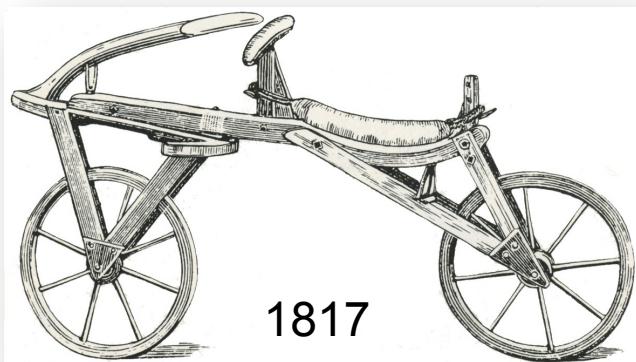


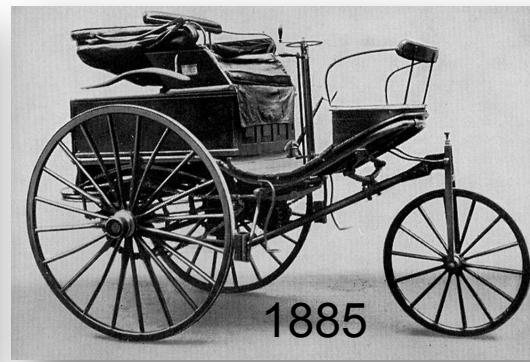


Pioneer history – made in Karlsruhe



1817

The first bicycle of the world



1885

The first motorized car



2011

The first Volocopter

Ecosummit London 2013

CEO Alexander Zosel

2011: e-volo VC1

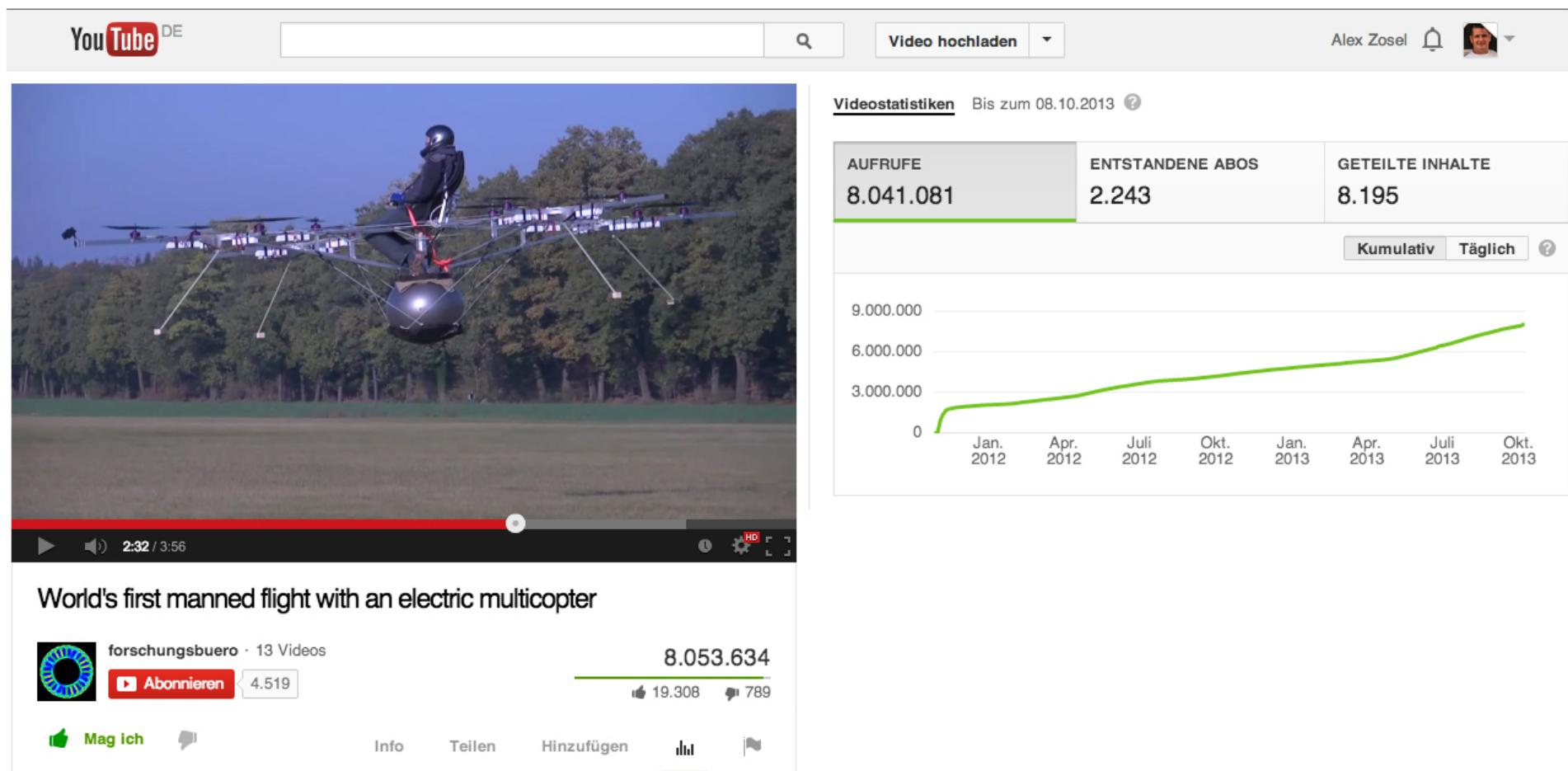


Worldwide recognition

- Countless Press Releases
- More than 200 TV reports
- Lindbergh Foundation Prize 2012
- GreenTec Award 2013 – 2nd after Airbus



YouTube



A screenshot of a YouTube video page. The video thumbnail shows a person in a flight suit and helmet flying a large, multi-rotor aircraft (hexacopter) over a grassy field with trees in the background. The video player interface at the bottom includes a play button, a progress bar showing 2:32 / 3:56, volume controls, and an HD button. Below the video, the title reads "World's first manned flight with an electric multicopter". The channel information shows "forschungsbuero · 13 Videos" and a "Abonnieren" (Subscribe) button with 4.519 subscribers. The video statistics on the right show 8.041.081 views, 2.243 subscribers, and 8.195 shared content items. A line graph tracks the cumulative views from January 2012 to October 2013, starting near zero and rising steadily to over 8 million.

Videostatistiken Bis zum 08.10.2013

| AUFRUFE | ENTSTANDENE ABOS | GETEILTE INHALTE |
|-----------|------------------|------------------|
| 8.041.081 | 2.243 | 8.195 |

Kumulativ Täglich

9.000.000
6.000.000
3.000.000
0

