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Scott Cochrane Interviews David Antar, President, IPVideo Corporation



IoT Pioneer Creates SMART Sensor with Capabilities the BAS Industry Never Imagined

Scott Cochrane, [Cochrane Supply](#), Interviews David Antar, President, [IPVideo Corporation](#)

In Building Automation Systems (BAS), we are used to a few main data types to drive control in buildings. This includes things like motion, temperature, humidity, and pressure with our goal to provide a safe, comfortable, secure environment. However, with major changes going on in and around our buildings, we need to work with NEW DATA in NEW WAYS to bring the NEW REALITY people are looking for to life.

Welcome IoT! With new tech, we can bring a new picture to building owners of an asset that is in great need of some focus right now. For us in BAS, that means a departure from traditional thinking and a new era of multi-use, multi-purpose IP network-enabled devices that re-landscape the data that drives the buildings. Introducing a new way of thinking of building control—utilizing microphones, air particle scanners, speakers, accelerometers, vape, smoke and gas detection to help building owners accomplish a modern, secure, safe and comfortable environment in TODAY'S CRAZY NEW ERA. What if there was a SMART sensor that could do all of that and more?

Welcome David, President and Founder of [IPVideo Corporation](#)—an IoT pioneer who is not from the BAS industry, but who has created a very unique SMART sensor with capabilities like we have never imagined.

Cochrane: David, tell us about the background of your company and how you ended up developing the HALO Smart Sensor?

Antar: I started the company 31 years ago as an IT company and it evolved into what we considered to be a convergence company. Convergence, in our mind, was always about what is now referred to as IoT and relates to how all of the products and services that we develop and work with interoperate and share data. I have several different divisions to our company that focus very heavily on education, both K-12 and higher ed. Because of that initial focus, we had a lot of demand from our customers for sensors that they could put into areas of privacy, and that is what originally drove the design and concepts for HALO. A lot of our customers wanted to be able to put

sensors into classrooms, bathrooms, locker rooms, principals' offices, and other areas of privacy they couldn't put cameras in.

Additionally, we had been very heavily involved with network based IP cameras and had a nationally recognized expertise in physical security. We were true innovators in the security space and actually were the first partner for a company called Axis Communications that invented the IP camera in 1996. Ironically, we have camera number six that they manufactured, so we have a lot of history in the early development of innovative technology that was often ahead of its time. HALO was developed based on our years of experience and true understanding of a problem that needed to be solved. Although it was initially utilized for areas of privacy, our plan was for HALO to fit numerous use cases into every vertical market.

We developed our original roadmap for HALO in 2014 and released it in April 2019 at ISC West, which is a large security show in Las Vegas with about 30,000 attendees. We won Best of Show at the conference and that was really the big launch of HALO. Since then, we've won more than 32 awards, including in the environmental space, security space and even in the area of gunshot detection. It continues to be hailed as one of best products to enter the IoT space.

We now have over 800 dealers in the security industry throughout the United States and Canada, and we're really excited to be moving HALO into the environmental space—which was part of the original design plan for HALO. It was meant to be used as an environmental IoT sensor with artificial intelligence and machine learning, so we knew from day one this would be going a disruptive technology for the environmental space. Since security was where our expertise was, we initially focused on bringing HALO to that market and gained a lot of traction with the product. Today it's in thousands of schools and commercial buildings in every vertical market, from hospitality to healthcare to commercial buildings to education throughout the world.

Cochrane: So you were trying to find a sensor to put into the private areas. That was the key thing, trying to understand those areas better for people. You guys went way past that. Can you speak to that—do you have a Disney Imagineer working for you guys or what? That's some next-level sensor stuff going on!

Antar: You're right on track and very observant. We do have a lot of vision as a company and have always been at the forefront of technology, both in the security world as well as other areas with things that we develop. HALO was really intended from day one to be a world-class environmental sensor, not specifically for just the areas of privacy. Shortly after our prototypes were developed, we realized what we created something that was bigger than us. With HALO's ability to go into every room of every building in the world AND being able to provide valuable insight into things that people wouldn't otherwise have privy to.

