

# Origo Recently Invented and Patented New Aeronautical Lift Technology

## Overview

This document describes a new method of creating aeronautical lift that can be applied to drones, electrically propelled vertical-takeoff-and-landing aircraft (eVTOL), and Urban Air Mobility aircraft which is the use of small, highly automated aircraft to carry passengers or cargo at lower altitudes in urban and suburban areas.

Currently, there are on the order of 250 companies worldwide designing eVTOL and UAM aircraft, all of which use traditional propellers. All these aircraft have the same deficiencies and shortcomings described in this document.

This document first describes an entirely new method of aeronautical transportation using Origo's aeronautical lift technology (Section One). It then provides a detailed technical history and description of this new disruptive aeronautical lift technology (Section Two). PDF files referenced in Section Two are attached at the end of this document. The possibility of financing the development of this new technology via Crowd Funding is presented in (Section Three).

## SECTION ONE

### **Introduction to an Entirely New Method of Aeronautical Transportation Using Origo's Coupled Electrostatic Pistons**

#### **Basic Information:**

**Name:** Greg Piesinger

**Company:** Origo Corporation

**Website:** <https://origocorp.com/blog/index.php/about-us/overview/>

**Address:** 6225 E. Saguaro Vista CT  
Cave Creek, AZ 85331

**Type of organization:** For profit small business

**Contact:** Greg Piesinger, President  
Origo Phone number: 480-473-1995  
Email: [gpiesinger@origocorp.com](mailto:gpiesinger@origocorp.com)

## **Technical Information:**

### **Abstract:**

In previous documents, Origo described new innovative disruptive technology for creating aeronautical lift that can be applied to drones, eVTOL aircraft, space vehicles, and many other lift applications.

This technology consists of small, lightweight, energy efficient electronic lifting devices with no external moving parts, sound, or altitude limitations. Multiple independent lifting devices can be joined together to provide any desired magnitude of lift, or lift redundancy (for safety).

Two patents have been granted on this technology.

The first patent:

**ARTIFICIAL BUOYANCY METHOD AND APPARATUS**  
(US Patent 11,472,537) was issued 10-18-22.

The second patent:

**ARTIFICIAL BUOYANCY LIFTING DEVICE USING COUPLED  
ELECTROSTATIC PISTONS METHOD AND APPARATUS**  
(US Patent 11,999461) was issued 06-04-24.

Additional patents are in process:

### **Aeronautical Transportation Using This New Technology:**

In this current document, think of this new technology as providing an entirely new method of aeronautical transportation. That is, this new all electric aeronautical vehicle does not require wings, propellers, jet engines, wheels, flaps, tires, etc, etc. It creates no noise, downdraft, exhaust fumes, does not require gas, diesel, or other liquid engine fueling. As it is all electric, it creates no products that contribute to climate change.

### **Redundancy of propulsion:**

Although drones, electric Vertical Take-Off and Landing (eVTOL) aircraft, and Urban air mobility (UAM) aircraft have multiple propellers, their distribution doesn't necessarily increase their safety.

A four propeller drone will still crash if one of them fails. To obtain double reliability, at least 8 propellers are required on a four propeller position drone. The same is true on eVTOL, UAM, or any other aircraft, depending on their distribution around the aircraft.

In contrast, the Origo lifting devices are low cost and can be stacked one on top of the other. Therefore, if one fails in a stack of four, the lift of the other three simply instantly compensate. Therefore, the pilot and passengers feel no flight perturbations (no turbulence, so no sick passengers in stormy weather).

### **Safety from propellers:**

In UAM aircraft, passengers are constantly boarding and departing the aircraft. As the lifting devices are sealed, with no external moving parts, there is never any danger to the pilot or crew.

### **Safety from weather:**

Lightening strikes, wind turbulence, downdrafts, rain, ice, or hail are not an issue. As the lifting devices can modulate lift instantly, passengers will have a smooth flight in any kind of weather.

### **Elimination of downdrafts:**

eVTOL aircraft, and UAM aircraft create horrendous downdrafts. For this reason, Vertiports must be used and kept clean, to prevent dirt and debris from hitting both passengers and aircraft.

In contrast, Origo lifting devices create no downdrafts. Therefore, they can operate from streets, parking lots, or any other area.

### **Noiseless:**

As drones and UAM aircraft proliferate over cities, citizens will tire of the constant noise. Origo lifting devices create no noise, which eliminates the issue.

### **Cabin pressurization:**

Unlike current commercial aircraft, UAM aircraft will quickly rise and descend in altitude in cities with large buildings and Vertiports atop these buildings. This will prevent ear pressure equalization in many passengers, which can be very uncomfortable. I don't believe any UAM aircraft are planning to pressurize their cabin.

In contrast, Origo lifting device eVTOL and UAM aircraft can be designed like normal airport shuttle buses, and pressurized. They can takeoff from ground level, float up to an altitude above all buildings, fly to their destination, float back down to street level, and land at any hotel or other destination parking lot. They can do so because there are no spinning propellers (no safety issues), no downdraft (to blow around debris), and no noise.

