV's infrastructure plan includes urban vertiports for passenger boarding, vehicle servicing and a hub-to-hub service between designated vertiports. The first test flights are scheduled to begin this year in Dallas and Dubai.

«Redefining the future of safe on-demand air travel and transportation»

CICARÉ 11VS

CICARÉ

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	300 kg	10 000 feet	MTOW: 750 kg EW=450 kg	3 hours	200 km/h	70-80 km

Rotor Diameter 6.4 m

While helicopters are practical for takeoff and landing almost everywhere, they have a relatively low cruise speed.

On the other hand, fixed-wing aircraft have the opposite problem. They have good cruise speeds but limitations in landing zones, making them impractical for Urban Air Mobility.

The Cicaré 11VS is a Vtol, two-seater hybrid design between a conventional helicopter and a fixed-wing aircraft combining the benefits of both.

The coaxial contra-rotating rotors, will allow the aircraft to take off and land vertically, and to hover just from over a surface up to high altitudes in the sky.

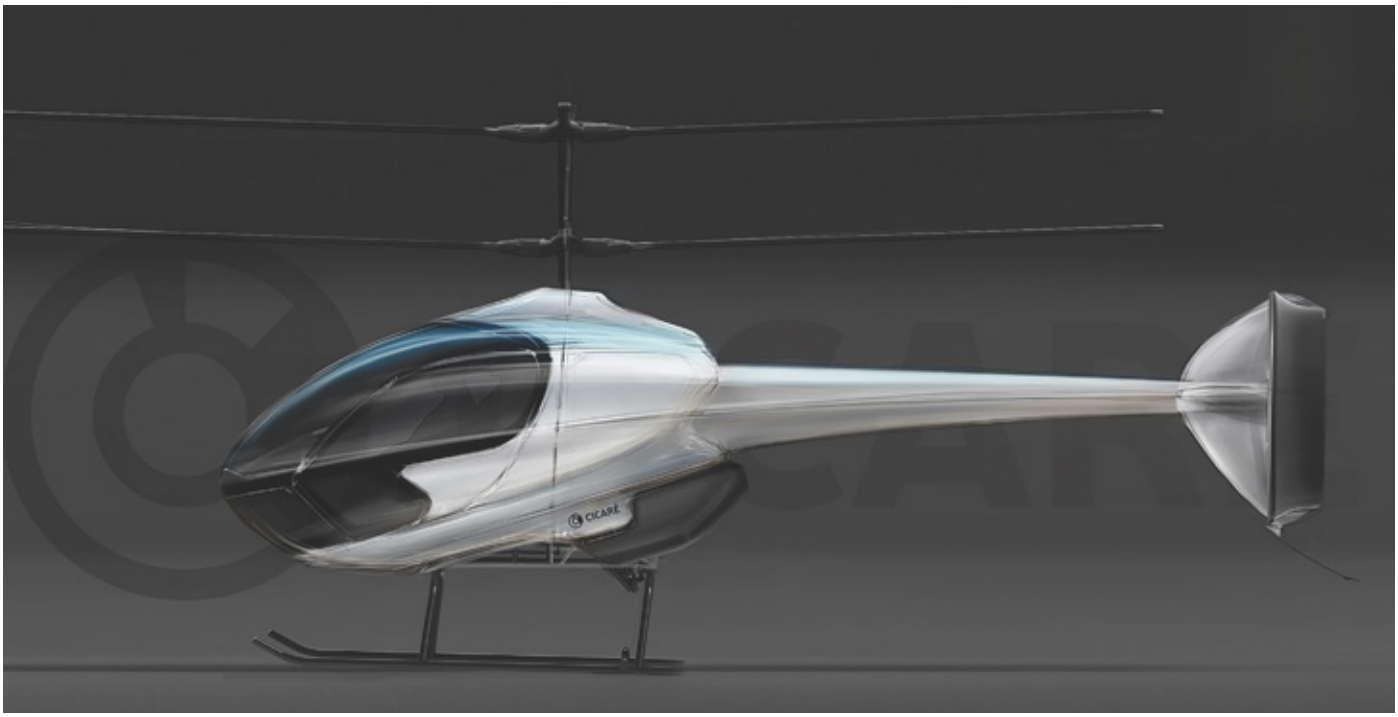
With the propeller, the Cicaré 11 VS will be capable of flying forward as a conventional fixed wing, allowing a higher cruise speed than a conventional helicopter.

In preliminary stages the Cicaré will count with a piston-engine, thereafter it will be upgraded to a hybrid drivetrain (piston engine + electric motor), and the ultimate goal would be to go completely electric in order to reduce considerably noise and vibration levels.

The Cicaré 11 VS's design aims for a comfortable and smooth flight, where the passengers can really enjoy the flight. The helicopter will be suitable for personal urban commuter and recreational flights, being able to take off from rooftops, forest clearings, and almost anywhere, where a conventional plane cannot land, avoiding traffic, hard trails and cliffs. It will also be suitable for search and rescue operations and delivery of goods in remote locations, where conventional helicopters are used, improving the rescue times.

«Dream, Believe, Fly»


CICARE


CICARE

VAHANA

by AIRBUS

AIRBUS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1	340 kg	64 m AGL	Electric	7 min.	92 km/h	1 km

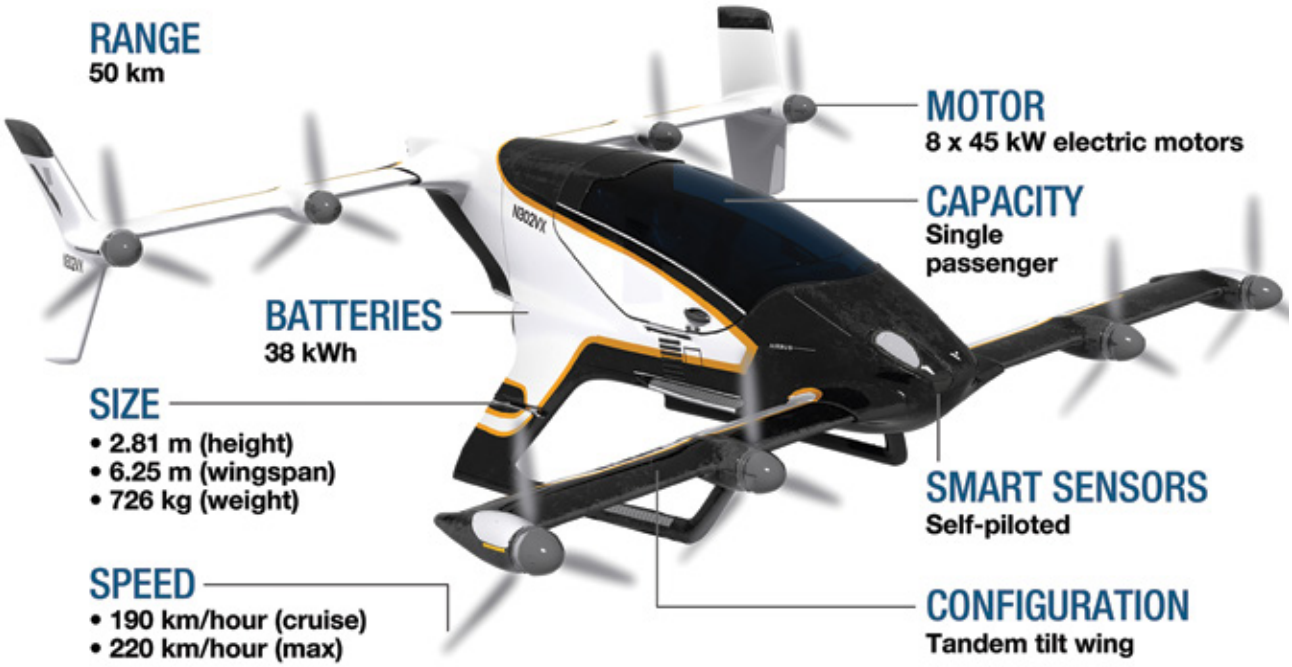
$ $2.4 to $4.00 / km

Nearly four years after the Vahana concept was sketched on a napkin, the flagship programme that launched the urban air mobility initiative at Airbus has come to a close. Vahana's key learnings are now providing Airbus Urban Mobility with invaluable insight on the design of its future urban air vehicle.

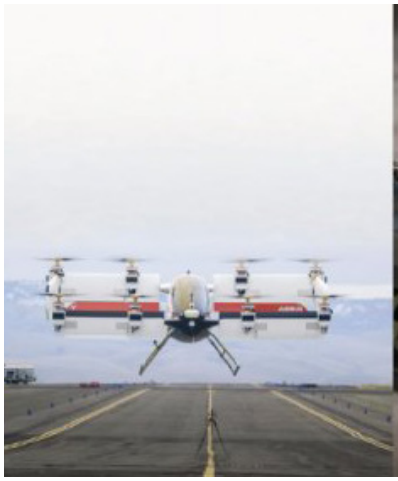
"It all started with a sketch on a napkin..." The Vahana story—when told by project team members—often starts this way. Some tell the story with a hint of wonder, others with a tinge of nostalgia. Indeed,

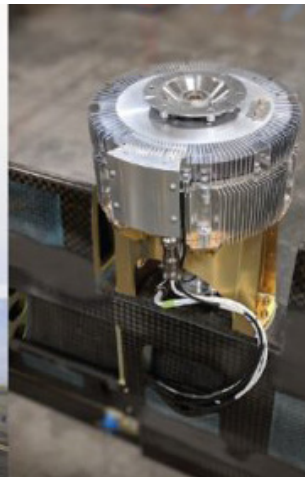
Vahana is a legend in its own right. And it is not hard to see why: a design that looked pulled from a sci-fi movie has quietly transformed into a fully operational electric vertical take-off and landing (eVTOL) vehicle in only a few short years.

Vahana was an all electric, single seat, tilt wing vehicle demonstrator that focused on advancing self piloted, electric vertical take-off and landing (eVTOL) flight. In November 2019, Vahana took its final test flight at the Pendleton UAS Range in Oregon, USA, bringing the flagship programme to a close



«Up to four times faster than cars»





ODYSSEUS

by AURORA FLIGHT SCIENCES

Aurora FLIGHT SCIENCES
A Boeing Company

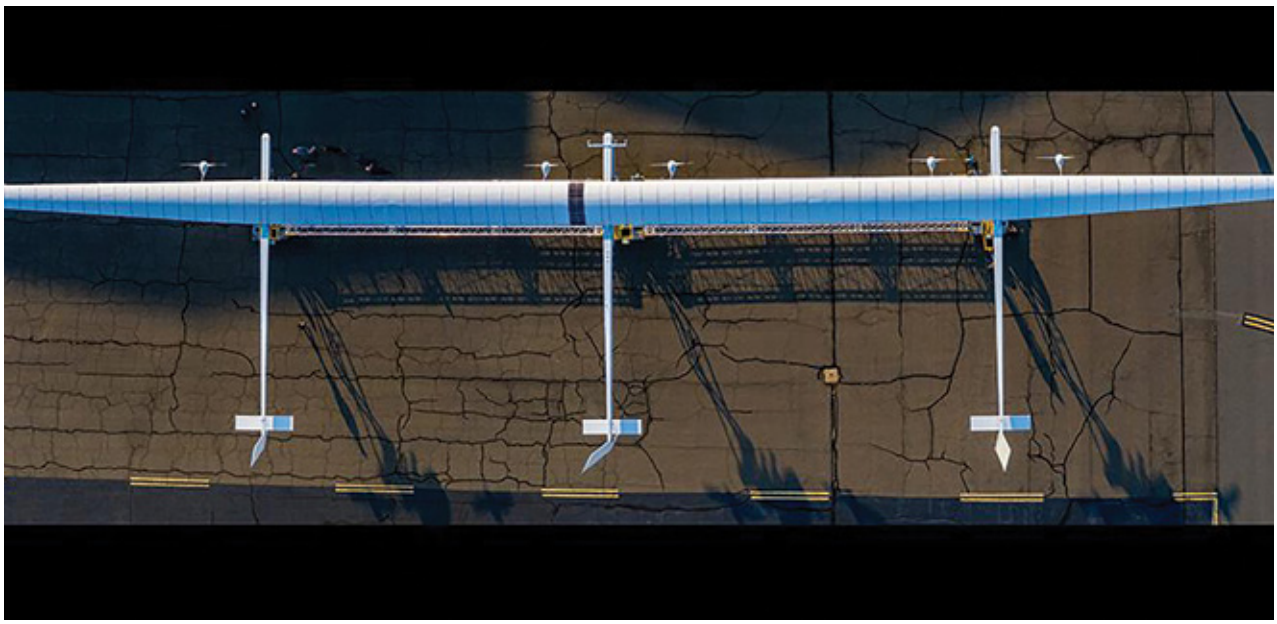
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	450 kg	20 km	Solar Energy	n/a	n/a	n/a

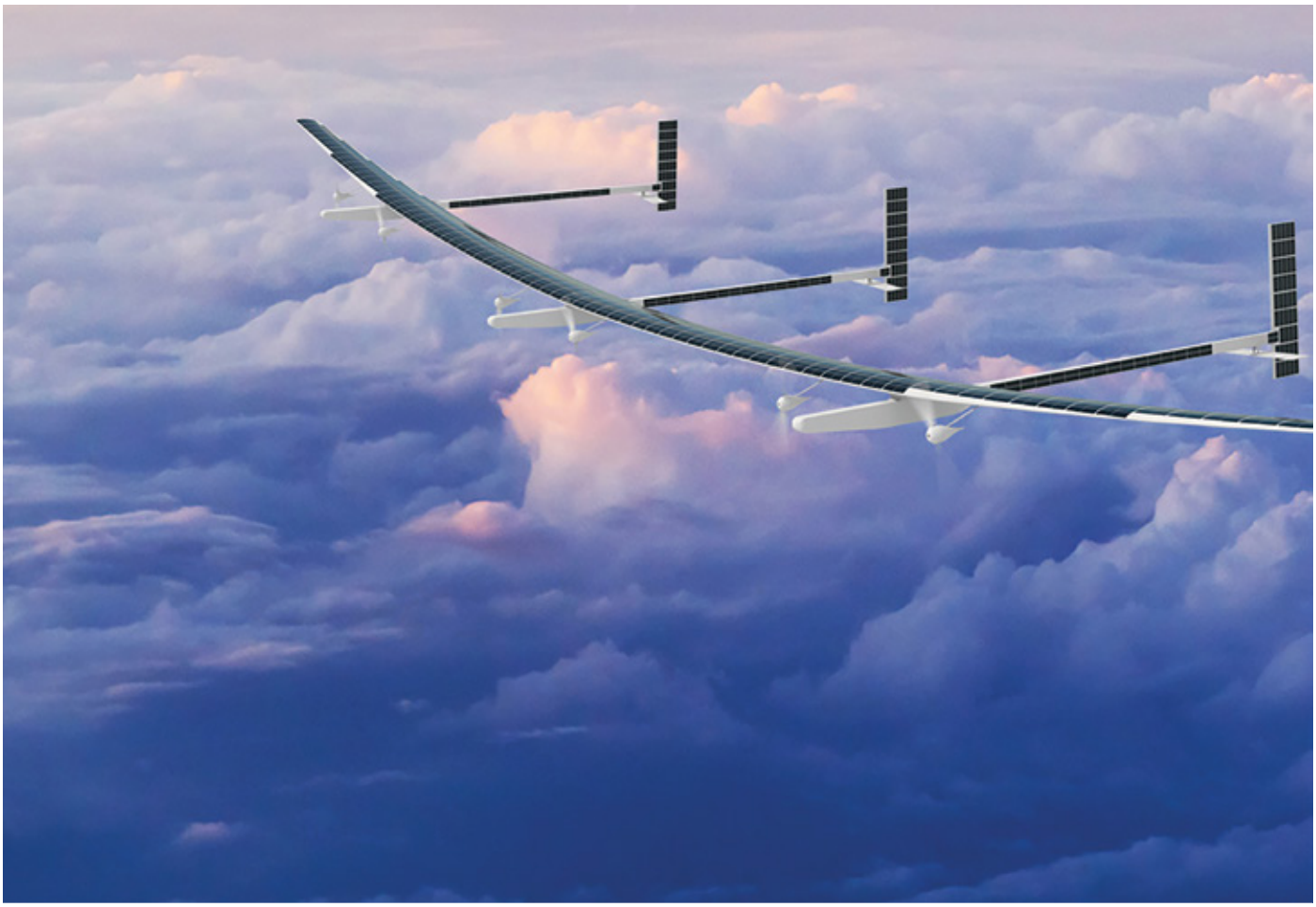
Odysseus is the world's most capable, solar-powered, autonomous aircraft ready to deliver your mission from the stratosphere. This high-altitude pseudo-satellite (HAPS), Also known as a HALE UAV (High-Altitude, Long Endurance) provides the biggest payload capacity available in solar aviation. This enables more missions and better resulting data quality from each mission at a fraction of the cost of a satellite.

At a fraction of the cost of a satellite and with exponentially more time aloft than a conventional UAV, Odysseus is a customizable platform for your ultra-long-endurance mission requirements.

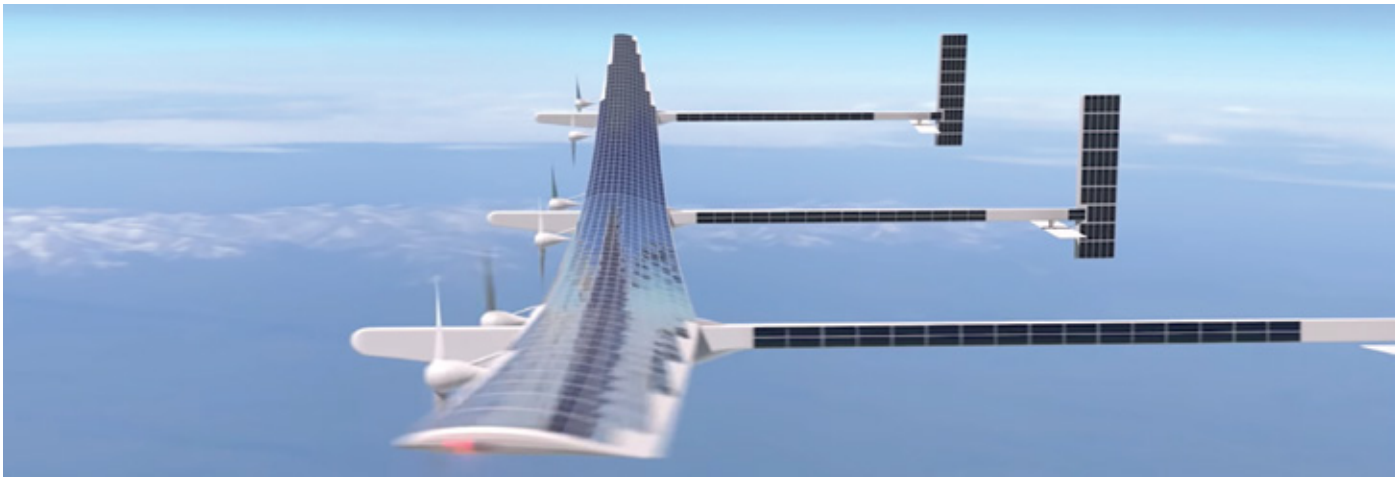
Also known as a HALE UAV (High-Altitude, Long Endurance), Odysseus can carry a larger payload than any other aircraft in development or production in its class. This enables more missions and better resulting data quality from each mission.

Odysseus operates far above the weather and other aircraft with the ability to cover a broad geographic area while keeping its station. Powered by advanced solar cells and built with light-weight materials, it has zero emissions and can be repositioned and reprogrammed as mission requirements and technology evolve.





«Odysseus is engineered for persistence.»

