CapTech

Bringing Cultural Sites to Life with ARtGlass

CapTech Trends Podcast | Episode 18

CapTech

Vinnie

Hello and welcome to CapTech Trends, a place where we meet with thought leaders and subject matter experts to discuss emerging technology design and project methodology. I'm your host, Vinny Schoenfelder, our principal and CTO at CapTech Consulting. Co-host again today Jack Cox, you remember him from other podcasts he hijacks.

Jack

Hello, Vinnie.

Vinnie

Hello, and I've also got Greg Werkheiser from ARtGlass. I'll let you introduce your company, but he's an expert in AR and has a product and software solution around that technology. We thought it would be great to add to the other AR podcasts we've done by getting someone outside of CapTech to share their expertise with us. Welcome, Greg. Thank you. Why don't you start off, Greg, with telling us what ARtGlass is? Oh, before I do that, I should disclaim I am a minor investor in ARtGlass as well. So, having said that, can you let us know what ARtGlass is, how long you've been around, what problems you're solving?

Greg

Sure. Great disclaimer. And I'll make a disclaimer too that I'm probably the biggest fan of your podcast. So don't let me leave today without getting some autographs if that's alright. ARtGlass is a software and strategy company that's trying to make it easy for folks to build AR tours for cultural sites.

Vinnie

So, you focus specifically in that industry vertical? Correct?

Greg

That's right. The software is built with the particular needs of museums, archaeological sites, cultural attractions, some theme parks that have a cultural element to them. At the end of the day, we get a lot of inquiries from other verticals, because there appears to be significant potential use in those other verticals. But we've stuck with what we think we know best. And that's allowed us to really respond to the real needs of customers and the guests at those sites.

Vinnie

What was your install base? How many users are using your product services over how many countries? I'm curious from a scale perspective.

Greg

We've deployed 50 experiences roughly give or take. And nearly 3 million people have paid our clients which are the sites to come in and take a tour.

Jack

Any sites that we would recognize?

Greg

I think so, Ancient Pompeii. We tell the story of, of course, the volcanic eruption. And what's great about that is if you've been to Pompeii, you know that there are certainly buildings that remain, but many are missing. And we're able to kind of recreate what's missing and put it in place along with holograms of historical characters that help you get through the experience. And we do that in conjunction with a live tour guide. So, it's not just all AR it's interactive. We deployed at George Washington's Mount Vernon here, so a little bit closer to home. And up there, we told the story of George Washington and his life and the enslaved population at that site in a particular period of time around 1799 when he got back from the presidency. So those are two .We've recently been doing a lot of work with Merlin Entertainments, which is a British-based company that runs about 150 or so attractions around the world. They run Madame

Tussaud's, and they run a series of aquariums, is that the plural? aquaria? acquit. Dawn of aquariums? So, we've been and are about to announce some new deployments within that chain.

Vinnie

I think Madame Tussaud's could be terrifying for me. I'm always ready for those figures to move anyway. So, if I'm wearing something, and don't they start moving, yeah, that could be a really immersive experience.

Greg

What's terrifying is if you're setting up a tour after hours, it's 11 o'clock, you're the only person there that they can get. That can get terrifying pretty quickly.

Vinnie

So, you've been doing this for seven years? What's changed? Not really from a technology perspective, but from the adoption of the average? You know, tour guests, I guess I don't know what you call them customers, to our guests, whatever. Their willingness to try the technology? Comfort using the technology? Has there been a change as AR has come into other devices like smartphones?

