PROPELLING
The Microdrones® Podcast

USING DRONES IN LATIN AMERICAN.
A NEW SPANISH PODCAST WITH ROBSON AUGUSTO AND JESUS ZENTENO

English Translation

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D: Welcome to *Propelling*, a Microdrones Podcast. I am your host Daniel Jose Litwin, the voice of B2B. We have had various podcasts, interviewing people from all around the world: Africa, Australia, Europe, and Asia, but we have never done one in a different language. I am excited to bring you the first Microdrones podcast in Spanish, where we will explore topics, technology, and news from the aerial drone's industry. In this episode, we will analyze the impact of drones in Latin America and explore the markets with the most innovation. To give us their perspective on the subject, I would like to invite Robson Augusto and Jesus Zenteno, Microdrones' Sales Managers for Latin America. Robson, Jesus, welcome to the show. How are you today?

R: Hi Daniel, it is great to be here. I am Robson from our Brazil office. It's a pleasure to be part of this podcast in Spanish and discuss the topic.

D: I'm excited to talk about drones—it's a very interesting industry. We have never discussed the Latin American region and the impact that drones have had on it, so this podcast is very special and unique. I would like to begin with a few questions for each of you. Jesus, you started using drones in your line of work prior to officially entering the drone industry. When did you realize for the first time that drones had the potential to transform the way we capture data and information?

J: Well, Daniel, I had the opportunity to be part of projects where we started using drones for the purpose of capturing information. It was fascinating to find these types of tools and to see how they started enabling something that was previously hard to achieve. Why? Because in the type of projects that I was involved with, primarily in the generation of maps and layouts in civil engineering, we required photogrammetric flights. This was expensive, it took a long time, and ultimately, it was a logistical challenge. Drones started to solve these issues. The ease of use, execution, and reduction in turnaround time was wonderful. This is when I realized their potential. Without a doubt, this attracted me to the industry, and I decided to do this for a living.

D: Absolutely, we live in a world where businesses are using larger data sets and doing it more efficiently. They can use data for multiple applications and to make critical decisions for companies. Realizing that drones can do that and facilitate capturing information in the architectural and construction industry is very exciting.

J: Yes, Daniel, without a doubt, the potential uncovered by using a tool like a drone is amazing. Specifically, having the right tool makes the job simpler, reducing the time to obtain results, while doing it at a lower cost.

D: Exactly. Robson, you have worked for different companies in the unmanned aerial vehicle industry. How has the technology in this industry evolved in recent years?

R: Yes, Daniel, I believe that one of the major enablers to the drone industry has been the mobile phone. This is because the cost of all the basic electronic components in a drone—like the GPS and the accelerometer sensors—have decreased since the introduction of the "smartphone". This has been a big motivation to build safer and more stable drones which can execute multiple functions like Jesus mentioned: capturing images and executing faster and more precise tasks. Therefore, the drone industry has significantly evolved with the innovations in communication and development of mobile phones.

D: I believe that these innovations have made the drones more accessible to people—for commercial use and as a hobby. Now that you can easily control drones with mobile phones, I believe this has allowed the technology to grow.

R: Yes, that is true. That is a very important point. You used to need a very skilled pilot, using his/her abilities to control an unmanned aircraft remotely. Now, the flight plan electronics are completely automated using the Microdrones solution. First, the pilot uploads the flight plan, which is what the drone is going to execute in flight. The take-off happens manually. Then, the system is set to automatic which executes the flight automatically. The pilot's role is simply to supervise the flight and take control of the drone prior and during landing. The electronic controls have helped develop a very safe tool to get the job done.

D: Since this is a podcast in Spanish, I am obviously interested in focusing in the region where you operate. And, like in other Propelling episodes, when we talk about a region so large and culturally diverse, we need to make a few generalizations to find a baseline perspective. You work to bring these drone solutions to Latin America. How has the technology been received in the region and has it been adopted at the same level as the United States and European countries?