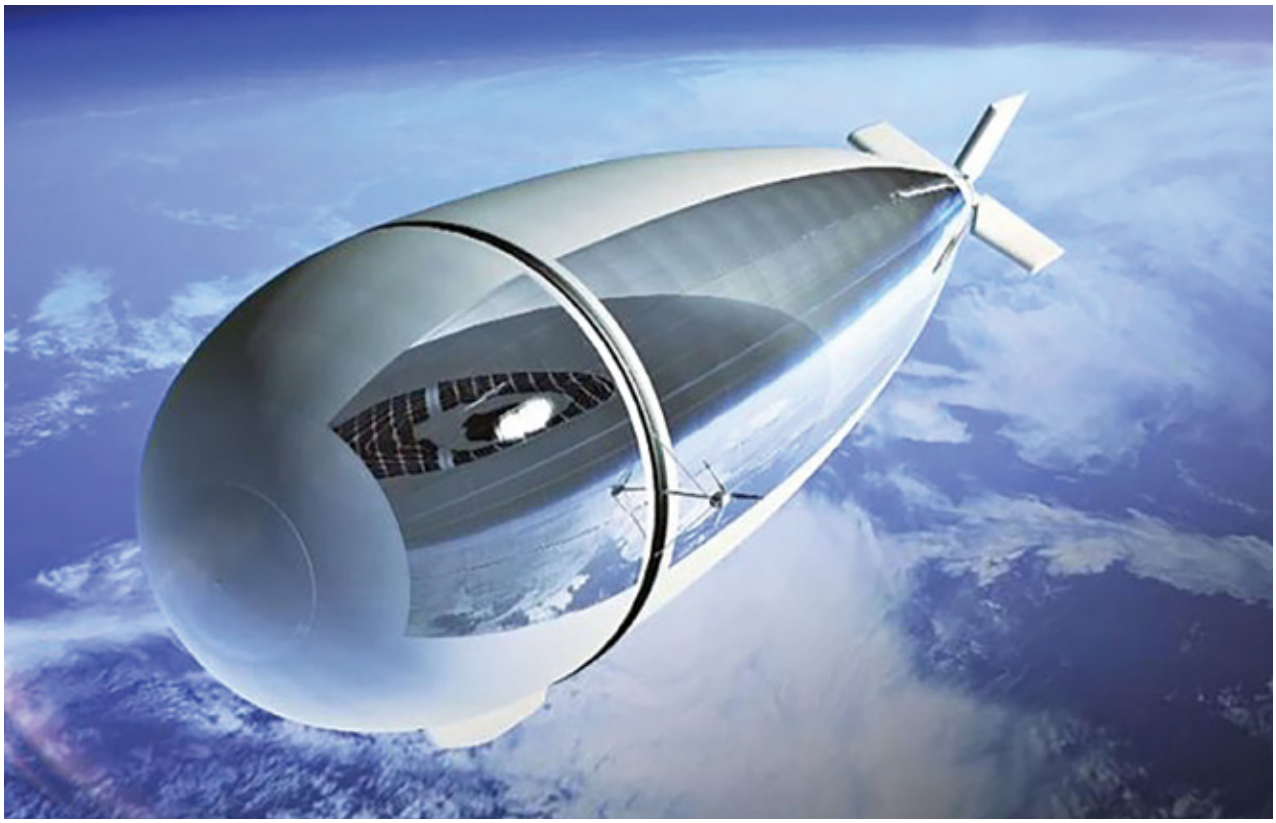


STRATOBUS

by THALES ALENIA SPACE

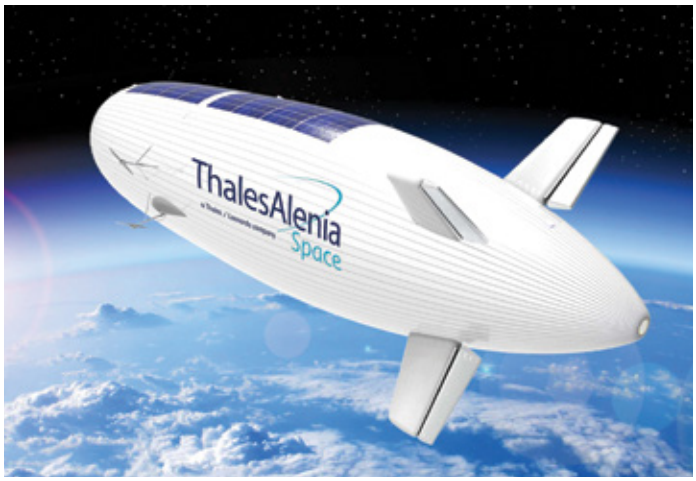
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
n/a	450 kg	65 000 feet	Batteries-Solar	Weeks	115 km/h	Worldwide coverage

Stratobus is an autonomous multi-mission stratospheric airship, in functional terms halfway between a drone and a satellite. Mainly designed for local or regional missions, Stratobus is the perfect complement to satellites. It's designed to fly at an altitude of 19 kilometers (above the jet stream and air traffic), and carry out various civil and/or military missions on a regional level, for telecommunications, navigation, observation, etc.
Stratobus offers real time, stationary satellite-like capabilities over wide areas of more than 1000,000km² for missions up to one year. Exclusively powered by solar energy, it flies autonomously, storing during daytime the energy needed for the night. This airship will weigh nearly 8 metric tons and stretch 140 meters long, measuring 32 meters wide at its maximum diameter. In other words, for local missions extending to a horizon of 250 kilometers.



«The Stratobus is the perfect complement to satellites, you can add on sensors, captors, and other technologies, making it a kind of "Swiss knife of innovation in the sky»

- Stratobus Product Line manager Jean-Philippe Chessel



MOBI-ONE

by ASX

AIRSPACE EXPERIENCE TECHNOLOGIES

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
5 or 453 kg cargo	453 kg	305 m	Hybrid-electric or full-electric	26 min	241 km/h	104 km

$4 to 6 / km

Airspace Experience Technologies (ASX), an aviation technology start-up, is re-imagining personal air transportation with the mission to offer urban commuters a cleaner, faster and affordable transportation alternative.

From its headquarters at the historic Detroit City Airport, the ASX team is developing an electric vertical take off and landing tilt-wing (eVTOL) aircraft affectionately dubbed MOBi-One. The goal is to produce and operate fleets of safe and reliable aircraft that will make smart cities even smarter, vastly reduce commute times while producing zero operational emissions

Equipped with proven zero-emission electric propulsion and broadband 'V2X' vehicle-to-vehicle connectivity, a fully-electric MOBi-One will deliver an estimated range of 100 miles and a cruising speed of 150 mph, giving it the ability to reduce a 60-minute commute to 15 minutes or less for the price of a ground vehicle for hire (one pilot, four passengers). With a hybrid propulsion system, MOBi-One is capable of up to 300 miles of range for regional travel and cargo utilizing the nation's general aviation airports

By leveraging our deep knowledge of automotive EV technology, mass production, aviation, deep space reliability and near range communications technologies ASX believes it can make personal air mobility more affordable for everyone and be a core partner to smart cities as they evaluate the future of managing traffic and urban commuting.

«Our mission is to make private air mobility accessible to everyone.»

POP.UP NEXT

by ITALDESIGN AND AIRBUS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	600 kg	<3,000 m	Electric	50 km	100 km/h	100 km

Pop.Up Next, is the evolution of the first fully electric and zero-emission modular system, the Pop.up, designed to help resolve traffic congestions. The Pop.Up Next represents a vision of the potential offered by future technologies, the new concept of transportation and the new solutions for resolving the problems linked to city planning and traffic in large urban centers.

As the original 2017 project, the Pop.Up Next system aims to give time back to commuters, freeing them from the need to drive, through a flexible, shared and adaptable new way of moving within cities introducing a new user-focused transportation system concept.

italdesign.it/project/pop-up-next/ | MONCALIERI, ITALY

TRIFAN 600

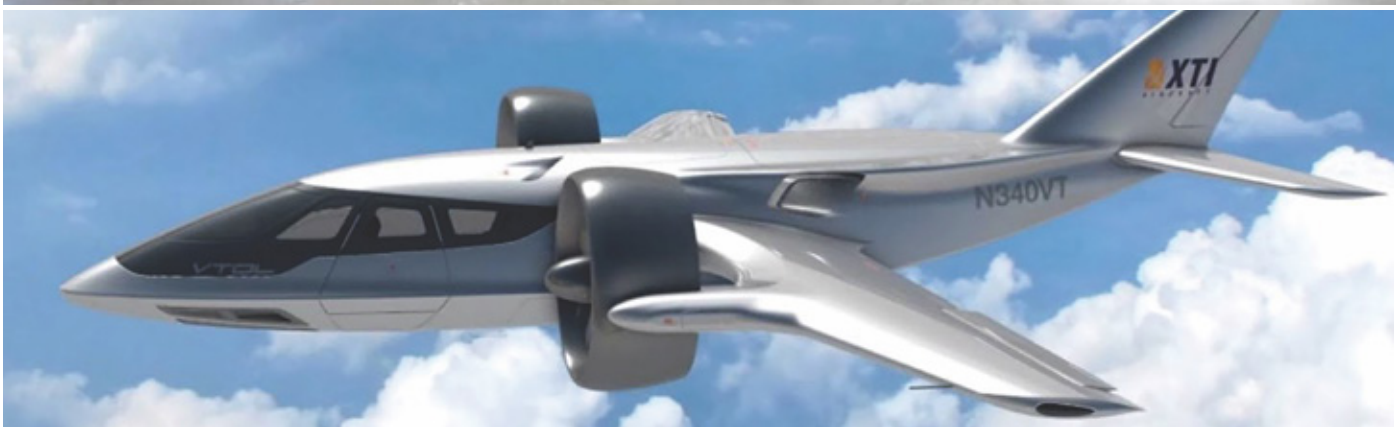
by XTI AIRCRAFT

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
6	816 kg	29 000 feet	Hybrid electric drive	3.5 h	480 km/h	1,240 km/h

$6.5 million

Using three ducted fans, the TRIFAN 600 lifts off vertically and in seconds, the two wing fans rotate forward for a seamless transition to high-speed flight. Within just 90 seconds, the airplane reaches cruise speed – where the lift is provided by the wings just like every other fixed-wing airplane.

Thereafter, the fuselage-mounted fan, no longer needed, closes up. The airplane flies directly to its destination and reverses the process. Landing vertically right where it needs to be – wherever there's a clear helipad-sized paved surface.



**«Save –
Time.
Cost.
Emissions.»**

www.xtiaircraft.com/trifan-600/ | ENGLEWOOD, COLORADO

STARLING JET

by SAMAD AEROSPACE

SAMAD aerospace

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
	980 kg estimated	9,100 m	Hybrid-electric	11,760 min	740 km/h	2,414 km

$10 million

The Samad Aerospace Starling Jet is a Vertical Take-Off and Landing (VTOL) electric jet that will carry passengers on regional and short-haul flights. It is a fixed wing aircraft with a V-tail and three jet engines fixed above the wings and tail.

The Starling was first announced at the Singapore Air Show in February 2018 and has already generated substantial press, industry and market interests. Additionally, a 20% sized model completed testing in June 2018, a full-scale aircraft for tests is expected in 2019, and sales for the public are expected to begin by 2024.

«Introducing Starling Jet - the world's first hybrid-electric Vtol business jet»

VY 400 / VY 400R

by TRANSCEND AIR CORPORATION

TRANSCENDAIR

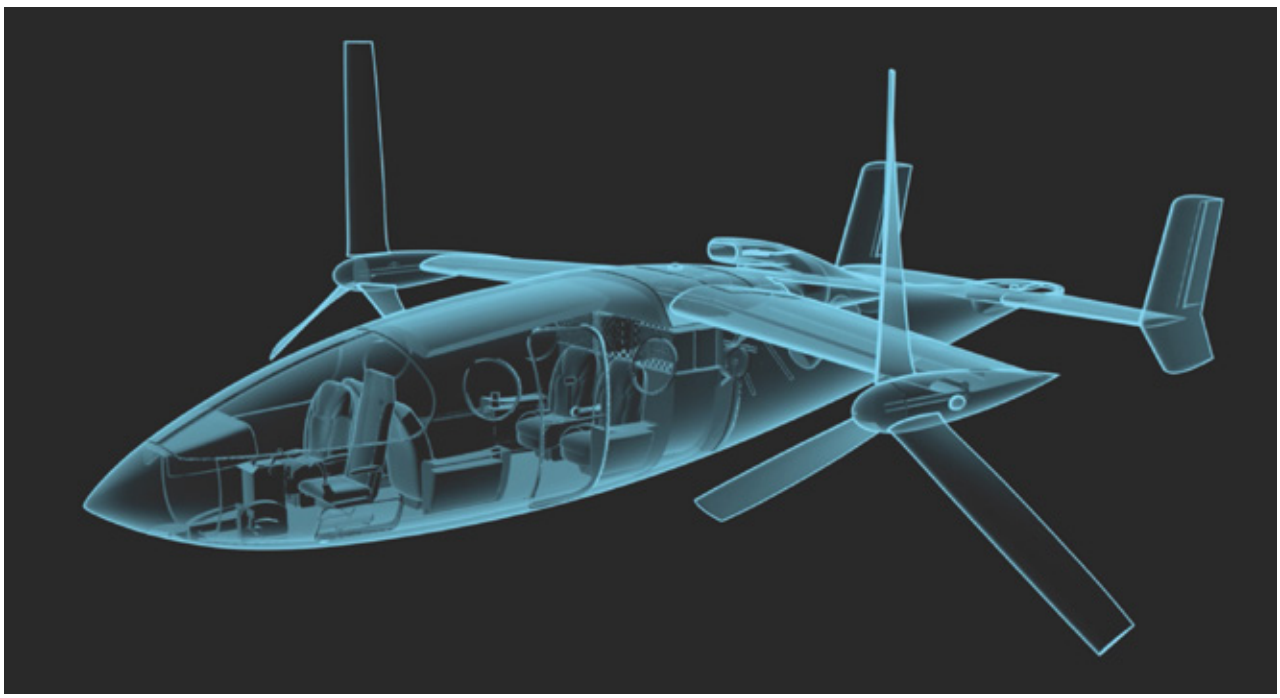
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
6						
including 1 pilot	995 kg / 2190 lbs	20,000 feet	jet turbine	960 nm / 1780 km / 1,100 sm	353 kts / 652 kph / 405 mph	480 nm / 890 km / 550 sm

$ 3.5M USD (airliner trim), 6.0M USD (Reserved Edition)

Designed to cruise two and a half to three times faster than conventional helicopters, while retaining their ability to take off and land vertically, the Vy 400 finally fulfills the promise of VTOL (Vertical Take-Off and Landing). With per-mile direct operating costs one-half of comparably sized and priced helicopters, and a cabin with the generous width of a helicopter plus the legroom of a mid-sized business jet, the Vy is the superior choice for trips up to 725 km / 400 nm / 450 sm.

A single-engine, tiltwing design makes it simple and reliable, while occupant safety is assured by an integrated approach centered on a BRS Aerospace whole-aircraft parachute. Best-in-class payload means six standard adults can each bring over 27 kg / 60 lbs of luggage on board. The fly-by-wire flight control system optionally enables single pilot or autonomous operation. The Reserved Edition Vy 400R (pictured) was awarded "Best of the Best in Aviation, 2020" for VTOL Concept by Robb Report.

- New York to Boston in 36 minutes
- LA to San Francisco in 55 minutes
- Montréal to Toronto in 60 minutes



«Time Flies With Us»

CELERA 500L

by OTTO AVIATION

OTTO AVIATION

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
6	2,300 lb	50,000 ft	n/a	n/a	460 mph	780km with 30kg payload

Energy source: Biodiesel, Jet-A

$4.5M

The Otto Aviation Celera 500L delivers the cost of commercial air travel, the convenience of private air travel, the environmental impact of ground travel. The unique design of the aircraft combines speed, efficiency and range to economically move passengers or cargo at transcontinental range. Utilizing laminar flow surfaces, a high aspect ratio wing and a Jet-A turbo-diesel engine, the Celera 500L achieves groundbreaking efficiency enabling point-to-point travel for the general public at competitive pricing compared to economy class commercial travel. Greenhouse gas emissions are reduced 5-8x relative to comparable aircraft in its class. Passengers sit in a 1+1 cabin that is a spacious 6'2" across with seats comparable to domestic first class. Use of smaller GA airports bypasses long security lines and allows passengers to arrive close to their destinations.

Flight testing of the prototype aircraft confirms the performance of the design. The prototype has accumulated 31 flight tests and is completing performance testing. Entry into service of the production aircraft is anticipated in mid 2020s.

«Future of Private Aviation»

ALICE

by EVIATION

EVIATION

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
11	1,134 kg	10,000 feet	Batteries	n/a	n/a	540 nm

$ $200/hr

Meet Alice, the world's first all-electric commuter aircraft, built to make air travel an affordable, sustainable alternative for everyone's regional transport.

Think smaller planes lack luxury? Think again. Alice is designed from the ground up for regional commutes, being electric, the typical noise and vibrations of other aircraft are dramatically decreased.

Designed and made in collaboration with a world-class ecosystem of partners, Alice is built of innovative components from 21 countries.

Our development process leverages supply-chain redundancies, and scalability to help us in our path towards certification and serial production.

Flights will be available in the US and EU markets first.

«Quiet, sleek,
and electric.
No compromises.»

BELL NEXUS

by BELL

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
5	2,720 kg	76 m	Hybrid	60 min	288 km/h	241 km

Our journey to build the right aircraft to revolutionize vertical lift allows us to explore new avenues and evolve our technology. Introducing the Bell Nexus 4EX, a four-duct vehicle configurable in an electric or hybrid-electric platform. Efficient, cleaner and capable, exactly what the world needs.

Need to catch a quick ride across town? The Bell Nexus powered by electric-propulsion offers a quiet, comfortable ride across the city, returning valuable time back to you. The Bell Nexus 4EX can operate as an electric-only vehicle or a hybrid-electric configured vehicle. With a hybrid platform, the Nexus 4EX promises an extended reach to travel farther or to more remote locations, based on your mobility needs.

Designed to solve delivery and commuter challenges, the Bell Nexus can carry goods, people and data to serve a business or city-wide demand. By stepping into conversations about potential infrastructure, we are building a network where on-demand mobility opportunities can grow.

At CES 2019, our six-duct vehicle stunned a global audience and showed them a glimpse into the future. After testing and development, we've expanded the Nexus family to include the Bell Nexus 4EX. Our teams are excited for another year of learning and progress as we build the aircraft to fit customer and market demands.

«Your commute, transformed.»

Turn a 45-minute drive into a 10-minute flight. The safe, convenient Air Taxi is designed to let you make the most of your commute. Its sleek cabin offers a comfortable space for you to relax. Or work. Or socialize. All while saving your most precious resource: time.

BEHA M1H

by FARADAIR

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
18						
or 3 LD3 cargo containers	5,000 kg	14,000 m	Hybrid	15 min duration battery for all electric propulsion	370 km/h	1,852 km (depending on payload)

$4 million

The BEHA (Bio Electric Hybrid Aircraft) is a hybrid powered aircraft that utilizes a design patented 'Triple Box-wing' high-lift configuration, delivering Short Take-Off and Landing (STOL) capability requiring less than 300 meters of runway. Its hybrid propulsion system combing electric motors with a Turboprop engine will result in lower operating costs, lower emissions and increased safety redundancy. Furthermore, the aircraft will use existing battery technology for emergency power and ground operations. The BEHA M1H is expected to be launched by 2025 to the market.

«Bio electric hybrid aircraft»

AIRLANDER 10

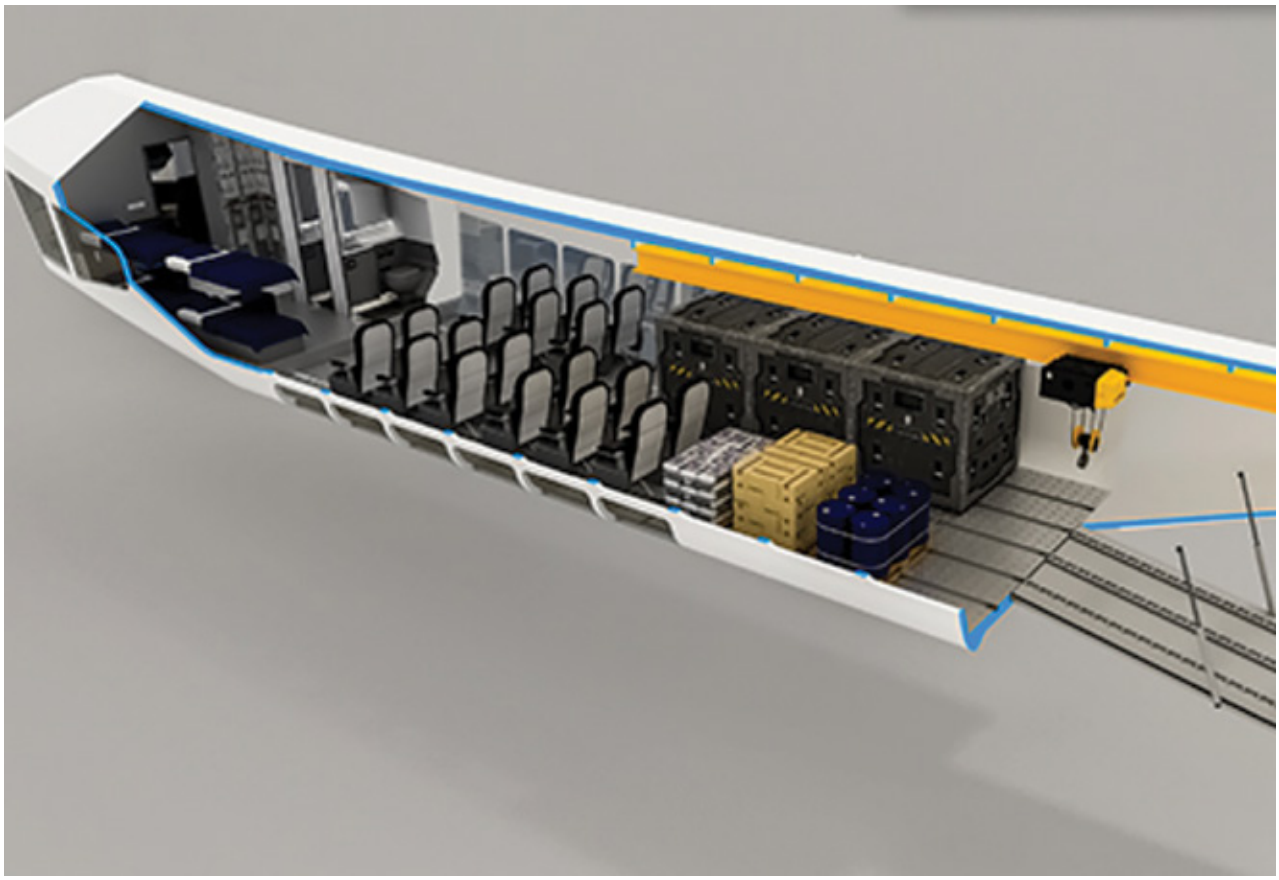
by HYBRID AIR VEHICLES

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
10	10 000 kg	19 500 feet	Hybrid	5 days	150 km/h	7,408 km

$ 25M Euros

The Airlander 10, the largest aircraft flying today, is a hybrid airship designed and built by British Manufacturer Hybrid Air Vehicles (HAV). Comprising a helium airship with auxiliary wing and tail surfaces, it flies using both aerostatic and aerodynamic lift and is powered by four diesel engine-driven ducted propellers.

The prototype was first named HAV 304 and was originally built for the United States Army's Long Endurance Multi-Intelligence Vehicle (LEMV) programme. Thereafter, Hybrid Air Vehicles reacquired the airship and brought it back to England. It was reassembled and modified for civilian use, and in this form was predesignated as the Airlander 10.



«The largest aircraft flying today»

BIT

by HIROBO

HIROBO

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
1	n/a	Electric	30 min.	97 km/h	0.8 km

$ 240 000$

The company Hirobo is specialized in electric unmanned helicopters, therefore they decided to use their expertise to present, the first all-composite, all-electric, single-person micro helicopter, the Hirobo BIT.

The Hirobo BIT has two counter-rotating rotors and simplified controls with a joystick, so it can be used as a recreational vehicle. This totally out of the ordinary vehicle will be ready for market in 2020.

