**Zero Eyes AI gun detection technology 11-9-22\_mixdown**

***Murtha:*** *The following Podcast is a production of Macallan Communications publishers of the Pennsylvania Business Report. PVR is the daily must-read source for news about the latest business and policy developments that serve as a catalyst for economic activity in the Commonwealth of Pennsylvania. You can find PBR on the web at www dot Penn biz report.com*

*And welcome to the Pennsylvania business report podcast I am your host, Jim Murtha. In today's program, we are going to tackle one of the more vexing and violent problems America has faced in its 246 year lifespan, mass shootings.*

*The modern history of multiple murders by firearm patriots beginning at the University of Texas in 1966. Then a mentally disturbed student Charles Whitman stood on top of the observation deck on the campuses central tower and using a high-powered rifle shot and killed 16 students and wounded 31 others before being taken out by police. From that date, until the recent shooting in Uvalde, Texas where 21 children and school staff were killed. The roll call of notorious domestic mass murders keeps growing. The events known by their location are burned into the collective consciousness of the country, Sandy Hook Marjory Stoneman Douglas High School, Columbine, the Pulse nightclub, the Las Vegas Strip, Virginia Tech and many others have all become markers for Humanity's worst behavior.*

*Adding to the societal angst generated by these macabre events is the seeming inability of the political class law enforcement and mental health officials to develop a solution to this problem. More often than not, the hew cry by getting something done fade shortly after the last bodies buried from the latest shooting. Collectively, we wring our hands clutching our pearls and shed tears for the last and the families left behind. But ultimately, nothing really gets accomplished.*

*Well, maybe not. A company called Zero eyes based in the Philadelphia suburban community of Conshohocken has developed the technology that it says will help law enforcement and security professionals to identify individuals with weapons in the moments ahead of a mass shooting. using artificial intelligence and in place security systems. Zero eyes, at least according to the company can buy precious minutes to allow law enforcement and security personnel to react ahead of a shooting, hopefully preventing another mass killing.*

*Joining us to discuss zero eyes is the company CEO Mike Lahiff. Mr. Lahiff is a former Navy SEAL and has spent years working with cutting edge technology in the private sector.*

*Mike Lahiff, welcome to the PBR podcast.*

**Lahiff:** Thanks for having me on, Jim. appreciate being here.

***Murtha:*** *Glad to have you. Before we get into the meat of our discussion, how about sharing with our audience some of your background and how you got to where you are right now?*

**Lahiff:** Yeah, absolutely. I'll give the sixty-second version might be a little longer.

***Murtha:*** *That's fine. Go ahead.*

**Lahiff:** Born and raised in Philadelphia, I was in college when 911 happened. And I soon after dropped out of college to enlist in the Navy against my parents best wishes. I was one of the first in my parents family to go to college. And then join the SEAL teams where I met a majority of our co-founders. I did that until 2013.

I was able to finish my undergrad while I was in the Navy on active duty. And when I got to Dallas, I was at that 10-year mark and it was either stay in for another 10 years or go find something else. And I have four children that I want spend more time with. So I decided to leave the military and I applied to business schools and I was fortunate enough to get into Wharton Business School here in Philly.

So, I moved back home. I finished working in 2015 start off in tech startups went to private equity did a stint at Comcast. I started a side hustle real estate business but ultimately started Zero Eyes in 2018. It was shortly after the Parkland School shooting. And my daughter came home my oldest daughter was in middle school at the time she came home pretty upset because our school started doing active shooter lockdown drills. And I was like, this is absurd. And I was sitting in her school shortly after that for waiting to pick her up from practice. And I was looking around there's cameras everywhere. And I asked the security guard I said, who's looking at the cameras. And he chuckled and said no one's looking at them. We just go back and look at them after something has happened. And I was like that's interesting.

And I knew some folks doing facial recognition technology but there was a lot of headwinds with that with privacy concerns. I was like, why don't we use the security cameras detect guns when you detect a gun? Send an alert to local staff security first responders so now they have they can identify the person what type of weapon they have and locate them on a map. So, we can ideally stop a shooting from happening before shots were fired. Decrease response times and get people to safety as soon as possible.