Greg

I think the real change within our vertical is that our clients who are largely the sites or corporations that run multiple sites have gotten much more comfortable with the more envelope-pushing versions of AR technology. So, folks have been used to what you mean by envelope pushing as well, the wearables in particular, right? We set out to be kind of the first, best, or only company to take to scale, the ability to do these hour, hour and a half long narrative experiences on wearables. Now, people, the general public understands AR largely through Pokemon and through handhelds. But what's happened over the past seven years is the clients that we serve have become more comfortable using wearable AR as a differentiator. And we know, and you

guys know, that there's a demonstrable difference in terms of the impact on folks because of the more immersive experience of 3D AR versus 2D AR on handhelds as perceived by the eyes. And so, the general public, especially in Europe, where we've deployed a lot, have always been comfortable trying new things. But what's been satisfying is really over the past couple of years, museums, cultural sites, have been more eager to take a little bit of a risk because they know the competition for visitors is tight. And they've got to do something that people haven't seen before. And balance that with the risks of any new technology.

Jack

Do you think that the prevalence of AR on phones is leading consumers to ask for that more at these cultural sites? And I guess, businesses in general?

Greg

Absolutely, I think there's been a number of studies that show that museum cultural sites are absolutely responding to a demand and an expectation for multiple technologies to be more prevalent within the kind of visitor experience, not just AR, but VR components. And there's a generational change occurring at museums. A lot of these institutions have been run by the same folks for 30 years. Now you've got folks in … This isn't kind of an ageist statement, but you've got folks who are more used to within their professional career having to make choices around digital assets and strategies. And as a consequence, they are hearing from consumers, their visitors that they want different and differentiating experiences. And, in particular, AR is at the forefront, because it doesn't give up the core experience of being in the place, right or next to the actual object. VR has a ton of applications within the cultural context. But what we love about AR and, in particular, wearable AR is you're still in the place where it happened, and you're augmenting that experience – not replacing it.

Vinnie

What's the learning curve for the guests? I would imagine if I was running a place like Mount Vernon, I'd be concerned about how much education or assistance I have to provide two groups

of people with the wearable. Is it? Are they quick to pick it up? Is it highly variable, like how much of a burden is it on a location to get people comfortable with the wearable?

Greg

Working with our sites, we have a person who walks in the door, ready to start their tour and comfortable with the hardware within 30 seconds. Now, it took us a little bit of time to get there. And the real challenge for us was not just one person. But if a family comes in, or a tour group, which we usually have some advance notice on… But say a large family of eight comes in, we want to be able to get them in and out of the situation where they're buying the ticket, they're getting the hardware, and out of line in less than a minute. So, it might be worth clarifying that the software that we develop is hardware agnostic, can work on just about anything that's on the market right now. Unfortunately, not all hardware that's on the market is suitable for large-scale deployments. And very little of it is suitable for large-scale deployments inside and outside. And so, where we've kind of created, I think, a nice advantage for our company is we found particular hardware that works well outside. e partner frequently partner with Epson and use their moverio products.

Vinnie

Almost like a sunglass shade that comes down.

Greg

Yeah. So, if you're in bright light, you can get a little bit of extra contrast. But what's important is, it doesn't feel the form factor of the glasses, the battery life, all those things lend themselves to the ability to be outside and be in that type of environment. It also allows us to that form factor allows us to get the glasses on people quickly, and then collect them quickly.

Jack

So, there's no calibration that needs to occur for each user?

Greg

There are some headsets where you've got to adjust the inter pupillary distance and do other things to get them to have a reasonable experience. So we can get the accuracy in terms of the placement of digital assets, to where, you know, the customer can experience the full range of AR, without having to do any of those, those calculations and that really isn't inhibited. Or, for some of the other main and more popular or perhaps even well-known headsets out there, is the setup time just kills the ability to serve tens, let alone thousands, or hundreds of thousands, or millions of customers in our business, at least currently relies on the ability to get or clients able to serve the large proportion of people who walk in the door if they want the experience.

Vinnie

When you said 30 seconds, I imagine that many people will be skeptical, right? And this seems like a really critical thing. Because if you're going to large scale, it could be a conference, you got a booth at a conference, you could be going to events, where you're bringing dozens of these things and putting people through an experience. It could be a vacation resort, etc. So, I know people are going to be curious about this. Jack mentioned configuration and setup. What are the other attributes of getting someone using this in 30 seconds? Like what did you have to focus on the software to make that happen?