«Japan's one-man helicopter is the future!»

www.hirobo.co.jp | SAKURAGAOKA, JAPAN

LMV 496
THE FLYING MOTORBIKE
by LAZARETH

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
1	1 m	Electric	10 min.	n/a	100 km

$ 560 000$

The Flying Motorbike, made of Kevlar carbon composite and inspired by the first model of LM847, takes the visual signature of the latter. The driving position and the light steering of the LMV496 offer immediate grip, while braking and undercarriage technology is directly inspired by Lazareth vehicles.

On the road, the LMV496 is an electric motorcycle with a hundred kilometers of autonomy. The power required for takeoff is provided by Turbines. The total power delivered is around 1300 horses for 2800N of thrust. In addition, the transition from the road mode to the flight mode is done by operating a simple switch on the dashboard and it can be done in 60 seconds.

«La moto volante»

lazareth.fr/project/lmv496 | ANNECY-LE-VIEUX, FRANCE

CITY AIRBUS

by AIRBUS

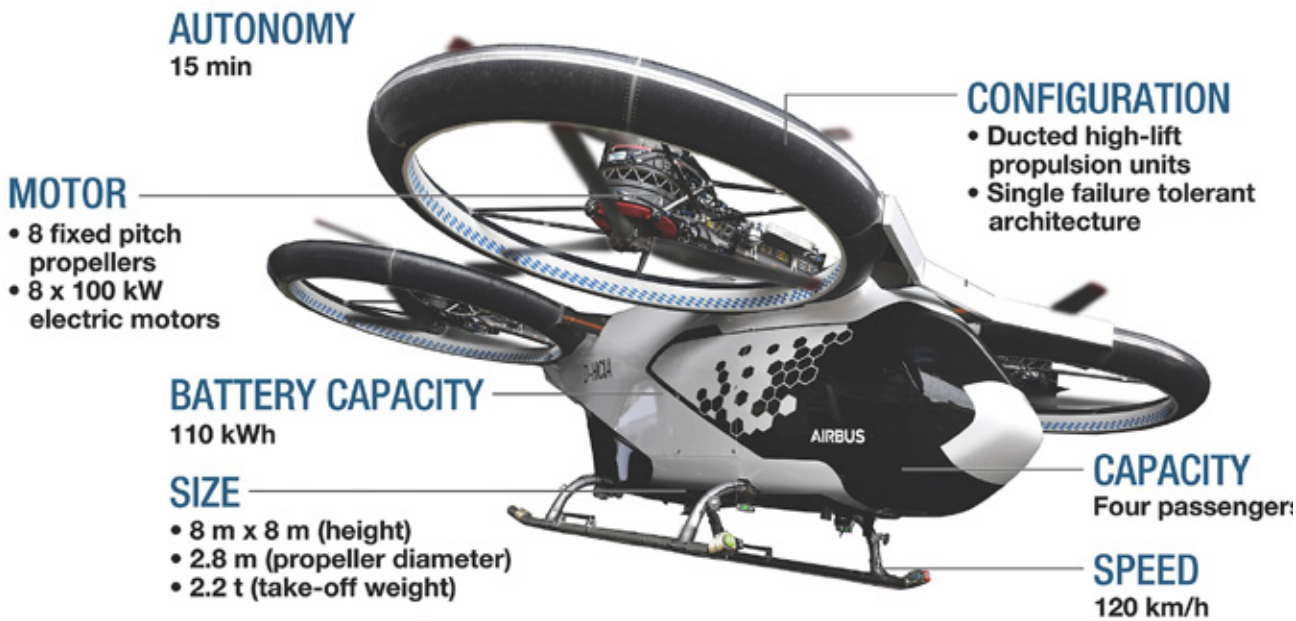
AIRBUS

Passenger	Altitude	Propulsion	Autonomy	Speed	Propellers
4	n/a	Electric	15 min.	120 km/h	8

CityAirbus is an all-electric, four-seat, multicopter vehicle demonstrator that focuses on advancing remotely piloted electric vertical take-off and landing (eVTOL) flight. The CityAirbus full-scale demonstrator conducted its first take-off in May 2019.

The idea for a compact "flying taxi" first came from our desire to take city commuting into the air in a sustainable way. Our team began by rethinking traditional aircraft architecture, creating a multirotor design based on electric motors. Thus CityAirbus was born. To date, the CityAirbus sub-scale model has flown more than 100 test flights, which has proven the aerodynamic configuration of the full-scale prototype.

CityAirbus has a multicopter configuration that features four ducted high-lift propulsion units. Its eight propellers are driven by electric motors at around 950 rpm to ensure a low acoustic footprint. The single failure tolerant architecture ensures safety. Its cruise speed will be approximately 120 Km/h on fixed routes with up to 15 minutes of autonomy. It has a capacity of four passengers that is ideal for aerial urban ridesharing.



«A low environmental footprint in mind»

SERAPH

by VERTICAL AEROSPACE

VERTICAL
Aerospace

The Seraph was built to test new technologies and systems for integration into our upcoming passenger model, du to the unveiled next year. With the Seraph we became the first company in the world to release flight footage of an Evtol aircraft capable of carrying 250 kg.

The aircraft is capable of carrying loads of up to 250 kg and can reach speeds of up to 80 kmph. It features a unique passive cooling system, and a customisable design, meaning the aircraft can be made larger or smaller, fitted with wheels or floats to facilitate water landings.

Over 18 months, Vertical embarked on a journey which has taken Seraph from the drawing board, to an aircraft, and then into the sky. Including insights from the team who made it possible and exclusive footage of test flights – our short documentary showcases the whole journey of Seraph from start to end.

Advances in technology have transformed many aspects of how we live, work and travel, but the way we fly hasn't evolved to address these changes. Reduce your journey time by over 80% and eliminate air pollution by flying above the traffic with Vertical Aerospace.

Make getting to your destination as easy as tap, tap, fly. Travelling with Vertical Aerospace will make worries about journey times a thing of the past. Simply type in your destination and we will work out the best route to get you there.

«Make getting to your destination as easy as tap, tap, fly. Travelling with Vertical Aerospace will make worries about journey times a thing of the past. Simply type in your destination and we will work out the best route to get you there.»

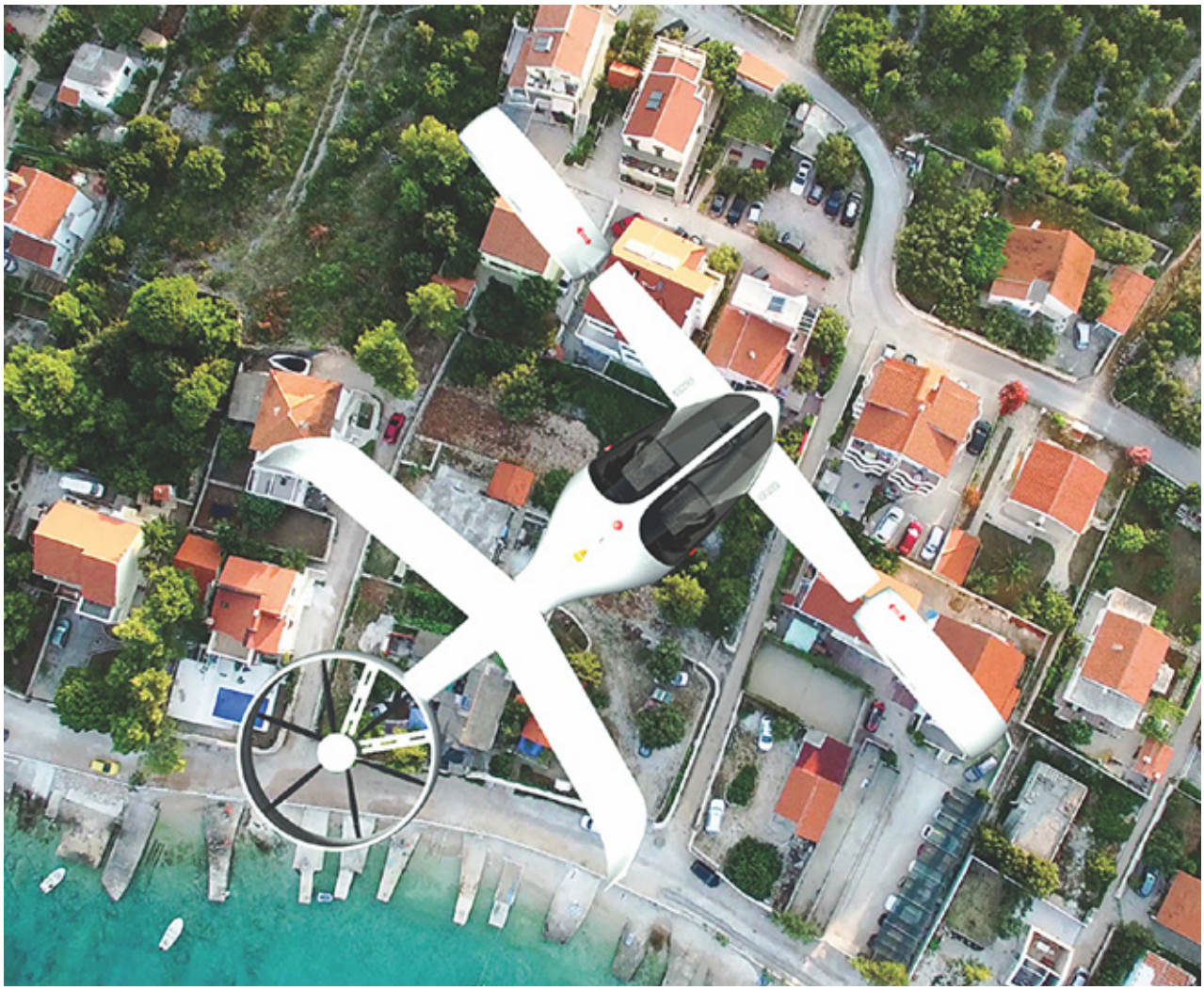
THE Y6S

by AUTONOMOUS FLIGHT

AUTONOMOUS FLIGHT

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
	1500 ft	n/a	n/a	70 mph	80 miles

Welcome to Autonomous Flight and the home of our first autonomously-flown vehicle - the Y6S! We are aiming to transform city transportation from the air. Autonomous Flight is creating a new category of air vehicle for private and commercial use.



«The Future is here.»

DRONESEED

by DRONESEED

Climate change makes every other problem harder to tackle. Three years ago we resolved to find a way to mitigate it.

Since then, we've spent time with foresters to learn about their pain-points in the field. We've talked to nursery managers about breakthroughs in seed enablement. And we've listened to climate scientists about the best tools to sequester carbon. DroneSeed is the culmination of those continuing conversations.

Nature's capacity to reforest is in exponential decline due to fire severity and frequency. Existing tools and nursery supply chains are woefully inadequate to fill the gap.

Our customers have millions of acres of land and — without intervention — 90% of those forests could be lost in 20 years in the highest risk areas. Better tools are needed. That's the challenge we rise to meet at DroneSeed.

«Drone reforestation. Quicker. Safer. Ready.»

S4

by JOBY AVIATION

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
	n/a	Electric	n/a	322km/h	241.4 km

For more than ten years, we have been quietly developing the most advanced and comfortable electric vertical takeoff and landing aircraft, designed specifically to pioneer the air taxi market.

To date, we have been squarely focused on the hard business of aircraft development. The right vehicle is the key to unlocking the usage and scale necessary to make daily air transportation accessible for all.

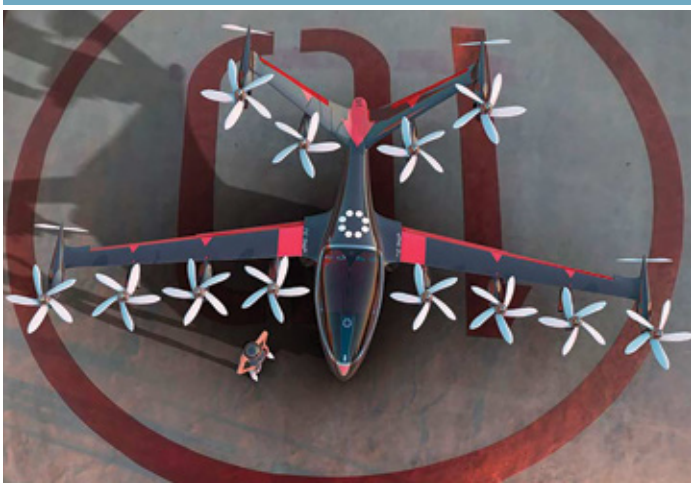
As children, we all dreamt of one day owning a «flying car.» However, we believe the safest and most affordable way to deliver air transportation to everyone is to operate these vehicles and deliver air transportation-as-a-service directly to riders. This approach allows us to ensure highly-trained pilots are flying our vehicles, while we continually optimize the service to steadily lower prices.

We aim to make this mode of transportation affordable and accessible to everyone. From inception, the fully-electric powertrain enables lower fuel costs, less maintenance, and faster speeds, allowing operating expenses to be spread over a larger number of trips. Over time, we will scale the service—increasing manufacturing volume, vertiport infrastructure, and usage—to steadily lower passenger pricing, eventually approaching the cost of ground transportation today.

We recognize that reaching this scale will take time, but this has always been a long-term journey. We've been quietly working on this problem for 10 years already, and we're in it for the long haul.

Our four passenger aircraft takes off and lands vertically like a helicopter, then smoothly transitions to forward flight. Its all-electric powertrain allows for near silent cruise, while accelerating the shift to sustainable transportation. Designed with high levels of redundancy to avoid single points of failure, our piloted aircraft will get you comfortably and reliably to your destination.

«The future of air transportation»



jobyaviation.com | CALIFORNIA, USA

SPARROW MK1b

by PASSERINE AIRCRAFT CORPORATION

PASSERINE
AIRCRAFT CORPORATION

A drone has been likened to a grasshopper because of its unique ability to leap into the air using its specially designed legs.

The cargo-carrying automated vehicle is equipped with legs that let it jump 6.5 feet (two metres) into the air, taking off almost vertically.

The craft, dubbed the Sparrow, costs £30,000 ($40,000) and can fly up to 62 miles (100km) at a speed of 112 mph (180kph).

Delivery firms are pioneering a host of new technologies to tackle the last mile of deliveries.

It is hoped the vehicles can cut the inefficiencies, and hence costs, of the final stage of delivery, in which packages are taken from a central hub to your door.

The sparrow may offer one such solution to this logistical problem.

A groundbreaking new drone has been unveiled which can leap into the air like a grasshopper using specially designed legs. Thanks to its remarkable legs which enable it to jump 6.5 feet (2 metres) into the air Sparrow was created by Johannesburg-based aircraft company Passerine, who claim it can take off from from a static position 'from virtually anywhere'.

The drone will be used for delivering cargo and monitoring agriculture, forestry, oil and gas infrastructure.

Sparrow has a wingspan of 6.5ft (two metres) and flies by autopilot although a manual override is possible should that fail.

Made from fibreglass and carbon fibre is electrically-powered and has enough power to fly for an hour.

CEO of Passerine, Matthew Whalley, said its ability to jump allows the drone to accelerate past its minimum flight speed and begin flight in less than half a second.


PASSERINE
AIRCRAFT CORPORATION
SPARROW MK1b

WESTPAC

by LITTLE RIPPER LIFESAVER

Westpac Little Ripper Lifesaver offer a suite of sophisticated single and multi rotor UAV's (Unmanned Aerial Vehicles or Drones) tailored for search, rescue and lifesaving operations. Little Ripper UAV's (drones) have been developed specifically to execute multiple strategies including deploying rescue devices and communicating with those requiring assistance. This way Westpac Little Ripper Lifesaver rescue teams can react quickly and efficiently to save lives.

Westpac has sponsored the Little Ripper Lifesaver since 28th February 2016, complementing their 42-year commitment to the Westpac Life Saver Rescue Helicopter Services that we have all come to know and love. Westpac believes The Little Ripper Lifesaver project represents the next evolution in beach safety, with the ability to rapidly identify and respond to incidents with specialised unmanned aircraft.

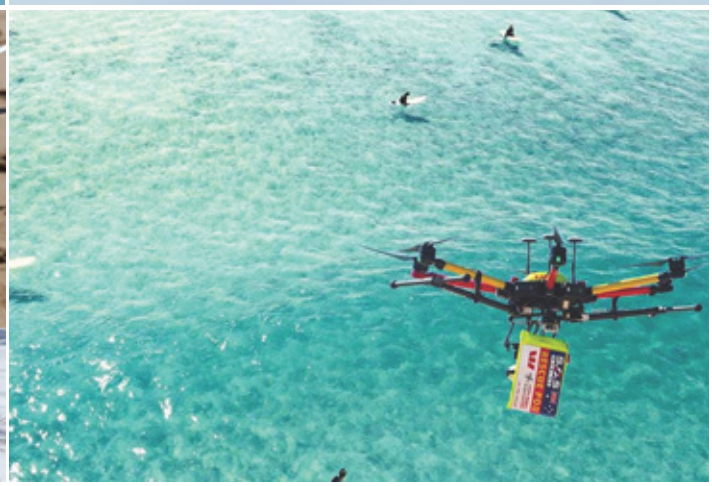
The Westpac Little Ripper Lifesaver performed the world's first drone surf rescue in stormy seas off the coast of Lennox Head, NSW, Australia on 18 January 2018.

Westpac Little Ripper Lifesaver have worked closely with the University of Technology Sydney (UTS) to develop an Artificial Intelligence based system that is able to detect a variety of marine threats with high accuracy, in
real-time. Sharkspotter can detects sharks.

This technology allows for faster reaction times to potential threats at beaches and water ways. Crocspotter has been developed by The Ripper Group in partnership with UTS, Amazon Web Services and Queensland Surf Life Saving.

The Little Ripper range of world-renowned and industry leading Rescue Pods are designed to be implemented in a vast array of search and rescue operations, specifically to be deployed from the Little Ripper range of Rescue UAV's.

«Westpac's Lifesaver Initiative»



MAVERIC

by AIRBUS

AIRBUS

Airbus has revealed MAVERIC (Model Aircraft for Validation and Experimentation of Robust Innovative Controls) its "blended wing body" scale model technological demonstrator.

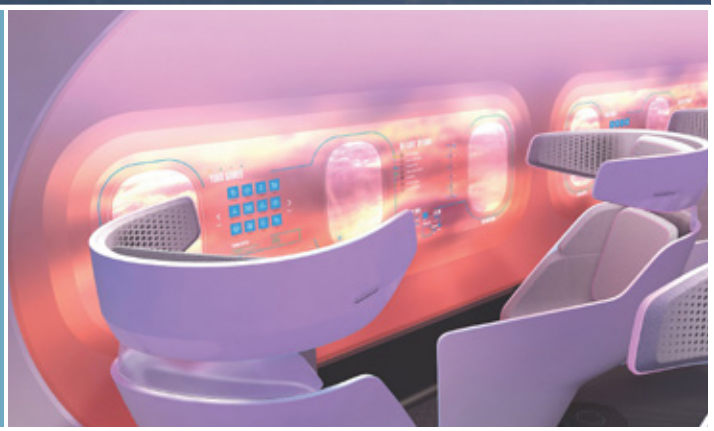
At 2 metres long and 3.2 metres wide, with a surface area of about 2.25m², MAVERIC features a disruptive aircraft design, that has the potential to reduce fuel consumption by up to 20% compared to current single-aisle aircraft. The "blended wing body" configuration also opens up new possibilities for propulsion systems type and integration, as well as a versatile cabin for a totally new onboard passenger experience.

Launched in 2017, MAVERIC first took to the skies in June 2019. Since then the flight-test campaign has been on-going and will continue until the end of Q2 2020.

Airbus is using its core strengths and capabilities of engineering and manufacturing, in close collaboration with an extended innovation ecosystem, to accelerate traditional research and development cycles. By doing this Airbus is able to achieve proof of concepts, at a convincing scale and speed, thereby driving forward maturity and increasing their value.

Through AirbusUpNext, a research programme, Airbus is currently working on a number of demonstrator projects in parallel; E-FAN X (hybrid-electric propulsion), fello'fly (v-shaped "formation" flight) and ATTOL (Autonomous Taxi Take-Off & Landing).

«The Airbus MAVERIC demonstrator is pushing innovative aircraft design to the limit.»



E-FAN X

by AIRBUS

AIRBUS

The E-Fan X is the next step in Airbus' electrification journey for commercial aircraft, and a giant leap towards achieving zero-emission flight over the next 20 years. This ambitious hybrid-electric aircraft demonstrator is expected to embark on its first flight in 2021.

The E-Fan X is a complex hybrid-electric aircraft demonstrator. In the test aircraft, one of the four jet engines will be replaced by a 2MW electric motor, which is roughly equivalent to that of 10 medium-sized cars. The electric propulsion unit is powered by a power-generation system and battery. When high power is required—at take-off, for example—the generator and battery supply energy together.

If the aviation industry is to achieve its goal of a 50% reduction in net aviation CO2 emissions by 2050, future technologies in alternative propulsion must be accelerated. Our goal is to mature the technology, performance, safety and reliability, thereby accelerating progress on alternative propulsion. We also aim to establish the requirements for future certification of electric-powered commercial aircraft.

«A giant leap towards zero-emission flight»

FCX-001

by BELL

Explore the potential for flight, brought to life. The Bell FCX-001 is a window to new a world of aviation—inspired by you, your pilots and your passengers. A true concept aircraft, it combines our rich history with your vision of the future. It combines advanced thermal engine cores for the main propulsion with, for example, electric distribution and motors to drive the anti-torque system for more control and simpler vehicle operations and maintenance.

Bell is developing new anti-torque systems that will change the safety, noise and performance parameters of vertical lift aircraft forever. In this example our anti-torque system is embedded in the tail boom for enhanced safety, providing thrust vectoring capability for control.

Morphing structural geometries will allow aircraft to optimize performance in different flight regimes. Bell is a pioneer in this area having developed the tiltrotor concept of one geometry for helicopter mode flight and a completely different geometry for airplane mode flight. Now we explore individual morphing geometries such as blades, inlets, aerodynamic surfaces, whether through advanced actuation or materials, or both, to push beyond the enhancements that we originally created.