R: Yes, with respect to my region—South America—the adoption of technological innovations has certainly been in the numbers associated with the United States. Currently, the financial potential and utilization of this technology is reserved for larger clients, larger corporations, due to its significant investment relative to the size of the market and the local tax structure. The large corporations, all the main industrial elements that we are going to discuss, are now at the same level as the American market. The volume is different, however, due to the economic conditions of the region. This is the landscape in South America. I believe that Jesus is going to talk about Central America.

J: Thank you, Robson. Yes, absolutely the case with Central America is very similar to that of South America, in which, well, very often the economy is a very important topic for the clients. For our clients, obviously, we are always searching for the best solutions. However, we can't allow expenses that go beyond what's truly necessary. And this is very important because our clients, we have noticed that they are visualizing the value of our solutions. It's very important, isn't it? We are simply talking about one drone. One drone alone does not solve a problem. It needs to be accompanied by a workflow, training, a series of sensors, and procedures. That's a solution. That makes the difference—with that, users can see that the value—the cost and the benefits of our solutions—are adequate. And well, what can I say about Mexico? Mexico has

received with great joy the technology and solutions of Microdrones. Why? In Mexico, like in the rest of the region, something curious is going on. The drones, as you know, entered the Latin-American market as entertainment. That's when the drones take hold. And well, obviously, we are very creative in this region—always trying to get more out of things. And then, since we have these devices to take pictures and video—that's when things start to happen, no? We begin to use them professionally and very often the clients are frustrated. Why? Because they are using drones meant for other uses as if they were professional tools. With the arrival of Microdrones to Mexico and the region, now our clients have access to the same professional tools that are used in the U.S., in Europe, and all over the world. What for? To get professional equipment for their jobs, so jobs don't have to be repeated, so they can finish them faster with less flights, which means there is less information to process to obtain a result. Without a doubt, I believe we have had a good reception in the region. There is a lot of interest in Mexico, no? Lots of interested people getting in contact with us interested in seeing the equipment and interested in learning how to obtain the same results that other parts of the world have seen. This allows us to implement solutions at the same level that can be found anywhere in the world.

D: I think that is what we saw all over the world, even in the U.S. and Europe. Drones started as toys, but then people saw that they could be used for bigger projects, more artistic projects, for projects where we need lots of data and we need to analyze that data in a more efficient manner. Then, we can see that drones entered Latin America in the same way they entered the rest of the world.

J: Definitely, Daniel. We have had a good reception, and well, despite that there are many solutions on the market, Microdrones has strongly positioned itself in the quadcopters industry where they allow activities such as infrastructure inspection because they can stay in position. This makes possible activities that can't be done with fixed-wing drones, right? Also, they have a great throughput, and therefore, almost no limit to the size of the area they must cover. They have a great performance when it comes to how long they can stay in the air and the area they must cover in one flight. Microdrones, I believe, has a great product for the Latin American market and has made a great move by opening their portfolio of solutions to the region.

D: Ok, let's talk about laws and regulations of drones. In several countries they are clearly delineating the use of drones, and this is helping commercial drones and hobby drones fly without trouble. Is this happening in Latin America? Are the drone laws having an impact on commercial drone operations?

R: Yes. Here in South America, Daniel, we have different laws in every country. But the important thing is that they are all based on operating safely and they are very similar to the laws that apply to the photogrammetry industry, where you had to fill out information and notify air control about the goal of the mission, the altitude of the flight, or what you're going to do. That way, at least in the bigger countries of the region, this system of control has expanded to include drones. This is good for Microdrones because we apply the highest standards of aviation in our solutions and the safety requirements follow the pattern set by photogrammetry. This helps because we have a very professional solution that allows it to work in the same ways as manned planes, carrying cameras for engineering projects.

