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ICARUS
UV Air Sterilization System

Simple Description



The simple technical description presented here outlines and explains the various sections of the Icarus Airborne Pathogen destroyer.

Essentially the unit controls the virus laden air to be cleaned by separate sections all of which are described simply here.

Further more technical clarification of each of the sections can be found in Dean Smith's documentation which is also available here.

Every part of the system uses standard, proven technology to ensure reliable virus destruction.

We are readily available to demonstrate the system so please get in touch as soon as possible to arrange that immediately.

For further info call James on:

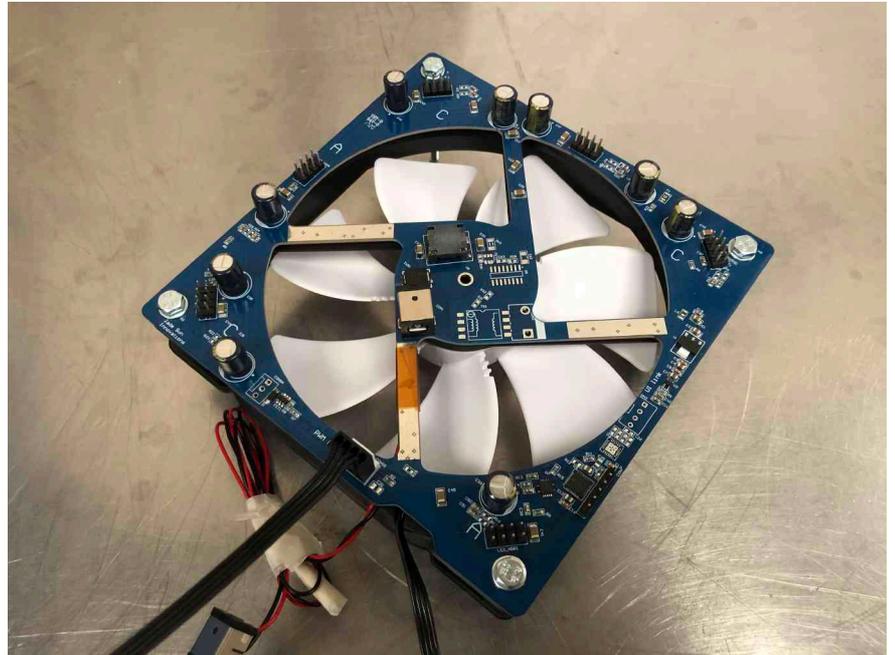
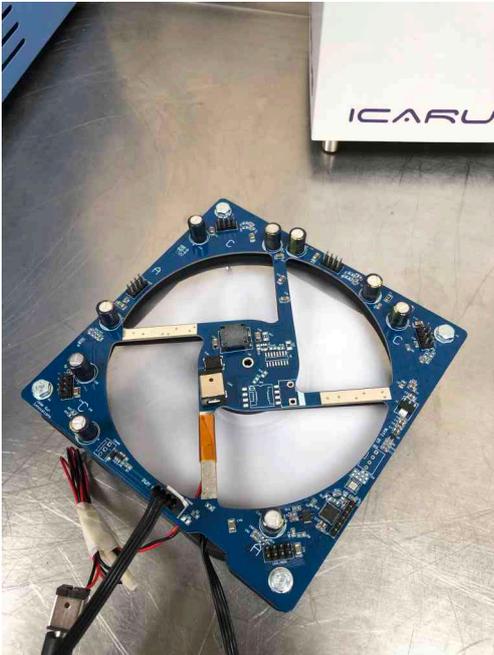
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PWM Fan Control



PWM Fan Control

The fan used in the Icarus device is controlled by the control board which uses a lower power microprocessor used to run the whole system.

The fan is controlled by Pulse Width Modulation which enables total control of the speed of the device which enables complete control of the velocity and therefore the volume of the air being processed by the Icarus system.

We are using a quiet variant of the fan and one which is designed for long running times.

The design of the system with the intake via the fan at the bottom and the exhaust at the top, is fashioned in such a way the fan automatically cools the electronics when in use.

The speed of the fan is also used in conjunction with the UV Lightcards where both act as part of the temperature regulation system.

Should the Icarus unit be knocked over the UV Lightcards and the fan are automatically turned off as part of the safety system that is implemented when the system is in use.

The air inlet to the Icarus unit is kept clean with the use of a filter at the base of the system.