***Murtha:*** *How about your experience as a Seal factor in into this into your thinking here?*

**Lahiff:** Yes, absolutely. I would love to have technology like this when I was in the SEAL teams on unfortunately, I did not like the idea of having alerts sent to you, when you're going into a building or into a certain location. So, you know where that exact person is moving, where that threat is, can really decrease those response times. And that actual intel's imperative to save lives. And I would love to have it when I was in the SEAL teams, and I didn't even know is technically feasible. Until I got out of the military and I met some folks working in the tech space.

***Murtha:*** *Explain exactly how it works. You know, it's, you got to you got a system installed. And let's say that there's a threat, how does this all? What's the machinery here? What's the back office like? What are you going to do on the front end with technology in order to make this work?*

**Lahiff:** Yeah, I'll give you like a 30,000 foot view of it. Because we could fall down some serious rabbit holes on the tech side. But so you have security cameras all picture a school, a place of business, wherever it has a lot of security cameras, all those security cameras are wired back to somewhere, some server on some network, we go and put software. And so those security feeds now run through our software. And we have a computer vision model artificial intelligence sitting in there, that's scanning all those frames coming in from those video feeds, looking for a gun. And when it thinks I've gone is detected, it sends an alert and it goes up into our monitoring center where we put a human in a loop to say yes, that is a gun or no, that is not a gun.

***Murtha:*** *So, the system is scanning constantly?*

**Lahiff:** Right. Never sleeps, that's 24/7 365 doesn't get tired, it's not looking at its Facebook, it's not getting distracted. It is it has one purpose.

***Murtha:*** *I assume you've had to load up a library of just about every conceivable gun that's out there in order for the software to pick it up.*

**Lahiff:** So in the early days, we focused very specifically on black assault rifles, your typical AR-15. And like a Glock semi automatic nine millimeter pistol, because that is what is used in these events, right? A very high majority of the time. And then over that was, you know, this is going back almost five years ago. And over time, we just kept building out our inventory of weapons and, and then different variations of those weapons will have different optics systems for grips, etc. Different colors. And now we have a library of hundreds of guns and 1000s of different variations. So it really helps make the computer vision model more effective.

***Murtha:*** *Is it limited to guns? Or can you incorporate other weapons? What if somebody brought a sword in or bayonet or something like that?*

**Lahiff:** Now we have a hyper focus on guns in our company. Eventually, we can incorporate you know, knives, etc. Right? But we're concerned about the person that wants to come in and produce harm on a large scale.

***Murtha:*** *Let's say for example, you have a system installed in a school and some kid comes in with a weapon in your software identifies it what happens then*.

**Lahiff:** So that alert will come to our monitoring center. One of our monitoring folks would say yes, that is a real gun, they hit dispatch. That alert goes back to our clients through a desktop and mobile app notification to whoever they deem they wanted on that list to receive that alert. But simultaneously, it goes to the local police 911 center, because that 911 operator will be given to provide any communications to first responders, such as be like 5’10” white male appears to be an assault rifle, Northeast corner, the main building first floor. So now when they're responding. They know exactly where to go and who to look for. Were in a an environment now what you see like in Parkland or something, they're showing up to 100 acre campus, and they might end up at the thinking that the from the frantic 911 calls.

It's very chaotic. There's a lot of fog. They might think they have to go to the DOE High School stadium where the shooter is on a second floor shooting out the window at the high school stadium. So we're really trying to minimize the confusion and provide that actionable Intel to first responders.

***Murtha:*** *Okay, What about the let's just stay focused on schools for a second? Would you notify like the principal? Could you? Do you have a direct dial into the into the principal's office?*

**Lahiff:** So we typically want to school as a school resource officer. That's who we're calling. So yes, we do follow up with phone calls. When we go on install with a client, they'll give us the list of names of folks that they want the alerts to go to that will be on our mobile app, who's looking at the desktop interface. But it's typically the school resource officer, you'll have the principal superintendent, Assistant Superintendent.

***Murtha:*** *What about the other places besides schools? I mean, there are there have been shootings at shopping malls, post offices, how does that all work?*

**Lahiff:** Yeah, that's it's anywhere where security camera we can go. So we're in. We're in shopping malls, we're in places of worship, we're on military bases. We're at corporate campuses, we're in warehouses, manufacturing centers. We're in convention centers. So it's basically everywhere, that there's been a mass shooting active shooter event. And they have security cameras, Zero as can go there.