### **Long flight endurance:**

Compared with current and planned eVTOL and UAM aircraft, Origo lifting device UAM aircraft are hundreds of times more efficient. This will allow many trips or hops to be flown between charging. Ideally, an underside battery compartment could be used to almost instantly automatically swap out batteries.

### **Simple flight plans:**

With hundreds of eVTOL and UAM aircraft flying around a large city, many preplanned flight paths could be setup for all common routes (airport to particular hotel, for example). Central controllers could then automatically assign an available free route to a particular "ready to go" eVTOL or UAM aircraft.

## **No Altitude Limitations:**

This feature allows a flight to reach any destination on the planet in less than 2 hours, by flying above the atmosphere. That is, “float” straight up to above the atmosphere, accelerate towards your destination at a constant acceleration rate (few tenths of a g) for the first half of the journey, then decelerate at the same rate for the last half. Finally, simply “float” down through the atmosphere, and land at your destination.

## **Fly to the Moon or Mars:**

Since the Lifting Devices have no altitude limitations, it is as easy to fly to the moon or Mars, as it is to fly to any destination on Earth, as long as the aeronautical vehicle is pressurized and carries the required navigation equipment.

For example, a Mars launch window (when Earth and Mars are closest together) occurs approximately every 2 years. The next window is around November 2024. If you assume enough Lifting Device propulsion is implemented to provide a constant 0.1g acceleration towards Mars, and a constant 0.1g deceleration at the half-way point, then a one-way trip from Earth to Mars only takes around 10 days. This is in stark contrast to the estimated 1/2 year currently postulated using rocket propulsion.

As nuclear power allows submarines and ships to run for about twenty years without needing to refuel, using a similar electric power source on a Mars aeronautical vehicle/habitat, would allow routine trips to Mars and back without ever refueling.

## **No Load Limitations:**

Use any number of Lifting Devices required to lift the load.

## **Ability to Implement Advanced “Super” Flight Safety Features:**

Using small Origo Lifting Devices, a Local Positioning System (LPS) could ultimately be added in high traffic areas to provide enhanced navigation and collision avoidance.

## **Next Generation Aeronautical Transportation**

Currently, there are on the order of 250 companies worldwide designing eVTOL and UAM aircraft, all of which use traditional propellers. All these aircraft have the same deficiencies and shortcomings described in this document.

In the short term, these companies have the option of replacing their current propulsion with Origo Lifting Devices, thus retaining their current overall aircraft structure.

However, the commercial lifetime of their products will be short, once the industry incorporates the superior Lifting Device features described in this document.

## **Origo CEO Background:**

Greg Piesinger has been granted 45 patents over his 50+ years of engineering experience as a Senior Engineer working at Bell Telephone Laboratories, Motorola Government Electronics Division, Sperry Flight Systems, Honeywell Avionics Division, ACSS, and other large and small companies.

## **Conclusion:**

I firmly believe this new Lifting Device technology is a game changer for aviation, space, and defense. It would be perfect for launching small satellites, or removing space junk for the cost of a few dollars worth of electricity, instead of a few million dollars for a rocket.

Origo's New Lifting Device Technology described above can also be applied to many other applications that can and will greatly improved the lifestyle of millions of people who travel by aircraft, are exposed to the noise of thousands of package delivery drones, etc.

Below are examples of a few specifically planned new Origo Lifting Device products for **drones**, **personal no-license flying machines**, **handicapped devices**, and **Space Tourism**. These devices have the advantage of having no moving external parts (no propellers, sound, or downdrafts), and are hundreds of times more efficient than propellers.

Go online and look at the current cost, complexity, disadvantages, huge market size, and demand for these three types of products.

## **Space Tourism:**

Multiple companies are currently pursuing Space Tourism in which a few customers are blasted into the edge of space for a few minutes, so as to view earth from space, or to experience a short period of weightlessness. Currently, these short experiences are very expensive.

However, by using Origo's Lifting Devices, Space Tourism vehicles can be constructed that will "float" into and out of space instead of "blasting" into space using a rocket. This would open up Space Tourism to anyone, as there are no high g-forces involved. It would simply be an elevator ride into and out of Space, and at very low cost.

## **Proof of Concept Prototype:**

To attract the required venture capital necessary to fully exploit this new technology, a low cost "proof of concept prototype" must be first constructed to illustrate that the actual hardware Aeronautical Lift matches the computer simulated Aeronautical Lift.

Once demonstrated, attracting the required venture capital necessary to fully exploit this new technology should be possible, as the applications are numerous.

## **SECTION TWO**

### **Origo Patented New Aeronautical Lift Technology**

#### **Origo Corporation New Technology:**

The Wright Brothers invented the airplane 120 years ago. Although great progress in flight has been made over the years, all flight still requires the use of noisy propellers, jet engines, or rockets.

My recently patented new disruptive technology, based on my past three years of research on advanced aeronautical concepts, (small, lightweight, energy efficient electronic Lifting Devices with no external moving parts, sound, or altitude limitations), can be applied to drones, eVTOL and UAM aircraft, space vehicles, handicapped vehicles, and many other lift applications.

