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Empower UAV Blog

http://www.empoweruav.com/blog/

"Facts" Blog Post

DRONES BY THE NUMBERS

The number of drones in the air is quickly multiplying day by day!

As the next big thing in technology, drones are becoming more and more popular with each day. The numbers associated with drones are quickly beginning to multiply in the country’s skies. But just how many will there be in the near future?

The Director of the FAA’s drone office, Earl Lawrence, recently made a few statements at the first meeting for the new government-industry drone advisory committee about the numbers of drones and drone pilots in the United States.

Now, I know what you’re thinking. Numbers - boring (& even a little scary), and don’t forget about their appalling relationship with math. I totally understand and I’m right there with you, but here are some drone numbers that will blow your mind... In a good way!

- Nine months after the Federal Aviation Association (FAA) created the drone registration system, more than 550,000 UAVs have been registered.

- Lawrence claimed that new registrations are coming in at a rapid rate of 2,000 per day, which is a significant number compared to the 260,105 total manned aircrafts that are currently registered with the FAA.

- The FAA began issuing Part 107 drone pilot licenses less than a month ago. As of September 16th of this year, 13,710 people had applied to take the pilot exam, and out of that number 5,080 had passed it.

- The FAA estimated that there will be 15,000 licensed drone pilots by the end of 2018, but I think that number is too small and that the real figure will go far beyond it.

- The FAA is also forecasting that there will be more than 1.3 million licensed UAV pilots by the year 2020. That is about 85 times the estimate of the 15,000 this year! That is a pretty big leap in only 4 years!

Now, that is a whole lot of drones in the U.S. airspace! And the UAV industry is just going to keep on growing. So join the drone rush, and help continue increasing those numbers!

Already have or getting your new Commercial Drone Certification (RPIC)? Let us help guide you to building an FAA Part 107 business!

TAGGED: AERIAL PHOTOGRAPHY, DRONE, DRONE PHOTOGRAPHY, DRONE PILOTS, FAA, PART 107, UAV, UAV PILOTS
9 DRONE PILOT CAREER PATHS

The demand for drone pilots combined with the newly established Part 107 pilot certification has opened up many doors in terms of career opportunities.

So you just got your Part 107 pilot certification, what’s next? How about turning your passion for flying into your next career?

Here are several different drone pilot career paths you can choose from.

1. Aerial Photography & Videography
   Are you the creative and artsy type that has a passion for photography? Drone aerial photography gives us a new way of seeing the world from above and capture beautiful sceneries and your unforgettable moments! Because aerial photography is a general scope, you can immerse yourself into a variety of different photography specialties such as sports, travel, weddings, and even more.

2. Real Estate
   Are you already a real estate agent? Add drone aerial photography to your real estate to produce optimal marketing and sales tool for real estate agents to showcase their listings to potential clients.

3. Agriculture
   Are you an agriculturist or farmer? Aerial imaging and mapping as an efficient way to monitor crops and improve agriculture management. With the captured data, several characteristics of the crops and vegetation can be easily identified in order to improve crop health and development.

4. Archaeology
   Do you enjoy digging up evidences from the past and studying historical cultures? By adding drones to archaeological exhibitions, archeologists no longer need to spend their days digging underground. Aerial surveying provides an efficient way to explore and monitor archaeological sites from above.

5. Utility Inspection
   Do you have an eye for detail? Many utility companies are using UAVs to quickly and safely inspect various types of infrastructures.

6. Wildlife Management & Conservation
   Do you have a love for animals and nature? Join wildlife conservation teams to help protect and manage wildlife from the sky.

7. Public Service Surveillance/Rescue
   Do you have experience in law enforcement, fire fighting, or other public services? Public service agencies can deploy drones to improve their ability to enforce the law, all while saving valuable resources and lives!
8. Education
Is education or teaching a passion of yours? Many colleges and universities are introducing UAS degree programs and opportunities to their curriculum. In addition, flight schools that are already in place that are looking for UAV trainers.

9. Start your own drone business!
By starting your own drone business, you can pick and choose one or even a few of the above to specialize in and incorporate in your company.

Already have or getting your new Commercial Drone Certification (RPIC)? Let us help guide you to building an FAA Part 107 business!

