Speaker 1: [Intro graphics with sound].

Pablo : So on a daily basis you see some people that actually are overworked or tired or angry or overweight or unmotivated, distracted, I happy feeling isolated. The truth is that one in four people are affected by mental health in the world. This is a $1 trillion per year problem. It's really an issue that we had support. Now what is common about these pictures that I just show you? Why do you see, so there's some humans obviously, but there's also a very interesting situation. These are all indoors [inaudible]. We spend almost 90% of our times in doors and in cars. We have become an endorser species despite our beautiful long legs and beautiful long arms that are used to roam and to hand, which has type now. And the other problem that's behind all of these things is the stress. You know, there's a lot of stress associated with all these situations either costing them or actually as a result of that. And in reality, stress doesn't only affect your mind, doesn't only affect mental health, it affects your whole body. There's so many outcomes. Yeah, don't read the fine print, but you can get sick of anything almost because of stress. Aiden, eight in 10 Americans actually reports some sort of a stress issues and it's about a $300 billion per year problem chest in this country.

Pablo : Now let's do at the stress a little bit. So this is a favorite book of mine. You know Robert Sapolsky, I spoke with him actually a couple of weeks ago and we were talking about, you know why zebras don't have ulcers? Well, because they actually do something about stress when they get stressed. Humans not so much. And the problem is that, you know, as you get, you know, excited by your stress to survive and basically as a fundamental way of like, you know, saving your own life. You know, this is very good. And so, but humans actually don't do a good job of recovering, you know, these little spikes will be a, what I consider a normal recovery period. But as if you don't give enough time to recover, eventually the stress accumulates and it can lead to some disease. And this is what's happening to a lot of us.

Pablo : That's why we have disease. Stress in currently is not bad. As a matter of fact, the stress is actually necessary. If you look at some of the studies behind these you the stress to actually perform now too much stress will actually make you perform less or too little stress. It's also not so good for you. So stress is necessary, but it's really not helping if you can do that. Now let's look at a zebra a bit more carefully, right? The zebra, it has a great straight hygiene. It basically always reduces the stress every time they need to because it's running. But there is a peculiarity about the zebra that I think is very important. It needs a Prairie to run. You need a field to run and we used to live in fields in the past, but we don't anymore so we don't have the field.

Pablo : So what is our new ecology? What's our new wild or new wild looked like? This chairs and desks and lamps and we still get stressed though. I wish we didn't because we don't have a place to run. I will argue that poor zebra will actually die of a heart attack if the lion came and there was no field. I'm like, Oh my God, where do I run? Right? At least they had word trauma. We don't, and that's what's happening. We're actually dying out of heart attacks, so the new wild is indoors. Now how do we deal with the new wild? I think instead of trying to remove people from the wild, from these new worlds, just look at this wild more carefully and let's work on designing a stress management internet of things in the wild. That's what I come to propose. That's what I do. I want to make chairs and desks and lamps and everything you have around help you reduce the stress as opposed to asking you to go into a retreat every three months and just breathe.

Pablo : So a little bit about me. I actually quit a business career to try to solve the mental health technology gap. I grew up in Ecuador. I have a family member who suffers from a mental disorder and we never got enough support. Um, but I noticed that technology can help. And right now I'm very focused on wellbeing and health. I actually have a PhD in computer science and I've focused in like many technologies that help us build these new uh, IOT. But I actually work in the school of medicine. So I'm a faculty at school of medicine, but I am an engineer. They are starting to hire more engineers, which is pretty cool. And the reason they are doing that is because they are interested in this concept of health, which was proposed many decades ago. Health is not the absence of disease. It's way more than that.

Pablo : But the medical profession has been focusing too much on disease. So how do we move beyond that? Right? That's what I'm trying to do. How to focus on health and more procedure. Precisely. How do we focus on precision health and mental health, which is not precision medicine. Precision medicine is how do we measure exactly what's going on on you and how do I actually cut the perfect part of your body to make you feel better? No. Precision health is moving towards like monitoring people. Look at this a chart. You know jet engines are being monitored hundreds of seconds, a hundred times per second. Humans are monitored once a year. How are we going to know that somebody is healthy and keep it healthy if it's monitored once a year? So that's why I'm also interested in, you know, this whole notion of like, you know, IOT, let's make you know, your house, your car, your chair, your bed, your toilet.

Pablo : Let's make them into devices that can help you improve your quality of living and your health. It is possible and it's actually ongoing right now. Now let's look at stress management for a second. So yeah, we have the zebra and people get stressed and actually detection and an attorney understanding of stress is not that much of a difficult thing. I, if I ask somebody, are you stressed? They will say, yeah, yeah man. Usually they are right now. Do something about it. That's when it gets tricky. Right? Do you know if you look actually at the efficiency of our healthcare system, about 60 to 80% of the visits to primary care are due to some form of psychological distress and only about 3% of them get some kind of like stress management advice. They usually send them with like, Hey, take a take a pill. Right?

