Podcast Episode #30 – Makers of the fastest production drone on Earth and beyond, with Chris Hsiao of Gossamer, USA

RAW TRANSCRIPT OF INTERVIEW

Balint: Welcome, Chris. We got connected on Slack hardware startup group, HW startup, for the listeners in case they want to check out this group, and you're a startup but you are not a conventional one because you help other startups, right?

Chris: Exactly. We don't actually offer a product like most hardware startups. We actually offer services to hardware startups specifically. To give a brief overview on Gossamer, we started as a mechanical engineering consultancy and we went to hardware startups who probably needed help with mechanical engineering and offered our services for a consultancy or some type of labor venture wherein we would do the work for at cost or even less in exchange for equity or royalty or some sort of combination of the three being equity, royalty and consulting fee. And then, at the start of the year we got acquired by this great firm called Tekzenit based at Irving, Texas, where we were already in Dallas, Texas and we worked with their team, their product development team, design team and just a great creative team and they also have this great software team as well. So we really fit right in between those two and so now we can offer hardware startups a pretty full stack service offering from product design, conceptual design, UX, UX services, research and then mechanical engineering as well as software support, both front-end and back-end, websites, e-commerce, everything.

Balint: Yeah. You mentioned it that you give these services that are also accelerators. I've had a couple of accelerators on the podcast so far, like Brinc from Honk Kong or Kickstart Accelerator from Zurich or Make in LA from Los Angeles. And how do you differ from them?

Chris: Right. So, I think we're different in that we act as a partner to the hardware startup and what we offer to them isn't merely financial and it isn't even real estate based. We really are just a consultancy and if we have a vested interest in them being equity or royalty or some sort of performance, then we really are very much invested as much as any investor, if not more since it's sort of our engineering skills on the line. So I think that's slightly how we differ. We don't offer financial support at the moment, perhaps in the future, that's something we look into.

Balint: And you know, I discussed a little bit this topic with Platform88 which has these three factories in China. And Jacob Rothman, he mentioned that they are dif-

ferent from accelerators because they offer, Platform 88, also manufacturing capabilities and most of the time accelerators don't have it. So I guess that is also one point of differentiation.

Chris: Sure. They may offer actual manufacturing, which is a huge scope in a huge field that is wildly critical to be an expert on it. We kind of focus on the engineering and we can lead them to manufacture, get them up to DfM. And with some of our clients we have helped them source manufacturing. That, however, isn't our specialty and I don't know if it'll ever get to that point, it's very complicated and we usually point them to other resources.

Balint: True. So you're more present at the early stage similar to the accelerators but, as you said it, with your offers you are different because…. For example, a start-up can choose even just consultancy, no equity.

Chris: Exactly.

Balint: And most of the time accelerators have a program and you get some kind of support, like seed stage support.

Chris: Yes.

Balint: Yeah. Then in exchange for equity. But as you said it, you have different offers. Not only just this one form.

Chris: I completely agree. I think with accelerators there, their primary goal is to give you money to support this growth whereas we are actually giving you that engineering to do the growth.

Balint: And now that we talked about a little bit the differentiating factor, at least with respect to accelerators, what about the geographical coverage? Because you're in Texas and what's your focus area geographically?

Chris: Sure. So we're based in the Dallas-Fort Worth area and obviously we want to grow that Dallas-Fort Worth startup scene as much as we can. But in comparison to the Bay Area, to Boston, to New York, even to L.A. and Seattle, it lags behind significantly. So, actually, we're pretty location agnostic with our clients, we have clients all over the country. That being said now that we've got more resources we want to start, essentially and I use this term endearingly, is to kind of takeover over the fly over states. I think we're focusing on Dallas and Austin and Houston at the moment and we'll probably focus on those three cities through the end of the year. And then I would like to eventually get to New Orleans, get to Denver and get to Chicago as well and have a larger presence there.

Balint: Do you see some shift or demand also in these areas?

Chris: Right. I think that that is always going to be a function of the winds. It's a chicken and egg problem. If there is no large exits, then investor money doesn't come. And then if there is no investor money, then startups aren't necessarily inspired as much to start something up. And that's sort of how the industry operates. I don't love that aspect because I really do hope that people are doing startups because it's truly something they love and they're willing to make that risk. And funding can come from anywhere.