Jan. 2012 Apr. 2012 Juli 2012 Okt. 2012 Jan. 2013 Apr. 2013 Juli 2013 Okt. 2013

World's first manned flight with an electric multicopter

forschungsbuero · 13 Videos

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Abonnieren 4.519

Mag Ich Teilen Hinzufügen

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Electric 'Multicopter' takes to the sky

By Mark Tutton, CNN
November 16, 2011 — Updated 1814 GMT (0214 HKT)

The e-volo 'Multicopter' makes its maiden manned voyage.

STORY HIGHLIGHTS

- The German-made "Multicopter" has made its first manned flight
- It is powered by 16 small rotor blades, fueled by lithium batteries
- Creators say finished model could be used as an air taxi

(CNN) -- It may lack the grace of an airship, or the class of Concorde, but the "Multicopter" has a style all of its own.

This somewhat awkward looking vehicle is the work of German company e-volo and a prototype has just made its first manned flight, after completing unmanned trials.

With e-volo's Thomas Senkel strapped into the center of its four-limbed frame, it flew for one minute and 30 seconds over a field in Southern Germany, powered by 16 small rotor blades.

E-volo says its creation is powered entirely by lithium batteries and can carry a load of around 80kg -- about as much as it weighs.

Watch "Multicopter's" first manned flight.

We see it becoming a widespread form of personal transport.

Alexander Zosel, e-volo

"This was a proof of concept, not really safe to fly," he added. "We work on a prototype that we will fly in summer 2012 very safely."