Right now, we capture over a million data points per day from HALO. This means that we can serve as the heart of an IoT platform. We sometimes look at ourselves as the poster child of an environmental IoT smart sensor and enterprise-class product. You're so right—this is much bigger than just for those areas of privacy.

Cochrane: So a new platform has been born for building automation! There are a lot of software guys in the industry who solely focus on software. But it's a hardware / software play. It has been, it always will be and that's the way the physical world works, right?

Antar: You have to understand that we come out of a very similar world in the security industry. Many of the security integrators were hung up on analog products and even though Axis invented that IP security camera many years ago, it didn't get fully adopted until the last three to four years. But the big difference is that the evolution of technology is moving at an exponential rate. So even though it took that long for integrators and end users to embrace the move from analog to digital in the security industry, it's going to happen much faster in the building automation side of our world.

Cochrane: Oh I agree. So, the HALO Smart Sensor has 12 unique detection sensors but can detect 27 conditions—though we both know the potential is way higher than that. How is that possible?

Antar: Great question. What we do uniquely and why HALO is that IoT smart sensor, is it has intelligence built onboard. It has a computer in each unit and that computer is able to process the data from multiple sensors to identify what we call signatures. Signatures are when multiple sensors are associated to time in order to allow us to identify different things that might be in the air (environmental), in sounds, and related to air quality index (AQI) and other situations that may require an alert. That's why we show 27 conditions, but you're right, 27 is really just the starting point of what we can identify.

A perfect example of that is when HALO was originally created and released to the market, we were concentrating on basic environmental data along with vape detection and vape with THC. There is no sensor for vape or vape with THC—it's the combination of multiple sensors that over a period of time are able to figure out when

with ICH—its the combination of multiple sensors that, over a period of time, are able to figure out when somebody's vaping or when they've been vaping with THC. When we just released our latest version of HALO, our 2.0 release, it took that same exact product that we launched in April 2019 and additionally included gunshot detection, AQI, and keyword detection through a firmware update. There was no physical change to the device—it was the same hardware platform. But through software, we now added more functions or type of events that we can monitor for with HALO. That's what the uniqueness of it is in that we are not just providing single sensor data as an analog sensor might do, we're analyzing the data and looking at it over time and HALO has the ability to get smarter over time utilizing artificial intelligence (AI).

As an example, it can set threshold alerts based on what the norms are over a period of time, and when those norms change, it can trigger an alert. A good example on the audio side of the world is if you put it into a hallway or stairway of a school. Say for instance it's normally noisy between 10:15 am-10:30 am when kids might be moving between periods, but if all of a sudden there is a loud noise at 11 am in the stairway or hallway, it will trigger it as an abnormal event and send an alert to you. So again, HALO gets smarter over time in its environment as it starts to learn from it.

Cochrane: Cool! So does that mean if people put in HALOs now, it may be able to detect different types of conditions in the future just through a software update?

Antar: Absolutely. The last software update that we did, there was no cost to any of our existing customers and it ended up giving them all these new features. Now all of a sudden, they have gunshot detection when they didn't have it previously.

Cochrane: To manufacturers out there... welcome to a new era of what we call *value* in the IoT era. Taking it to the next level without additional costs. So starting as an IT-based products company, how do you see the HALO and your company fitting in with the BAS industry?

Antar: This was part of our original vision. We've been very familiar with BACnet and knew that BACnet would be the critical jumping point to become relevant in the environmental industry and BAS industry. Early on we were an innovator as a company, and we developed something called a PSIM (Physical Security Information Management Platform) that allowed us to take data from multiple sources and be able to present it back to people in intelligent ways. The platform we originally developed was going to be integrated to BACnet, so we've been familiar with BACnet and the Niagara Framework for many years. We understand that the real world and real future is being able to tie all of these different sources into some sort of common platform, and it turns out IoT is that platform tying it all together.

The BACnet integration was a key piece and the second thing is that HALO was built as an open platform from day one. We have over 40 integrations to every video management platform to POE LED lighting systems to door access systems and emergency communications applications. Just about everything out there was in our vision as we want to be the open platform that talks to everybody. That's really the secret sauce of HALO and our IoT world.

Cochrane: David, do you guys advertise or have a documented API available?