Any number of independent Lifting Devices can be stacked or connected together to achieve any total lift desired, or to provide lift redundancy to compensate for any individual Lifting Device failure.

Like most new projects, many concepts and techniques were investigated for new technology that could generate a new way of producing aeronautical lift. As is now standard practice, ideas were tested via extensive computer simulations.

All these techniques achieve Aeronautical lift by reducing downward air pressure on the top surface of the lifting device, below the air pressure on the bottom surface of the lifting device. By sealing the lifting device within a pressurized enclosure, it will operate in water, atmosphere, or space.

Reduced top surface pressure is achieved by rapidly moving the top surface downward, thus reducing top surface air pressure below bottom surface air pressure, which creates upward aeronautical lift.

Based on my extensive computer simulation, I am essentially 99.9% sure this technology will work as simulated. However, it is always prudent to build a “proof of concept” prototype to demonstrate that actual lift is equal to simulated lift.

Origo previously submitted a \$250,000 Unsolicited Proposal to build a “proof of concept” prototype, which was accepted and evaluated by both the FAA and the Space Force. Unfortunately, it was too late in their 2023 fiscal year budgets to fund.

Origo is too small a company to fully exploit this new technology without obtaining outside funding, and is currently seeking investors or a larger company to partner with.

#### **Origo CEO Background:**

Greg Piesinger has been granted 45 patents over his 50+ years of engineering experience as a Senior Engineer working at Bell Telephone Laboratories, Motorola Government Electronics Division, Sperry Flight System, Honeywell Avionics Division, ACSS, and other large and small companies.

I firmly believe this new Lifting Device technology is a game changer for aviation, space, and defense. It would be perfect for launching small satellites, or removing space junk for the cost of a few dollars worth of electricity, instead of a few million dollars for a rocket.

By demonstrating this technology, attracting the required venture capital necessary to fully exploit this new technology should be possible, as the applications are numerous.

### **Link to Origo White Paper:**

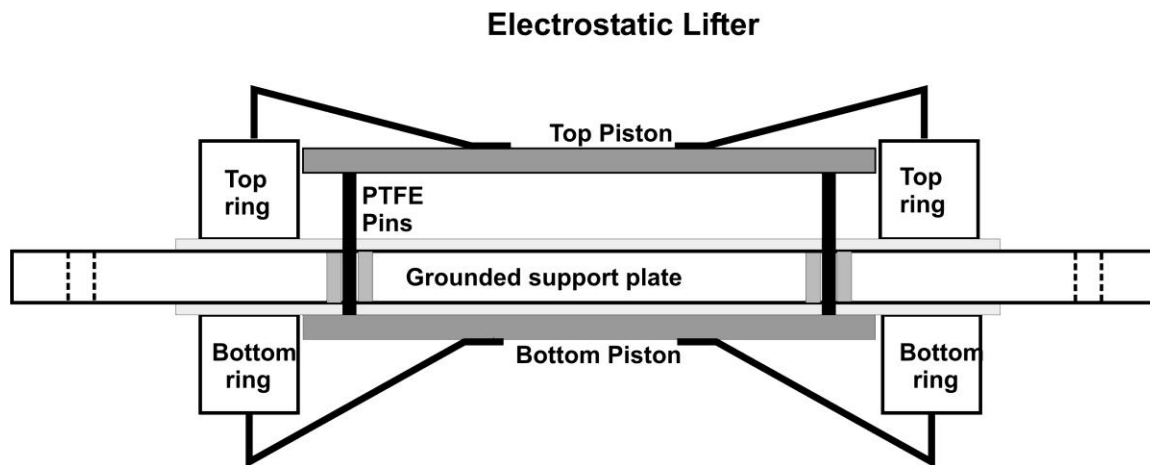
An early description and overview of this new technology is presented on the Origo Website at the link below.

[https://origocorp.com/blog/wp-content/uploads/2022/11/AeronauticalLiftCompany\\_WhitePaper.pdf](https://origocorp.com/blog/wp-content/uploads/2022/11/AeronauticalLiftCompany_WhitePaper.pdf)

### **Electrostatic Lifting device Using Coupled Electrostatic Pistons:**

This patent emphasizes the low power requirements of the lifting devices. I believe this new patented technology will be very beneficial to the electric Vertical Take-Off and Landing (eVTOL) and UAM aircraft industry, due to its greatly superior propulsion efficiency.

A cross sectional sketch of a circular Electrostatic Lifting device is illustrated below.



When a high voltage is applied to the top piston via the top ring and spring clips, an electrostatic force of attraction is produced between the top piston and the grounded support plate.

This electrostatic force rapidly moves the top piston downward, which reduces the air pressure on the top side of the top piston, thus generating upward lift. It also moves the bottom piston downward via the insulated PTFE Pins, which increases the air pressure on the bottom side of the bottom piston.

A lower level high voltage is then applied to the bottom piston via the bottom ring and spring clips. This creates a lower electrostatic force of attraction between the bottom piston and grounded support plate, which slowly resets the top and bottom pistons to their original illustrated positions.