Greg

There are some cheats that get us to 30 seconds. If you're standing in line, for instance, when we had a deployment, Madame Tussaud's in DC, there's a video playing behind the desk, that gives you a little bit of an orientation, we don't control the length of line, because that, you know, has ups and downs throughout the day. But if you're in line for more than a minute, you can visually get a sense of what's going to happen. And then we make sure that this site has well trained folks at the desk who are familiar with the tech who get it in and out. And then sometimes, if it's a particularly complex tour, where you're moving from an indoor space to an outdoor space and

back, we will take the first minute of AR in the glasses, to have the to do a little bit of extra tutoring. So, the first video will be "Hey, you're going to go to your first stop, here's how you find your way directionally." You know, keep in mind that you don't have to wear the glasses during the whole tour experience. We like the people, we'd like to build tours where you know, the first couple things are automated, you can take the glasses off, wear them around your neck, enjoy elements that aren't augmented, and then move back to the tour. So that ability to not feel like you're putting on a foreign piece of equipment and then stuck to it for like 90 minutes is really essential to making this palatable for people. One thing I will say that's been a surprise to us is we thought for a number of years that the primary people interested in taking these experiences would be of a certain age – younger. Our clients sometimes hired us because they believed that we would help them get greater penetration into that market – bring millennials to museums when they weren't going. And I don't discourage them from hiring us motivated by that. But our data shows virtually no difference in uptake between generations of using the hardware. Now what the data shows, which is interesting, is there are different motivations for taking the experience. Young people are frequently saying hey, that is some pretty sexy looking, interesting stuff. I've never seen the wearables before. Let me try that. And oh, by the way, that's amazing content you gave me. Older folks say oh, to get that special content that's only available in these glasses. I have to put on these weird Star Trek glasses. I'll do that. And then afterwards, they're like, that was amazing content. The hardware was not nearly as scary as I thought it was going to be. So, they started different places. But in terms of rates of usage, we're seeing comfort levels across age groups.

Jack

You mentioned that Pompeii is one of your sites. Pompeii is kind of like an obstacle course. It's a very different environment we're used to, you know, the curbs are about two or three times as high. The stones are very uneven. How do you (take into account) safety issues in that environment where you have people walking around with their vision partially obstructed? In an area that's somewhat dangerous and unusual from the walk?

Greg

Yeah, great question. I don't want to jinx our company. But I will say that in the almost 3 million tours that have been given, we've never had somebody fall down and have an accident and report it to us. And the reason for that, I think, and by the way, we've had 95-year-old couples on a mountain top in Italy, in the ruin of a former castle where there are no guardrails and you're looking over the side of a mountain. And I can tell you, as a lawyer, that keeps me up at night. You know, Italy has slightly fewer lawyers and somewhat less restrictions. They've been able to navigate that environment, which is even more hard to do than the cobblestones of Pompeii. And the reason is, these are like a thick pair of regular glasses. Very different from VR, obviously. And, in particular, the model that we most frequently use in terms of epsons product has a much better form factor much less obstruction than a lot of the others, where the AR headset looks more like a blend between AR and VR. So by and large, we are conscious when we're designing tour paths with a client to not put people in particularly dangerous situations. But it's not it's not really been an issue. also point out when you think about safety. We have delivered these tours in 35-degree weather Fahrenheit, we've delivered them in 104-degree temperatures, we've delivered them at night, during the day inside and outside. And so, we've really kind of kick the tires on the ways in which things would be tested from a safety perspective.

Vinnie

What have you learned from a content creation standpoint about what works and what doesn't work? You know, how do you position actors, for instance, to make it seem more realistic, close up, far away? You know, some of the work that I had done years ago, we had to put things like in more confined spaces, because it seemed more real than large spaces? Give the audience some ideas about how you make the content more immersive what go towards and what to stay away from.