J: That's right, Robson. This has allowed people to see that the workflow is very similar and that has helped the adoption. As Robson said, the laws across the region are varied. It's good to know that countries that don't have these laws yet are beginning to establish regulations that allow safe flights for both drones and manned airships. Particularly, we have different regulations, but what I think is common in all the regions is that any unmanned airplane that is going to be used commercially has to follow some rules. In the case of Mexico, we have regulations based initially on the weight of the airship. Any commercial airship requires regulation independent of weight. As far as categories, we have small drones, medium and big. The small ones require certain regulations that the Department of Transportation of Mexico—precisely, the FAA—has established.

D: Do you think it's difficult to adapt these projects from one region to the next? When I spoke with Charles Al Rashid in our podcast—he works for Microdrones in Saudi Arabia—he told us that sometimes when they are hired for a job in a different region where they don't frequently work, they sometimes don't know the laws and regulations that apply to drones. Do you think there are similar problems in Latin America, or do you think the region follows a standard, and therefore, there are less problems?

R: The standards in Latin America are very similar. There are some differences in some regions, but the standards are very similar. There are two important topics in your question: First, all standards require an able pilot and knowledge of all the local rules, so he can operate the drone. Second, the Microdrones system controlled by our mdCockpit tool is the one responsible for the execution of the mission. Then, once the flight plan and mission have been executed and planned within the local laws, the pilot is only responsible for the take off and the landing. In this way, it's possible to adapt one flight plan to function in a different region, making changes according to the different rules—like the permitted altitude, for example. In general, they are very similar, with some places with fewer regulations in place than others.

J: Adding to Robson's comments, something that's very important is precisely how the implementation of our solutions takes us to the interaction with our clients. We help our clients understand the regulations in the region; that way we can guide them through the implementation of projects in regions that are unfamiliar to them. We have a problem when we ourselves are not familiar with the region's rules. In this case, it's worth saying that in most of Latin America, regulation exists, and if we want to use a drone for commercial work, it is necessary for us to approach the local aviation authorities. Here are some of the rules that we can share with the audience. We have to maintain certain distances from airports; there are places where it is forbidden to fly over crowds, over animals; and obviously, we have to make sure not to drop any objects. When it comes to drones, some countries require risk coverage or some insurance to pay for any damage we may cause with our equipment. And well, without a doubt, we must always be trained and up to date with regulations. Outside of that, staying close with our suppliers helps us be aware of different laws when we cross into a different region.

D: And what can you tell me about the workers in this region? Is there an abundance of qualified pilots, or has flying drones not yet become a well-recognized career? What have you seen?

R: At this point, Daniel, it's good to be specific, because when we talk about drones, as Jesús cited, there are many factors to consider. Platforms that weigh less and carry smaller payloads

may be subject to less regulations. So, for the smaller versions, yes, you are correct. However, when we talk about professional solutions like Microdrones, we are talking about a necessary certification program; we are talking about the need to keep pilots active for several hours defined monthly. Microdrones, as we already mentioned here, offers a complete package where we provide training. It will be provided with updates, so you know how to have both the pilot and the system operating correctly. So, today in the market, you could get a pilot with some basic information, plus, you would have to go through a Microdrones certification program to be able to use those solutions more.

J: Like Robson said, in the Latin American market, customers are realizing that it is necessary to become professional, and we happily see that the market is doing it. They visualize that the work they develop is professional, and that in turn, it requires professional tools and professionally trained personnel to be able to develop activities on good terms, at appropriate times, and low cost. So, I really believe that the market is moving in the right direction and we are happy to see that the region in general is tending to become more professional. So, I think not only is the market in the process, we are glad to be part of this process, and channeling the growth, Daniel.

D: And I think that a very important part is finding more professionals and educating people who are interested in starting a career to be drone pilots. Something very important is education. How do they approach professional education in Latin America?

R: Microdrones, Daniel, has already planned for that with an agreement with the University—where we provide both the system and training. As part of this training, when updates are required, we make sure to provide the proper instruction with any units that have already been sold.

