VPP002 How does it feel to save lives with Bartosz Kunka

Daniel: I already spoke about the profile of the company. It's very interesting to see that there are innovative technologies here in Poland and it's very interesting for me to be here today. I spoke about the company; I spoke about the product; I didn't really mention what's your background, Bartosz. Please tell us a bit more about you and why you're here right now.

Bartosz: Okay, so my adventure associated with this project has started at the Gdańsk University of Technology where I was engaged in a research project related to development of communication interfaces, among others our own eye tracking system dedicated especially for educational special needs, for therapies, for family members. And at the Gdańsk University of Technology we tested application of eye tracking in cooperation with patients who are damaged in cognitive perspective, so they couldn't function correctly without technology: adults after severe brain injuries, like traumatic brain injuries, strokes, hypoxia, patients after coma. They couldn't express themselves without the technology and we used eye tracking and our system to help them and, first of all, to assess what is the state of consciousness: what they understand, if they know what is around them, etc. Based on our experience, and due to the great interests of this technology, of this research project that was started at the university, me and my business partner Robert decided to set up our own start-up and decided to commercialize this technology, this product, more adopted for patients and to expand these solutions for the market. So yes, we have the research background also approved by real interests from the market.

Daniel: Let's jump into something really difficult. How does it feel to save lives? Because this is what you ultimately do, in my opinion.

Bartosz: Yeah, it's quite difficult question but it's very amazing experience, because it's something like paranormal or magic because you do very simple things on your desk every day, it's not rocket science I mean, you know, every day development of the product and these simple tasks realization makes something special, something important for other people. So you think that you do nothing extraordinary when you are thinking in the short term perspective, because every day your tasks seem to be very simple, but the final product could help people, could improve their quality of life, but also could save their lives in real sense, so yeah, it's amazing, very extraordinary, but in the same time very simple experience. But I need to say that all information about a better state of our patients, about improvements in their rehabilitation process or about saving the lives of patients are very good and are very motivating for me, personally, but also for all my team.

Daniel: So when it comes to your team then, I think they should really feel proud that they're part of this project that they're part of the team who builds C-Eye. Do you ever feel that you have to motivate them a bit more, do you have to talk to them about

what is the purpose of the whole product because it seems to me like you, well, as a manager you've got this great advantage that there is a vision here to actually help people.

Bartosz: Yes, it's a little bit funny, but during our recruitment process, when we talk with the candidates for our employees, very often, or in each case, I ask the candidates if they are ready to change the world with us. If they are ready to be a part of a prestigious, very innovative technological company, so people from the beginning, they know that they are part of something special but during the work I also send to all members of my team some news, some information from different media like Facebook, like different television stations; the links to the stories of our patients whose life was changed or enhanced because of our system. These real cases are also very, very important for them and they also are much more convinced that their every day work is not so simple like it seems at the first look, but that their work is very important for other people and also can change the world to be the better place.

Daniel: That's great. Let's talk about your patients then, your customers, people who actually use the product. I wrote down this question because I'm really curious on my own: what are the first words or messages that people communicate? When they were forced to remain silent for many years or a long time after an accident or maybe after they got enclosed in their body, let's say. What is it that they communicate with their relatives, with the doctors, what is it that they say?

Bartosz: Yes, so these expressions are, of course, related to the state of the patients, but generally, I can say that the meaning of first words of our patients is that they ask the relatives, the therapist for normal, simple things that are used by healthy people, like us. So for example, first of all, they don't want to be treated like children because when an adult patient is experienced by some disability and is physically disabled, all people treat these adults like a child. So for them, when their consciousness level is high and understanding is practically normal, it's very frustrating for them, because, very often they were serious people in the society, they have their own families they have wives, husbands, they have children and right now, after the accident, people around them treat them like children, so it's very, very frustrating for them, so the first words are: "Please don't treat me like a child." Next things are also very simple; they ask for a Cola and now they would like to, you know, just taste it, or for example they can also ask for new clothes. It's very important, especially for women, the lack of new clothes, it's also very frustrating. They would like to feel as normal as it is possible. Very often they accepted their state, their actual state. What is also very important, I think, because some people who read this interview or who hear this interview could expect this question: until now, nobody asked for euthanasia or death, so our patients, despite such difficult situation in their life, want to live, they don't want to die. But generally, the first words are concentrated on very simple things from our normal activities.

Daniel: Maybe let's move to the technology a bit more. Tell us how it actually works, because you've already mentioned that C-Eye uses an eye tracker. Could you just briefly explain what it is and how it works?