Antar: Yes, we have a very well-document API that people are using and have got nothing but compliments on it. It's extremely easy to integrate and we've done it worldwide to multiple products.

Cochrane: You guys are really crossing a lot of bridges here in terms of security, lighting, life safety. Do you see a world where it's a unified system within a building? Does that make sense to you and your company? Can you speak to that as the future of the industry?

Antar: Sure. Most people's homes have more automation than commercial buildings. My home is fairly automated as you can well imagine—I have all of the best of the best technologies, but they don't all talk to each other. We see right now that the commercial buildings are lacking in being able to integrate all of those systems together. Whether it's access control, video systems, building automation systems, elevator systems, and/or controls, it goes on and on to be able to integrate all of these things onto a separate network.

When we do installations of security systems, we recommend to our customers to build a separate VLAN or separate part of their network dedicated to IoT and environmental. The goal is to have all of these technologies on that so that they share data that's meaningful and make their buildings smarter, more energy-efficient and more proactive... versus just reacting to events. HALO's open platform allows integration to all of these things.

With our ability to capture over a million data points daily, we can now direct the HVAC systems to be able to open dampers and proactively do things to save energy. Some of our tests have demonstrated that in one

commercial building we could save over \$17k per year in energy costs by installing HALO into that facility. This was accomplished just by opening dampers at the appropriate time and not wasting energy and trying to heat or cool air to the ambient temperature that's inside the building.

Cochrane: Would you agree that the biggest key to enabling this unified approach is the education and understanding of the OT network and how it can be utilized? Would you say that's the key to this enablement of bringing it all together?

Antar: Without a doubt. Oftentimes with all the data we are capturing, we don't see the relevance of that data. But when you start to put it into models and start to look at the data you're capturing, you start to realize the patterns that are not obvious to somebody at first and that's where HALO becomes such a valuable tool. The other thing that's valuable is our cloud portal that we're releasing. It lets us aggregate data from HALOs throughout a facility, as well as regionally, and deliver meaningful information and reporting to people based on that data being captured to our cloud portal. You don't have to use our cloud portal, but we strongly recommend it to get meaningful information to help them manage their systems.

Cochrane: Is it possible to connect your smart sensor to a building management system and to your cloud at the same time and utilize both services?

Antar: Yes. It was purposely designed to be able to connect to all of those systems simultaneously. So yes, that's the beauty of this, is being able to connect that while also connecting to a video management or surveillance system to be able to display HALO in real-time to look at graphs and associate things to cameras that might be near the unit. So, it's pretty intriguing how it really starts to bring all this technology together and kind of bridges the gap between security, BAS and environmental.

Cochrane: One of things I'm most excited about is to see what our integrators do with the environmentals and your product. And how they interact that new information with the things we're used to doing on the BAS side. These will be a lot of new data points that they've never had in BAS before. And we're really excited to see what new applications pop up because of that. That's really exciting for us!

Antar: That's exciting to us also, because we look for input from you to help our roadmap. We already get input from the security side of the world, but we need to get input from the environmental side and what's important for you. In addition to having capability for additional firmware, HALO was built as a flexible platform for us to be able to add new technology and things to it. So we really need direction from you for our roadmap for HALO to keep it going and to be a value to the environmental side of things.

Cochrane: When you were growing up, did you ever think you would be an IoT inventor?

Antar: I grew up being very mechanical as a child. I always used to take things apart to see how they worked although I couldn't put them back together until I got a little older. I always was inquisitive as to how things worked. Early on I worked as a mechanic from the time I was 13 years old—I worked on cars, motorcycles and go-carts and just had a knack for mechanical know-how. When I was old enough to go to college, I got accepted into Rochester Institute of Technology to become an engineer, because I figured I liked mechanics and would become a mechanical engineering. I couldn't afford to go at the time, though, so I went to a local community college for one year and then dropped out and took a job with a relative's business in NYC for 13 years. So I never finished college, but I always looked into the future of where technology was going. I was intrigued from some of the early computer systems and got very involved in technology.