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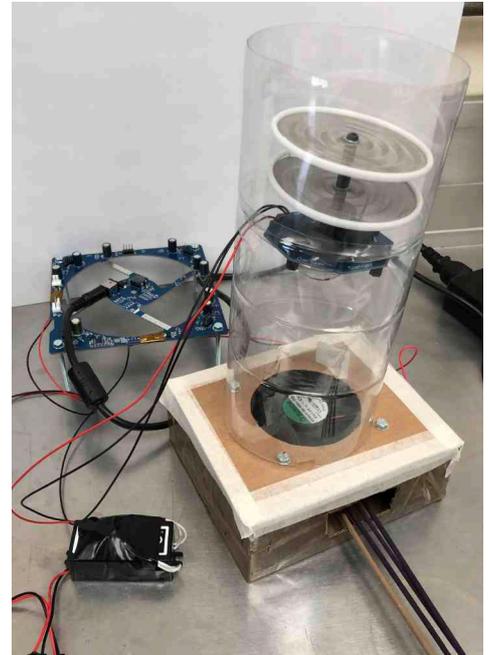
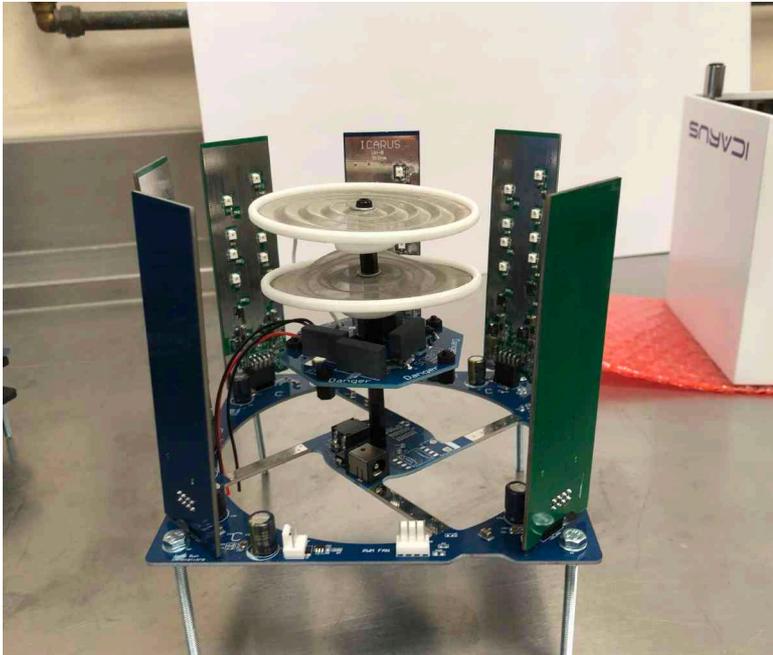
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Electrostatic Plates



Electrostatic Plates - Voltage Multiplier

Despite the fan being controlled to set the volume of the air through the Icarus unit, there is a possibility that the destruction of the virus may not take place due to high transfer speed.

To prevent this and ensure total virus destruction the Icarus is designed with a series of four plates using a system first described 275 years ago and known as Coulomb's Inverse-Square Law.

As the contaminated air passes over the plates it is given a high voltage positive charge and is attracted to the negative charge on the next plate therefore conclusively trapping the viruses.

Trapping and containing the viruses and then exposing them to UV light ensures their destruction.

The picture above left shows the plates are held in the way of the UV light above the voltage multiplier which completes the circuit.

The picture above right shows testing using joss sticks to trap the smoke proving lower mass viruses will also be easily contained.

The production version has 4 larger plates made of copper mesh which is naturally germicidal and just holding the viruses outside a host for 3 hours will destroy them regardless.

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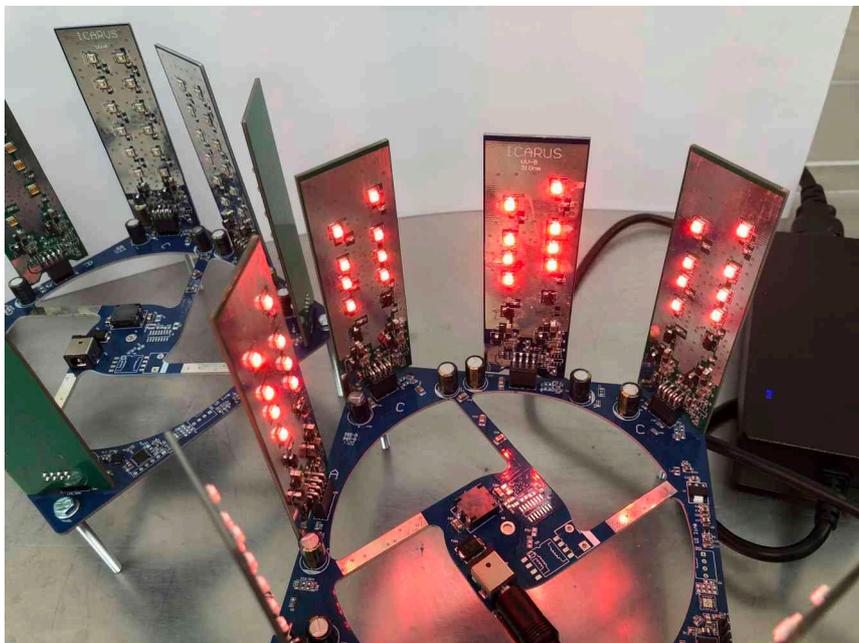
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UV Lightcards



UV Lightcards

The UV Lightcards can be fitted with any type of Ultra Violet LED including any UV mixed technologies on an individual card.