***Murtha:*** *I know a lot of cities are increasing the number of security cameras that they're installing in neighborhoods and city streets and that kind of thing. Are you operating at that level yet?*

**Lahiff:** Yes, we'd have some pilots going with cities, very, very smaller pilots. Small camera count, but yes, that is in development, just the process with them, typically takes a lot longer that sales process than it does with a with a school or a commercial client. But yeah, that's been it's been coming up.

***Murtha:*** *So, let's say you see something suspicious. So you, you just call it you, you're calling the first responders that your initial interaction with somebody in the locality where this incident may be taking place? Correct.*

**Lahiff:** And so it goes to our client and it goes to the local 911. Simultaneously, it's Think of it like parallel tracks diverging off, but the same alert going out, and then we do follow up with a phone call to both locations to make sure that they receive that alert.

***Murtha****: Do you talk with the police directly?*

**Lahiff:** Once we know that alert has been received, we let the the 911 operators and the police do their jobs? That's we're just providing that actionable Intel for them.

***Murtha:*** *Okay. I don't know. It just seems like it would make sense if you did that. I mean, if you're sitting there with the close circuit feed in a security camera, and you saw something going on, I guess, to me, it would seem logical to do that.*

**Lahiff:** So we're not looking at the live -We're not looking at the live feeds, we're only looking at the when the our software platform, our computer vision model thinks it sees a gun. We're just getting those key frame images in. We're not We're not tapped into. We're not our monitoring folks aren't looking at a live camera feed of what's going on.

***Murtha:*** *Okay, so let me understand this. So, your system is constantly pinging out there, correct?*

**Lahiff:** Correct.

***Murtha****: So and then you only get alerted when it sees something suspicious when it thinks it sees a gun.*

**Lahiff:** Correct. Right.

***Murtha:*** *Okay. And that's, that's when you spring into action?*

**Lahiff:** Correct.

***Murtha:*** *Okay. I think I got it. All right. I remember reading some of the advanced material that I got, you're deployed in about 29 states give or take and variety locations, like schools, and we talked about this commercial property shopping malls, has it prevented any type of crime that you can discuss?*

**Lahiff:** So we've detected 1000s of guns at this point.

***Murtha:*** *really?*

**Lahiff:** It almost it's almost, it's about every other day, depending on you know, some some weeks, it's more, some weeks, it's less, but what we're typically seen, so we haven't stopped that nefarious actor that's trying to go shoot up a movie theater or school, etc.

It's been. You see, one of the common ones that we would see is kids going back to their school with airsoft rifles, and they'll paint like the orange tips over or something but they're going back there to have like basically a BB gun war. We've had that come up, but you could tell from the pictures coming in because people are like smiling and joking or something within around the edges within the alert frame. So, we will dispatch that in a different manner where we're caught we call our contact and say, Hey, this is going on. Do you want us to send it to you via email or a different channel? And they, so they respond appropriately. We see a lot of like gel blasters, which is a kind of a form of a paintball gun come up. We've seen we're in some locations back when a lot of them rioting was going on a few years ago during like COVID days. A lot of National Guard being deployed up in Wisconsin, we're getting hits on National Guard. Sometimes we see police with their weapons drawn because they're responding to something. But not the nefarious actor yet.

***Murtha:*** *Well, there's certainly not a shortage of those out there. Given the number of mass shootings we've had in this country in the last 20 years, can you give me an example of a mass shooting that has occurred that if the zero eyes system was in place it might have prevented it?*

**Lahiff:** Yeah, so that's always a difficult spot for us because you know, it's it's tough to go back and kind of quote unquote armchair quarterback something but they get give some examples.

The Parkland School shooting, that individual entered at stairwell gum was hidden in the bag concealed and he stood in the stairwell for some time under a video camera feed pulled the gun out, was messing with his gun and other students walked by. And then he stepped out into the hallway and pulled the fire alarm, and then started engaging with students. Another example, Sandy Hook, didn't see that on camera feed. I imagine they don't want to release that. But that in the individual pulled up and parked in a fire lane, got out of his car, pulled the weapon out of the car, walked up to the front doors, completely weapon expose, tries to open the doors, but they're locked steps back shoots through the doors and then works his way through to school. You've already they had him on video camera approaching the school after he crashes.