TAGGED: AERIAL PHOTOGRAPHY, CALIFORNIA, DRONE, FAA, PART 107, PHOTOGRAPHY, PILOTS, SAN DIEGO, UAV

"Product Promotion" Blog Post

5 REASONS TO USE MICASENSE’S REDEDGE® CAMERA

New technologies for advanced imaging provide agriculturists with precise data of their crops. Multispectral imaging provides information that the human eye is unable to see by capturing image data of different wavelengths of light. Through multispectral imaging, we are able to capture these spectral bands in order to indicate several agricultural characteristics.

In order to do all this, you need the perfect camera. You need the MicaSense RedEdge® camera!

The RedEdge® is not your average camera. It is an advanced multispectral camera specifically designed to provide accurate data for agricultural remote sensing applications with drones.

Here are 5 simple reasons you should invest in the MicaSense RedEdge® camera for your agriculture endeavors.

1. The RedEdge® simultaneously captures five discrete spectral bands that are optimized for gathering data for customizable applications concerning crop status such as identifying differences in crop development and health within an area of the field.

2. By capturing all five bands at the same time, this camera’s fast capture rate allows faster flight speeds, lower flight altitudes and shorter overall flight time, saving quite a bit of time. The global shutters on the lenses provide clear images at fast speeds.

3. During flight, the RedEdge® images can be seen through a web app which you can access via any device with a web browser. Post flight, the geotagged files are available for extraction from the SD card that comes with the sensor. For those who are inclined to integrate the sensor into UAV platforms, the RedEdge® has an open API and has serial and ethernet connectivity.
4. The MicaSense RedEdge® camera is compatible with many UAVs such as the DJI Phantom 3 and Inspire 1 and is also available for manned aircrafts.

5. Ultimately, this one amazing device can take your agriculture to the next level! With the captured data from the RedEdge®, several characteristics about the crops and vegetation can be easily identified in order to improve crop health and development.

No need to wait! Purchase your very own MicaSense RedEdge® today!

“News” Blog Post

INCOMING! THE NEW RULES HAVE ARRIVED!

The new ruling is out, and it is a whopping 624 pages. So I’m going to break it down for you! But, if you happen to be one of those rare bookworms that I’ve heard about, you can check out the entire lengthy document at the link below.

Click Here for the Complete Part 107 Ruling

On June 21st, the FAA finally released the new regulations – Federal Aviation Regulation (F.A.R.) Part 107 – regarding UAV commercial (non-hobbyist) operations that will take effect on August 29, 2016.

The new rules are designed to safely integrate UAV into the nation’s airspace and as a result allow drones to provide great opportunities for businesses and the government.

From pilot requirements and certification to operating rules, there have been some major changes to the regulation of commercial drone operation. But, change is a good thing. Right?

Here are a few of the BIG changes to the UAV commercial rules:

1. The pilot must have a Remote Pilot Airman Certificate by passing the FAA administered test, be at least 16 years old, and pass a TSA vetting.

2. The aircraft must weigh less than 55 pounds, be registered if over 0.55 pounds, and carry out a pre-flight check to ensure the UAV is in proper condition for safe operation.

3. When operating UAVs, the pilot must:

   - Keep the aircraft in their visual line-of-sight
   - Fly in class G airspace
   - Fly below 400 feet and at or below 100 mph
   - Operate during the day
   - Yield to all manned aircrafts
   - NOT fly over people or from a moving vehicle
Also, keep in mind that the new rules only pertain to commercial uses of drones weighing less than 55 pounds and they do no affect any recreation rules that are currently in place.

Click Here for a FAA Summary of the Part 107 Ruling

Want to start flying drones for your business? Schedule a private training session with Empower UAV to learn how to legally and safely operate drones!

Click Here to Schedule a Private Training Session!

“How To” Blog Post

HOW TO: USE A MULTISPECTRAL CAMERA FOR AGRICULTURE

Multispectral cameras are a revolutionary technological solution for agricultural remote sensing and imaging. The spectral bands of these cameras are capable of delivering precise information targeted to agricultural applications.

Before I get into the camera itself, let me tell you a little bit about multispectral imaging for agriculture in general. Multispectral imaging provides information that the human eye is unable to see by capturing image data of different wavelengths of light. Through multispectral imaging, we are able to capture these spectral bands in order to indicate several agricultural characteristics. With the captured data, farmers are able to monitor and manage their crops more efficiently.