One pilot seat. Removing the traditional Multi Function Display (MFD) flight deck for enhanced visibility from the pilot seat creating an entirely new experience. We see pilots of the future controlling the aircraft with the aid of augmented reality and an artificial intelligence computer assistance system. This takes us from computer augmented piloting, much like we have today with Fly-By-Wire systems, to optionally piloted vehicles where the pilot assumes the role of safety and mission officer aboard the aircraft while the computer flies with him. This is the stepping stone to the fully autonomous, unpiloted VTOL air vehicles.

«Our flight plan for innovation»

www.bellflight.com/products/bell-fcx-001 | FORT WORTH, TX, USA

SKYDRIVE

by SKYDRIVE

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
2	50 m	Electric	n/a	100 km/h	n/a

CONCEPT MODEL SD-XX

A company led by engineers from aircraft, drone, and automotive industries to develop urban air mobilities and cargo drones to put urban air mobilities into practical use, service use, and to contribute to the future of mobile society. Our urban air mobility was successfully conducted first public manned flight in the summer of 2020, Japan and to be available for sale in Japan by 2023. The company started to sale a cargo drone in May 2020, Japan.

Passenger	Size	Weight	Speed
1	4,000mm x 4,000mm x 2,000mm	400 kg	40-50 km/h

MODEL SD-03, 2020 SUMMER

Established: July 2018

CEO: Tomohiro Fukuzawa

Test field/R&D Center: Toyota-shi, Aichi Pref.

Fukushima development base: Fukushima robot test field, Fukushima Pref.


SKYDRIVE
SKYDRIVE

DRONE

by DRONECORIA

DRONECORIA

Dronecoria (Dronechory) is a collection of tools for a revolutionary ecological restoration with drones, for aerial seeding of seedballs with efficient microorganisms, to make green large-scale landscapes at low cost. Dronecoria makes easier the restoration at industrial level, sowing a combination of millions of trees and herbaceous for carbon fixation, with the power of open-source, digital fabrication, and a worldwide community of ecologists.

Dronecoria represents a new area of symbiotic species, produced by biological and technological processes, revealing the potential impact of interaction between ecologies and robotic systems on critical environments. Relies on mechanisms borrowed from cybernetics, robotics and permaculture, to sow seeds from affordable wooden made drones. Allowing accurately positioning of each new seedling, eliminating the competition, and increasing the chance of survival.

The restoration is divided in two phases. First is made a precision map, that uses machine-learning, to understand the optimal spot for each seedball. Then the sowing process, is made in a flight-path. To make it scalable, is proposed an open-source model, to allow a diversity of organizations to plant thousands of trees.

Since 2013, this project has gone through different iterations, from proof of concept, experimentation with microbiology and seedballs, to develop a seed dispenser for drones. Next goals are to standardize the method, develop the machines, and document the methodology for make it available worldwide.

«Drones could regreen the world»

Drone technology, coupled with native seeds coated, can transform the efficiency with which we restore ecosystems.

ATLAS
by WATFLY

WATFLY

ALL-ELECTRIC & WHISPER QUIET

Our proprietary award-winning electric ducted fans (EDF) recognize no limits. Four rotors, as quiet as 87 dBA from 15 meters away, powered by a wing integrated battery pack will provide up to 60 minutes of thrill filled flight. There is no sportier way of achieving that feeling of perfect freedom.

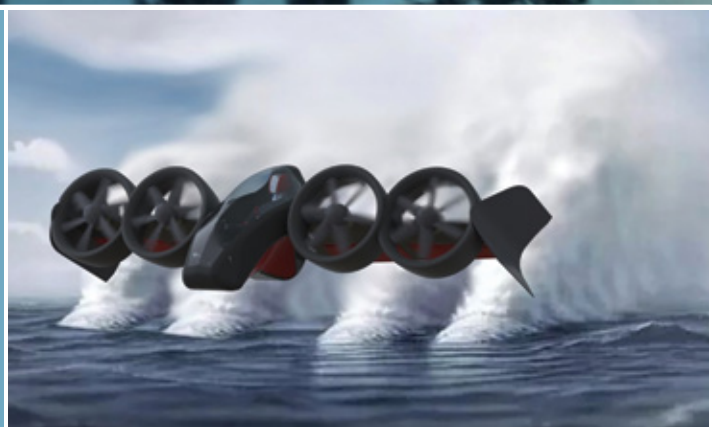
TURNS OUT YOU CAN HAVE IT ALL

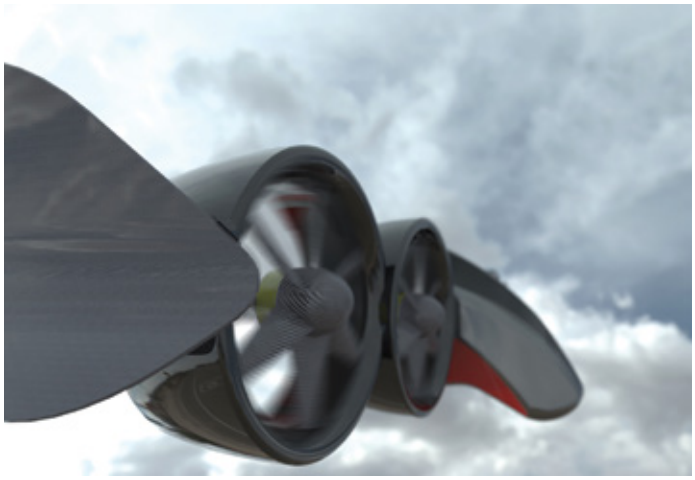
Atlas' strong, stiff carbon fibre structure combines with our active cabin gimbal suspension for true comfort. There's also ample leg room and a rear storage area. So your luggage – from golf clubs, to skis or snowboards – simply fit. While inside the cabin there's more than 180-degrees of breathtaking visibility thanks to the canopy wraparound. Wherever you decide to go, just keep enjoying the journey while the flight computer handles the controls.

NEVER LET TRADITION HOLD YOU BACK

Flight isn't about following tradition. It should inspire you. It should bring you surprising, beautiful experiences and a feeling of freedom. Atlas is certified as an Ultralight Air Vehicle, meaning you do not need a pilot license to fly it, just our tailored training course. Atlas can also take-off and land vertically, meaning you do not need runways, just final destinations.

«Safe. Electric.
Easy to fly.
Free of runways.»





HEALTH DRONE

by SDU (UNIVERSITY OF SOUTHERN DENMARK)

The drones from the HealthDrone-project will now fly further into airspace

A partnership consisting of the University of Southern Denmark (SDU), Odense University Hospital (OUH), Falck, Holo, Unifly, and Scandanavian Avionics has joined forces in the HealthDrone project. The project aims to develop drones that can transport blood tests and medicine between Aeroe, Svendborg, and Odense in Denmark.

An important milestone has now been reached: The partnership has been authorized to undertake the first routine BVLOS-flights, and test flights have now begun. BVLOS stands for "Beyond Visual Line of Sight" and it refers to flights where drones fly so far away that they can no longer be seen by the pilot.

The rules for drone flying are very restrictive. In general, there should always be a pilot present, who should be able to spot the drone with the naked eye. In practice, this means that the maximum range is about 500 meters. In the HealthDrone project, we try to overcome the barriers so that health drones can fly between hospitals, medical clinics, and nursing homes, Kjeld Jensen says.

Later, the drones will also be tested in open airspace, where they will navigate around other flying objects such as medical helicopters and hot air balloons.

The HealthDrone project is about adding value to the healthcare system, however, it also contributes to commercial and industry-related perspectives on how drones further along the road can be integrated into our everyday life.

Project manager, Kjeld Jensen
kjen@mmmi.sdu.dk

- Total budget: DKK 30,615,297
- Investment from the Innovation Fund: DKK 14,107,438
- The project runs from 2019 to 2021

«Drones to fly blood samples and doctors between hospitals»

DELEAVES SAMPLER

by DELEAVES

TECHNICAL SPECIFICATIONS

Max. cutting diameter:	25mm	Battery voltage:	11.1 V
Max. sample weight:	500g	Tool weight:	1.0 kg
Battery capacity:	1000 mAh	Tool length:	2.6m

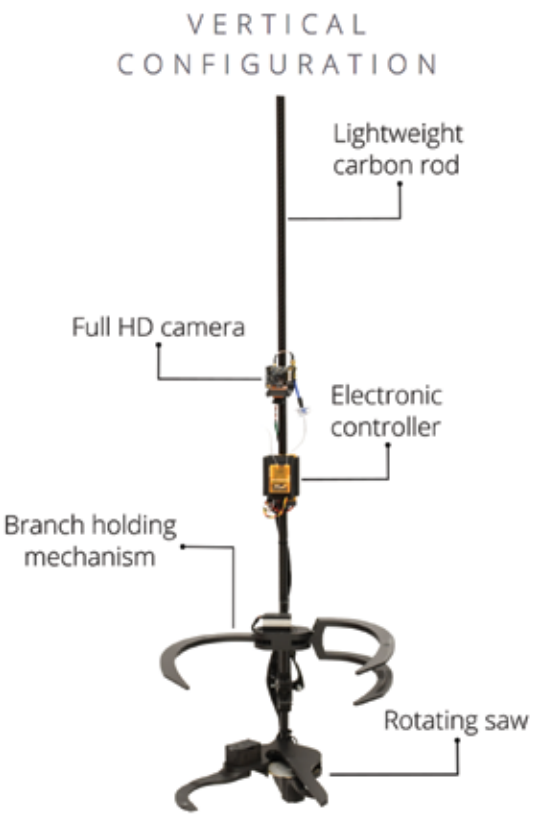
DeLeaves' mission is to provide a new way to collect plant samples using an unmanned aerial vehicle (UAV). Using the latest UAV technologies, DeLeaves is working with top forestry companies and leading research groups to enable the sampling of previously unreachable plants and trees. The DeLeaves sampling tool is compatible with a great variety of drones, allowing customers to easily integrate this tool into their current operations. Join our growing list of partners.

Our solution works for any tree height or vegetation density. Collect previously unreachable samples.

By flying over the trees, we can collect branches far away from access roads in only a few minutes.

No more risk of injuries associated with tree sampling. Avoid neck pains and hazardous situations.

The use of a drone saves significant costs compared to the use of climbers, helicopters or cranes.



«DeLeaves Tree sampling of tomorrow»

FALCON B SERIES

by EHANG

Falcon is bringing traditional surveillance to a new height by breaking traditional visual limits. It provides unprecedented flexibility to the surveillance industry and ensures personnel safety. Additionally, higher adaptability for public security management is made possible with its zoom camera, infrared camera and private network LTE.

Using Falcon to release weather balloons or airships has become a new effective, convenient and economical method of meteorological measurement. Its various cameras, which detect pollution quickly, make environmentalists' work more efficient.

Falcon is well suited for forests inspection and fire extinction. It provides a method of rapid deployment to monitor and control fire in locations denying human access, and is even able to quickly carry and transport emergency supplies to the firefighters on site.

Falcon is replacing the traditional repetitive work of inspectors in major facilities inspection. It's simple control mode and various loads save maintenance personnel the time of field operation, and greatly improve inspection efficiency per unit time.

Falcon is an indispensable supplement to the traditional surveying and mapping area, and an unparalleled choice of fast mapmaking and construction calculation.EHang Falcon B Series integrates seamlessly with existing business processes with customized flight platform solutions, enabling new scenarios not achievable with traditional flight platforms and reduces overall cost for businesses.

«Smart city management»

LX300

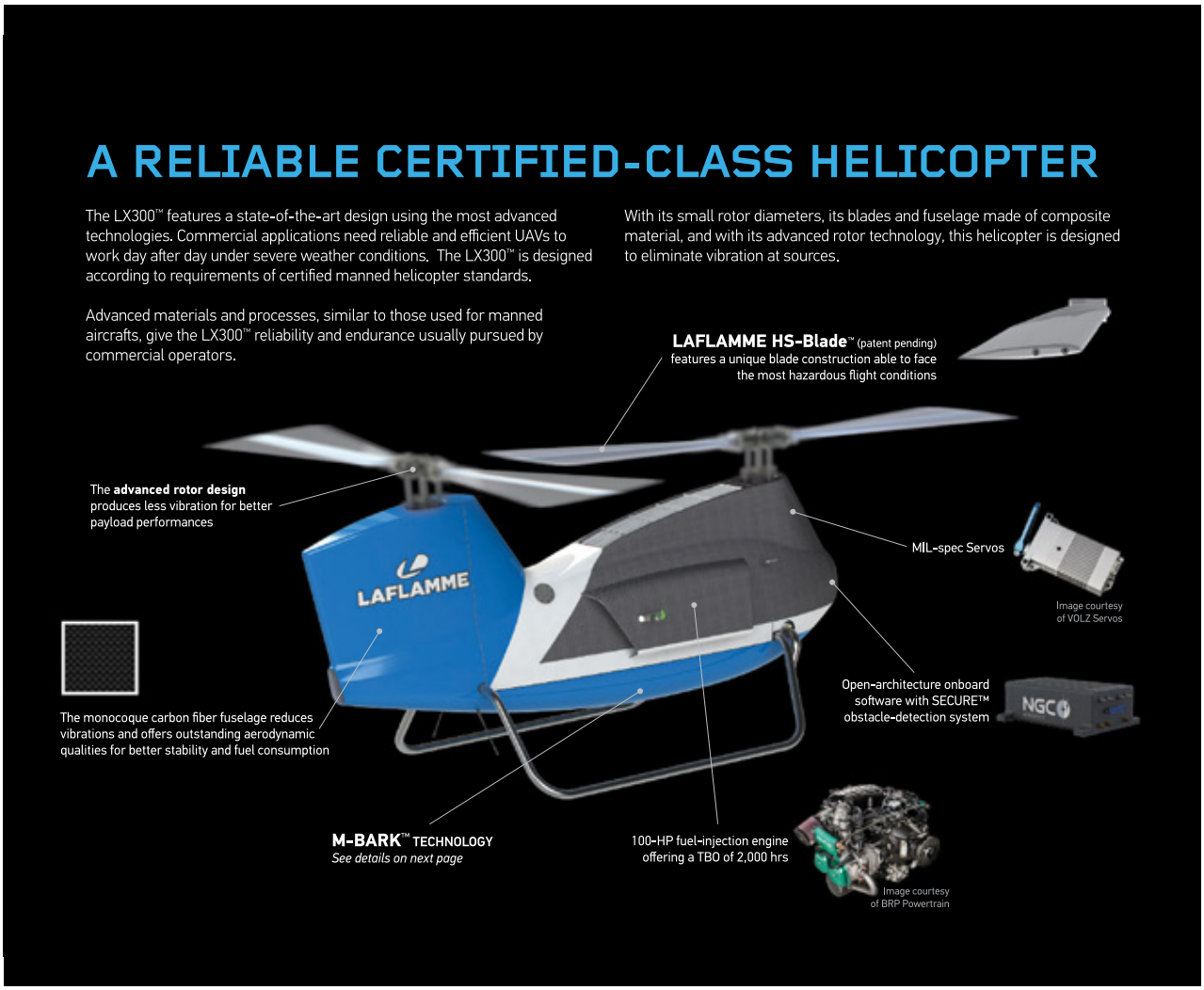
by LAFLAMME AERO

The LX300™ features a state-of-the-art design using the most advanced technologies. Commercial applications need reliable and efficient UAVs to work day after day under severe weather conditions. The LX300™ is designed according to requirements of certified manned helicopter standards.

Advanced materials and processes, similar to those used for manned aircrafts, give the LX300™ reliability and endurance usually pursued by commercial operators.

With its small rotor diameters, its blades and fuselage made of composite material, and with its advanced rotor technology, this helicopter is designed to eliminate vibration at sources.

In order to meet commercial missions, LAFLAMME AERO offers some pre-packaged versions of the LX300™ such as the prospecto, for mines and energy; the airtract, for agriculture; the premier, for first-aid assistance; and the naval, for overwater purposes. Of course, the standard platform remains customizable to meet your specific application.



«A reliable certified-class helicopter»

laflamme.aero/products/lx300/ | COLERAINE, QC, CANADA

CICARÉ eTRAINER

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
1	5 feet	MTOW: 750 kg EW=450 kg	2 hours	n/a	n/a

Training area: 12 x 12 m

Rotor Diameter 6.4 m

Powered by an electrical motor, Cicaré eTrainer is designed for a zero-emission, lower noise pollution and safer helicopter instruction. Like its successful previous model, the SVH-4, it is a conventional helicopter design attached to a unique patented design mobile ground platform which allows full and safe use of all flight controls and behavior of a helicopter. This is not a virtual simulator: the system is a real helicopter with limited altitude.

The Platform and its pneumatic system allows the helicopter to easily move in all directions a to ascend and descend adjusting the level of sensitivity.
The piston-engine model is recognized by several authorities around the world, such as the FAA, for the first 10 hours of basic training of helicopter pilots. It is also used by several air forces and private flight schools to teach the basics of flying helicopters.

A student that has been trained in the Cicaré eTrainer will be able to keep any helicopter in stationary flight because the sensitivity acquisition in the handling of flight and engine controls has been completely achieved by flying a real helicopter with limited flying height.

ADVANTAGES:

- Reduces between 60 and 80% the hourly cost of flight training during the first 10 hours of the course.
- Virtually eliminates the accident risk for Students and Instructors during the early training stages as well as protecting helicopters from wear/tear and damage.
- Optimizes skills formation and reduces stress to suit the learning pace of each unique student.
- Allows inexpensive «Back to Basics» training.

«Dream, Believe, Fly»

MK4

by AIRSPEEDER

It is the world's first racing series for manned electric flying cars. Where elite pilots race manned electric multicopters above some of the world's most exotic locations, our sport is found at the confluence of frontier technology and new world entertainment.

There is more to racing than speed. Whilst crossing the line first is important, these are other reasons we're racing.

INSPIRED - A 21st century sport designed to deliver a product that will inspire and excite the next generation. We race for the fans.

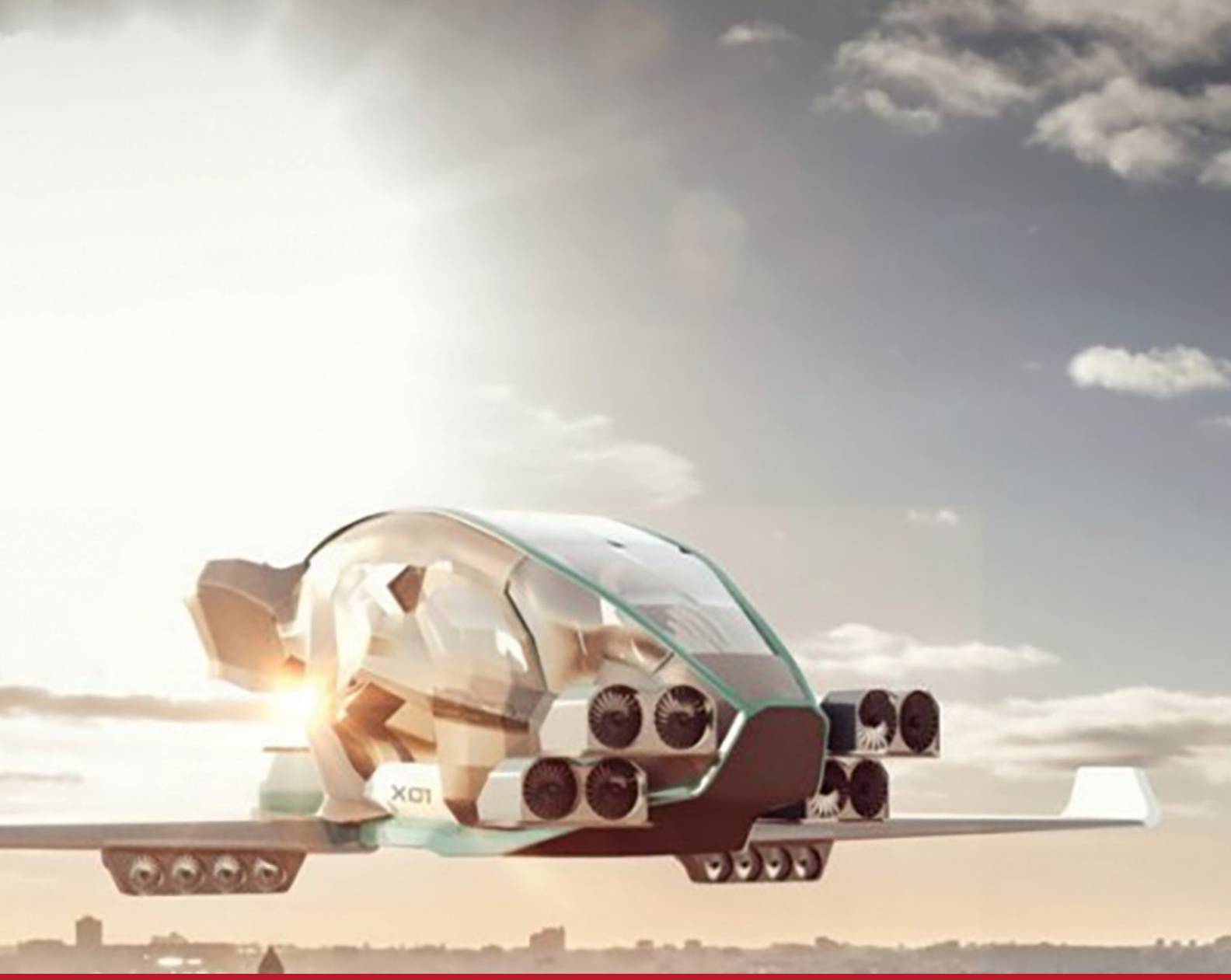
INNOVATIVE - Nothing drives innovation faster than competition. Airspeeder will turbocharge eVTOL technology and safety innovation, enabling the next aviation revolution. We race for the industry.

SUSTAINABLE - Airspeeder is a completely electric racing series. It's been designed as a 21st century sport should be. We race for the planet.

The world no longer demands what traditional motorsport delivers. The future of transport is flight. Airspeeder takes what is dreamed in E-Sports and makes it reality. Airspeeder is a sport for the next generation.

Our races and content aligns brands with a defining technological movement. Our partners enable the future of electric mobility and sustainable urban transport.