Pablo : And you will feel better. That's not what people need. Nope. Maybe mental health can help us, but you know, what do you think is the mental health deficiency, mental health deficiency? A therapy efficiency is like how many of the people who need help actually do get help. Not, not whether you actually do everything. When you do everything that psychologists tell you, you usually get better. Know how many of all the people around the world actually get help. Do you guys have a number? All right. 10% no. It's worse than that. Way worse than that. Like, I hope that one quarter of the population, about 10% get referred to a specialist about from those 10% about 20% of those actually complete a diagnosis from those 20% about one third complete treatment in front of one third about one third do not relapse. So mental health is really not efficient in my work for those who do it, but most people just don't get help.

Pablo : Now let's go back to the human then. If nobody can help me, like why aren't you doing a stress management? Maybe you know there's any stress management. Maybe you don't know. Maybe that's the reason, but the top two reasons for not doing a stress management are actually lack of willpower and lack of time. Stress person is very stressed and very busy. You go to a stress person like, Hey, your stress. Yeah, I'm stressed. Take a break. I'm like, I'm stressed. I have no time. Why are you talking about you're stressing me out by asking me to take a break. Stop it. Right? So what I want to do is transform the office, the card at home into like a wellbeing and stress management, IOT. You know these are all projects that we're are really pursuing and I'm going to give you a couple of ideas around these that we've been exploring.

Pablo : One is the sensor sensing notion. Can we actually sense the stress repurposing things that we're really happy so we make it super cheap. So for example, one project that we published is like can we use the way you move the mouse as a way of sensing a stress? Turns out that when you get stretch your muscles get tense because that's exactly what stress does in you. Well then the way you move the mouse, it's just likely different. We proved it scientifically. You can read this paper that fast and furious paper. Can we actually repurpose the car? We did the same. We actually look at the way you take turns. It turns out that when you take turns under stress, it's slightly different than when you check turns without stress. And I'm not talking about adding sensors, we just look at how you move the steering wheel.

Pablo : This is actually already a signal that you can get from any car. We can repurpose the car as a stress sensor, added costs, pretty much zero or some of the cool work that's coming from the MIT and Dina Qatari. You know, can we repurpose wifi? You can actually see your breathing rate and heart rate chest, by the way, by fire rebounds on you. Let's repurpose wifi. See, we're repurposing things we don't need even need to deploy a new style. It's basically for free. It's just we need to do good science behind that. But let's talk about the interventions. Okay, fine, we can sense. But again, that's not the problem. We know we're stressed. Come on. It is about like what do I do right? Help me do something. So one of the things that I'm very interested is that commute. 50 million Americans spend about 60 minutes per day commuting every single freaking day, twice a day.

Pablo : Now let's transform these bog into a feature. Can we use the commute for you to relax? Having been asking my colleagues in the school of medicine, it's like, Hey, take a break. You know you're a burnout, you're stressed. And like I have no time. Like what about the commute? And like maybe the commute, maybe in the car, if you gave me some applications to breathe, I might do something. So that's exactly what we want to do. Repurpose this waste of time. So why don't we breathe slowly for a second just so you get to feel, you know how it feels. Just 10 seconds of slow breathing. Just sit down. Let's do as low as low as you can. 10 seconds of slow breathing.

Speaker 1: [silence]

Pablo : all right, how does that feel? 10 seconds. Can we do it while we're driving? That's exactly the question we ask. And we basically got people in a car in a simulator in this case driving and we get them, we stimulated them with a chair. The chair guided them to breathe slowly and we were able to get them to breathe slowly and drive well. So Hey, we can bring the car slowly, right? So we can do as low breathing in the, the only problem is that when we went into the autonomous condition, the autonomous driving was actually a huge problem. This poor guy, actually after a few seconds, was already like falling asleep. So if you want to have an autonomous driving and makes sure that it drives or you drive, don't take those like in the middle type of thing. It goes, you know, but we can do actually fast reading for this case, we actually investigated.

Pablo : Can we do fast reading first really helps wake up and this also works really well. We can actually guide people to move in the car. The chair can help you to move, to stretch, to guide you, to move your torso. We can do guided movement with a chair. We can actually do something very interesting. Instead of guiding you, why don't I force you to move? Turns out that, you know, in the city stand desk is a fascinating creature in the ecology. It turns out that the city stand desk, you know, basically, uh, people spent, uh, most of the time seeding after three months because of apathy. Now, why don't we make a robotic sit standards that goes up and down without asking you? And that's exactly what we did. We forced people to move up and down and people chest go up and work. We have chairs that can basically also make become uncomfortable for awhile.

Pablo : So you can take a break or we have this place and chairs that have these very subtle interventions that you don't even feel them, that they actually give you this subconscious reality. We can actually stimulate your brain and write without you even noticing it. You're just typing and we're doing it. So at the end of the day, as you can see, there's breathing, there's movement, there's a bunch of little things that you can do and I please ask you to do it. But I think our new ecology, our new wild should be the place that helps us. Our new Prairie helps us reduce the stress. So I invite you to send me, you know, any type of messages, ideas, or whatever to keep designing the new stress management or your tea in the wild. And I'll see you soon. Hopefully sitting somewhere. Thank you very much.

Speaker 1: [ending graphics with sound].