Here is a simple step-by-step guide to begin using the MicaSense RedEdge® for your very own agricultural applications.

What you will need:

A. A true multispectral camera (not an NDVI filter), like the MicaSense RedEdge®

B. A properly registered small UAS to fly (We use and suggest the DJI Inspire 1 Professional Model)

C. A mounting kit in order to mount the RedEdge® camera to the aircraft. (I recommend Empower UAV’s very own RedEdge® - Inspire Mounting Kit)

Click Here to Preview our RedEdge® – DJI Inspire Mounting Kit

D. Access to MicaSense’s ATLAS Online Computer Processing Program (Ask, and we can help you with obtaining a Red Edge camera. Kit, and access to Atlas)

E. Know how to safely execute a weight point, auto flight, mapping mission; and,

F. Hold either a Part 107 FAA RPIC certificate with a sUAS rating, have an FAA Section 333 approved petition with a Blanket COA, or some other legal means to operate commercially in US National Airspace.
1. Understand How the Camera Works
The very first step of using a multispectral camera is to understand how it works. Multispectral cameras work by displaying different wavelengths of light using multiple imagers that each has a special optical filter that allows only a specific set of light wavelengths to be captured at a time.

Once captured and processed, a set of images for that particular wavelength is created. All of the sets are then stitched together to create geographically accurate collages. By precisely combining these layers, vegetation indices are produced that measure different characteristics of a plant.

2. Fly Your Mission
Prior to take off, you should plan and prepare for your flight. Having a pre-flight checklist in place is always a good idea. The actual flying of the mission doesn’t require too much explanation so long as you are a certified and experience pilot as well as always fly legal and fly safe. All you must do is capture imagery over your fields using a drone with the ability to perform grid survey mapping, a flight application to execute, and be in legal compliance to operate. (We use Drone Deploy, Maps Made Easy, and are exploring Pix4D...)

3. Upload & Process the Captured Data
Easy 1-2-3 step process. Once successfully uploaded using MicaSense’s Uploader Application, you’re ready for what seems to be the most difficult aspect of using a multispectral camera: analyzing the information that you collected.

I would say it is safe to assume that most of us don’t have a PhD in agriculture or crop analysis, but fortunately, analyzing the captured data is actually made quite easy for us by the technology of the ATLAS program. The ATLAS program uses your data to create vegetation index and crop health maps for you. So all you need to do is interpret and understand the condition of your field and its crop health.

4. Analyze the Maps
With your process map completed, you can see the crop health through the measurement of chlorophyll content as well as the biomass of your crops.

To view the chlorophyll content use the NDRE measurement, this can be seen by simply checking that box. You can measure the strength and weakness of your crops’ chlorophyll contents using the color-coded NDRE measurements. The optimal measurement of chlorophyll content is measured as 0.80, which is represented by a shade of dark green. With this tool, you are able to see which areas of your fields are flourishing and which are not so healthy.

By viewing the NDVI2 map, you are able to view the biomass of the crops, which is helpful for determining the size of crops. In addition, you are able to lay the NDRE and NDVI2 maps over each other by checking both boxes. By doing so, you will be able to measure how crop size and vigor compare to the chlorophyll content within your fields.

So, once you have collected the data with your sUAS and multispectral camera, all you need to do is let ATLAS take care of the rest, and then use your results to improve your crop harvest yields across your fields!

No need to wait! Purchase your very own MicaSense RedEdge® Multispectral Camera and RedEdge® – Inspire Mounting Kit today!

Comment below or contact me with your success stories and/or for support with any challenges!
Email Marketing

Product Launch Email Campaign

Email #1: Product Introduction

1,284 Recipients
Open Rate: 44.2%
Click Rate: 1.4%

North America Welcomes SMOD

Welcome SMOD, the Smart Measuring Optical Device that delivers real time OD600 and temperature monitoring. SMOD accelerates the process of monitoring suspension cell culture growth by delivering data wirelessly to your computer or smartphone. This means no more opening of cell culture flasks before harvest, and no more cell culture sampling at inconvenient times.

Check out the SMOD in action!
Lifeonics, SMOD creator, has partnered with United BioChannels to introduce SMOD to North America. The UBC team will be interacting with cell culture laboratories across the continent, providing a revolutionary change to the monitoring process of cell culture growth.