Greg

Yeah, well, I'll take the character thing that you suggested and offer you two real world examples. Up on the giant green in the grass in front of Mount Vernon, we had the client hire some actors, film them against the green screen, turn them into holograms. One is George Washington, the other is his nephew. They're teaching each other how to play a sport. And you know, the green is

a big space, each person wearing the glasses is going to be standing (in a) slightly different spot. We have enough room in that context to place figures in a way that even if people are viewing them in slightly different positions, it's indistinguishable from a storytelling perspective. Another example is again at Madame Tussaud's in Washington DC. One of the figures they asked us to augment was the civil rights hero, Rosa Parks. Right before we got there, Rosa was a little wax figure in the corner. And the level of interactivity with the audience was a 1950s bus seat that vibrated if you could figure out that you were supposed to sit on it. So, what we did with the client was we enabled the client to hire a bus, a real bus, hire real actors, place them in various places in the bus and then put the viewer wearing the glasses in the perspective of Rosa Parks as she's refusing to give up her bus seat. So, you see them standing above you, as you're sitting on the real-world bus, the angry white driver yelling at you to give up your seat, you turn to the left, and you see real world people. But in this particular context, as if you're looking to the back of the bus and you see an older black gentleman whose face you can kind of interpret to say, "Please don't make trouble for us." You can see all the emotions. I'll just say that that leaves people in an environment that they've gone to be entertained. They're still entertained, but it also leaves them with an emotional and intellectual gut punch that people carry with them. In a way that validates why we got into this business.

Vinnie

You got me thinking about the Holocaust Museum, when you were talking about that would be, that might even be too much.

Greg

I mean, it would be an incredibly emotional experience and we've had that conversation. And one of the things that enables us, I think, so far as a company to succeed within this cultural space, is that we are coming at this with two backgrounds. One, we have tech brilliant technologists who have put us in this position to have this software. But we're the other half of our team, our cultural heritage experts. So, we've got experts in art and archaeology, we've got folks that we have access to who are experts in the Holocaust, in particular, or early American history around slavery. So, while we want to empower the client, the experts in their particular subject matter at

a museum to come up with a narrative, we frequently give feedback on that narrative from a storytelling perspective, not just to ensure that it's accurate, but to ensure that it works. And people already come to the table with an inherent assumption that technology is a gimmick, right? We want them to forget the technology as quickly as possible and remember and enjoy the story. The tech is just a means to do what human beings have been doing for 70,000 years, which is tell stories about the user experience.

Vinnie

Right. Jack and I talk about this a lot, whether it's conversational technology, smart speakers, computer vision. If it's not making the human experience better, then you're right.But to your point, you can go too far.

Greg

It is a very important conversation to have with the client as to whether or not the power of the technology should be used to that extreme. So, you really want to make sure that you have the ability to make as full use of the technology as you can. But within limits; otherwise, it can be an unproductive use.

Vinnie

I guess, in my mind, I think of AR and VR content creation as involving a lot of steps. You know, whether you're using unity for as a programming environment, Blender for object manipulation, it takes a lot of different skill sets, a lot of different tools, all the content creation side of things can be overwhelming for people. And when you talk about some of these venues that you're putting technology into they don't have large it staffs. Is it mostly you doing heavy lifting with your team? Or are they content creation tools that allow people to do some of this themselves? How do you break that up?