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Helicopters Go Electric

Electric flight takes on the final frontier

THE PAST six months have seen some remarkable advances in the budding world of electric flight, in a realm where until now internal-combustion engines have held firm: helicopters. Three separate demonstrations—an electrically assisted helicopter and two tiny but fully electric choppers—suggest that the era of electric whirlybirds can't be far away.

The first development took place in early July 2011, when pilots at Eurocopter, the world's largest helicopter manufacturer, based in Marignane, France, test-flew a single-engine chopper that had been fitted with lithium-ion batteries and an auxiliary electric motor intended to help out in case of engine failure. Helicopter pilots deal with such emergencies using a technique called autorotation, which requires some deft manipulation of the helicopter's rotor when power first cuts out and again when the helicopter nears the ground. According to Jean-Michel Billig, executive vice-president for R&D at Eurocopter, the hybrid electric system his group designed provides the brief bursts of power needed at those two critical moments. "We're not talking about minutes here—we're talking about seconds," says Billig. With the new system, engine-off landings were "extraordinarily comfortable" from the pilot's perspective, he says.

Eurocopter is not the only helicopter manufacturer experimenting with electric power. Since 2008, Sikorsky Aircraft Corp. has been working to remove the normal piston engine from a small helicopter, a Sikorsky S-300C, and replace it with an electric motor, a demonstration project it calls Firefly. Sikorsky,

BATTERIES INCLUDED:
Sixteen custom-made Holosent Thomas Senkel flying for the first time this past October.
PHOTO: E. VICO

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The Economist

SEPTEMBER 15TH-21ST 2012 Economist.com

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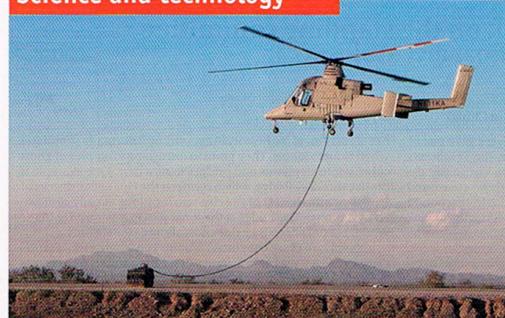
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74 Science and technology The Economist September 15th 2012

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76 Symmetrical faces and health



Autonomous helicopters

Robocopter arrives

After unmanned drones, pilotless helicopters are taking to the sky to deliver supplies to troops

UNMANNED attack aircraft, such as Predator and Reaper, have become a familiar part of modern warfare. But an army, famously, marches on its stomach, and campaigns can be lost as easily by a lack of supply as by a lack of firepower. That, combined with the increasing squeamishness of rich countries about taking casualties, is leading to the use of a new type of drone in the form of unmanned helicopters to deliver supplies. Pioneered by the armed forces, these hovering robots will also find civilian roles.

Two unmanned helicopters have been flying experimental combat missions delivering goods to American marine outposts in Afghanistan since December 2011. The project has been such a success it has twice been extended and may well run until September 2013. The helicopters in question are modified versions of the K-MAX, built by Kaman, an American aerospace firm. They are used in a number of military roles and in civilian jobs, such as logging and power-line construction, as a sort of airborne sky-crane cum delivery truck.

The K-MAX (pictured above) is a "synchropter", with two sets of intermeshing blades, synchronised so as not to hit each other. It looks ungainly, but it is a robust system. The rotors turn in opposite directions to cancel out torque, the twisting action which requires conventional helicopters to use a tail rotor—a hazardous appendage. The modification for autonomy of its surroundings which is precise enough for it to land in total darkness. The American army is interested in adding a sophisticated camera to survey landing sites and spot potential threats. The camera could also help direct a helicopter from the ground and be used in civilian roles, like fire fighting or search and rescue.

The army has also suggested fitting some form of self-defence, like a gun which the camera could be used to aim. At present the K-MAX has no defensive systems, but Lockheed Martin says the helicopters could easily be fitted with armour, machine-gun pods or flares which could be fired as decoys to divert ground-launched missiles. But this would eat into its cargo-lifting capacity.