«Airspeeder is motorsport evolved»



CONCEPTS

AERO
by GOODYEAR

The AERO is a multimodal tilt-rotor concept. It would serve as a drivetrain to transfer and absorb forces to and from the road in a traditional orientation and an aircraft propulsion system to provide lift in another orientation. The concept's spokes would provide support to carry the weight of the vehicle and act as fan blades to provide lift when the tire is tilted.

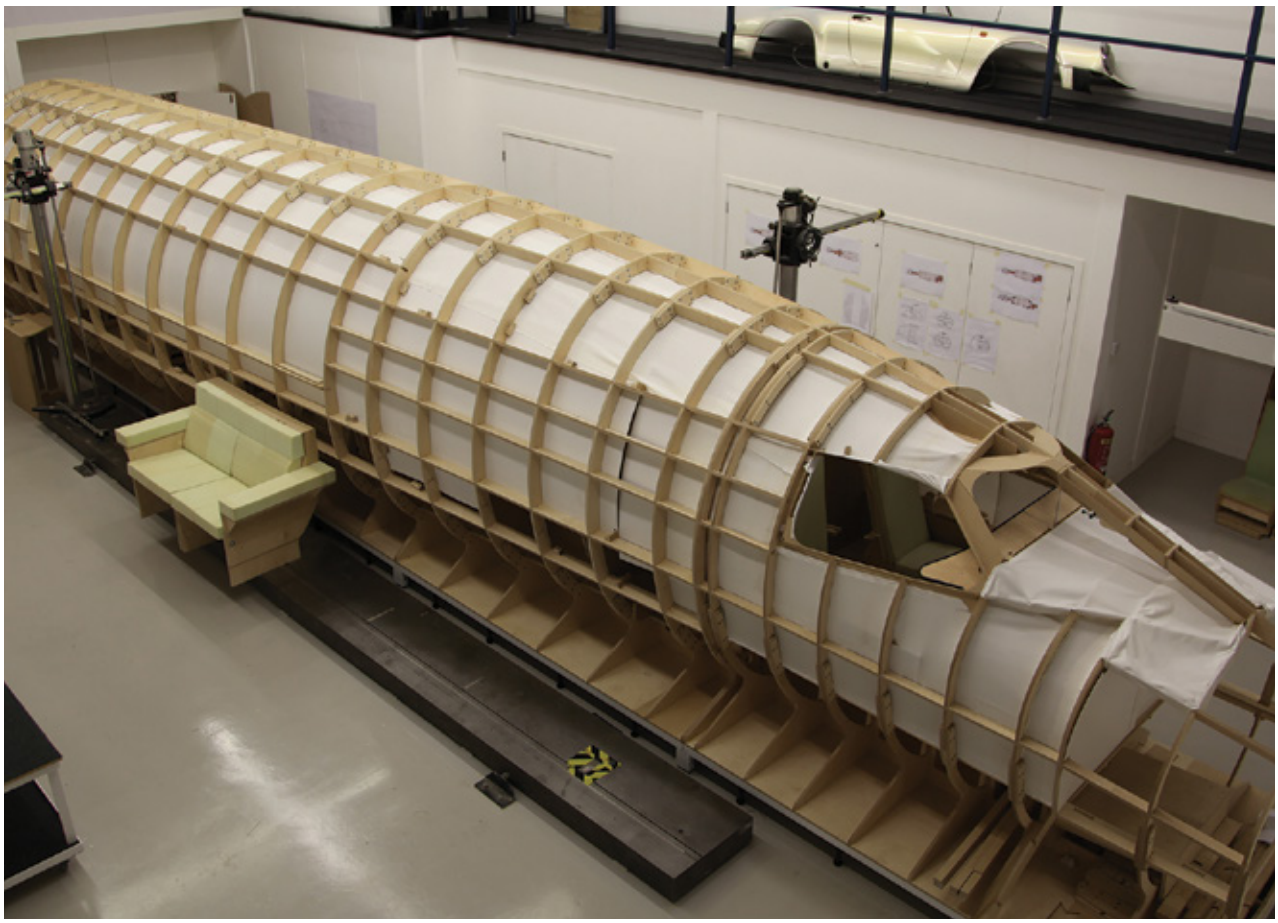
The AERO would use magnetic force to provide frictionless propulsion. This would enable the high rotating speeds required to drive the vehicle on the ground and, when the wheel is tilted, lift a vehicle into the air and propel it forward. It would flexible enough to dampen shocks when driving on the road, and strong enough to rotate at the high speeds necessary for the rotors to create vertical lift. The AERO would use light-based, fiber optic sensors to monitor road conditions, tire wear and the structural integrity of the tire itself. An embedded A.I. processor would combine information from the tire's sensors with data from vehicle-to-vehicle and vehicle-to-infrastructure communication. The A.I. processor would analyze these streams of data to recommend a course of action and identify and resolve potential tire-related issues before they happen.

«Thinking beyond the wheel»

AS2 SUPERSONIC BUSINESS JET

by AERION

Aerion partnered with Boeing to accelerate supersonic travel and the AS2 supersonic business jet was created. Boeing will provide engineering, manufacturing and flight test resources, as well as strategic vertical content, to bring Aerion's AS2 supersonic business jet to market. This concept will help maximize the most valuable resource-time. The AS2 will have the ability to fly up to 70 percent faster than today's business jets and will save approximately three hours on a transatlantic flight while meeting environmental performance requirements. The company outlined a goal of achieving product design review by June 2020, leading to a first flight of the AS2 in June 2023.



«Building transportation networks of the future, our starting point is super sonic flight»

THE FLYING CAR

by BARTINI

BARTINI

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2-4	400 kg	3500 m	Electric / hydrogen	120 min.	300 km/h	550 km

$ $100,000-120

Bartini is an aviation engineering company that develops an electric vertical take-off and landing aircraft (eVTOL) for private use and the emerging urban air taxi market. It has a carrying body that provides aerodynamic lift in cruise mode after the aircraft takes-off, gains ground speed and tilts the rotors perpendicular to the ground. The aircraft is designed to fly at 300 km/hr (162 knots). Hydrogen fuel cell modification shall cover the distance of up to 550 km over almost 2 hours, while lithium battery modification will range 150 km on 30 minutes of flight. At least double redundancy of power and units, duplication of nodes, very few moving parts, and ducts around the blades shall result in ultimate safety. The configuration allows for considerable noise control. The configuration is intended to serve the interests of the three major stakeholders: the city, the operator, and the passenger. The aircraft shall operate within a wide variety of perimeter variables. Engineering and design excellence is achieved through strong collaboration across aircraft engineering, automotive and mobility systems design, urban planning, air traffic management and ground infrastructure operations.

«The future of air travel»

CITYHAWK

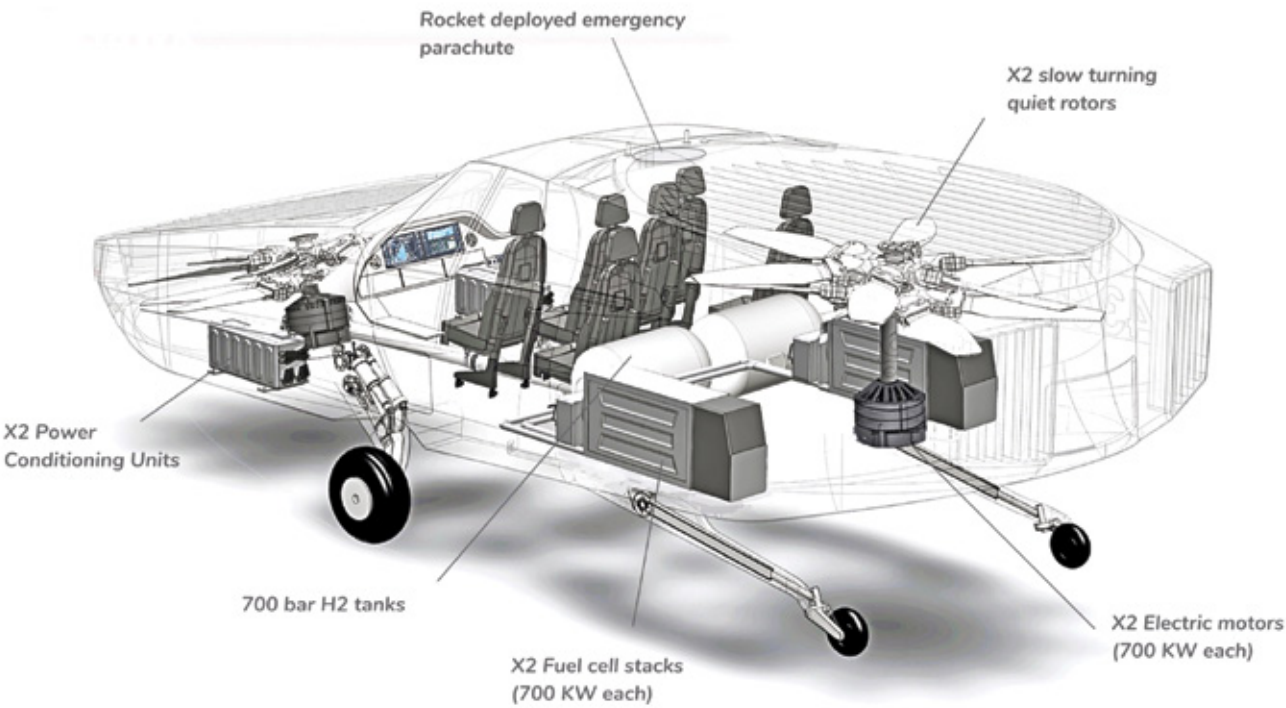
by URBAN AERONAUTICS

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
6						
including pilot	760 kg	2,743 m	Fuel	n/a	234 km/h	150 km

$ 3.2 million

The CityHawk is Urban Aeronautics' flagship Fancraft model. A twin engine Fancraft designed to existing FAA standards including "Category A" takeoffs. It is built as one platform but has multiple configurations such as private/executive flying car, air taxi or emergency response.

As an Executive Aircraft for private/corporate use, CityHawk offers an exceptional "upgrade" in space and comfort and the convenience of being able to take-off and land just about anywhere. Likewise, as an air taxi, CityHawk's spacious cabin and minimal footprint results in more passengers per trip therefore in more arrivals and departures in real-time. Lastly, the Fancraft can also bring emergency services precisely where they are needed. Even to places that helicopters can't be able to reach.



«Your Ticket To Everywhere»

DR-7

by DELOREAN AEROSPACE

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
1	3,048 m	Electric	2,880 min. ESTIMATED	241 km/h	193 km

$ USD 250,000 - 300,000

Engineered for maximum efficiency, the DR-7 is built like a formula one race car for the sky. The DR-7 features monocoque composite construction, an ultra-low drag body, and a tandem seating configuration. Weight is kept to a minimum for unrivalled performance and range.

Additionally, The DR-7 is fully electric and has been designed with a number of unique technologies to increase its safety and overall functionality. With an industry-first centreline twin vectoring propulsion system and stall-resistant canard design, this aircraft aims to be reliable and safe.


DELOREAN AEROSPACE

DRONE TAXI R-1

by HOVERSURF

HOVERSURF

Passenger	Altitude	Propulsion	Autonomy	Speed	Range
	n/a	n/a	1.2 h	241 km/h	300 km

USD 0,29/km

The Drone Taxi is a lift-and-cruise or hybrid type of aircraft. Unlike other VTOLs, the Drone Taxi's systems are independent. If the wing fails, the copter will land. If the copter motors fail, the plane will allow you to glide and land. Hoversurf has also included an advanced ballistic parachute for emergency situations. Further, the Drone Taxi will have a low noise level due to its use of venturi engines, which utilize noise-cancelling technology; and it will be able to take-off and land in an ordinary parking space, allowing the aircraft to access more landing spaces in cities.

«We develop new technologies for future transportation.»

ONYX2
by AERONYX

AERONYX
We Fly Beyond

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
5	453 kg	305 m	Hybrid-electric or full-electric	26 min.	241 km/h	300 km

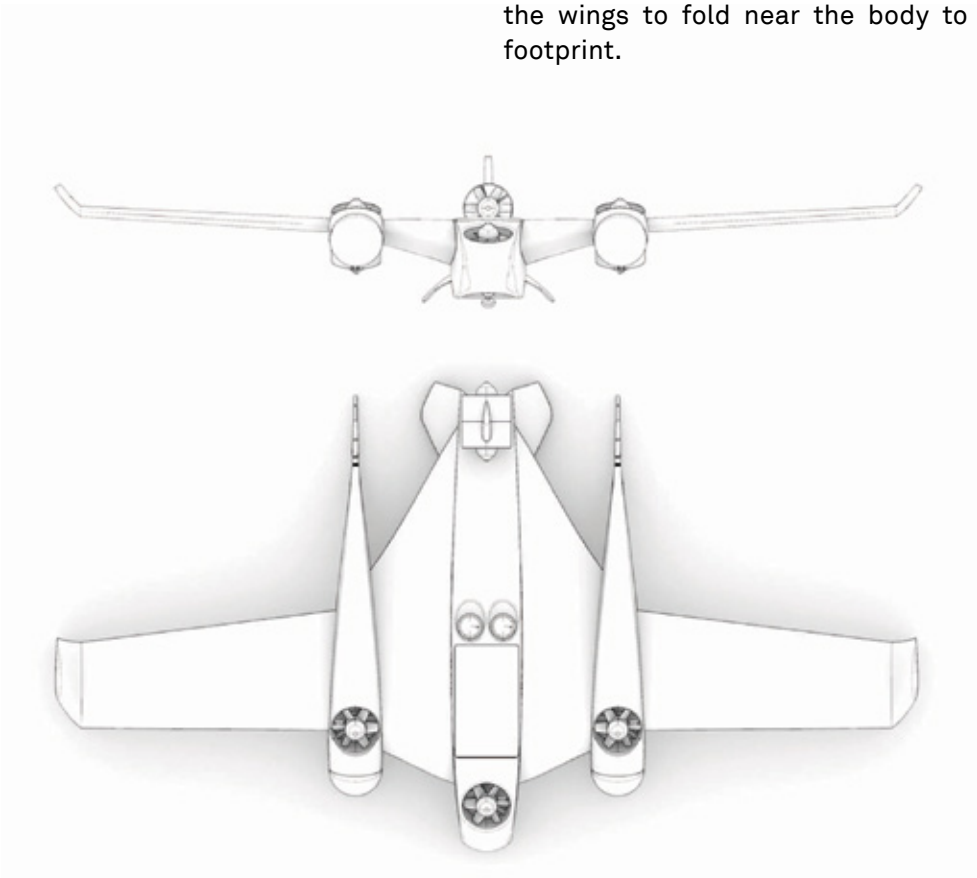
$ USD$ 4 to 6 /km

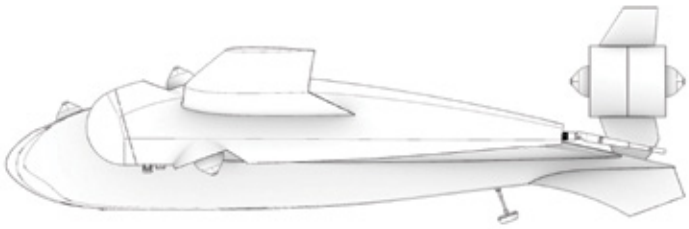
The Onyx2 is a fully electric and autonomous aircraft capable of vertical takeoffs and landings.

Our concept is propelled by smalls electric ducted fans, which removes the hazard of large exposed blades, therefore making it safer and less intimidating for passengers.

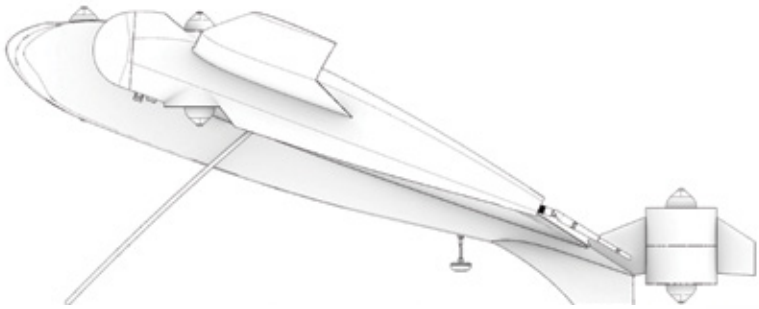
This type of propulsion also allows sound supressing materials to be installed in the duct, to significantly reduce the sound generated by the fans.

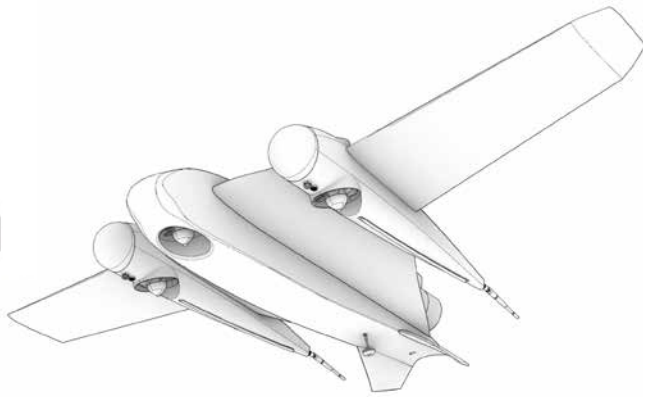
The Onyx2 is designed to be an air taxi operating in densely populated urban areas, where space is often limited. For this reason, the wings are equipped with our GLDTRK technology, allowing the wings to fold near the body to reduce the footprint.





«We fly beyond»





PRANDLTPLANE

by PARSIFAL

European Commission | Innovation and Networks Executive Agency

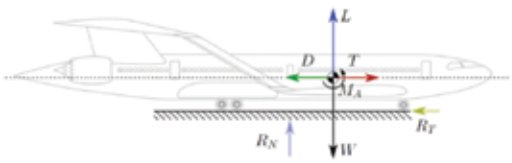
Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
310	31,751 kg	10,973 m	Jet fuel	17,280 min.	833 km/h	4000 km

The main objective of (Prandtlplane ARchitecture for the Sustainable Improvement of Future AirpLanes) (PARSIFAL) is to establish the scientific and engineering basis to improve civil air transport in the future by introducing an innovative aircraft, known as PrandtlPlane. The project is focused on the medium-size commercial aircraft category.

PARSIFAL is a consortium of both public and private bodies lead by UNIVERSITY OF PISA and the name PARSIFAL is the acronym of Prandtlplane ARchitecture for the Sustainable Improvement of Future AirpLanes.

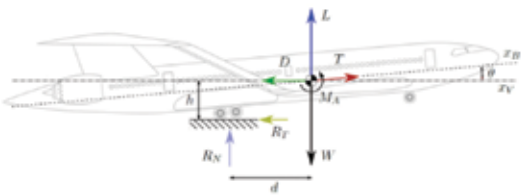
«This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.723149»

Following the forces schemes for the three take-off phases reported in Figure 5, the equations of motion can be written as follows:



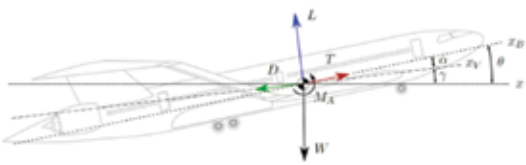
Ground Roll:

$$\begin{cases} \frac{W}{g}\frac{dV}{dt} = T - D - R_T \\ R_N + L = W \\ R_T = \mu R_N \end{cases}$$



Rotation:

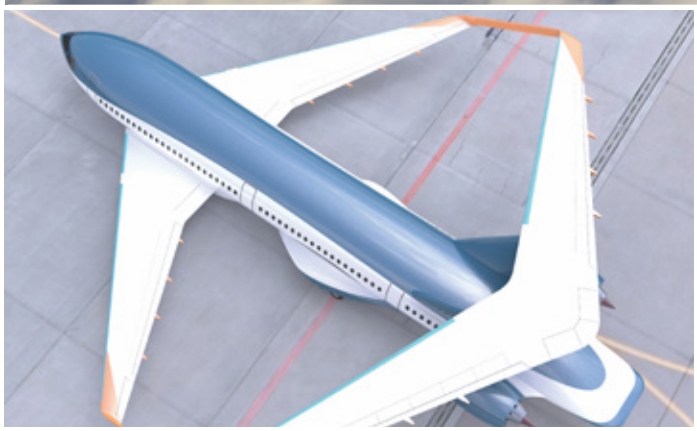
$$\begin{cases} \frac{W}{g}\frac{dV}{dt} = T\cos\theta - D - R_T \\ I_y\frac{d^2\theta}{dt^2} = M_A - R_N d - R_T h \\ R_N + L + T\sin\theta = W \\ R_T = \mu R_N \end{cases}$$



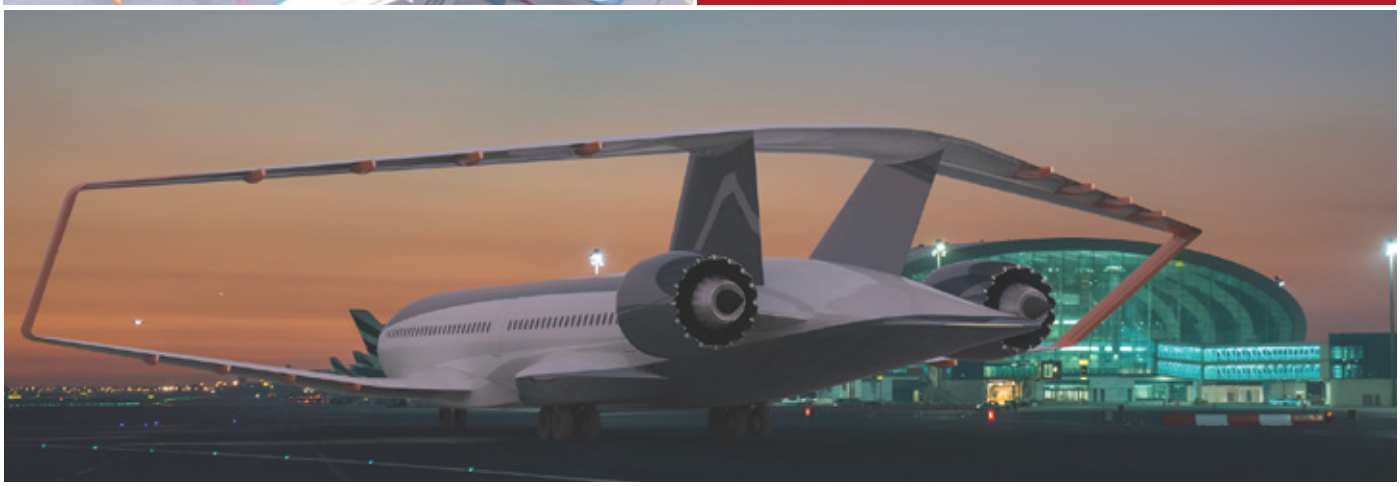
Lift off:

$$\begin{cases} \frac{W}{g}\frac{dV_x}{dt} = T\cos\theta - D\cos\gamma - L\sin\gamma \\ \frac{W}{g}\frac{dV_z}{dt} = T\sin\theta - D\sin\gamma + L\cos\gamma \\ I_y\frac{d^2\theta}{dt^2} = M_A \end{cases}$$

Figure 5 Forces schema for the three take-off segments



«The future of aviation»

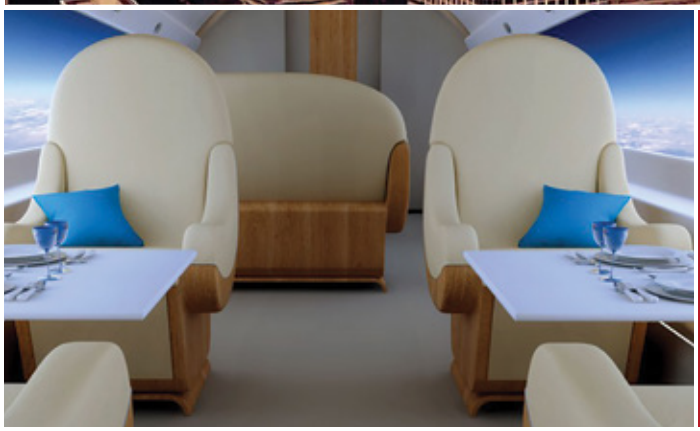


S-512

by SPIKE AEROSPACE

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
18	11,482 kg	n/a	n/a	1.2 h	Mach 1.6	6200 nm

Since 2013, Spike Aerospace has been designing and engineering the Spike S-512 quiet Supersonic Jet. The company has spent thousands of hours studying various configurations and optimizing the aircraft's performance to meet the needs of very demanding customers and regulators. The design continues to be improved upon as they learn from further analysis and their first prototypes. The Spike S-512 is the only supersonic jet in development that will fly at twice the speed of other jets without creating a loud sonic boom. It will also be a fuel-efficient design.