D: Well, Robson, Jesus, I think you both have explained to me very well how drones have affected Latin America. But now I want to talk about specific markets where you have seen that drones have been more successful and more useful. So, the three that I want to explore are mining, engineering, and agriculture, because I believe that in Latin America, these are the industries where we are seeing a lot of innovation and a lot of success. So, let's start with mining. Give me some examples of how drones are used in mining, and how have they contributed to the success of Latin American companies in that industry?

R: Perfect, Daniel. In the mining market, most of the operations here in South America are more likely making changes in the soil, creating piles, creating volume and moving Earth. All of these operations require specific measurements that need to be recorded and logged by the mining company. Because first, for control, and second, so that the volumes of the material that are being extracted from the ground are properly calculated. With traditional technologies, you would have to do manual, terrestrial processes using a lot of equipment to take measurements or then make a photogrammetric flight that, as we already talked about here, is very expensive and requires very complex programming. In contrast, the Microdrones platform manages to measure greater distances than terrestrial processes and make faster calculations of the volume of extracted material. So, this will have a very positive impact on the production of mining, with more precise results. For example, the drone can measure about twice as much as an aero lift, and at least 50 times faster. This makes it very efficient for mining, calculation of volumes, taking photos and monitoring all of the soil movement.

D: Do drones also have uses for emergencies and search and rescue in the mining industry?

R: Yes, it can be used for that, because normally, those regions are difficult to access. With correct sensors, such as thermal sensors, you can quickly search for a person who is below a metal pile, and quickly help assess the situation. And for the volume calculation part, this directly impacts the main business of the company. So, you're talking about increasing production, increasing billing—that helps a lot because it's an impulse to use technology.

D: Okay, and how about the engineering market, Jesus? Give me some examples of how drones are used in this industry and how they have contributed to the success of these companies in Latin America?

J: Yes, I'd be happy to discuss this with you. The topic of engineering covers many different branches and different industries. However, it's pleasing to see that drones are used practically in all branches of engineering. That is to say, the engineer is finding an application in his specific industry, in his niche, and not only in that niche, but in the specific stage of the niche. So, drones are being used practically in different stages of the engineering processes and in different branches. From the planning aspect, civil engineers, need to obtain data and information about the land, in order to create models and design roads for transportation systems. Drones can help get that information faster and more efficiently. Once the construction stage begins, the drones can be used to help map and monitor the progress of work, practically in real time. Nowadays, UAV solutions let you fly in the morning and have the data and information already processed by the afternoon. Once construction is complete, the drone can still be used as a tool to keep track of the project. Here is something very important—the engineer is moving from a two-dimensional stage to a three-dimensional stage. This means you can quickly obtain information in very good detail and continue to generate models that are basic for engineers to perform their job. It doesn't matter if we're talking about roads, infrastructure of platforms, or pipelines. Virtually any infrastructure, any engineer can benefit, regardless of the stage—when you employ the drone as a tool in the process. That's where we can help educate and show them how a drone can make their job much easier, much faster, and allow them to work more efficiently

D: Yes, I also think that when we see the future of the modern city—the definition of a modern city changes every day—and I think we see that specifically with "smart cities". Do you think that drones have helped to convert certain cities into smart cities? And how have they helped to create experimental and attractive architectural works more efficiently, to really create that more modern city?

J: Definitely, Daniel. Drones and their payloads can be used to help create digitalization's of cities, streamlining the process of creating a smart city. Obviously, in order to be a smart city, we need to start with the proper data. That data can be obtained by a drone very quickly. In the case of engineering and architecture—infrastructure: call it a building, a bridge, or any specific work—the drone is precisely the tool that allows me to have that aerial vision and collect all the necessary data. It allows me to know the field; it allows me to know the context; it allows me to know how my work is progressing and how it has been finished. Implementing drones into a workflow can be a benefit to many industries, besides just engineering. We see architects interested in the use of drones because it allows them to streamline their work and complete the job much faster. The drone is the tool that should not be missing in any company that is dedicated in part to infrastructure, architecture, construction. It is the ideal tool.