Greg

Yeah. I think to the extent that we've been able to achieve kind of a sweet spot in terms of the software, it is, as distinguished from some great companies like unity, or unreal, or even AR kit, those are aimed at developers, right? You've got to have some coding background to even create one of the elements. And then it's a different question as to how you place that element in a long form narrative tour. So, what we've designed is a platform that has the long form narrative tour in place requires no coding. So, we've gotten to the point where early in our company, our staff really did have to be involved in the use of the software to help a client get to that, that point. Now, frankly, we spent much of the pandemic turning towards the question of how do we make this software like Canva for AR tours, right? Drag and drop simple as possible. Now, there are elements to the software that allow content creation, content organization, and then content editing and deployment, all within the same package. So, you don't have to necessarily go out outside for that. The result of that is, I think, a significant reduction in cost. We just designed a test ourselves on this to kind of 2.0 of the software, which is just coming out now. We just designed a two-hour walking tour experience with 10 stops and about 300 independent AR elements spread throughout those 10 stops. And we did it on a budget of $500. And we did it within a month. And that included the research, the script writing, which our software also has kind of wizards to help you think about how you write a narrative within AR context. We get 360-degree panoramas you got parallaxes, you got videos, you've got holograms, all of that constructible when you've got original source material in a way that we've developed kind of tips and tricks. So that's why when people ask, you know, are you a kind of a software company, yes, we've got a software company. But the learning that we have developed over the seven years of actually putting stuff in the field is probably what distinguishes us most, because we have felt the pain of trying to do a wearable tour outside at Mount Vernon in 104-degree heat, where the sun's beating down, and then it's about the thunderstorm and lightning. And that kind of stuff gives you insights into what's workable, and what's not in a way that a lot of these companies spend all their time in the laboratory. They put out a very expensive product, and then they wonder why it doesn't get adopted other than in the, in the space of like in industry space. If you want to serve the consumers, you got to be able to have in mind that the consumers are actually using this and providing you that feedback on what's workable.

Jack

So, it's really focused on storytelling, and being able to produce that story. So, your clients, are they having trouble adjusting from the analog world, or the physical world of storytelling, with placards, and to a virtual digital world of storytelling?

Greg

They have a little bit of trouble. And that's a good thing, because that's why we're in business.

Jack

What do people need to keep in mind when they're taking that transition from the physical world storytelling to virtual?

Vinnie

Well, what we've seen is, when we went from print to web, the mistake was to make the web look like the print. And then we went from web to mobile, it was like, let's put the whole web page on a mobile device, right? You make the mistake of trying to take the previous experience through another technology, as opposed to taking the advantages of the new technology and making that experience different or better. Yeah. So, I guess, just to kind of piggyback on Jack's point, do you see that happening with the storytelling, that is that they're trying to lift and shift as opposed to seeing this as a completely new way of telling the story?

Greg

Initially, in the relationship? Absolutely. So, the first thing they can conceive of is they take a plaque that was physical in the real world and put a two-dimensional billboard in AR. But when you when you tell them, hey, we can take a historically accurate rendering of a building that burned down years ago, recreate it, put it in place, put characters around it, and allow even some gamification and interactivity with that. It doesn't take long. I mean, these people were in the storytelling business. So, it doesn't take long for them to think, oh, wow, there are stories that we have been unable to tell in this previous environment. But with these tools, we can tell them

much better. So, you know, we've written up to the extent that we can prompts that say, here's your menu of magic, right? The 30 different things that you can do 25 of which you cannot do in your traditional storytelling, which are available in wearable AR in particular. And here are examples of previous tours that we've deployed that can inspire you to think about what helps in your context. So, it is a initial challenge, but it doesn't take long for these folks to really understand what the possibilities are.

Jack

Over the past couple years, Apple has been kind of driving the industry. There are rumors of an Apple AR headset coming. How do you see that changing your business and just the overall community of AR?

Greg

Well, we welcome any new headsets. While we've got a great relationship with Epson and they have been for, as big of a company as they are, incredibly responsive to our feedback in terms of changing the actual form of their headset to respond to what we see in the field. I think competition is great and the more headsets that are out there, the more options our clients have. What will really make the answer it depends is what kind of form factor does this have? Does it have a battery life that allows you to give three back-to-back hour long tours without recharging? Is it lightweight enough to be on your face for two hours without feeling weird? Can you walk around with it without falling down? You know what, what is the cost is a factor. HoloLens costs three times what absence product does? Does it work outside? Right? So, for our business, and for any other business that depends on telling the story to lots of people, and being able to put equipment on and give people access to a story in volume. The form factor matters. But there's no question that these massive primary companies are driving the dialogue and thinking about ways to make this available more than just in an enterprise environment. Right? A lot of these companies have pivoted just to enterprise, understandably. But ultimately, if we want the AR revolution to live up to what all of us nerdy people think it can do, then we've got to get it in the hands of consumers. And right now, the 3 million people who have taken tours enabled by ARtGlass tech, or roughly 3 million more than anybody else has done in this vertical, right? There