«Fly supersonic.
Do more»

UBER AIR

by UBER

Uber

Uber Elevate continues to develop an ecosystem to support its urban air mobility (UAM) initiative, Uber Air. Working in partnership with industry and government stakeholders, Uber is supporting the development of the aircraft and infrastructure through strategic partnerships, and safety programs and technical systems required to launch Uber Air.

Through this collaborative approach, Uber is developing the capability to provide our riders with the option to travel within metropolitan areas via multimodal journeys that safely and efficiently combine air and ground segments, yielding time savings and reducing future traffic congestion.

Our plan is to initiate Uber Air services in Dallas, Texas and Los Angeles, California with subsequent expansion to other cities outside of the United States. Uber recognizes that an undertaking of this scale requires innovative technology as well as standardized policies and procedures to successfully integrate new electric vertical takeoff and landing (eVTOL) aircraft into existing airspace systems. Through our efforts to develop the required ecosystem, Uber Elevate continues to make UAM a reality.

Capacity

Uber will leverage its mobility technology to create pooled trips, when it is safe to do so, flown by Uber Air network aircraft that will accommodate up to 4 passengers in addition to the pilot. This is key to establishing electric vertical takeoff and landing (eVTOL) aircraft as a sustainable and affordable mode of transportation that will be accessible to the community.

Speed and Altitude

Uber Air eVTOL aircraft will fly at a cruising speed of 150 mph or more with a typical cruise altitude of 1,000 to 2,000 feet above ground. This is designed to provide meaningful time savings to Uber riders as they bypass ground congestion.

Propulsion

eVTOL aircraft will be certified by relevant civil aviation authorities. The distributed electric propulsion (DEP) architecture facilitates redundancy at multiple levels (propellers, motors, electronics, batteries).

Range

A battery range of around 60 miles covers the vast majority of trips within a city and also allows eVTOL aircraft to operate back-to-back shorter flights with very brief charging time in between.

Green

Green transportation is at the core of Uber Elevate's vision. From day one, all eVTOL aircraft operating on the Uber Air network will be battery-electric, producing zero emissions during flight. From utilizing a fleet of eVTOL aircraft to building eco-friendly UAM infrastructure called skyports, we are taking a holistic approach to sustainability to ensure the service we create will be good for our communities and the environment. This compounding effect results in a positive step change for cities aiming to reduce their carbon footprint, by replacing thousands of fuel-burning cars with clean, electric aircraft.

«Uber Elevate is weaving everyday flight into the Uber platform.»

ZA10

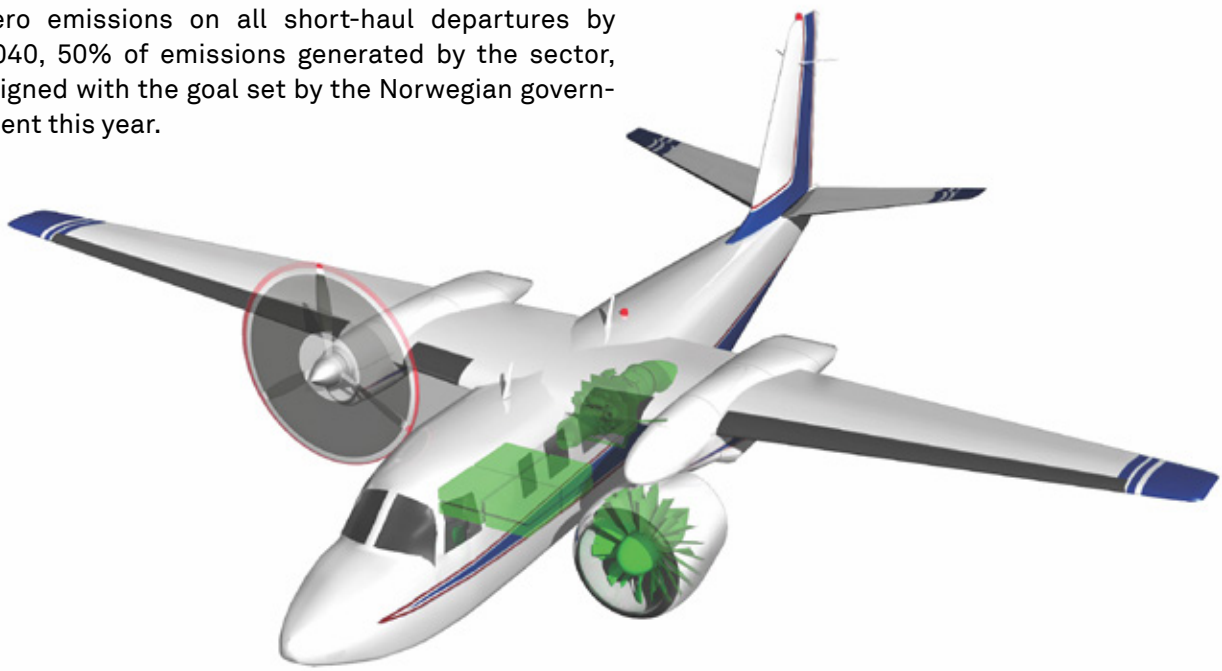
by ZUNUM AERO

ZUNUM Aero

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
1-2 pilots	1,454 kg	n/a	n/a	240 min.	n/a	n/a

Power train class : 1 MW | **Generation class : 500 kW**

Zunum Aero is developing regional hybrid-to-electric aircraft and underlying propulsion technologies with disruptive economics over ranges from 700 miles at entry in 2023 to 1,500 miles by 2035. By scaling airliner-grade economics to mid-sized platforms and design for quiet door-to-door service to tens of thousands of secondary airports, our aircraft will usher in a new era of fast and affordable regional travel. Door-to-door journeys will be 2 to 4 times faster than today, reversing the stagnation of the past 50 years. Meanwhile, our hybrid-to-electric propulsion will place aviation on pathway to zero emissions on all short-haul departures by 2040, 50% of emissions generated by the sector, aligned with the goal set by the Norwegian government this year.



«Bringing you electric air travel out to a thousand miles»

OVERTURE

by BOOM SUPERSONIC

BOOM

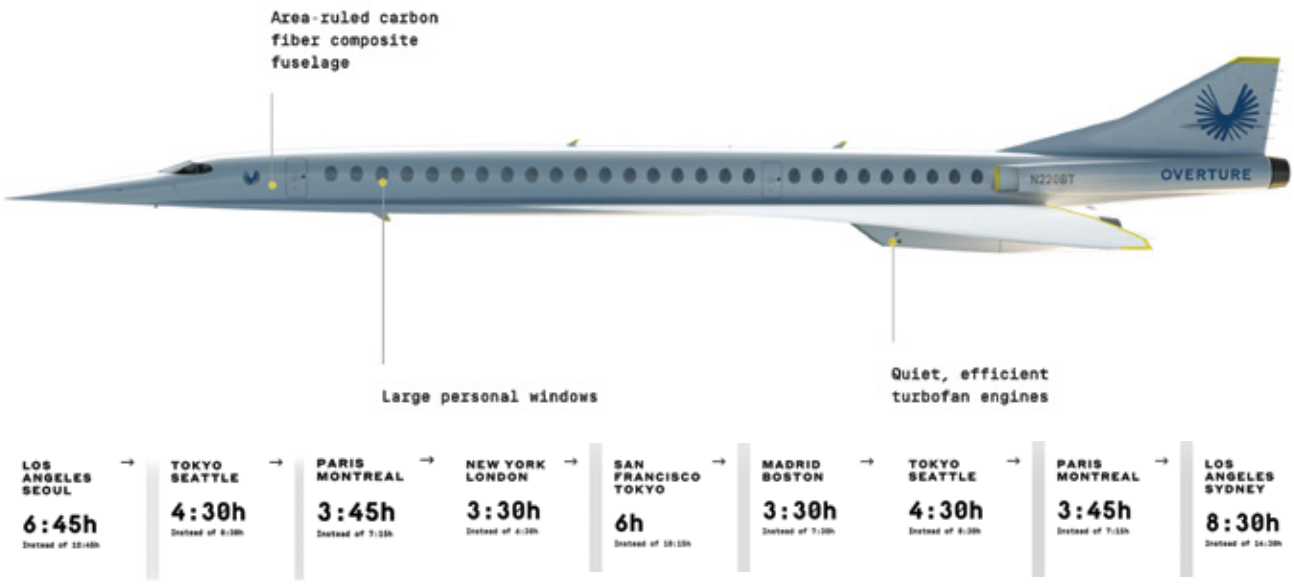
Passenger	Altitude	Propulsion	Autonomy	Speed	Range
55-75	18,288 m	Jet A (AND SUSTAINABLE EQUIVALENTS)	n/a	2,335 km /h	8,334 km

$ USD$ 200 million

Ouverture is a Mach-2.2 commercial airliner by Boom Supersonic that will be the fastest airliner ever created and history's most efficient supersonic jet. Overture will make supersonic travel mainstream and affordable, offering pricing comparable to today's business class.

Its vision is to bring families, businesses, and cultures closer together through supersonic travel, making the world dramatically more accessible.

With over 500 daily transoceanic routes, Boom aims to fly passenger flights by the mid-2020s. Overture will only fly routes that are primarily over water-such as : New York to London or San Francisco to Tokyo, flying supersonically over water and subsonically over land.




OVERTURE

X01

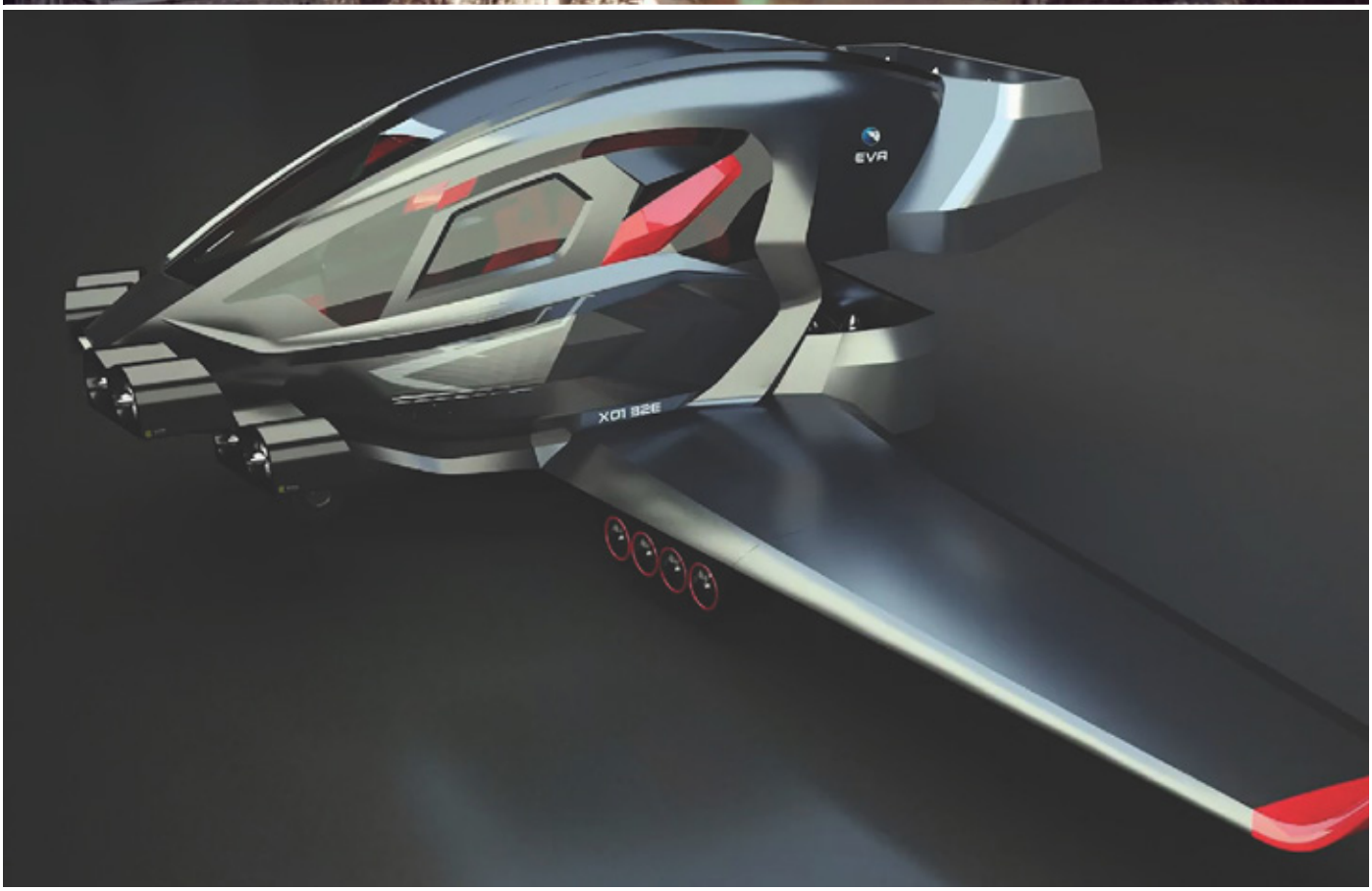
by ELECTRIC VISIONARY AIRCRAFTS (EVA)

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
2	250 kg	305 m	Electric	3,000 min	300 km /h	250 km

USD$ 281,787

The X01 was born from the thought of giving traffic a solution. Its folding wing architecture allows an efficient and battery-friendly safe travel; and its advanced dual battery solutions and capability to charge on the current infrastructure removes not only traffic from the ground but pollution from the air. Besides air taxi missions, the X01 can accomplish ultra-fast rescue requests.

Its compact size allows landing in tiny areas where helicopters cannot go. Moreover, the X01 remote control capability and advanced sensors can rescue people and firemen trapped in wildfires.


EVA
XO1 B2E

MK4
by AIRSPEEDER

AIRSPEEDER

It is the world's first racing series for manned electric flying cars. With elite pilots race manned electric multicopters above some of the world's most exotic locations, our sport is found at the confluence of frontier technology and new world entertainment.

DEFINING AN INDUSTRY & RACING WITH PURPOSE.

There is more to racing than speed. Whilst crossing the line first is important, these are other reasons we're racing.

Enlightened - A 21st century sport designed to deliver a product that will inspire and excite the next generation. We race for the fans.

Innovative - Nothing drives innovation faster than competition. Airspeeder will turbocharge eVTOL technology and safety innovation, enabling the next aviation revolution. We race for the industry.

Sustainable - Airspeeder is a completely electric racing series. It's been designed as a 21st century sport should be. We race for sustainability.

GLOBAL SPORT DESIGNED FOR THE 21ST CENTURY

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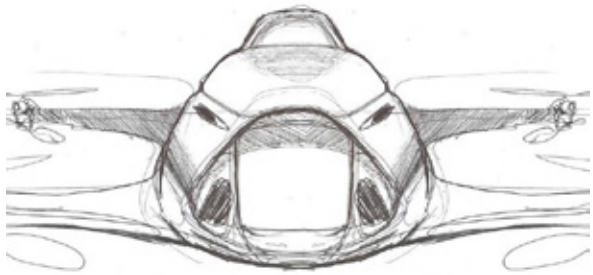
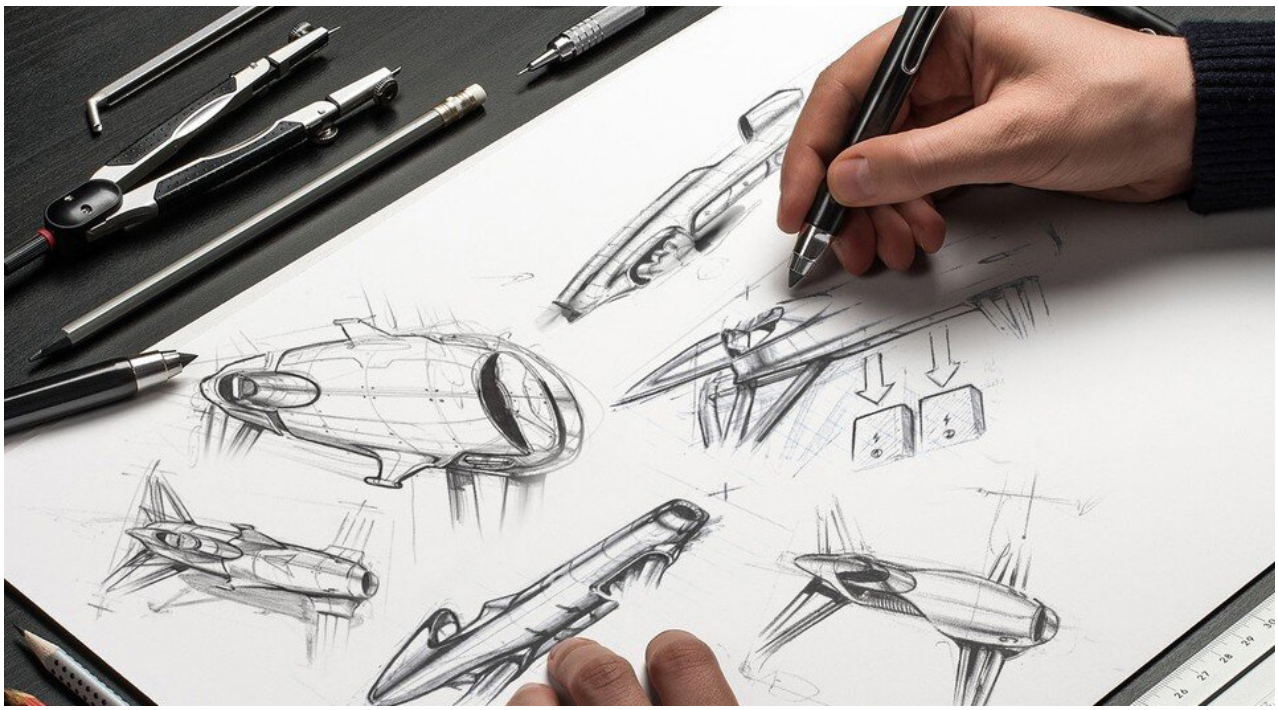