Balint: Yeah. All right. And what about the founding of the company? In the episodes I always ask this because I think it's very important to focus on the beginnings, that's when you have the most difficulties. Even just to have the first step, make the first step.

Chris: Oh, absolutely. That's a great question. Our story is kind of long and winding. I had done aerospace engineering for a decade before this. The longest work I did was with this Boeing 787. And then I also worked on some defense projects and some R&D projects, and some drone projects. And about two…

Balint: Of all sizes, hardware of all sizes.

Chris: Of all sizes, exactly. So we went from the smallest of aircraft to the largest and most expensive of aircrafts. And about a couple of years ago I was consulting for an aerospace company when they went under. And myself and two other partners we took some of the clients and started our own aerospace engineering company. And knowing how cyclical the aerospace market was and having a few contacts in the startup world, I decided that we might startup Gossamer as well almost as an investment tool. The problem came in that after about a year of doing Gossamer I realized how much I loved hardware startups and how much I loved startup scene.

It was far less bureaucracy, far less drama and just far less headaches and I was so much more connected to the product. I take it back to the Boeing 787. I worked on that for four years and to this day I've never stepped foot on the aircraft. But working on these hardware startups, we iterate daily and I've got prototypes in my hand and then luckily within a year we can have product on shelves and I can hold that product. So the connection to the product was amazing. So we decided to divest ourselves. I did as well as another partner divested ourselves from the aerospace company and went full in on Gossamer.

Balint: I understand this quite a bit because also from our interaction I had the feeling that you like working on projects with an impact and also having a product physically in your head, tangible results. I got the impression. And also, as you discussed

it, as you said, if you work for a big company, I used to work for big companies as well before. It's so sprawled out the whole company that it's difficult to reach people that could be important to talk to. Because innovation spreads all across all disciplines and then that's not so ideal. They are talking about avoiding silos but it's difficult to avoid silos almost by definition because it's a huge company. So I completely understand this that you have a let's say more friendly and more collaborative environment with startups.

Chris: Exactly. It's a leaner and much quicker iterative process that's something that I think anybody can quickly appreciate just how wonderful that is.

Balint: Yeah. What about the business model of your company? Actually, we discussed this briefly how you work but can you maybe explain it with an example. Like you have one quite remarkable project, the Teal Drone.

Chris: Right.

Balint: And you have other ones as well that I would love to talk about because of the impact. So can you maybe talk about Teal Drone? How the business model was there? And also, again, what kind of development you took part in and also regarding other projects?

Chris: Absolutely. So Teal Drones probably are currently our splashiest, sexiest client in terms of what they do, they are a consumer drone that has a race version that launches at the end of this month and then a premium version that launches in October, and it is the fastest consumer drone. And we got that work from an adviser of ours now who is a partner at NEA Rick Yang, a fantastic guy and he knew that we were starting Gossamer up and that we had aerospace background and so it was a natural fit.

And that's sort of how our business development works is we go to a lot of events and meet a lot of startups but we also try to reach out to as many investors as well who might have these great projects and are thinking about doing some seed funding or series A funding to these hardware startups and these startups quite often need engineering help. So that's a form of BD for us. Teal Drone, which is founded by George Matus, he's I think 19 right now, just fascinating.

Balint: Pretty amazing.

Chris: It's amazing. He was a Thiel fellow couple of years back and then got, I believe, I think six million in seed funding to start Teal Drone and we were pretty early on and we provided the mechanical engineering support. So he basically gave us this beautifully rendered concept. But that was all it was. And we had to go in and figure out just exactly what was going to make this work, how the arms and the center fuse-

lage and the battery compartment could all fit together, and basically create the parts and then the assembly.

And we were able to do that pretty quick, too. I think we did that between nine to ten months, which in comparison to a lot of other drones out there, I don't know their exact numbers but I'm fairly certain our development time was really quick and the reason we could do it so quick to go back to your earlier question is that we weren't silo. It was a very lean team that could iterate very quickly. We didn't have to run anything up to multiple levels of management to get approvals. We could just get it done, print it out on a 3D printer and I should give a shout out to our sponsor maker. But this is something that we could print out the same day, get a good feel for it and iterate and have multiple versions of the prototype within a week. And I think that's something that even a decade ago a firm like us couldn't do unless we were doing it by cardboard or foam core. So I think Teal is definitely one of our sexier clients and that's I think what we're going to be known for especially as they launch their premium product in October, it should be a very splashy launch.