***Murtha:*** *Yeah, I remember that he was in the back of the building and the door was left open.*

Lahiff: Yeah. And so you see it. And he's these big, active shooter events where there's multiple casualties, time and time again, you have to think these individuals aren't trying to be super creative that they're basically on a suicide mission. They're not obviously they're not thinking clearly, they do not care if people see them with the weapon. They want people to see that they're like, look at me, I'm the big scary monster. And that's what we're really trying to stop.

***Murtha:*** *I haven't been in a school in a long time. When I was going needed, nobody had security cameras, because this kind of stuff. Just nobody ever thought about it are a lot of schools equipped to handle this.*

Lahiff: So I guess I'm somewhat biased because the schools we go into already have security cameras, but I'm constantly every time I drive by a school or something I'm looking I'm like up, there's some security cameras. But yeah, you're gonna see security cameras in I would say easily 80% plus of your of your schools today, if not more. And their cameras are on the newer end, you're gonna see digital IP cameras. And that's, that's what we need to run our system.

But older systems would make it a little tough for you, I guess. Yeah, if you're

running like an analog security camera, I mean, they're very outdated at this point, they're going to be highly pixelated. So it's kind of garbage in garbage out at when we wouldn't be very effective over them.

***Murtha:*** *Well, how are you when you gotta sell this to, to? I guess you go to the school district? Are you finding that they are amenable to this this kind of technology? Do you? are they responding in a way that you think they ought to be? And the reason I'm asking that is that after every one of these shootings, there's always a rush to come up with solutions, and nothing ever really gets done, at least as far as I can see. I'm sure that there are some things being done. But are the school sufficiently aware of the severity of the problem? Are you getting a willing audience to your sales pitch among a lot of these school districts?*

**Lahiff:** So it's in schools are very aware of the problem? It's probably one of the particularly posts before COVID and then post COVID, you know, get now that the mask discussions, it's, you know, probably top three, and almost every school districts across United States school security, which is they should be focused on education, not school security, but it's unfortunately, the world we live in today. So we get it's very receptive, because they're looking for solutions, or what do we do? And you don't want to turn schools in a prison systems. So we have a non invasive system. You know, it's not like you want kids walking through like their airport security every morning or going to school. That's, that's terrible. And then we're a proactive solution. It's something that can help before shots or fire. And, yeah, it's been it's been very receptive. That's why we're in almost, we're in over 30 states now. And the adoption is picking up very quickly.

***Murtha****: Given your background as a Seal, I'm certain that threat assessments is something that you have some degree of expertise in, are you often called in to like to a to a school in just advise them on, you know, ingress and egress points along with or helping them put cameras in places that maybe they're not, you do that kind of thing.*

**Lahiff:** So we, we don't provide threat assessments. We know what the Seal backgrounds, we have a lot of military folks in our company, we can easily be pulled in that direction. We know plenty of other companies and consultants that that do that when that's what we recommend. We do when they ask about cameras, camera placement, we give some recommendations. We don't dictate though, and, and we just focus on providing our solution and service to them.

***Murtha:*** *Let me ask you this. Is there one other? What are things can you do with this? Besides security? Just interested? I mean, what else could you do with this this? Your artificial intelligence and I assumed as machine learning involved in this as well?*

**Lahiff:** Oh, yeah, that's that's just what the gun detection model is machine learning. So I always tell like, you think of our, our software, our product, like think of X Box, our software platform is the box itself, than our computer vision AI model is the game that goes inside of it. We could take that model in and out and put any like we want to detect basketballs, cars, whatever, we can put it in there, or you want to put up multimode model in there. You can put it in there. So there's a lot you could do with it around that. But we we want to stick to our mission to stop and mitigate mass shootings. save time, save lives.

***Murtha:*** *Well, that's all the time we have for today's program. Mike lay here, CEO of zero allies. Thank you for a fascinating discussion about your new technology. And I really hope it works.*

**Lahiff:** Thank you, Jim. I really appreciate you having me on.

***Murtha:*** *The preceding podcast was a production of Macallan Communications publishers of the Pennsylvania business report. To submit your ideas for future podcast. Just go to www dot Penn biz report.com and look for the podcast section on the front page. Until next time, I am your host Jim Murtha. Be well be safe and be prosperous.*