The unmanned K-MAX carries its cargo externally on a 25-metre cable. The helicopters are monitored as they fly autonomously to a forward operating base, where a marine controller on the ground takes over using a portable device to direct the drop. However, the helicopters can deliver a load to given co-ordinates without any human intervention. Jim Naylor of Lock- >



Volocopter under human control

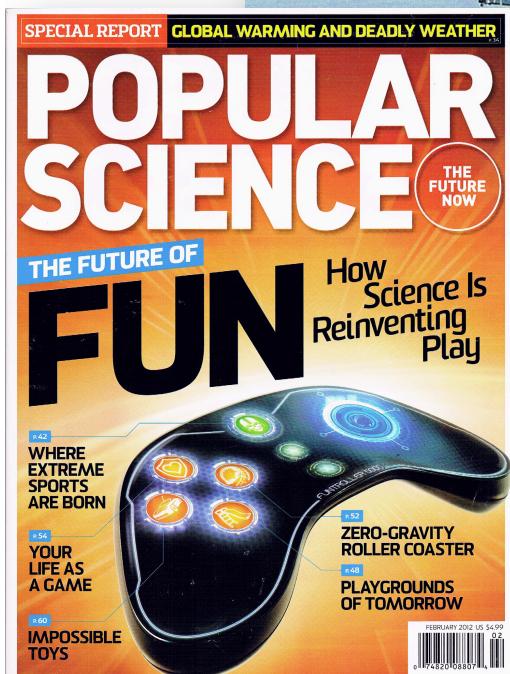
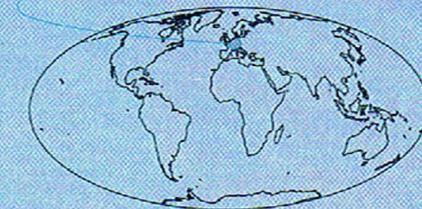
MEGAPIXELS

First Flight

Last October, near Karlsruhe, Germany, Thomas Senkel completed the first manned flight of an electric multicopter, flying it 10 feet off the ground for 90 seconds. Senkel, a physicist and paraglider pilot who helped found the company E-volo to build the craft, invented it after seeing a YouTube video of a German hobbyist's remote-controlled hexacopter in action. Multicopters are more stable and easier to control than helicopters. They're also potentially safer: The craft can land even after four of its 16 rotors, each of which has its own battery-powered motor, have failed. Multicopters could also be fitted with a parachute (which would be caught in the overhead rotor on a helicopter). E-volo says it will build a two-seat multicopter by the spring and begin selling the craft for recreational purposes next year.

STORY BY Amber Williams
PHOTOGRAPH BY Beate Kern

Karlsruhe, Germany



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COURTESY E-VOLO

Kino News

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ich liebe es

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Im Kampf um die Freiheit

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Eine Reise voller Abenteuer

KINO | Ang Lee gelang mit seiner Verfilmung von Life Of Pi - Schiffsbruch mit Tiger ein überwältigendes Filmerlebnis - in 3D!

RED DAWN

LIFE OF PI



28

www.kinonews.de

Fröhliche Rekorde überall ...

BUCH | In der schönsten Zeit des Jahres bringt das GUINNESS WORLD RECORDS BUCH 2013 Spaß und Wissen in die Wohnzimmer



Darlene Flynn (USA) besäß am 20. März 2012 insgesamt 15.665 unterschiedliche Schuhe. Ihre Sammlung reicht bis ins Jahr 2000 zurück und wächst immer weiter.



Am 21. Oktober 2011 fand in Südwürttemberg der erste benannte Flug von „e-volo“ statt – einem Volocopter mit Elektroantrieb.