That being said we've got a lot of clients and one that is a little under the radar right now but one that I absolutely love is Tanoshi, which is a children's laptop. And to go back to the whole VC funding and the startup culture, it's not a super sexy product. I'm sure you can understand that getting into the laptop market is pretty difficult and it's a pretty saturated market, and there are no buzzwords surrounding it. There's no AI, there's no neural net, there is no. It's not a drone but it's a huge need in terms of this… In the market, I think, that's something that we've been pushing is somewhat less sexier technology that addresses a real tangible need. And with a children's laptop, if you go to Toys"R"Us or Walmart and take a look at the shelves, there really is nothing outside of tablets for these kids. And I believe that there's obviously going to be a need for them to start typing and to learn programming very quickly and by the time they're seven or eight they really should be getting started with that. And so I think Tanoshi will address a huge need and it'll come in at a great price point, and it's a strong product too and it's physically strong, it should be able to withstand some pretty sizable drops and that's kind of where our specialty came in on that product.

Balint: Yeah. Somehow I can see some logical connection with the drone project, with the Teal project. Actually, I want to point out here that this Teal is a different Teal then Peter Thiel. So T-E-A-L for the drone, and Peter Thiel is with T-H-I-E-L.

Chris: Yes.

Balint: Even though there is a connection, as you said it, because he was a fellow. And yes, so, also the laptop has to be robust just like the drone, mechanically and you were working, your big part was the mechanical design and coming up with the prototype?

Chris: Exactly. The product itself really needs to, on top of what current regulations are as far as it not shattering into little glass shards, it needs to be strong enough to withstand the daily drops of a seven-eight-nine-year-old child who isn't quite as nimble as a 14-year-old.

Balint: And what about the mass manufacturing of the Teal Drone?

Chris: Right. The Teal Drone is actually manufactured in America and we actually helped them find their manufacturer here, just an hour north of Dallas in Denton, Texas. We're pretty excited about that. Just I guess to sort of push manufacturing in America and I don't know what their plans are as they scale up larger but it certainly is very neat to see a product completely developed and manufactured in America. It's rare these days.

Balint: Yeah. That's amazing. Maybe he has similar goals to Tesla. Who knows.

Chris: It's very possible.

Balint: Just the first steps that we see. Yeah. In October the next big step, as you mentioned.

Chris: Exactly.

Balint: Yeah. What about the acquisition that you mentioned at the beginning that you were acquired by Tekzenit. What kind of change does it bring to your company and what else can you offer which you couldn't offer?

Chris: Right. So, again, they acquired us at the start of the year because our business model is a bit of a longer-term play. We can concentrate on just doing pure consulting work and pay the bills. But it's a little less exciting for us, which isn't a bad thing necessarily, but I think there is a large upside in us doing it in this current model. And we love Tekzenit. We were so happy they acquired us. They've been really helpful and given us all the resources that we need, both on the front side as helping with research and helping with design and UX design. And then, on the back end being able to have this complete software and app development capability. It suddenly grows Gossamer almost exponentially where we were a very niche consultancy that could help with mechanical engineering and I think that's still our strong suit to this day and we had built airplanes, we're pretty confident we can build your consumer good but now we have this amazing team, this amazing multinational team that can help us but remains hands off on our day-to-day, on our branding and everything.

Balint: This is what you mentioned at the beginning that basically you have these extra capabilities so this is coming due to the acquisition.

Chris: Absolutely. It would have taken us years, years, maybe decades, to grow a team to something like this. But given where I think hardware startups are and where they will be, I don't think we had the time to wait. We had to go out and get big in a very smart manner so that we could go after these great clients of ours.

Balint: Yeah. Let me a little bit switch gears in the sense that… Mistakes. I think it's an important topic that many times we forget to talk about. And that is how we can learn the best way from others' mistakes or from our own mistakes. What kind of mistakes can you now identify that you've had along the way and that you could learn from?

Chris: Sure. So I think learning from your own mistakes is always going to be more valuable than learning from others' mistakes, certainly because you're much more connected to it, you know all the details.