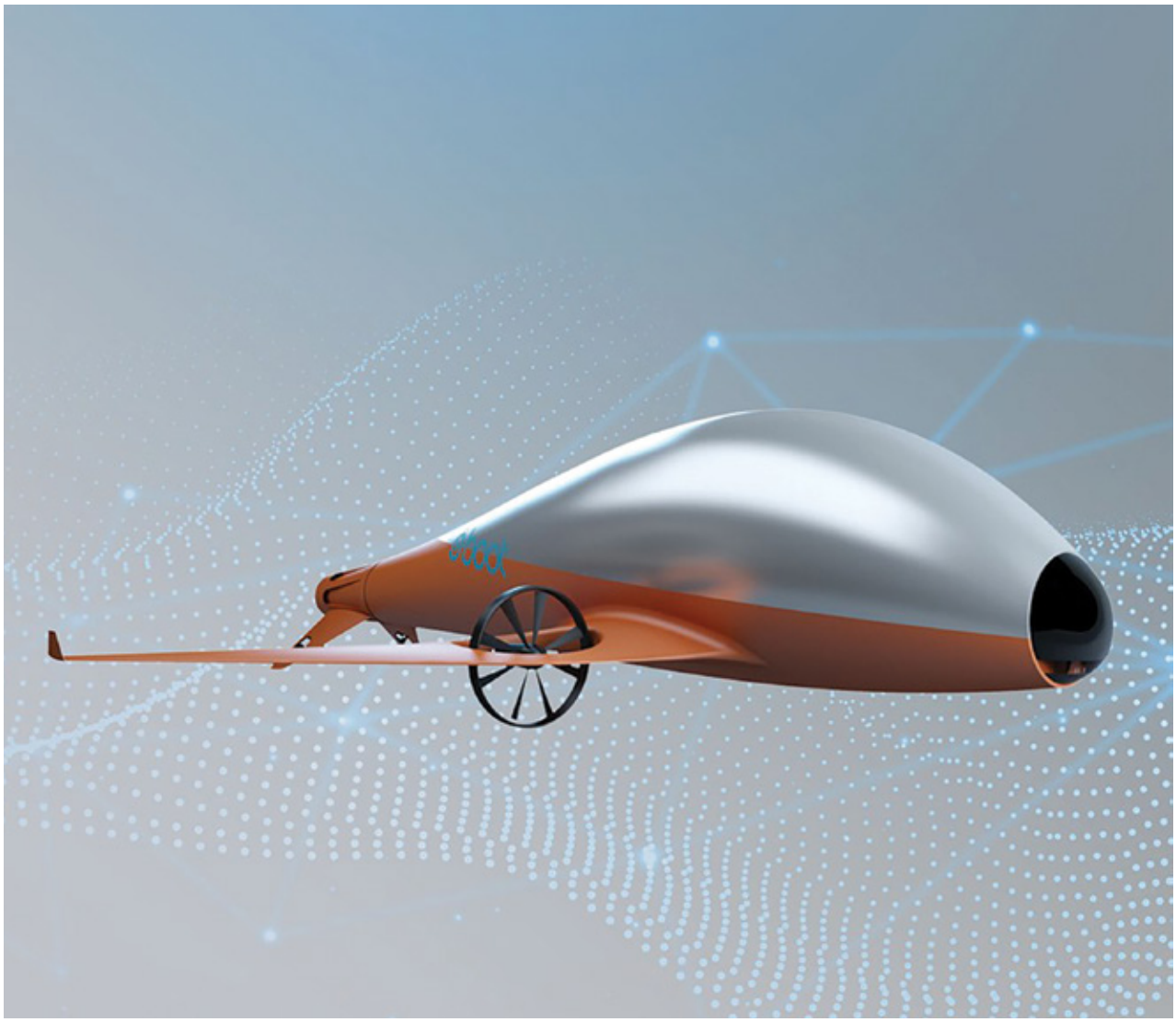
«Airspeeder is motorsport evolved»

O-BOOT CARGO

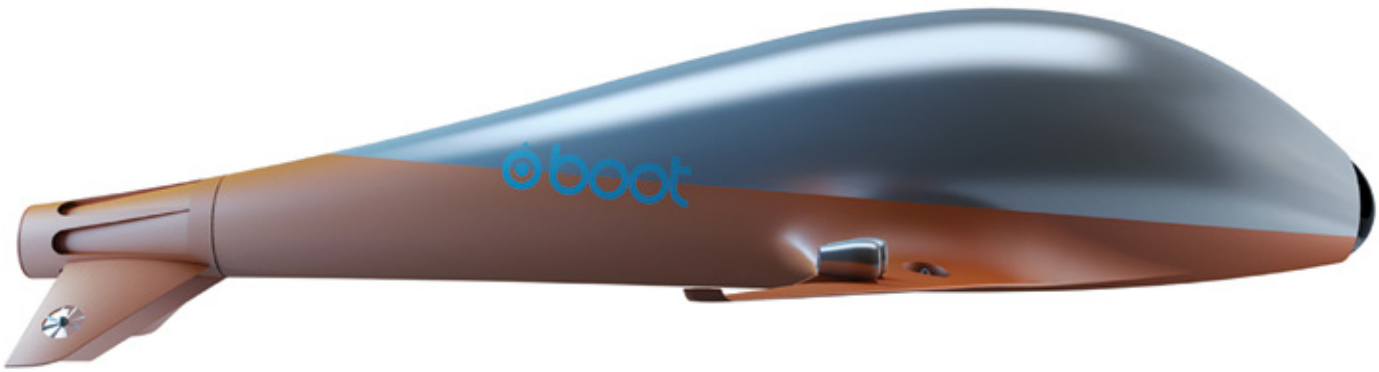
by O-BOOT

O-Boot Cargo is the vertical take-off and landing airship that will take the intercontinental freight transport to a whole new level. It does not use helium, but a new technology that allows the creation of pneumatic vacuum, powered by solar energy. O-Boot Cargo does not need ports, airports or other infrastructures because it arrives where you want, with a priceless efficiency: remaining suspended in mid-air, it can load the goods directly from the production site, to unload them just 48 hours later on the other side of the world.

The O-Boot does not need ports, airports or other infrastructures, it takes off and lands wherever you want, with a priceless efficiency that has no environmental cost: remaining suspended in mid-air, it can load the goods directly from the production site, e.g. a remote factory in the Vietnamese hinterland, to unload the same goods 48 hours later directly in a factory in a region of Italy.



«Load, Transport and unload containers and even passengers, to and from anywhere...»



VTOL

by BOEING AND PORSCHE

Boeing has teamed up with luxury sports carmaker Porsche to develop a concept for an electric vehicle capable of vertical takeoff and landing (VTOL) -- in other words, they're working on a «flying car.» The companies' engineers will even collaborate to build and test a prototype based on the design they'll come up with, which will most likely be a premium VTOL model to stay true to Porsche's brand.

Their collaboration will also look into urban air mobility as a whole and won't just focus on the development of a vehicle. Porsche's announcement says they'll create an international team as part of the Memorandum of Understanding they signed. That team will address the various aspects of urban air mobility, as well as investigate the market potential for and possible use cases of premium flying vehicles.

«This collaboration builds on our efforts to develop a safe and efficient new mobility ecosystem, and provides an opportunity to investigate the development of a premium urban air mobility vehicle with a leading automotive brand»

Boeing VP Steve Nordlund said in a statement.

As Reuters noted, Boeing will be competing with perpetual rival Airbus SE, which already started testing its own VTOL vehicle last year. Larry Page-backed Kitty Hawk also recently unveiled a single-person VTOL that's a hundred times quieter than a helicopter.

Porsche and Boeing are teaming up to build luxury, electric-powered vertical takeoff and landing (VTOL) aircraft for rich people to fly above traffic-choked cities. They are the latest companies to announce intentions to explore the risky and potentially dangerous urban air mobility market.

Porsche and Boeing have signed a nonexclusive memorandum of understanding, which means they will look for ways to work together, but they aren't locked into a binding agreement. As part of the partnership, the companies say they will "create an international team to address various aspects of urban air mobility, including analysis of the market potential for premium vehicles and possible use cases."

VOLOPORT

by VOLOCOPTER

The integration of flexible take-off and landing infrastructure in megacities is crucial for the success of Urban Air Mobility (UAM) and for air taxi operations. In order to advance the development of this infrastructure, we have been working with Skyports, a British vertiport developer and operator, since 2019. Together we developed the VoloPort, which we will show for the first time publicly in Singapore. The transparent design and high-quality interior of the VoloPort along with the simple booking option by app will provide a seamless and comfortable travel experience to our future passengers.

Our VoloPort prototype in Singapore will enable real-life testing of the full customer journey to perfect the passenger experience, showcase planned customer services, including pre-flight checks, passenger lounges and boarding procedures, allow practical testing of ground operations and services, including battery swaps and charging, maintenance, safety and security, and provide an opportunity for authorities and industry regulators to interact with the infrastructure and give their feedback before they are asked to approve the final design


VOLOPORT


2X


VOLOPORT
VOLOCOPTER
Skyports

S-A1 AIR TAXI

by UBER AND HYUNDAI

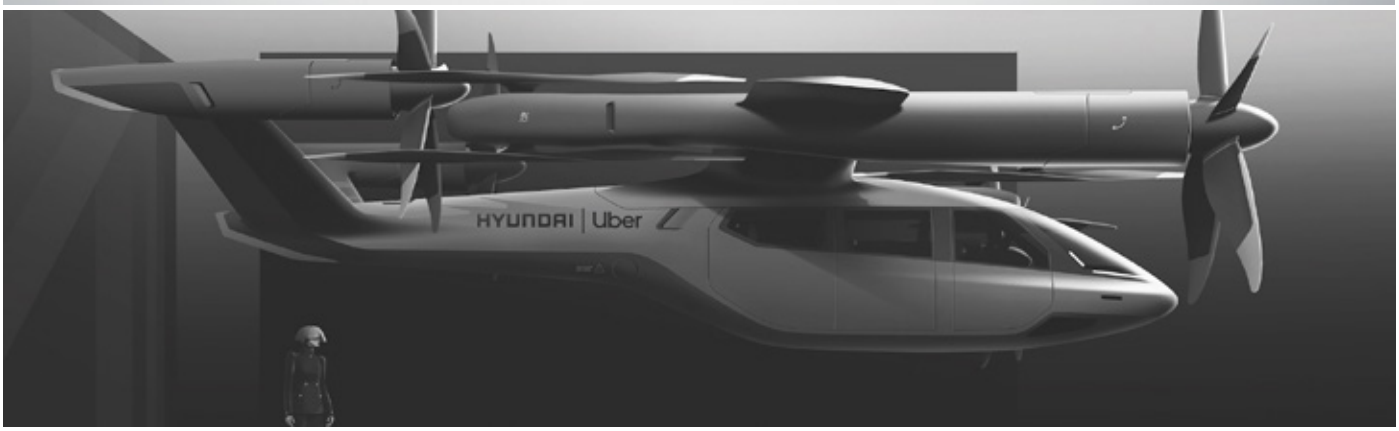
The Hyundai Urban Air Mobility vehicle is called the S-A1 and was developed in partnership with Uber Elevate, with the air taxi service in mind.

The compact aircraft -- which seats five, including the pilot -- features four electrically driven props in a vertical orientation, much like a quadcopter drone. This gives the S-A1 vertical take-off and landing capabilities and keeps the craft quieter than a traditional helicopter, a combination that Hyundai and Uber think make it ideal for use in urban areas.

Once the craft reaches its cruising altitude, between 1,000 and 2,000 feet, the props tilt to face forward, converting the urban air mobility vehicle to a fixed-wing configuration similar to an airplane. In this more efficient mode, the S-A1 is able to reach a claimed cruising speed of 200 mph with an operating range of around 60 miles. Using these numbers one could imagine a trip from Manhattan to Trenton, New Jersey, from San Francisco to San Jose, or clear across the LA Metro area in about 20 minutes.

Upon reaching its destination, the S-A1 converts back to eVTOL mode before setting down on a helipad -- important for urban use, where there's usually no room for runways. Here's the most interesting detail: Hyundai reckons that with rapid charging, the aircraft will only need about 5 to 7 minutes between trips for recharging. They must be cramming some serious current into that battery.


HYUNDAI | Uber


HYUNDAI | Uber


HYUNDAI
HYUNDAI
HYUNDAI | Uber
SF Airport

L400 ULTRAFAVORITE

by LEOPARD AEROSPACE

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
43						
AIRLINER CONFIGURATION: 1st class: 4 - 2nd class 39)	11,440 lb	98,000 ft	2 x TFR50 "PULSAR" (50,000 lbf (222 kN) each)	4h20'	Mach 4.0	9,000 NM (16,670 km)

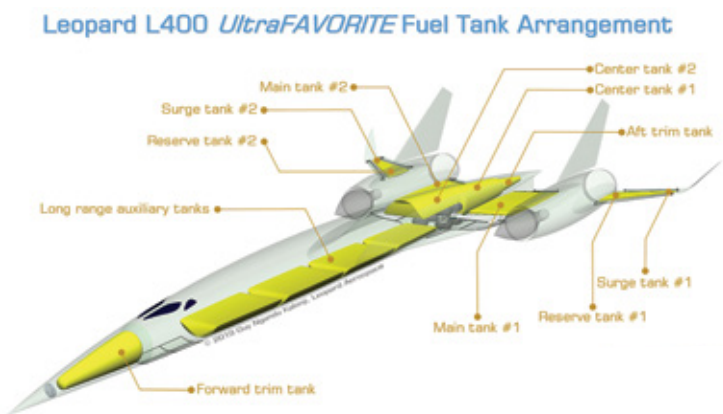
The Leopard L400 UltraFAVORITE is a 40-passengers class prototype-less supersonic small airliner with capability of cruise flight at high supersonic Mach 4.0 (2,675 mph) on maximum long range near 9,000 NM at an altitude of 98,000 ft.

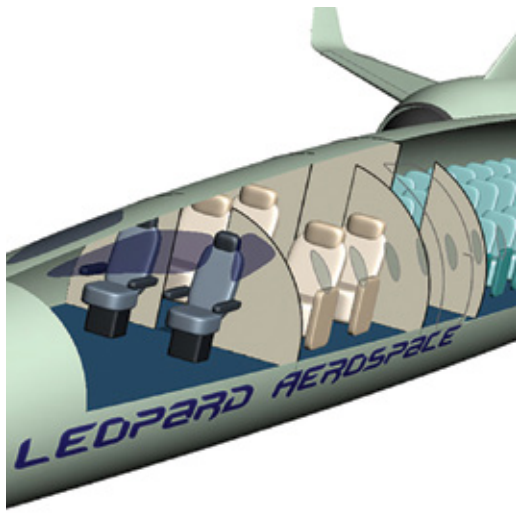
The direct fly from New York City (JFK) to London (LHR) will take only 1:46 h and the direct fly from New York City (JFK) to Sydney (SYD) will take only 4:10 h.

Leopard Aerospace proposed other conversions of its L400 into for 20-passenger in supersonic business jet (SBJ), Heads of State (HoS) and Government for carrying the future Vice President or top senior military officers.

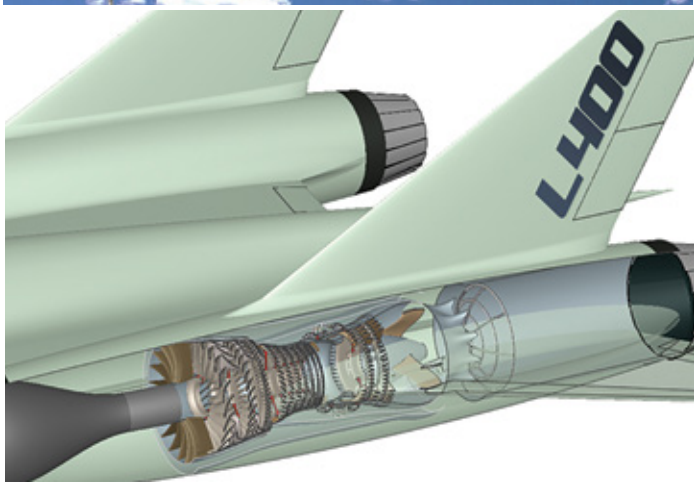
Taking account, the current price of jet fuel, the flight time from New York to London would be less than two hours with a round-trip cost around $9,000.

The L400 was developed to reduce the travel time and make the traveler life more productive. Compared to transonic business jets (~Mach 0.8-1.2) and several low supersonic business jets (Mach 1.6 maximum) in development that do not really save time because of long time of airport security processes, the quadruple-sonic L400 UltraFAVORITE is making a clear difference in time and saving money





«Quadruple-Sonic Prototype-less Small Airliner, Large Business Jet, and Head of State & Government.»



SCYLAX E10

by SCYLAX AIRCRAFT

SCYLAX

We believe that SCYLAX's flagship aircraft, the E10, will represent a new standard in the single and twin-engine aircraft market in the form of reducing fuel use in the near future, which is a major cost saving in the aviation industry.

The current market for single / twin engine aircraft is saturated with older legacy models and, due to the fuel savings associated with newer aircraft and models does not justify the cost of purchasing aircraft in the secondary market. The worldwide market volume was in 2018 ~1.740 units per year and USD 2.7 billion revenue. The all electric aircraft could build a real new market replacing the current old fleet with piston engines & turboprop propulsion.

By leading the way to market and being a pioneer of electric aircraft, the E6 and E10 will be the natural replacement for companies looking to acquire or replace their existing aging small commuter fleet.


E10


E10
SCYLAX
GREEN AVIATION


SCYLAX
E10

ROTORCRAFT TERMINAL

by LEONARDO AND FALCON AVIATION SERVICES

Leonardo and Falcon Aviation Services are launching an all-new rotorcraft-dedicated terminal concept. This initiative will meet the growing demands for sustainable and modern vertical lift mobility as well as greater access to urban areas.

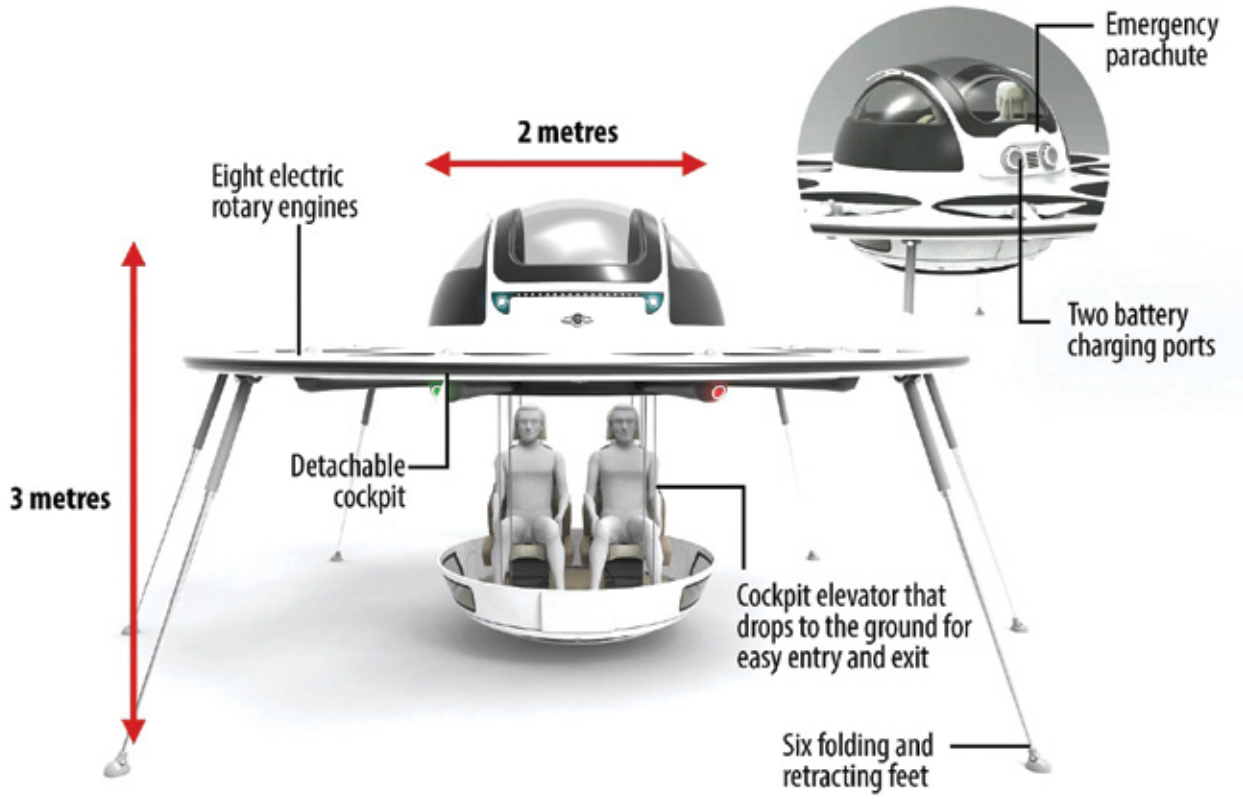
The new rotorcraft terminal uniquely combines a helipad, a showroom and lounge areas in a single city-based heliport. The terminal will be supporting the development of a network of point-to-point connections for both urban transfers and connections between cities. VIP and charter services users and passengers will be provided with levels of service typically available only in larger private airport facilities far from downtown and urban areas. The rotorcraft terminal features strong environmentally friendly design and modularity using recyclable materials and, if required, it can be transported.

TWO SEATER DRONE

by JET CAPSULE

Designed by Pierpaolo Lazzarini from Italian company jet capsule, the I.F.O or 'identified flying object' is a proposed two seater drone/copter vehicle. the chassis, composed of a main central capsule cockpit, measures two meters in diameter and is surrounded by a carbon fiber disk with an overall dimension of 4.70 meters.

Jet capsule's I.F.O. is fuelled by eight electric engines, able to push the flying object to an estimated top speed of about 120 mph. different energy resources are provided from various batteries located in the disk and with an additional battery pack placed at the center of the capsule body, the estimated flight autonomy ranges between sixty and seventy minutes. for a smooth landing, the vehicle has six folding and extending suspensions — which makes it possible to access the I.F.O through an elevator, generated from the lower sub-spherical body. otherwise, the capsule can be access by two removable bridges, available on any specific landing station.



AUTONOMOUS AERIAL VEHICLE (AAV) E-PORT

by EHANG

Autonomous aerial technology platform company, EHang, is to build what claims to be the world's first e-port for autonomous aerial vehicle (AAV) services in the city of Hezhou in China's Guangxi Province. EHang will cooperate with a local partner to build the e-port, which will accelerate the commercialisation of EHang AAVs in the tourism industry.

The city of Hezhou is a pioneer in air tourism, and this project will make it a model for innovation in this area around the world. The e-port is planned to be completed and operational by the end of 2020. The plan includes the delivery of 20 units of the EHang 216, the company's two-seat passenger-grade AAV, which will be deployed for aerial sightseeing. The e-port terminal building will cover 2,500 square metres and include four landing pads located on the roof-top, which can accommodate the landing/take-off for four AAVs simultaneously.

«The city of Hezhou is a pioneer in air tourism, and this project will make it model for air tourism innovation around the world.»