Die größte Sammlung von Harry-Potter-Memorabilien, die am 30. Oktober 2011 aus 600 Artikeln bestand, gehört Steve Petrick aus Pittsburgh (USA).

luchtende Augen, lecker Essen und funkeln Wohnzimmer. Bald ist es wieder soweit, Weihnachten steht vor der Tür und dann auch die Frage nach den schönsten Geschenken für die Lieben. Es muss ja nicht gleich die Freiheitsstatue aus New York sein. Sie wiegt insgesamt 24.635,51, davon sind 28,1 Kupfer, 113,41 Stahl, und das Fundament aus Beton wiegt weitere 24.494 t. Die Statue war ein Geschenk von Frankreich an die USA, zur Erinnerung an die Freundschaft zwischen den beiden Staaten. Das macht die Statue Of Liberty zum schwersten Geschenke der Welt. Nein, manchmal tun es auch die kleinen Dinge. Das GUINNESS WORLD RECORDS BUCH 2013 ist also nicht nur eine tolle Geschenkidee, sondern bringt auch jede Menge Spaß und Wissenswertes in die Stuben. Auf mehr als 270 prall gefüllten Seiten bietet das neue Buch ein Spektakel, das weltweit vergleichbar sucht. Mehr als 3.000 neue oder verbesserte Rekorde finden sich im vollständig neu bebilderten GUINNESS WORLD RECORDS BUCH 2013. Und nicht nur inhaltlich ist das Buch immer auf dem neuesten Stand: Das brandneue Augmented Reality Feature verknüpft das gedruckte Buch mit der mobilen Digital-Welt – einfach die Gratis-App herunterladen, die Kamera auf eine der vielen Seiten mit dem „3-D“-Symbol richten, und schon erscheinen auf dem Smartphone Haie und Vogelstimmen zum Leben. Die Bescherung kann also starten. Es gilt: erst singen, dann Geschenke ausspucken, auch wenn der Chor bestehend aus 15.111 Sängern der am 25. Dezember 2010 bei einem Benefiz-Fußballspiel in Seoul (ROK) acht Weihnachtlieder sang, nicht unter den Baum passt ...!



Guinness World Records Buch 2013
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ISBN 978-3-411-81201-0
www.guinnessworldrecords.de

Hier geht's direkt zur Gratis-App zum Guinness World Records Buch 2013




DER SCHNELLSTE MODELLHUBSCHRAUBER ERREICHTE 239,68 KM/H

Kleinster Hubschrauber

Der von der japanischen Firma Gen Corporation hergestellte Heliokopter GEN H-4 hat mit nur 4 m den kleinsten Rotor Durchmesser. Er wiegt gerade einmal 70 kg und besteht aus einem Sitz, einem einfachen Landegestell und einem einzigen Motor. Zwei gegenläufige Rotoren mit gemeinsamer Achse machen einen Heckrotor zum Drehmomentausgleich überflüssig.

FAKT: Der GEN H-4 erzielte eine Höhe von 1.000 m und eine Höchstgeschwindigkeit von 90 km/h.

WIE WIR GELEERT HABEN ZU SCHWEBEN

Im 14. Jhd. versuchten die Menschen in China Federn an Kleine Stücke, drehen sie und sahen zu, wie sie flogen. Aber es dauerte fast 2.000 Jahre, bis die ersten Pläne für ein Fluggerät entwickelt wurden. GWR präsentiert die Highlights aus der Geschichte der Hubschrauber:

1493
Leonardo da Vinci (I) skizziert seinen von Hand betriebenen „Luftschrauber“.

1784
Launay und Bienvenu (beide fr.) entwickeln für die militärische Akademie der Wissenschaften einen kleinen, mit einer festen Schnur betriebenen Modellhubschrauber.

1907
Gyroplane No. 1 – entworfen von Louis und Jacques Breguet unter der Leitung von Charles Richet (alle F) – ist der erste bemannte Drehflügler; er lässt sich nicht steuern und hebt nur 60 cm vom Boden ab.

1907
Fahrerhersteller Paul Cornu (F) unternimmt den ersten bemannten Hubschrauber-Freiflug.

1931
Igor Sikorsky (RUS) entwickelt den Sikorsky R-4, der erste in Serie produzierte Hubschrauber.

1959
Der Militärhubschrauber Bell UH-1 Iroquois („Huey“) geht in Produktion.

AUF DER SUCHE NACH EINEM FLUGHAFEN? DANN LANDE AUF S. 166!