Balint: Fortunately or unfortunately.

Chris: Absolutely.

Balint: Fortunately, if it's nonfatal.

Chris: Exactly. And it remains to be seen if some of our mistakes are non-fatal or fatal. But we're hoping they're nonfatal. I think early on we made a lot of mistakes. And this is personal, as just knowing exactly how to run a business. As an engineer I knew how to do the engineering, but doing the accounting, making sure the contracts were airtight and then even collecting money from some people, the account receivable part was difficult. I want to be our clients' friend and it's almost like parenting where you can't be your children's friend and their parent at the same time, you've got to collect and pay your bills too.

And probably the other one, which I think a lot of investors know but as engineers we sort of get caught in the details of the product and we sometimes ignore some potential red flags with the founders. And I'd say our current roster is fantastic but we did run into some potential clients where I'm glad I didn't get any further with them. But it's a lot about having a gut feeling with the person that you're working with because at the end of the day you're going to be doing a lot of interaction with them and they're the ones who are responsible for the company's growth and success. So we have to have a great gut reaction to these people as well.

Balint: Yeah. I would say the one solution to this could be to start working with the client and then you see if it's something, which is healthy for both sides.

Chris: Absolutely. And I think some of our more long-term clients have been really lucky in that there are really great founders on top of really great products.

Balint: Before moving on to the last round, the ultrafast round, do you think there is any question you wish I asked you?

Chris: No, I think these have been pretty thorough. I think something that is maybe underreported in hardware startups, but in startups in general is dealing with the stress of it all, the human aspect of it all, it's both internally as well as externally and how you sort of relieve that. But it's something that I'm hearing a little bit about. But there really should just be a podcast on mental health of startup founders as well because of the amount of stress that we go through is kind of through the roof sometimes. But it is also extremely rewarding as well.

Balint: Yeah. This is why you hear it often that the startup founders or entrepreneurs are actually meditating because meditation brings you back to the moment right now instead of thinking about, stressing about the future or what happened in the past.

Chris: Completely agree with that.

Balint: It's so important. As you know, Tony Robbins said 80 or 70 percent of the results are coming from them, from your mindset.

Chris: Oh, I completely agree. And actually, I try to do more yoga if at all possible but any type of activity, I run mostly. Being able to turn your brain off and to simply let it execute in a binary form and then when I'm running it's, "Can I run faster? Can I make it home at this current pace?" And that's all I need to think about. I think being able to disconnect from everything is wonderful.

Balint: Yeah. OK. We will come back to some of these in the ultrafast round. So, let's move on. So, first question. If you could time travel to the time when you were in your 20s, what information would you give yourself?

Chris: That's a fantastic question. I'm assuming you mean professionally. I have had a few personal life things that I wish I could tell myself too, but professionally I would say I should have taken bigger risks early on when I had less to risk. I've got two kids now. So even while starting a startup is very risky, there are certain measures I need to take to protect my family. When I was 20 or coming right out of college I was responsible for myself. I could have done some riskier moves and sort of broaden my knowledge scope, I think that would have been helpful. But I honestly don't have too many regrets and I think I've ended up in a pretty interesting place. I'm pretty happy.

Balint: Yeah. As far as I can see to it from the outside you're doing quite well. The second question. If you had to name a book, what book or which books had the biggest impact on you, on your career?

Chris: Oh Gosh, off my head I can think of… And if it's all right if I cheat on this, there's two books. Technically, there's a book that's well known in the aerospace industry by this author E.F. Bruhn who was a professor at Purdue. Maybe even it was decades and decades ago. But he did an analysis and design of flight vehicles. And that sounds super specific but the engineering fundamentals it teaches in that in a very learnable way are super supercritical and I use aspects of that book every day.

But then in terms of kind of how I run my professional career, I suppose it might be a little cliché at this point to bring this book up but it's Malcolm Gladwell has a book called *Blink* which kind of reinforces what I think some of us know is that… And this also goes back to how we judge characters is oftentimes a difficult issue comes up and it's very multi-variable and sometimes your subconscious can figure out all those variables much quicker than if you were to lay out the advantages and disadvantages on paper. So it sort of advocates going with your gut. And in reading that book it really kind of reinforced and let me feel a little more comfortable about just making quick decisions, going with my gut and moving forward with that. And I think for the most part I've done okay with that methodology.