By proper selections of the timing durations and voltages applied to the top and bottom pistons, a net upward lifting force is produced on the lifting device.

## **Piesinger\_Innovation\_Track\_Record.pdf**

The above track record and following two company descriptions are presented to illustrate That Piesinger has the experience and skills to design and implement this New Aeronautical Lift Technology.

**Attached File:** (Resume of Piesinger's previous accomplishments)

The attached **Aeronautical\_Lift.pdf** file illustrates the simulated lift obtainable using 12 inch diameter pistons.

## **Aeronautical\_Lift\_Versus\_Applied\_Voltages.pdf**

**Attached File:** (Graph of simulated lift versus applied High and Low voltages)

Electrostatic pistons are extremely energy efficient. The capacitance of a 12 inch diameter piston is in the low picofarad range. Only a few watts of power are required to drive them, even at high lift settings.

## **Skeptical that this new technology will really work?**

Then simply go online and download US Patent 11,999,461, look at Figure 2, and run the following simple thought experiment.

Assume the pistons are in atmosphere pressure of 14 lbs per square inch. When the pistons are not moving, the pressure on the top surface of the top piston, and on the bottom surface of the bottom piston are identical. Therefore, the pistons do not move.

Now assume the top piston is moving downward at a large velocity. In fact, assume it is moving at Mach 5 (hyper velocity). We know that at this speed, the top surface of the top piston "out runs" the expanding air above it. That is, there is no air pressure on the top surface of the top piston.

Even if the bottom piston is not moving, the upward pressure on the bottom surface of the bottom piston is 14 lbs per square inch, and there is no downward pressure on the top surface of the top piston. Therefore, the upward lift of the lifting device is 14 lbs per square inch.

Now if the top and bottom pistons are connected together, and the bottom piston is also moving downward at Mach 5, the upward force on the bottom surface of the bottom piston is probably tons (blunt object moving at Mach 5).

Based on extensive computer simulations, the actual lift for the coupled pistons at various velocities is calculated in column 4 of the specification and in Figure 7.

So, using this thought experiment, it proves (and is intuitive) that this lifting device concept will work.

The rest of the patent simply describes practical methods of constructing these lifting devices. Additional patents are in progress to further increase lift, electrical efficiency, and applications.

## **Extent and phases of Effort:**



### **Phase1 - Computer Simulation:**

As extensive computer simulation has already been accomplished over the last 3 years, thus this phase of the project has been completed, except for possible code modifications based on prototype performance results.

### **Phase2 - Prototype Design:**

Prepare mechanical drawings of each of the Electrostatic Lifting device elements illustrated above, and purchase the required raw materials.

Measure the lift obtained and compare it with the computer simulated lift.

### **Phase3 - Anticipated Results:**

The expectation is that the obtained lift versus applied High and Low voltages will be close to the computer simulated lift.

### **Phase4 - Mechanical Optimization:**

There are multiple Electrostatic Lift device element tradeoffs to optimize the mechanical structure.

### **Phase5 - High Voltage Power Supply Design:**

There are multiple ways available to design a high voltage pulse generator to drive and control the electrostatic piston. It is anticipated the design will be based on the recent availability of very high voltage GaN gallium nitride semiconductors.

### **Benefits of this Technology:**

#### **Redundancy of propulsion:**

Although drones, eVTOL aircraft, and Urban Air Mobility (UAM) aircraft have multiple propellers, their distribution doesn't necessarily increase their safety. A four propeller drone will still crash if one of them fails. To obtain double reliability, at least 8 propellers are required on a four propeller position drone. The same is true on eVTOL and UAM aircraft, depending on their distribution around the aircraft.

In contrast, the Origo Lifting Devices are low cost and can be stacked one on top of the other. Therefore, if one fails in a stack of four, the lift of the other three simply compensate. Therefore, the pilot and passengers feel no flight perturbations.

#### **Safety from propellers:**

In UAM aircraft, passengers are constantly boarding and departing the aircraft. As the lifting devices are sealed, with no external moving parts, there is never any danger to the pilot or crew.

#### **Elimination of downdrafts:**

eVTOL aircraft, and UAM aircraft create horrendous downdrafts. For this reason, Vertiports must be used and kept clean, to prevent dirt and debris from hitting both passengers and aircraft. In contrast, Origo lifting devices create no downdrafts. Therefore, they can operate from streets, parking lots, or any other area.

**Noiseless:**

As drones and UAM aircraft proliferate over cities, citizens will tire of the constant noise. Origo Lifting Devices create no noise, which eliminates the issue.

**Long flight endurance:**

Compared with current and planned eVTOL and UAM aircraft, Origo Lifting Devices will be hundreds of times more efficient. This will allow many trips or hops to be flown between charging. Ideally, an underside battery compartment could be used to almost instantly automatically swap out batteries.

**Safety from weather:**

Lightening strikes, wind turbulence, downdrafts, rain, ice, or hail are not an issue. As the lifting devices can modulate lift instantly, passengers will have a smooth flight in any kind of weather.