have been a couple of exhibits where you go in and you put on the headset for a 10-minute experience, because it takes you five minutes to kind of orient yourself. But in terms of long-term installments at sites like this, we're at right now. And I'd welcome some competition; I think it makes everybody better.

Vinnie

Yeah, I guess the last topic I wanted to cover is satisfaction. Are people enjoying this? Are your clients who are deploying and managing it? Are they getting the benefit out of it that they hope to get out of it? And to both of those questions? How are you measuring that?

Greg

We're pretty obsessive about evaluation data. During the beta phase of any deployment, we ask people at the end fill out a pretty detailed online form about their experience before they leave the site. We then make changes based on that. And then we give the site the tool to continue those evaluations at whatever pace they want for as long as they want. And that I think the cool thing about our platform is, let's say, you know, your three months in something happens in the world and you want to update it. Well, within an hour, you can have new content uploaded all the glasses deployed and out in the field in front of people.

Vinnie

And there's no WiFi? They're self-contained?

Greg

The software is 100% proprietary and patented, and we wanted to make sure that nothing could go wrong that we weren't in control of. So, our tours don't rely on Wi Fi. They don't rely on a QR code. The way in which we transmit content to the glasses is if you're on a self-guided tour, will use object recognition. Look at the statue of Bob, that triggers based on the algorithm that we use, which runs a series of images through the built-in glasses, the camera in the glasses. And the

camera says I'm 99% sure Greg wants me to tell this story about the statue of Bob and then it plays for large group tours, including the one at Pompeii. What happens is to keep everybody together at the same time you go to the first stop the tour guide swipes right on our app, all of the content gets distributed via Bluetooth to all the glasses at the same time. That use of the Bluetooth is really the only time we use third party technology unless there's some super weird circumstance in which on occasion they will use a beacon. But by and large, we don't we don't rely on other tech.

Vinnie

My last question there is how long does it take Bluetooth? It's not the fastest technology.

Jack

Is it just triggering saying "load this now?"

Greg

All the content is carried around either on the smartphone attached to the glasses or the little PC attached to the glasses. So, all the Bluetooth is saying is play the play version so it really is, in that case, instantaneous. You asked about satisfaction; yes. If we deploy a tour, the average satisfaction rate that we will keep a tour in the field for has to be 95% very satisfied or above or we pull it retool it and put it back and we have the 52 points we've had so far, we've never had to pull a tour. So, knock on wood so far, people seem to feel like it's worth the value of their ticket. And that value is generally deployed in two ways. Some sites will do a universal Increase, say they charge $12 for general admission, they'll add two bucks. And then everybody who comes through the door who wants to take the experience, you don't have to, can take it. Then you see penetration rates like 60%. Sometimes people come in through the door, which is what we like to see, because we want the technology and as many people's hands as possible, other sites will charge and up, sell ticket, you know, $12 for admission 750 to take the hour long, kind of ARtGlass experience. Either way, we're seeing the same good satisfaction rates.

Vinnie

Great. Well, this has been very helpful. I know we talked about a particular vertical but the idea of content creation, distribution, environment concerns, removing friction for ease of adoption, ease of use, that applies everywhere, and probably more importantly, finding use cases where the AR experience is additive to the environment. Thank you for that. Thanks for joining us, Greg. Jack, as always, thanks for co-hosting. And if you guys like these podcasts, please subscribe and share them on social media that would help us out a ton. Thank you.