Balint: I've read one book Malcolm Gladwell - *Tipping Point,* but which is also pretty amazing but not *Blink.* But I think it's very important. Many times we try to think too rationally as engineer scientists, technical people and we underestimate the intuition, which is actually where all of our knowledge comes down. Just like the sea. It can be murky because of the sand but the sand goes down to the bottom.

Chris: That's a great analogy.

Balint: Yeah. All right. So, the third point. Habits. You do have some habits as you alluded to it because of your running. Are there any other ones?

Chris: There's one that's a little corny and every morning I try to tie my shoes really tight. I don't know where I heard this, it must be some time in college. And it had more applicability in college when you would be back in your dorm and back out there but it's just to put on a pair of shoes, tie them really tight and then it's almost too much of a hassle to take them off. So then you're sort of forced to continually move, to continually work, to never take your shoes off and rest. And that's been sort of how I try to operate to a degree.

And then, again going back to the running thing. I think that's probably been a huge part of my mental health which then I think trickles down to my perceived or real professional success is just having that time to mentally unwind and then being physically fit and getting that blood going. And again, I think this is something that happens to a lot of people is when you turn your brain off, that's often times when some great

ideas happen. So I've had some ideas strike me while I'm in the middle of a run that have really been helpful in a lot of our product development.

Balint: Yeah, that's true. Many times you just have to wait until the right moment comes.

Chris: Absolutely.

Balint: And that can come from jogging, that can come from a good night of sleep. I think it was in Tim Ferris show. One person said that… I think even Edison said that when you wake up your mind is the freshest and whatever you have on your mind from your subconscious thinking during the night, you should quickly write it down in the first 10-15 minutes, something like that. Because you solve actually many problems during the night.

Chris: Absolutely. It's either that or while I'm taking a shower, I get a lot of great ideas there too.

Balint: The last question indeed. Because I guess you do work also with international clients and the U.S. anyway is quite international it's composition, population. Do you have some cultural differences that you've seen and that was like an issue and you overcame it?

Chris: Right. Most of our clients, I shouldn't say most, all of our clients are actually based in America. I think it's a little easier in terms of communication. But that's not to say we're against international clients. That being said, a lot of these clients do their manufacturing in China. And so knowing that Chinese culture is of real importance, I imagine, and I have an obvious advantage in that I am Chinese. My parents grew up in Taiwan and moved to America and I was born in America but a lot of the things that are important in Chinese culture were instilled upon me growing up. And I didn't know it was actively instilled upon me. This is just how my parents treated me and this is sort of how I operate. But having an amount of respect and obedience towards your elders or in this case your business counterparts is always looked upon in a positive manner.

But we also work all across the country and given our climate in America, we've got conservatives and liberals and all different types of people, but between internationally and within our country I think the general idea is for Gossamer as well as myself to just be as friendly as we can, to be as transparent and honest as we can as well and I think everything works itself out, if you can be that. If I'm trying to deceive anybody or I'm trying to pad any type of resume or capabilities that I don't have, no good can really come from it. So that's why we are brutally transparent with some of our clients and with people and then it's better to get it all out there and let's move on from that if

that means that's the end of a potential client, so be it. I don't want to drag them down this path where I'm not positive I can do what I need to do for them.

Balint: Yeah. I mean the opposite behavior what you just described could have also another effect or another outcome that the problem or the mistake, the false representational fact would not lead to an immediate problem but I believe that everything is connected to everything. So then, there would be some bad consequences in other parts of your life. It's a no go.

Chris: I completely agree. As connected as we are, it would be too easy to get caught in a lie and it's just not worth it.

Balint: Exactly. So I had a really great time, Chris, discussing all these topics about your company and also about drones and some other great projects you're doing.

Chris: Sure. I had a great time talking about this. And I'm glad you are doing a podcast on hardware startups. I think it's a really fun field and I'm glad that it's got its own little avenue so people can listen and discuss.

Balint: Yeah. Thank you. And looking forward to further discussing with you on Twitter, comments field and so on, and outside.

Chris: Yeah. Definitely. All right, thank you.

Balint: Thanks for listening.