**Simple flight plans:**

With hundreds of UAM aircraft flying around a large city, many preplanned flight paths could be setup for all common routes (airport to particular hotel, for example). Central controllers could then automatically assign an available free route to a particular "ready to go" UAM aircraft.

**Key Personnel:**

Up to this point in time, Greg Piesinger has been the sole personnel working on these Origo Lifting Devices. Going forward, the services of consultants and/or past colleagues will be added as needed.

**Past FAA Project Performance:** This is an example of a previous Origo project.

**Project:**

Rotorcraft Strike Avoidance System Using Airborne Avian Radar.

**Project purpose:**

Applying bird strike avoidance to helicopters using airborne radar.

**Initial contract:**

4-18-17

**Final report period:**

October 12, 2017 - May 10, 2019

**Link to final Report:**

<https://rosap.ntl.bts.gov/view/dot/62643>

**Project description:**

Origo responded to and won the FAA Broad Agency Announcement (BAA) contract to prevent bird strikes to helicopters in 2017. The final project was extensively ground tested using automobile traffic, drones, and birds of opportunity. Technically, the project was a complete success. Unfortunately, the FAA plans for airborne tests was canceled due to the Boeing 737 MAX issues and the outbreak of Covid-19.

The project was completed on budget, but the airborne tests cancellation was disappointing because the technology worked very well. Ideally, the project could be resurrected in the future and applied to general aviation aircraft, eVTOL, and UAM aircraft.

For example, it would certainly have prevented the recent midair collision in early March of last year between a Piper Cherokee and a J-3 Cub on floats that killed four people in Winter Haven, Florida. I remember years ago flying my Super Cub towards the sun on occasional late hazy Phoenix afternoons. I had to zig-zag at 45 degree angles away from the sun to see other aircraft or birds.

**Origo Facilities:**

For the last 40 years, Origo Corporation and his consulting company Dyco, Inc. have successfully worked out of our large home office/lab. Origo has extensive test equipment, small tools, and space. We use local machine shops for production or specialized parts fabrication.

**Piesinger\_Innovation\_Track\_Record.pdf**

The above track record and following two company descriptions are presented to illustrate that Piesinger has the experience and skills to design and implement this New Aeronautical Lift Technology.

**Attached File:** (Resume of Piesinger's previous accomplishments)

**Piesinger's Cable Repair Systems (CRS 1994) (Underground Utility Cable Radar)**

Through personal contacts in the Electric Utility Industry, Piesinger was asked to devise a non-destructive technique to locate splices and faults on high voltage underground distribution cable. With \$1,500,000 of Utility funding, Piesinger formed a six man company, invented and patented a sophisticated high resolution pulse compression radar (an innovative technique whereby faults and splices could be pinpointed by walking the cable path with a small hand-held antenna).

See attached track record for details.

**Piesinger's Origo Corporation (2003) (Phase Identification Equipment)**

Origo is a small business created in 2003 to invent, design, patent, and sell Phase Identification equipment to the Electric Utility Industry worldwide. Origo uses outside companies to fabricate mechanical parts, layout circuit boards, and assemble PWBs. All design, final assembly, test, and repairs are performed in-house.

As illustrated on the Origo Website in the Aeronautical Lift Company link, Linemen use tens of thousands of bucket trucks to work on power lines. In many cases, wooded terrain or other obstacles obstruct driving them into position.

An ideal solution would be to simply add Origo's Lifting Devices to the bucket portion, and routinely carry the bucket in the back of their standard pickup trouble trucks. A floating bucket product would be very beneficial to Electric Utilities during storm repairs, as downed trees and power lines prevent most bucket truck movement into storm areas (and thus restore your power quicker).

As another example, multiple companies are currently pursuing Space Tourism in which a few customers are blasted into the edge of space for a few minutes, so as to view earth from space, or to experience a short period of weightlessness. Currently, these short experiences are very expensive.

However, by using Origo's Lifting Devices, Space Tourism vehicles can be constructed that will "float" into and out of space instead of blasting into space. This would open up Space Tourism to anyone, as there are no high g-forces involved. It would simply be an elevator ride into and out of Space, and at very low cost.

Origo's New Lifting Devices Technology described above are examples of applications that can and will greatly improved the lifestyle of millions of people who travel by aircraft, live in storm damaged areas, are exposed to the noise of thousands of package delivery drones, or interested in Space Tourism, etc.

Below are examples of a few specifically planned new Origo Lifting Device products for **drones**, **personal no-license flying machines**, and **handicapped devices**. These devices have the advantage of having no moving external parts (no propellers, sound, or downdrafts), and are hundreds of times more efficient than propellers.

Go online and look at the cost, complexity, disadvantages, huge market size, and demand of these three types of products.

### **Personal no-license flying machines**

I believe a lower cost silent version of the Jetson One eVTOL that currently sells for \$100,000, which is illustrated in the link below, would be an ideal product for Origo's new technology. Note the strong downdraft (which would be non-existent with the Origo product). Also note typical comments (indicated below) to this type of product.

<https://www.youtube.com/watch?v=GAVwYlvmNEM>

"So I am confined to a wheelchair. There are so many things I love that I can no longer do, due to limited wheelchair access. I am looking at this thing and seeing a future where people like me can go anywhere we want again without all the road blocks."