Bartosz: Yes, of course. The eye tracker that this included in our system is an infrared camera and this camera tracks the user's eyeballs movements. So, when normally the user is sitting in front of the device, in front of the screen, the user or the patient, he or she is able to control the mouse cursor just by their gaze. So it's possible to control the computer by eye movements, changing the gaze direction. We used this technology and adopted it for medical applications, for special and professional application concerned with diagnosis, therapy – cognitive therapy; I mean the new rehabilitation and also the special alternative communication between medical staff, family members, caregivers and the patients using our system. So this technology, of course, is well-known over the world for over twenty years, but at this moment our focus, using the eye tracking for medical application, allows us to analyze what is the visual activity of the patient and then we also use it to give our patients the feeling that they can do something by themselves. They feel that they can do something, they don't need anybody else to express something and they can decide about specific things by themselves.

Daniel: So it seems like it's just another example of using something which was already invented some time ago, but using it in a very innovative way and, obviously, the technology you've got is very user-friendly, it's very well-prepared for medical applications, it's very well-prepared to be installed in hospitals or in therapist's offices. When it comes to future of your technology, is there any possibility that it's going to be just embedded in our portable devices? Do you feel that it is a technology that can actually expand to other applications as well, not only medical applications?

Bartosz: Yeah, I think the trends that we can observe mean that in the nearest future, eye tracking technology will be available also for ordinary users, so also at this moment, huge companies conduct their own research on eye tracking integration with terminals for everyday use, but I think that's also because of some limitations of this technology it wouldn't be treated as an alternative for, for example, touch screen. So eye tracking will be very interesting and I think also very useful feature, but I think that it's very difficult to exchange current interfaces of communicational devices with eye tracking. But still, even though eye tracking will be much more available for the society, for each of us, still, our know-how, our knowledge how to use the communication between patients and our devices using visual channel and using eye tracking technology will be needed. So, to be honest, I am not aware of our future in this context. I think that popularization of eye tracking technology in the world is necessary. And that's why our know-how, the knowledge and experience in these areas will be needed.

Daniel: So it seems like it's not just about the technology, but it's also about how we actually use it and how we teach how to use it, so if other people can use it well, then

they can support their relatives, then they can support their patients in hospitals. What about artificial intelligence?

Bartosz: Until now we don't use artificial intelligence in our solution, but of course, in the future I think that it will be reasonable to use also such technological solutions in our system, because, for example, when the network of the customers, of the medical centers, hospitals that use our system will grow and the number of our customers will be much higher, we also plan to connect the devices with our central server and also analyze some data just for statistical analyses and we plan to also use the knowledge from processing the data, so when the data that will be recorded in the databases of our devices will be much bigger, then we will need also artificial intelligence to analyze the data and in the smart way make some decisions or to make some conclusions. I think here about finding specific features for some group of our patients, for example after traumatic brain injuries. It's just a simple example, but much more interesting information could be regained from this data using smart analyses and artificial intelligence. So I think that when we use artificial intelligence, it will be to find some new knowledge based on big data analyses.

Daniel: Could you roughly tell us how many people have you helped already: is it thousands or hundreds?

Bartosz: It's not so simple question because we have many systems, many units in the medical centers, in therapeutical rooms, at hospitals and in such places many patients have occasion to work with the C-Eye, so until now we don't have access to this information but I think that the realistic amount of people that we helped until now will be something about one thousand.

Daniel: What about using your knowledge and your technology in other applications? I understand that as a company you have to have your focus and you have to do your best with your own market, with your own segments of clients, but what about R&D or business development in a way that you could potentially use your technology for other purposes. Do you consider this?

Bartosz: Yeah in some sense, of course, we considered such possibilities, but as I said previously, eye tracking technology is well-known. That's why we decided to not compete and we decided to focus on the niche or another niches in some way connected with our solution. So based on our observations, we decided to also develop other products, also based on eye-tracking technology, but for the target groups that are much closer to our focus. So I mean that we started the business and development of the product especially for neurological patients, I mean the patients after severe brain injuries, after coma and so on. And now our offer is much wider, so we also adopted technology for the children with developmental disorders, with intellectual deficits and that's why we also, at this moment, develop eyefeel dedicated for this target group, so for children with intellectual disabilities and currently we also just finished development of another product, the mediContact, which is dedicated for ICU units, for post-surgical operations at hospitals, for communication between

medical staff and patients. So it's very similar product to C-Eye, but it's not the C-Eye. And the product was developed in cooperation with our consultants and supervisors from the Medical University in Gdańsk, so we are looking for different areas, different possibilities to adopt our technology within the medical applications.