D: Okay, the last industry I want to explore is agriculture. So, Robson, can you give me some examples of how drones have affected Latin American agriculture?

R: Yes, Daniel. Agriculture is a market that has inherent challenges as it pertains to large geographical areas, where we are always trying to make the most of technological advances. Precision agriculture seeks to optimize the cultivation of seeds it in a way that will take advantage of the use of the soil to maximize the plantings. This is where a drone can be very effective. A Microdrones system can take very high-resolution images that can help track the planting of the trees and identify whether any corrections must be made. Furthermore, the drone can cover large and difficult areas to access. So, in all the steps of agriculture—from planting, to nurturing, growth, pruning, to the cutting of the trees—in all the stages, there is a need to have images with very good resolution and accurate data so that you know how to make decisions, and then the entire vegetation process can be maximized. The Microdrones' solution can be used throughout the whole agriculture process and is helping to evolve precision agriculture.

D: And I know that, as I said at the beginning of the podcast, Latin America is a very big region and it covers many countries. But I know that in general, Latin America has several crops that can only be grown in the climate that can be found in Latin America. So, I want to ask you, are there crops specific to the region that are vulnerable or crops vital to the global market that can now be developed more safely thanks to the use of drones?

R: Yes, not only are there regional crops like you mentioned, but there are specific seasons of the year where you need to make different accommodations to maximize your yield. Microdrones systems allow you to adapt and manage the necessary data to help achieve the best solutions. At any point during the development of specific plantings you're able to use the precision of our integrated solutions to track and evaluate growth on a daily basis.

D: Well, Robson, Jesus, we're almost finished with our conversation today about the use of drones in Latin America. For my last question, I want to ask the two of you, which Latin American industry do you think will be key to the success of the drones and will it grow and innovate in conjunction with the drones? Which industry do you think will have that symbiotic relationship with drones?

J: Well, Daniel, there are many industries that are already benefiting, and I think that many industries will be coming to the region, right? There is much potential ahead, for unmanned aircraft. I believe that, in the end, unmanned aircraft could become an important part of our day-to-day lives with many potential applications. Now, we're already involved in industries such as agriculture, mining, and engineering. However, there are many industries for which there is still development ahead such as shipping, transportation and security. So, I believe that drone use will continue to evolve and grow in popularity. I really predict a quite promising, very long-term future for drones.

D: Yes, and as you said, there are several industries that have not yet seen the power of the drone and are not using it, then, in their day-to-day operations. So, when we get to that point where new industries start using drones every day, I think they're going to need very specific things and the drones are going to have to adapt to those industries. So, I think we're always going to see the evolution of technology when we talk about drones, and I think we have a very exciting future for drones in Latin America.

R: We are watching the future unfold. We already have a methane gas detection system—the mdTector. It's a perfect example of how we can help grow into new industries. You can use the mdTector to inspect areas that would typically require putting people in harm's way, to look for gas leaks. So, that is an example of the development that you are simplifying.

D: Well, Robson, Jesus, thank you very much for giving us your expert opinions on how drones are being used in Latin America and sharing your vision of how the industry will develop in the future. It has been a pleasure. We will talk again soon.

R: Daniel, it's a pleasure to be part of this historical framework. It's exciting to be able to share the information with you and all the listeners.

J: Daniel, it's been a pleasure to talk with you during this podcast, and well, I hope to say hello again soon.

D: Yes, there are still several industries in Latin America that we do not cover in this podcast that also use drones, so I can visualize a future where we meet again in this podcast and we'll have many things to discuss. Then we will talk again soon. Thank you very much, Robson. Thank you very much, Jesus.

R: Thank you, Daniel.

J: Thank you, Daniel.

D: And thanks for listening to this episode of *Propelling*. If you want to find other podcasts of ours or read content about Microdrones and their employees, you can go to microdrones.com/blog. I am Daniel José Litwin, the Voice from B to B. See you later.