“This is the flying car we've all been waiting for in the year 2000. And yes, it has arrived.”

“I'm watching your videos and my tears down from my eyes ... This is my childhood dream.”

“Man. I had dreams of inventing and flying my own personal craft as a little kid.”

### **Handicapped devices**

Take a look at the link below for the many expensive off-road handicapped devices.

<https://chairinstitute.com/best-wheelchairs-for-outdoors/>

In contrast, a comfortable chair on an Origo Lifting Device platform, would provide a low cost, light weight outdoors handicapped mobility device, that floats a few inches or feet off the ground at a fraction of the price, weight, and complexity of current offerings.

Likewise, the same is true for indoor wheelchairs, for use at home, at stores, beach, woods, etc. etc. Again at very low cost, a customer could simply mount the wheelchair of their choice onto an Origo Lifting Device that floats a few inches (or a foot) off the floor, ground, water, or any other surface.

## **SECTION THREE**

### **Origo Crowd Funding**

## **CROWD FUNDING POSSIBILITY FOR Origo Patented New Aeronautical Lift Technology**

### **Introduction:**

New technology advances over the last few decades have greatly improved the lifestyle of millions of people. Many of these advances have been provided by large companies.

Until recently only large established companies had the resources to implement new technology or products. However, over the last few years, Crowd Funding has now made it possible for both small companies, and individuals, to develop, produce, and market innovative useful products and techniques.

### **Origo Corporation New Technology:**

Aeronautical Lift is achieved by rapidly moving the top surface of the lifting device downward, thus reducing top surface air pressure below bottom surface air pressure, which creates upward aeronautical lift.

Based on my extensive computer simulation, I am essentially 99.9% sure this technology will work as simulated. However, it is always prudent to build a “proof of concept” prototype to demonstrate that actual lift is equal to simulated lift.

Origo submitted a \$250,000 Unsolicited Proposal to build a “proof of concept” prototype, which was accepted and evaluated by both the FAA and the Space Force. Unfortunately, it was too late in their 2023 fiscal year budgets to fund.

Origo is too small a company to fully exploit this new technology without obtaining outside funding. Ideally, the FAA, Space Force, NSF, various military organizations, venture capital organizations, and large aeronautical companies would help fund Origo’s prototype.

Unfortunately, many of these companies and organizations have the NIH (Not Invented Here) syndrome, or simply don’t believe a small company could design a product that these organizations couldn’t invent themselves. Thus, Origo would like to explore Crowd Funding as a way to finance this new technology.

As this new patented Origo technology would greatly improved the lifestyle of millions of people, it should be possible to obtain a small contribution from a large number of people, which would allow Origo to move forward on demonstrating that this new technology works as indicated.

Below are some examples of how this new technology would benefit millions of ordinary people.

Electric Utilities use large Bucket Trucks during repairs. However, during storm repairs, downed trees and power lines prevent most bucket truck movement into storm areas.

However, by adding Origo’s Lifting Device to the bucket portion of the Bucket Trucks, and routinely carry the bucket portion in the back of their standard pickup trouble trucks, a floating bucket product would be very beneficial to Electric Utilities during storm repairs, (thus this product would allow your power to be restored much quicker).

As another example, multiple companies are currently pursuing Space Tourism in which a few customers are blasted into the edge of space for a few minutes, so as to view earth from space, or to experience a short period of weightlessness. Currently, these short experiences are very expensive.

However, by using Origo’s Lifting Devices, Space Tourism vehicles can be constructed that will “float” into and out of space instead of blasting into space. This would open up Space Tourism to anyone, as there are no high g-forces involved. It would simply be an elevator ride into and out of Space, and at very low cost.

GoAERO (<https://www.herox.com/goaero>) has just launched a three year competition to design and build an Emergency Response Flyer. However, with adequate Crowd Funding, Origo could provide this desired emergency capability much sooner using Origo’s Lifting Devices.

## **SPECIFIC CROWD FUNDING PRODUCTS**

Origo’s New Lifting Devices Technology described above are examples of applications that can and will greatly improved the lifestyle of millions of people who travel by aircraft, live in storm damaged areas, are exposed to the noise of thousands of package delivery drones, or interested in Space Tourism, etc.

Below are examples of a few specifically planned new Origo Lifting Device products for **drones**, **personal no-license flying machines**, and **handicapped devices**. These devices will have the

advantage of having no moving external parts (no propellers, sound, or downdrafts), and are hundreds of times more efficient than propellers.

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I believe a lower cost silent version of the Jetson One eVTOL that sells for \$100,000, which is illustrated in the link below, would be the ideal initial crowd funding product for Origo. Note the strong downdraft (which would be non-existent with the Origo product). Also note typical comments (indicated below) to this type of product.

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In contrast, a comfortable chair on an Origo Lifting Device platform, would provide a low cost, light weight outdoors handicapped mobility device, that floats a few inches or feet off the ground at a fraction of the price, weight, and complexity of current offerings.