DATEN:
Länge: 253,2 m
Breite: 31,6 m
Tiefe: 8,1 m
Verdrängung: 41.30 t

173

The Volocopter VC200





Easy to use



Complicated electronics – easy mechanics



e-volo

„Ready for the Maiden Flight“



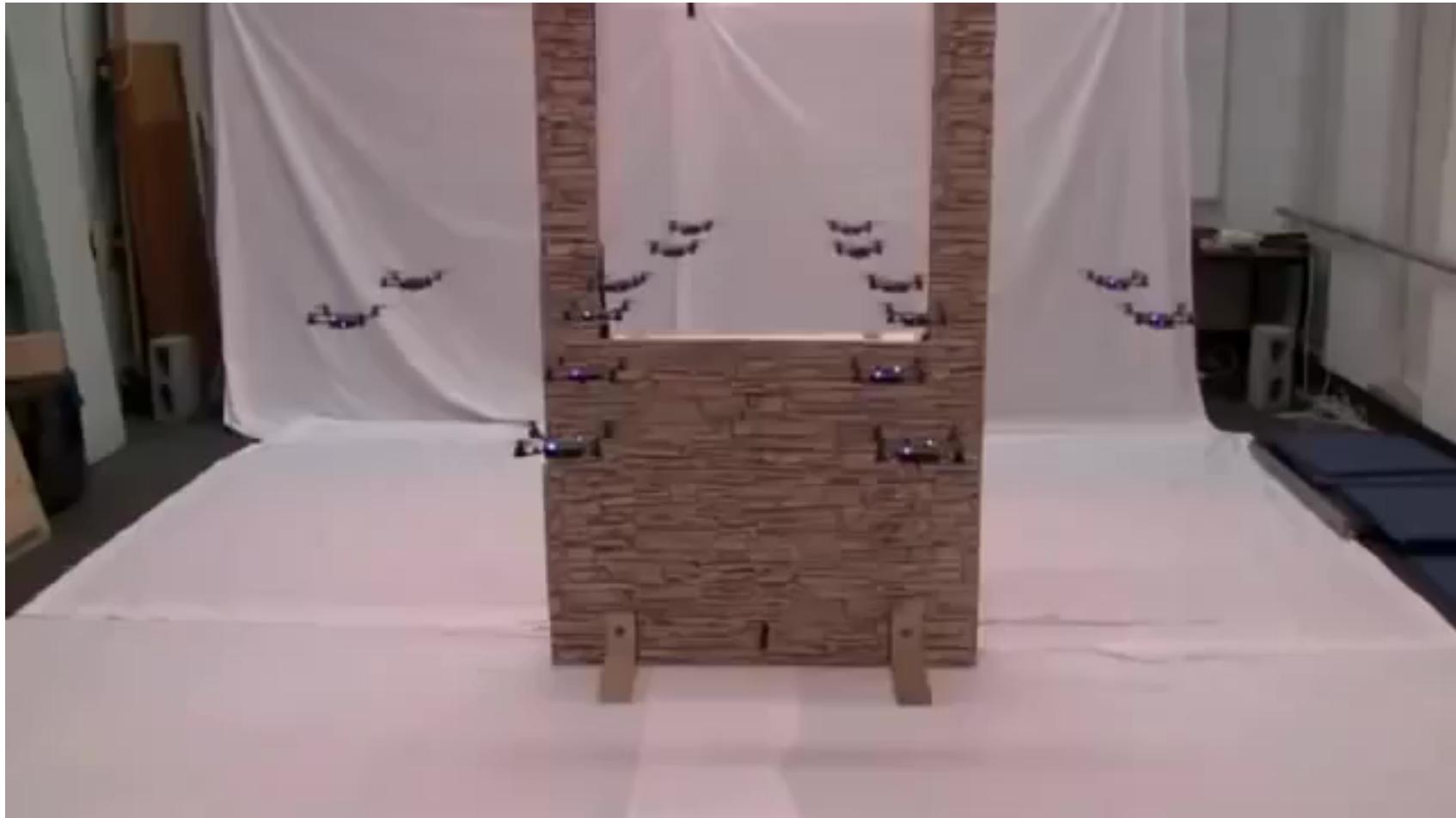
The Volocopter Diet



Intellectual Property

- PCT/EP2013/053352 Patents
 - PCT/EP2013/060267
 - DE 10 2013 108 204.1
 - DE 10 2013 108 207.6
 - DE 10 2013 108 206.8
 - DE 20 2012 001 750 U1
-
- USA 85/685, 198 Trademarks
 - EU 011065703
 - DE 30 2012 013 877
 - DE 30 2012 013 875