Daniel: That's great that you constantly interact with bodies like medical universities, it seems quite obvious that you get feedback from them and based on that, you can actually improve your solutions, you can actually improve the product, which then means that you will improve lives of other people. Let's make a step into the last part of the interview. I'm really interested what would you say for people who, maybe like you, a few years back, they're still working within R&D department at university, maybe they work in the lab, I don't know, but they've got this vision, they've got this provisional product, maybe they've got understanding of technology. What was the triggering point for you to actually go and do the final product?

Bartosz: Okay, so first of all, for me personally the most important moment in my job, career was that I realized that working at the university – it's not my dream. I thought about, you know, to have some impact on other people. I wanted to have an occasion to solve the real problems of other people and not to be closed in some covered, safe place. The university, of course, is a very interesting place to develop yourself, to be a better human in some areas, but also you need to write some research papers, you need to do some activities that are not so important from my perspective, because you make some research publications, you have some research papers, but, to be honest, nobody waits for it and this level of operation and solving problems for me was too much idealistic, too much virtual. So I thought about it and I also imagined myself in the future. I didn't want to be the senior lecturer at the university and I decided to have a real impact on other people. And also other moment and very important trigger point for my decision was that the research project, the results of our research project, were needed by the market and the relatives of the patients started to call the university and asked me and said they wanted to buy our prototype of the research project and I was not able to sell it to them.

Daniel: That's quite an obvious reason when someone calls you and there is no product but there is a need, it's very interesting.

Bartosz: So we developed, created something special, something attractive for people and showed it on television: “Look, we have the life-saving tool for your patients and now you cannot buy it, we did it, we are proud of it, but no, no, no you can’t buy it, it's just for us.” Yes, so for me, it was so much frustrating that I decided that it’s the best moment in my job, career to change something. That's why I decided to leave the university and start the new adventure with the business and commercialization of the research project. I can recommend to other young people to think about their nearest and also the farther future and to think about their position in the situation and if you really want to be at this place and if you really want to do these things, what you are doing now, also in the future. Because if you have some

doubts and if you don't feel that you realize your dreams and if you don't do something special, what gives you the power and traction for your every day functioning, everyday operation, you should change something. I am convinced that the answer on these questions is included in your mind, because young people know or feel what could be interesting for them. Don't be afraid, be brave and think optimistically. Everything is possible, not only in the USA, China or Israel, but also in Poland it's possible to realize your dreams and to be yourself.

Daniel: Are there any difficulties when you think about running a business in healthcare environment? I think that could be potentially one of the major difficulties, looking from your perspective.

Bartosz: Yeah, of course. Unfortunately, there are some serious barriers, especially from physicians, from doctor's environment, because, unfortunately, very often physicians have much work every day and they know their tools, their methods of working, the methods of treating patients, and they don't feel the need to learn about new technologies, new devices. So unfortunately, the physicians, the doctors, the environment, very often are quite closed for innovative technological solutions. Fortunately, there are some people, of course, who are open-minded and they cooperate with us. Another difficulty is in public healthcare in Poland. Of course, it's possible to buy our devices but the system requires much more funds from the government. Fortunately, of course, we have also well-engaged people and doctors who are able to find funds from some foundations or from some sponsors. And we have also the private sector of healthcare and here the situation is quite different, because the private medical centers are very often open for innovations. They want to buy it, because they want to have some additional value, additional attractions in comparison to other center.

Daniel: So it seems like it's innovation, but it's also education, because when you've got the technology ready, the market may not understand that the technology is available. So you do probably quite a lot of courses or maybe you travel around the country to showcase your technology.

Bartosz: Of course, it's still a continuous work to stimulate the market. Abroad, the situation with innovative technological solutions in healthcare is also difficult, but the situation is different. Abroad, the money, generally, is not a problem but the problems are related with the need to have special certificates on specific markets. So for example, when we would like to sell our device in Germany, we need to be registered in the special assistive devices catalogue, recommended by German Krankenkasse [health insurance scheme] for refunding it. Without it, it's practically impossible to sell it. When we would like to go to the U.K., we also should be registered or approved by some local institutions. In the USA we need the FDA so it's, you know, quite expensive and, of course, time-consuming operation. So each country has its own difficulties, unfortunately. And that's why making such innovative technological products is very attractive, motivating for us, but, at the same time, it's very hard work and time-consuming work to fulfill all requirements at each local market.

Daniel: Bartosz, congratulations. It's been great to speak to you, it's been great to hear about what you and your team do. I'm really proud of the company, I'm really proud of your achievement so far. Thank you very much for the interview and yes, all the best, thank you very much.