Likewise, the same is true for indoor wheelchairs, for use at home, at stores, beach, woods, etc. etc. Again at very low cost, a customer could simply mount the wheelchair of their choice onto an Origo Lifting Device that floats a few inches (or a foot) off the floor, ground, water, or any other surface.

The purpose of Origo Crowd Funding is not to finance the development of all these products listed above, but rather to construct a proof of concept prototype and to finance the expenses required to generate all the legal documents required to allow investors to purchase stock in Origo. These expenses are substantial, as I have learned over the years creating various new companies.

### **Crowd Fund this Technology by clicking on the link below**

[https://www.paypal.com/donate/?hosted\\_button\\_id=62TYARB76V7XC](https://www.paypal.com/donate/?hosted_button_id=62TYARB76V7XC)

Thank you all who donate to help implement this new technology, and thus benefit millions of people worldwide.

If you have any questions or comments about this new technology, simply reach out using one of the links below.

Greg Piesinger, President

Origo Corporation

[www.origocorp.com](http://www.origocorp.com)

480-473-1995

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## Piesinger's Innovative Track Record (as of January, 2001)

Since the beginning of his career at Bell Labs, Greg Piesinger (see resume) has been designing creative and innovative solutions to engineering problems for over 36 years. He has a proven track record of providing innovative solutions to a wide range of technical problems.

### Proven Track Record

The only reliable way to predict the likelihood that a particular company or consultant will successfully complete an assignment is through review of their past accomplishments and through personal references.

Although a resume is valuable in defining the types of skills an individual possess, its concise style fails to provide insight into the individual's overall contributions to a particular project.

Outlined below are some specific examples of Piesinger's past performance on a variety of projects. These examples are given to help the client better judge the type and quality of services that can be provided by Dyco. They also illustrate the consistent ability of Piesinger to provide innovative, creative, and patentable solutions to technical problems.

### Honeywell AVIONICS DIVISION (1989)

#### Airborne Weather Radar with Turbulence Detection Capability

In the mid-eighties, Honeywell's General Aviation Radar Division was faced with a potential loss of market share due to their competitor's announcement of a new coherent solid state radar with turbulence detection capability. Honeywell was at a distinct disadvantage because all their radars were based on non-coherent magnetron technology. The conventional wisdom at that time was that turbulence detection was only possible using a coherent radar.

As chief radar system analyst at Honeywell, Piesinger developed a signal processing technique that made it possible to obtain turbulence detection information using a non-coherent magnetron radar. Piesinger single-handedly developed the algorithms, designed the experimental hardware, wrote the DSP code, and conducted the flight tests that verified the concept.

As a result of this innovation, Honeywell beat the competition to market and sold more than 100 million dollars worth of these radars **(equivalent in purchasing power to about \$251,880,645 today in 2024)**.

For his contributions to weather radar, Piesinger received the Honeywell Sweatt Award in 1989. This is Honeywell's highest technical award. Less than 20 of Honeywell's more than 50,000 employees worldwide are presented this award annually.

### Satloc CORP (1996)

#### Wide Area PS Network

Satloc provided GPS solutions for crop dusting and other precision farming applications. These solutions are based on differential GPS technology in which a GPS correction signal is broadcast to ground users via a geosynchronous satellite.

When Satloc's differential signal supplier decided to sell precision farming equipment in competition with Satloc, Piesinger was hired to build Satloc a nationwide L-band wide area differential GPS network. Initially working alone, Piesinger conducted a thorough technical investigation of the various algorithms available to produce differential GPS correction information and selected a state space wide area solution.

To meet Satloc's short time-to-market requirements, Piesinger set up sub-contract relationships with JPL and other experts in the GPS field to assist in the development of the various software algorithms. Piesinger then concentrated on the hardware aspects of designing the 14 reference stations and 2 network control stations (NCCs). He also negotiated a frame relay contract with AT&T, designed the satellite signal modulators, and installed the uplink station at AMSC for broadcasting the GPS correction signal via L-band satellite.

Piesinger Track Record 480-585-4386 [gpiesinger@cox.net](mailto:gpiesinger@cox.net) -1 Piesinger managed the development of both the L-band network and the L-band user receivers. At its peak, he managed the activities of approximately 20 people. In less than one year and for approximately 2 million dollars, a nationwide GPS network with sub-meter user accuracy was built and in service. This was in stark contrast to the ongoing multi-year development of the FAA sponsored WAAS network which by 1999 had cost more than 1.1 billion dollars.

## **Cable Repair Systems (1994)**

### **Underground Utility Cable Radar**

Through personal contacts in the electric utility industry, Piesinger was asked to devise a non-destructive technique to locate splices and faults on high voltage underground distribution cable. Using sophisticated high resolution pulse compression radar technology, Piesinger invented and patented an innovative technique whereby faults and splices could be pinpointed by walking the cable path with a small hand-held antenna.

With utility company funding, Piesinger formed CRS and developed the hardware for a commercial cable radar product. The product was a complete technical success and could pinpoint faults to within 1 foot on half mile lengths of buried distribution cable. However, unfortunate timing doomed the project as a business success because the radar's introduction coincided with the deregulation of the utility industry. Deregulation dried up the utilities' tool budgets and the investment funds required to successfully market the product.