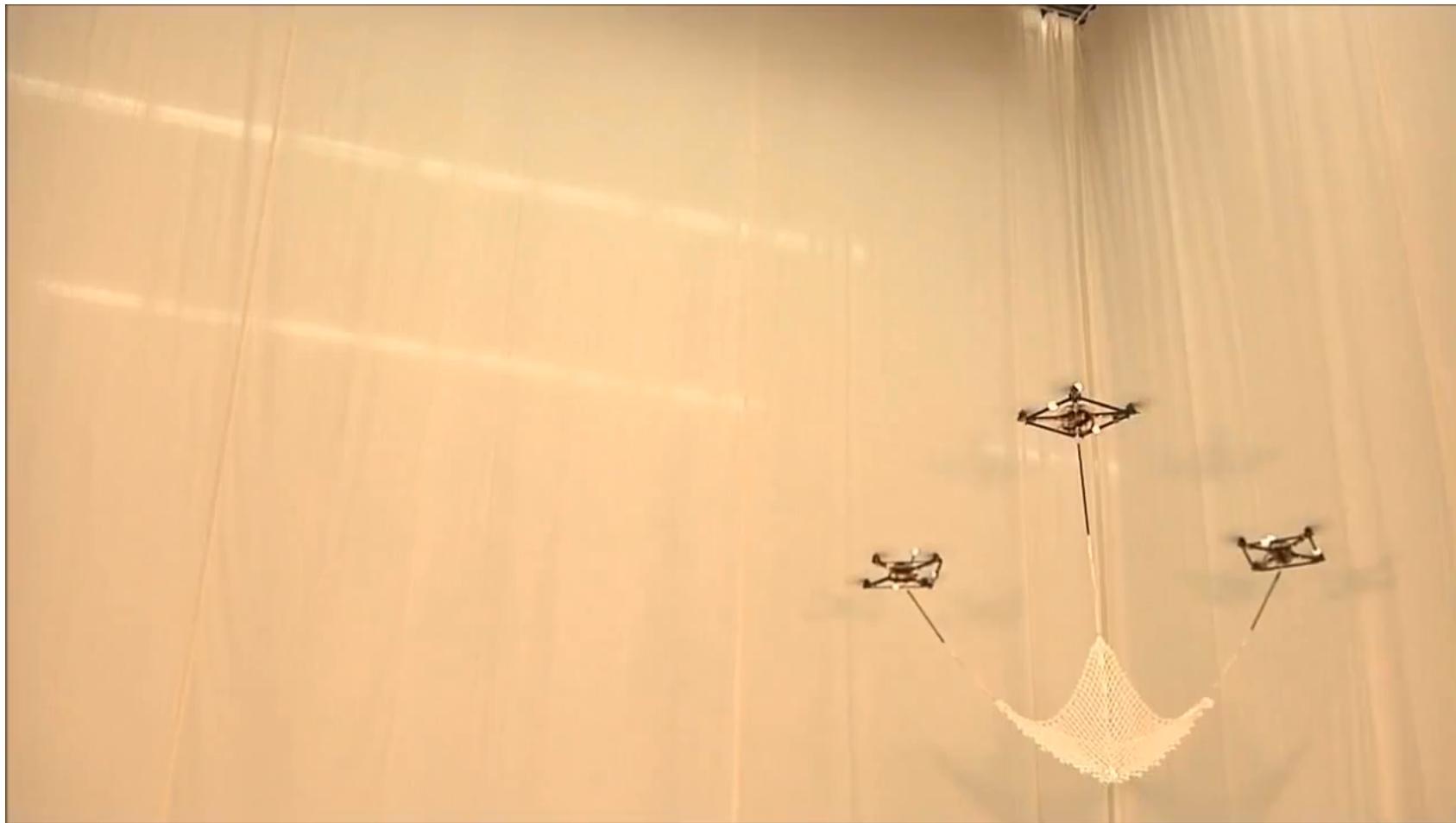
Impressions



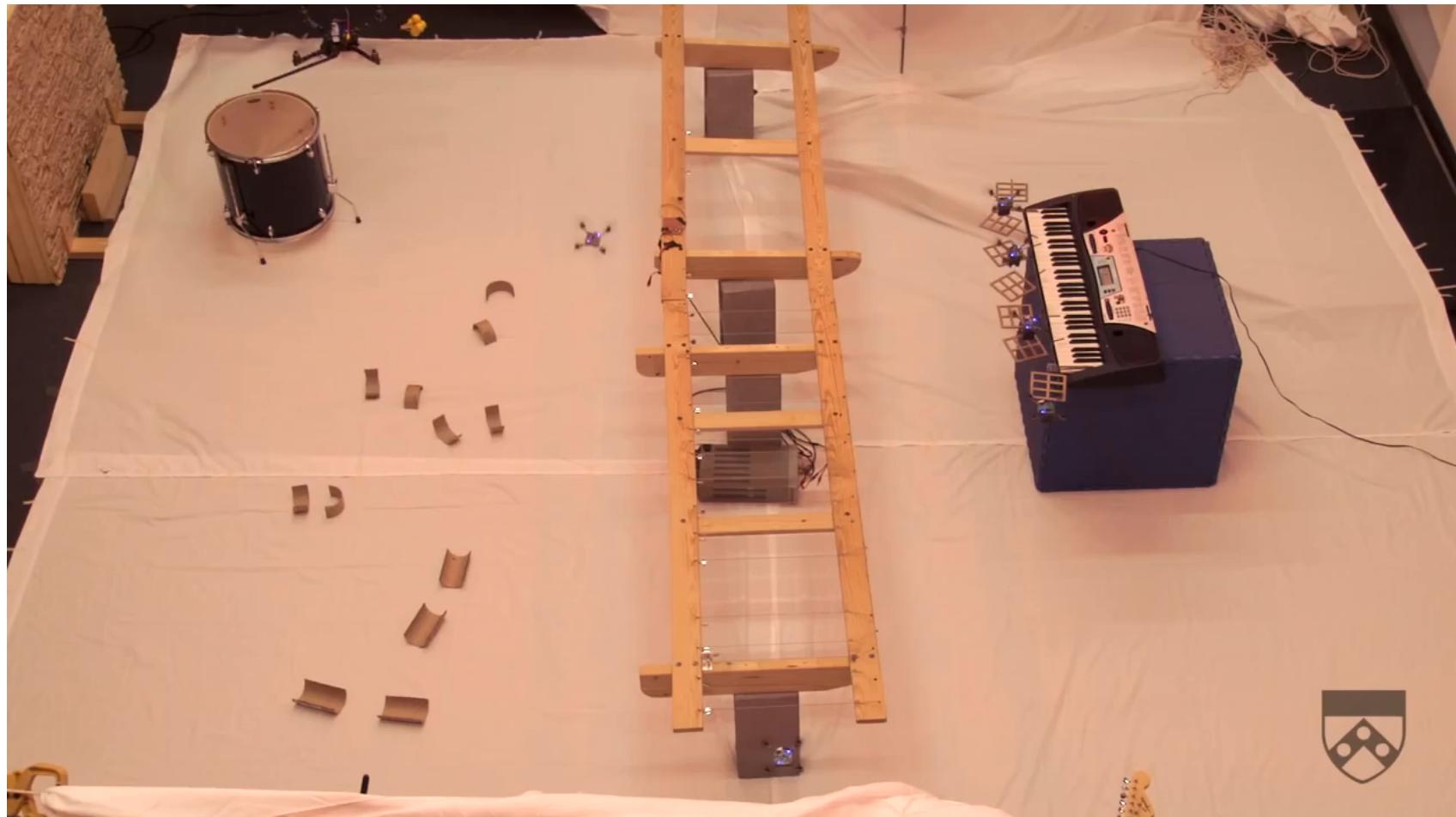
Impressions



Impressions



James Bond Theme



e·volo