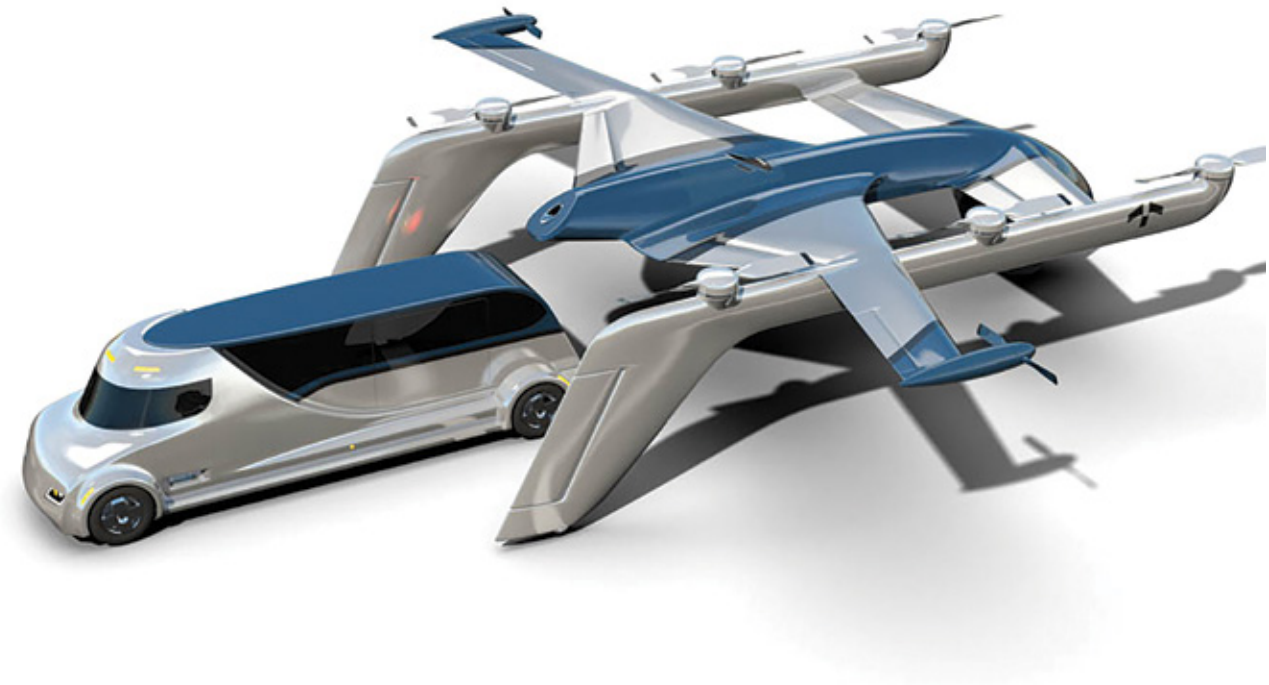
TF-2

by TERRAFUGIA

Passenger	Payload	Altitude	Propulsion	Autonomy	Speed	Range
4	544 kg	305 m	hybrid - electric	4,680 min	230 km /h	300 km

The TF-2 is designed to make travel by air and ground part of nearly everyone's daily commute. The vehicle is a three-part system that combines a passenger cabin that transfers between a road vehicle and an air vehicle. Therefore, passengers travel their full journey, through the air and on the ground, without having to switch vehicles along the way.

Additionally, the TF-2 will take off like a helicopter, fly an airplane, and drive on the roads using the latest technology in electric propulsion, construction materials and manufacturing processes to ensure safety and reliability.



ZEROE
by AIRBUS

AIRBUS

At Airbus, we have the ambition to develop the world's first zero-emission commercial aircraft by 2035. Hydrogen propulsion will help us to deliver on this ambition. Our ZEROe concept aircraft enable us to explore a variety of configurations and hydrogen technologies that will shape the development of our future zero-emission aircraft.

HYDROGEN PROPULSION TO POWER FUTURE AIRCRAFT

All three ZEROe concepts are hydrogen-hybrid aircraft. They are powered by hydrogen combustion through modified gas turbine engines. Liquid hydrogen is used as fuel for combustion with oxygen.

In addition, hydrogen fuel cells create electrical power that complements the gas turbine, resulting in a highly efficient hybrid-electric propulsion system. All of these technologies are complementary, and the benefits are additive.

TURBOFAN

Two hybrid-hydrogen turbofan engines provide thrust. The liquid hydrogen storage and distribution system is located behind the rear pressure bulkhead.

TURBOPROP

Two hybrid-hydrogen turboprop engines, which drive eight-bladed propellers, provide thrust. The liquid hydrogen storage and distribution system is located behind the rear pressure bulkhead.

BLENDED-WING BODY (BWB)

The exceptionally wide interior opens up multiple options for hydrogen storage and distribution. Here, the liquid hydrogen storage tanks are stored underneath the wings. Two hybrid hydrogen turbofan engines provide thrust.

«The world's first zero-emission commercial aircraft by 2035»

ES-19

by HEART AEROSPACE

Heart Aerospace will deliver the first ES-19 electric airliner certified for commercial flight by 2026.

GREEN

Zero Operational Emissions

Air travel accounts for 2% of global CO2 emissions, and that share is expected to rise to 12-27% by 2050. 40% of worldwide emissions are from short-haul flights. Electric aircraft are the solution. These planes have zero operational emissions, and the lowest infrastructural footprint of all modes of regional transport.

ACCESSIBLE

Reduced door-to-door travel times

We believe air travel should be integrated into–not separated from–our towns and communities. Our zero-emissions, low-noise aircraft can operate on 750m runways, making new use of the vast network of small airports close to city centres.

COST-EFFECTIVE

75% cost savings in fuel and 50% in maintenance

Electrification changes the equation for regional air travel. Electric aircraft are affordable to buy, operate and maintain. Simple, reliable electric motors reduce maintenance costs by 90% compared to turboprops, and intelligent electronic monitoring reduces inspection needs. Most importantly, fuel costs go down by 50-75%.

«Electrifying regional air travel»

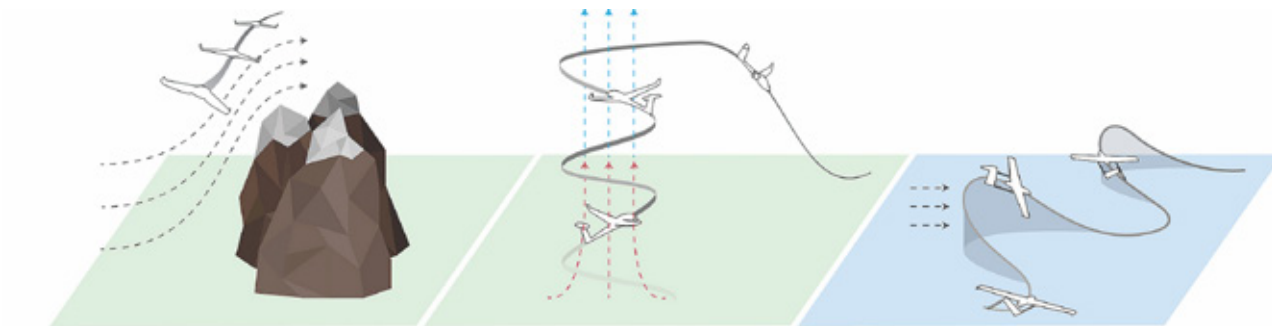
NEW TECHNOLOGIES

NOTOS TECHNOLOGIES

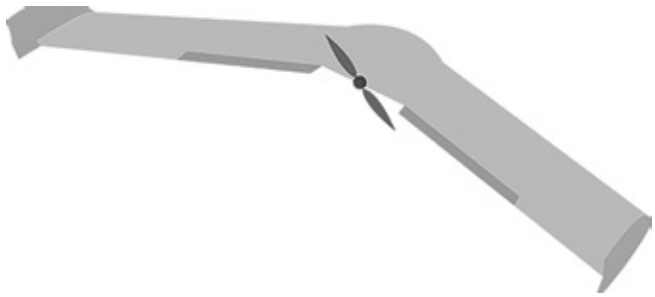
We provide you with access to extended flight time, enabling your team to perform long-range and indefinite flight missions not before thought possible. Our fully unmanned system runs on renewable and readily available energy, allowing you to redirect manpower from drone guidance and maintenance towards completing your mission objectives. By using infinitely accessible wind energy, our drones can stay in the air without the need for battery changes or stops at charging stations, reducing the need for spare batteries or extra drones to complete your mission in the same time frame. Our algorithm also provides unique access to high precision localized weather data, allowing you to track wind data anytime, anywhere, as it occurs.

Notos software applications include wildfire management, medical delivery, pipeline management and livestock monitoring.

Notos software will keep your drone right on top of burgeoning wildfires, allowing you to be instantly notified of any changes or development in the direction or intensity of the fires, enabling your crew to instantly adapt to changes, and control the uncontrollable. Drones using Notos software are also able to instantly bypass the logistical difficulties of delivering lifesaving supplies to remote areas. Safely send your supplies further than they have ever gone before, with the peace of mind that comes with the knowledge that your drone will make it to its destination, no matter where that is. Furthermore, the software is able to continuously and seamlessly monitor the full length of your pipeline network, allowing you to mitigate risk without the need for additional infrastructure or maintenance needed. and finally, Notos is able to continuously observe your herd, and instantly notify you of any perceived changes in behaviour that would be a cause for concern, allowing you to focus on your other tasks with the peace of mind in knowing that your livestock is constantly being cared for.



«Pioneering forever flight»

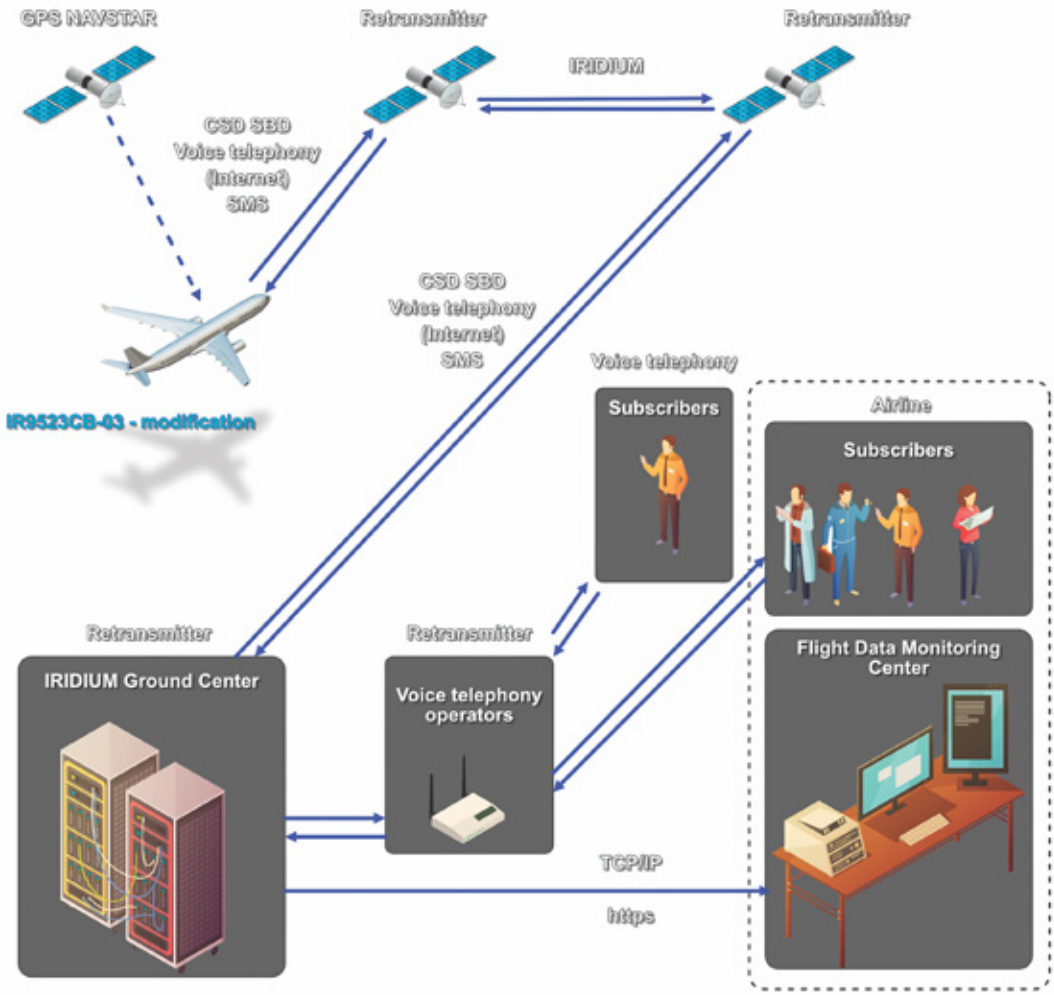


FLIGHT DATA TECHNOLOGIES

OFFERS HIGH QUALITY, EXCLUSIVE TECHNICAL SOLUTIONS AT COMPETITIVE PRICES.

Flight Data Technologies Inc. is a manufacturer of avionics equipment and systems - Flight Data Recorders, Voice Data Recorders, Cockpit Voice Recorders, Ground-Aircraft-Ground System, and Ground-Satellite-Aircraft-Satellite-Ground System. FDT promotes innovative avionics technologies. Our management has more than 25 years of experience in development and implementation of new technologies. We operate in 24 countries with a clientele of 50 airlines and 14 manufacturers.

Flight data technologies offer solutions such as avionic safety equipment, complete suite of products from FDR, CFDR, QAR, SATCOM modem to flight parameter; data transmission ground & SATCOM, enhance the use of mandatory FDR-CVRs using the ultra QAR Wi-fi; and lower space monitoring, and FDT innovation designed to automatically detect and track any flying elements (birds included)



«Your safety partner»

SEARIDGE TECHNOLOGIES

A BELIEF IN POSSIBILITIES.

Searidge develops innovative technology to improve safety and efficiency in the aviation market. With technology at over 35 sites in 25 countries, we are a global leader and preferred partner for Digital Towers and Advanced Airport solutions. Through operational enhancements, collaboration, AI and automation, our team helps our customers proactively transform the way they offer and deliver services to meet changing demands.

We have worked exclusively with Airports and Air Navigation Service Providers (ANSPs) worldwide for over 10 years and pride ourselves on our «first of» track record including the first to have an operational video system in an air traffic control tower and first to introduce Artificial Intelligence (AI) for ATC and airport efficiency.

The core elements of our approach include the involvement of key stakeholders, our development process and our dedication to quality and accountability. Fundamental to our approach is our belief that the closer we are to the end user the greater chance of success, particularly when deploying innovation. Searidge works to involve key stakeholders in every aspect of the process, from initial requirements to live deployment. To support this we have adopted a spiral development process (vs. waterfall process) that is very iterative and allows customers to feed into the process at various stages of development. We also involve our staff in the full lifecycle development of a feature, which supports our commitment to quality (ISO 9001:2015) and accountability to our customers.

«Initiating change in aviation»

WISELEAP

wiseleap

WISELEAP OFFERS CLOUD-BASED SOFTWARE TO STREAMLINE YOUR DEICING AND GROUND HANDLING OPERATIONS FOR SUSTAINABLE AVIATION.

Some of their applications are:

DEICING: Deicing manager is a comprehensive data management software that streamlines the capture, storage and analysis of your aircraft deicing operations.

GROUND HANDLING: Ground Handling Manager centralizes all information relevant to airline and airport operations management to improve operational and financial oversight.

TRAINING: Training manager is a cloud-based training management software specialized in tracking and managing the certifications of your employees.

EQUIPMENT: Equipment manager centralizes all your airport equipment data to provide insight on key performance metrics relating to movement and usage of the equipment.

«A leading Cloud Software Provider for the Aviation Industry»

CATAPULT

CONNECT PLACES WITH CATAPULT

The Connected Places Catapult (CPC) is the UK's technology and innovation centre for intelligent mobility and smarter living - harnessing emerging technologies to improve the movement of people and goods around the world. The CPC supports and enables UK-based organisations toharness emerging technologies, developing new products and services to capitalise on thisrapidly growing global market, including a focus on appropriate deployment of Connected and Automated Systems. We are an independent, non-profit, organisation, and Innovation Partner of the UK Department for Transport.

The CPC has a team of dedicated automated technology, data science, modelling, and business case specialists who are experienced in delivering projects focusing on advancing research towards commercial application. Our Future of Air Mobility programs include:

• We lead the UK Department for Transport Drone Demonstration and Development Pathfinder. This explores and develops the safe use of drones Beyond Visual Line of Sight (BVLOS) across the UK.

• Enabling Unmanned Aircraft Traffic Management in the UK – government-funded program exploring the steps the UK has taken to be at the forefront of commercial drone development and identifies the steps to be taken in order to remain in the global race towards unmanned traffic management.

• Developing, building & testing the Unmanned Traffic Management (UTM) framework for drone operations opportunity - has led the development of the Open-Access UTM framework, in collaboration with the UK Department for Transport (DfT) and industry. This is to be adopted by the UK CAA as the basis of the UK's UTM system.

We are shortly to announce the launch of the Future Air Mobility Innovation Centre. This is a digital platform, with access to system and service demonstrators, which will act as a "shop window" for UK plc. It will provide a centre of focus for R&D and investment activity and a focus for investors and funders. Its aim is to position the UK at the forefront of Future Air Mobility research, development and use, and contribute to UK economic growth. In addition, it will helpthe industry develop safe, efficient, and sustainable systems to move goods and people. Amongst its many services, it will also provide independent advice to government and decision makers across the UK, taking advantage of the CPC's network of city, local authority, devolved and central government contacts.

One of our first tasks within the Future Air Mobility Innovation Centre will be to help the aviation industry identify and deliver near and medium-term opportunities to address sustainability of the air transport system.

BLOCK AERO

Block Aero transforms fragmented aviation data into digital threads securely accessible by your network of trusted business partners. Organizations use our Aviation Blockchain Platform to conform with industry standards and recommended practices, streamline B2B workflows, manage airworthiness compliance data, and optimize aviation assets and supply-chains.

OUR MISSION

- To accelerate the advent of a fully digital aerospace industry.
- To upgrade Safety Management Systems by improving transparency and user experience.
- To share the benefits of a digital supply-chain with all stakeholders.

OUR VISION

- To organize actionable aviation data with distributed ledger technology so it is securely accessible, persistent, and trustworthy.

OUR PRINCIPLES

- International
- Integrated
- Intelligent
- Inclusive

OUR HISTORY

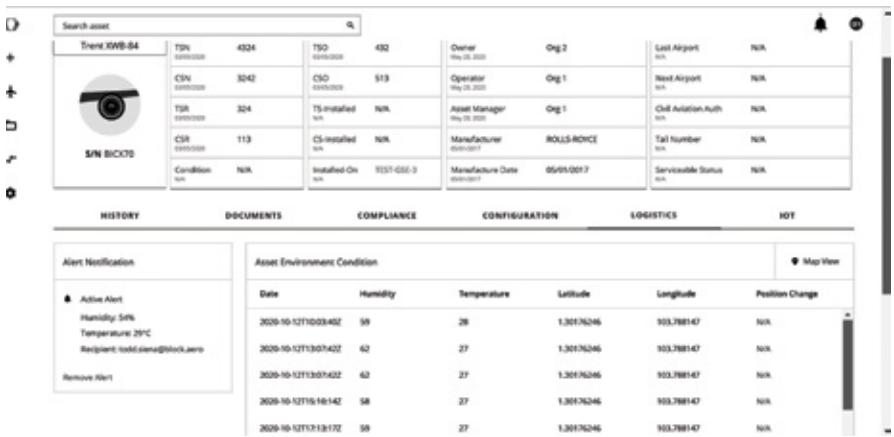
Block Aero Technologies Limited was founded in 2017 by a group of international aerospace and technology professionals from over a dozen nationalities with a vision to create an Aviation Blockchain Platform purpose-built for our industry's special requirements. Emerging technologies like distributed ledgers, process automation, and deep learning are at the core of Block Aero's technology stack. With offices in Hong Kong, Singapore, Bangkok, and Abu Dhabi, Block Aero is a rapidly growing international startup forging partnerships with leading OEMs, airlines, MROs, investors, and regulatory agencies.

OUR SERVICES

Block Aero offers its Aviation Blockchain Platform as a subscription service with packages starting as low as $100 per month. Free trials are available:

- Starter Package
- Business SLA
- Enterprise SLA
- CAA Package
- NCLB Package

Block Aero members can also create B2B Digital Services on the platform to monetize their own technical, certification, or commercial services on a transactional basis.

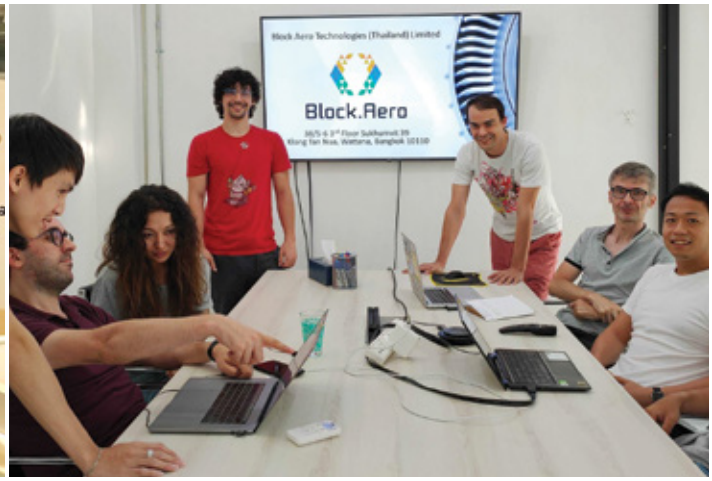



BLOCKCHAIN
BLOCKCHAIN


PREPARE
FOR
WAR


Aviation Blockchain


ETIHAD
AIRWAYS
the world.


Block.Aero

ICAO

www.icao.int

ICAO

AVIATION HAS ALWAYS BEEN A DRIVER FOR INNOVATION

Today we build on the work of those who came and went before us. Tinkerers, designers, engineers are constantly creating new ideas and concepts that will shape the world of tomorrow. This book represents a few of those dreams. We hope that it will be a source of inspiration for innovators and also encouragement for the next generation of aviation professionals!

To learn more about the Future of Aviation, and to consider entering your ideas into the national aviation innovation competitions which ICAO is helping countries to conduct around the world during 2021, please visit: icao.int/futureaviation