Jeff Whitmore, President of United BioChannels, comments, "UBC is proud to bring this novel technology to the North American markets, delivering a breakthrough in improving productivity in cell culture monitoring."

Clive Seymour, CEO of Lifeonics, comments, "The North American markets are clearly of great importance to us as well roll SMOD out around the globe. For the many laboratories growing bacterial and yeast cells for down-stream research and processing such as plasmid production, recombinant protein development and other applications, SMOD offers a major improvement in productivity and quality. We look forward to working with UBC and its partners to bring these benefits to the North American markets."

Email #2: Product Benefits & Features

1,255 Recipients
Open Rate: 39.2%

**SMOD is Your Solution to Cell Culture Growth Monitoring!**

Everyday scientists and lab technicians are carrying out cell growth testing over and over again...
Samples must be manually taken, diluted, and then measured before plotting to reveal optical density values and trends that may or may not be precise.

The current method of cell growth evaluation is very labor intensive, time consuming, and tedious. It involves a process of constant interruption, risk of contamination and spillage, and it is ultimately disruptive to the very biological process you are trying to monitor.

So the question is: Why are you continuing to use the same process from a hundred years ago?

The 21st century solution is the SMOD!

The cost of consumables alone is close to the cost of a single use of a SMOD, and when is also taken into account, SMOD is more effective both technically and in terms of cost.

SMOD does automatically what you do manually, using a technology that you already use but instead it is done smarter and faster.

It is not a new technology. It is simply a new application for the same technology that produces the same, or even better, data.
SMOD Features:

- Real-time monitoring of culture progress
- Unique monitoring of growth of anaerobic cultures
- Optimized harvesting
- No more flask opening and sampling
- Early culture failure diagnosis
- Simply sterilized between uses
- Miniaturized optical density & temperature sensor assembly
- Sized for standard fermentation flasks
- Internal induction charged battery
- Advanced control software for user defined sampling protocols
- Bluetooth™ transmission to lab PC and data availability on mobile devices

SMOD provides a revolutionary change to the monitoring process of cell culture growth to laboratories across the globe!

Don’t just take our word for it. Hear what an actual SMOD user has to say:

“It is a really helpful device which will allow the monitoring of microbial (in our case) and other cell growth over time without opening a flask and taking samples for measurements. It is a really great idea, thank you for designing it for us scientists!”

— Natalia Shestakova, Research Scientist, DuPont Pioneer

Save time and resources by ordering your SMOD today!

Order Now
Measurements Made Easy

SMOD provides a revolutionary change to the monitoring process of cell culture growth for your laboratory.

For biological scientists and lab technicians working with cell cultures, the SMOD provides the ability to conveniently and safely monitor cell cultures without disrupting or contaminating them. Unlike the traditional method that requires constant monitoring and sampling, the SMOD automatically measures the optical density and delivers the data wirelessly to your computer or smartphone.

SMOD makes your cell culture growth measurements easy and intuitive:
A basic method for monitoring cell culture growth is generating a growth curve. This means starting a culture with a low number of cells and then measuring the Optical Density (OD600) over many hours at regular intervals. We know this to be time consuming and tedious.

**How does the SMOD generate growth curves?**

The use of the SMOD gets rid of issues like inaccurate dilution, constant short-term measurements (and interruption of the culturing process), and high variability by enabling the OD600 of many cultures to be monitored in parallel and high OD600 measurements (up to OD 8) can be taken without the need for culture dilution. Furthermore, because the measurements are taken in situ the culturing process is not interrupted and the measurements can be taken at shorter time intervals (as frequent as every 10 minutes). As a result the SMOD delivers highly reproducible data, generates clean growth curves and enables the precise determination of growth rate.

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**Printable Brochure**

Learn more about SMOD and its features.
[View Here](#)

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[Order Now](#)
Social Media Marketing

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Empower UAV

October 26, 2016 ⋆

Empower UAV taking to the open seas!

242 Views

Instagram

Empower UAV • Following

La Jolla, California

empoweruav stay coastal empoweruav uav uavexpe...
Used common themes in order to illustrate a consistent message.
Twitter

https://twitter.com/unitedbio

We are preparing to send out a newsletter about #proteomics & #precisionmedicine! Message us if you want to be added to our mailing list!

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