When I started my business in 1989, I was focused on the automation of technology systems and was always looking to the future and where technology was going. We've been very fortunate as a company in the 31 years since I started it to always have a vision of the future—although sometimes we were into things too early. For example, being Axis Communications' first partner in the United States in 1996 when nobody knew what to do with an IP camera. People thought there was never going to be enough storage or bandwidth to support an IP camera. People didn't realize where the world was going.

We developed a product that was actually an early version of an IoT Platform called a PSIM (Physical Security Information Management Platform) that could take disparate information from multiple sources and display it in a meaningful actionable way. We've gotten involved in a lot of things that were cutting edge but very often the world isn't ready for those industry firsts. Sometimes it takes five to 10 years for the world to catch up to us. The only difference right now is that with the exponential evolution of technology, the technology we develop now is instantly understood and adopted.

So that's my history... a college dropout who had a vision and stuck to my beliefs. The biggest and most important thing from my personal journey is that for years people told me that our company didn't have focus. They said we

...ing from my personal journey to what other people see in our company, and more recently, we were into too many different areas and that we weren't focused on one product or vertical market. Now, everybody wants to do what we do because they understand about convergence and IoT and how all of these technologies come together. This is what I've been preaching for 30 years, all of this technology coming together for the benefit of customers. Our holding company that I created is called Advance Convergence Group and it's all about the convergence of all these technologies. So, sticking to your guns is the best business advice I can offer, if people try to steer you in different directions sometimes you have to trust your instincts.

Cochrane: Especially in the buildings industry, focus is important—I agree! I'm curious how you feel about privacy and also what your future plans are?

Antar: Exactly. The important thing for us right now is documenting all of the use cases, and we have a lot of them written up already for education, healthcare and hospitality, warehousing, retail and commercial. There's a brand-new hotel being built in a popular city with 4,000 rooms and we've had conversations about how putting HALO in every one of those rooms can tell you if someone left the TV blasting, if the room was just cleaned since it can detect the cleaning chemicals, if a hotel housekeeper calls for help in a room, or if someone started firing a gun. In any of these scenarios we can pinpoint where the specific room or location is. On top of that, we can control your BAS. We also have a new firmware release coming where, in an emergency situation in a building, where all of a sudden HALO can open up as a two-way intercom to someone during an event. It's not listening or invading any privacy, nothing is being recorded and there's no video. It makes all of its decisions on the Edge using artificial intelligence—we don't need an internet connection to have HALO react to certain keywords and things like that.

When you think of all of the products you would need to purchase to do what HALO does, you start to see the cost savings. It's a no brainer when you realize the amount of data you can get from HALO and the capabilities. Plus, it's proudly made right here in the U.S.A.

Regarding privacy, privacy was #1 in developing HALO, that's why we always have to be careful when talking about the ability to identify key words and things like that. The first thing that comes to many people's minds is how things like Amazon's Alexa could be listening all the time. HALO was purposely designed to have it's intelligence on the edge (in the device) and not even require an internet connection. When an emergency is declared on HALO by saying "HALO Help," it identifies that phrase in the device and follows the rules of notification that were created by the end user. Very different from analysis of phrases being done somewhere over the internet.

Cochrane: Yeah, love it. We're excited and all sorts of neat applications. Thanks, David!

Antar: Thanks, I love technology and I love what IPVideo Corporation does. It's not work when you enjoy what you do!

David Antar is a true entrepreneur at heart, with over 30 years in the security industry. Over that time, he has started several successful high-tech companies based on a keen ability to understand the needs of his customers and the trends in the marketplace that drive business growth. IPVideo Corporation is a global security and IoT solutions manufacturer and software developer that sells award-winning products like the HALO IoT Smart Sensor exclusively through a worldwide dealer network. Headquartered in Bay Shore, New York, IPVideo operates out of an 18,000 square foot showcase facility in addition to having a 7,000 square foot New England operation in Bridgeport, Connecticut and expanded research and development at Stony Brook University. David has founded two additional technology companies that operate from the Bay Shore Headquarters and in 2012 all business units were combined under the umbrella of a single holding company, Advance Convergence Group (ACG).

David was inducted into the Long Island Technology Hall of Fame and has been honored at numerous Local and National events. He is integrally involved in with many strategic boards and organizations to help make the world a smarter safer place.

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