## **Sicom, INC. (1997)**

### **ASIC Based High Data Rate Modulator**

Piesinger was hired by Sicom to help productize a family of high rate ASIC based modem products that were capable of operating at QPSK, 8PSK, and 16QAM data rates up to 155 Mbits/sec.

Their modulator used a RAM look-up table for pulse shaping and required a high speed 4-to-1 multiplexer to drive a single output DAC. To handle the high speeds, this multiplexer was initially designed using ECL circuitry which consumed a large amount of power, used extensive board space, and produced many modulation spurs.

The design of an ASIC based multiplexer was being considered to solve these problems. That solution would have cost a few hundred thousand dollars and required at least 6 months for the design and fabrication of the ASIC.

Piesinger invented, simulated, and patented an innovative solution that used 4 output DACs in place of the ECL multiplexer circuit. He also developed the algorithm required to load the existing pulse shaping RAM without having to modify the modulator ASIC. The design was successfully implemented into Sicom's high speed modulator products and avoided a potential 6 month delay in the introduction of the modem product line. This is a vivid example of how creative innovation can make a tremendous difference in the design of a product.

## **Honeywell AVIONICS DIVISION (2000)**

### **Enhanced Resolution Airborne Weather Radar Flight Test**

Honeywell was presented with an opportunity to demonstrate a high resolution version of their airborne weather radar if they could develop the demo equipment within a short time frame. Stepping up to the challenge, Piesinger used A/D, DSP, and CPLD evaluation boards along with a PC display to add the high resolution capability to an existing radar. Piesinger selected the radar parameters, designed the circuitry, wrote the VHDL CPLD code and DSP assembly code, and interfaced the new hardware and software to the existing radar. In a short 3 month period, the demo equipment was successfully built and flight tested to the customer.

## **Pacific Communications Sciences, INC. (1992)**

### **CDPD Field Trials**

Participating with McCaw, PCSI developed the technique by which cellular digital packet data (CDPD) GMSK modems are used to transmit digital data at 19.2 Kbits/sec to wireless subscribers during idle periods on AMPS cellular mobile phone systems.

One of Piesinger's assignments was to develop the DSP based data link layer Reed Solomon code and data framing software on commercially purchased DSP boards for the field trial portion of the project.

A straight compilation of the Reed Solomon C source code resulted in a processing load that exceeded the capabilities of the DSP. Through an innovative use of look-up tables and through an intimate knowledge of TI's DSP assembly language, Piesinger was able to perform the required computations using only 1/3 of the DSP's processing capability. This left plenty of processing time for other modem functions written by other programmers and allowed the selected DSP boards to be retained.

## **Dyco, INC. (1998)**

### **Viterbi Decoder Research**

Piesinger is always on the lookout for new innovative patentable techniques which could form the seed for a new product or business endeavor. One such creative idea involved a new Viterbi decoder technique for 1/2 rate 16QAM modulation. The goal of the coding research was to provide an ability to move from 1/2 rate Viterbi encoded QPSK to 1/2 rate Viterbi encoded 16QAM using less than a dB of additional  $E_b/N_0$ . Such a technique would allow a user to half the bandwidth required for a particular QPSK data rate with very little  $E_b/N_0$  penalty.

In developing this technique, Piesinger became proficient in the design and software simulation of industry standard Viterbi encoding and decoding techniques.

## **Motorola GOVERNMENT ELECTRONICS DIVISION (1977)**

### **Null Steering Research**

In the early seventies, Piesinger was presented with the opportunity to perform IR&D and proposal studies on anti-jamming techniques for military applications. Piesinger became familiar with the current highly mathematical literature on adaptive arrays and successfully adapted this information to real-world circuits that provided both narrow-band and wide-band nulling capability.

Piesinger received numerous patents for work in this area and in 1977 received Motorola's engineering award for his contributions to null steering. Only one of these awards was presented annually by this division of Motorola.

# Artificial Bouyancy Lift

Piesinger's Artificial Buoyancy patent application has been granted and will issue soon. It describes a method of creating non-Bernoulli Principal aeronautical lift by using a fast electrostatic force to rapidly move the top surface of a lifting device downward, followed by a slow voltage electrostatic force to slowly return the top surface to its original position. This cyclic movement reduces downward air pressure on the top surface of the lifting device below upward air pressure on its bottom surface, thus producing aeronautical lift.

The graph below illustrates the lift produced as a function of the slow and fast voltages. For example, 200lbs of lift can be produced using either a 4.5KV slow voltage and 90KV fast voltage, 7.2KV slow voltage and 86.4KV fast voltage, or any other combination that intersects the graph's 200 lbs horizontal Lift line.

For VTOL applications, multiple powered lifting devices are always used for safety of flight redundancy. Implementing dual 100 lbs lifting devices, would reduce the slow and fast voltages to 2.6KV and 52KV respectively, or to any other combination that intersects the graph's 100 lbs horizontal Lift line.