This means future developments in UV LED technology can be easily incorporated and indeed any of the eight slots can be populated by a simple plug and play taking just seconds.

Our rationale for using UVA, UVB and UVC cards are that sunlight, which comprises all frequencies, is known to destroy viruses.

Should the destruction of pathogens be found to be using just one frequency band (such as UVC only) then the unit can be used with just that type of card in each of the slots.

Our UV Lightcards are also highly reflective (using a method of selective solder resist) and this enhances the light that is reflected in the kill chamber to destroy the captured viruses.

The pictures above show regular LED populated Lightcards since the UV light is harmful to human health.

The emitted power of these cards compared to sunlight is massive to ensure viral destruction.

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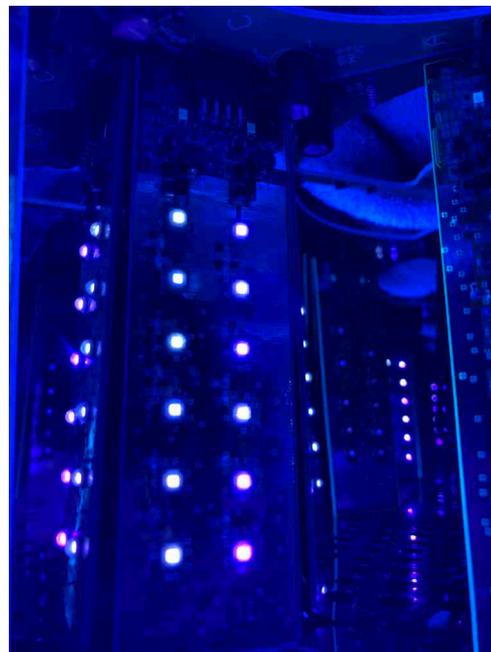
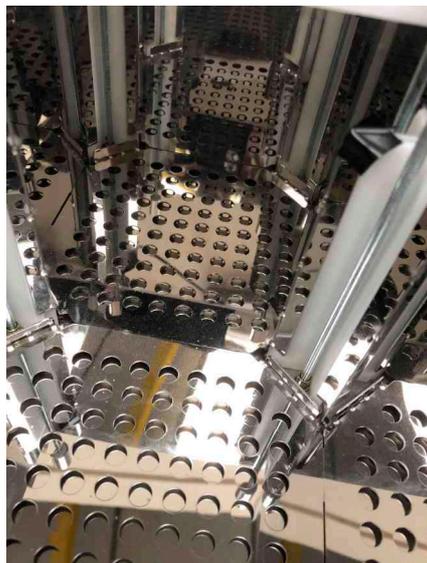
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The Kill Chamber



The Kill Chamber

The viruses and other pathogens are held in suspension on the electrostatic plates and they are then exposed to and destroyed by the UV.

The Kill Chamber itself is made of highly reflective material to ensure the light reflects increasing its killing capacity and destroying the pathogens from infinitely numerous angles.

In the pictures above the centre one shows the Kill Chamber itself and the two outer pictures show it lit up with the Ultra Violet light from the UV Lightcards being used to destroy the viruses.

The Kill Chamber's exhaust holes at the top completely match the inlet at the bottom of the unit to ensure smooth unimpeded airflow.

When the Icarus device is in use, the operating temperature that is being generated by the UV Lightcards is directly measured in the Kill Chamber and then regulated by a combination of air flow and UV Lightcard regulation.

In the pictures of the UV Lightcards above the different UV frequencies create different light levels dependent on their wavelength.

It may look as if some of the LED's on the UV Lightcards are dimmed but that is their design.

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The Conclusion

The Icarus device has gone through extensive testing as part of a product known as The Air Guardian (originally designed to remove particulates and prevent hazard from air pollution) and has been modified to actively attack and destroy airborne pathogens including viruses.

We have utilised technology that has been used extensively for decades and in the case of our Voltage Multiplier Electrostatic Plate system it was designed and tested 275 years ago.

There is no part of the Icarus system that is not proven by science, both physics and biology and we have all the data available to prove that assertion. Using the Icarus will actively destroy viruses.

Every part of the Icarus system is built to be modular and scalable and versions can easily be manufactured to accommodate larger areas and workspaces and can be built in South Wales.

Running on 12 or 24v means the same product will automatically work everywhere worldwide including ambulances, hospitals, care homes and taxis. Offices, schools, cars - everywhere.

We are presenting a system designed to actively prevent hazard from all present and future airborne dangers and to date we have no competitor that offers anything even similar.

As experts in their respective fields, Dean Smith and James Dexter have evaluated all other products that could possibly achieve similar results to ensure we have left nothing to chance.

For example existing air filtration systems do not ensure certain virus destruction because the air is not exposed to the UV Light for long enough. Other passive systems such as UV robots or UV lights are limited and cannot be used with humans in the space due to the dangers of UV Light.

Please get in touch because we believe the Icarus can be used to turn dangerous places into safe ones and we need to get this product tested and built as soon as possible.

For further information or to arrange a demonstration call James on:

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www.ekey-solutions.com

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