SME IN THE SPOTLIGHT

GΩHM

Embedded intelligence to improve quality of life

GΩHM Electronics is a Turkish R&D company that develops customised embedded systems, software and electronic hardware design. Established in 2014 by a team of passionate engineers and friends, this SME has already built up a wide network of scientific and business partners in Turkey, Europe, America and beyond. GΩHM's high-tech products have caught the attention of the Public Authorities both at home and abroad, and the company has been awarded R&D grants from both the European Union, Turkish government agencies and corporate industry leaders. Based in the vibrant and bustling Technohub at Bosphorus University in Istanbul, this interview finds Cem Ayyildiz, partner and CEO, working from home – as is the new normal these days. Here he provides insight into this dynamic SME and contributor to the ITEA Community and two specific projects.

The 'Ω'in GΩHM

"Perhaps I should explain the name of our company first. You will notice that it is spelled GΩHM and not GOHM. The Ω [ōm] is the SI unit of electrical resistance, named after Georg Simon Ohm. I hope that clears up the 'O', or Ω. Before I founded this company," Cem explains, "I was working at Turkcell, where I also served as a representative on the Technical Steering Group (STG) of ITEA. While I was there, I was in charge of M2M communication projects and international R&D projects. Due to this representation on the STG of ITEA, I had a chance to review many other R&D projects. There was always one big question in my mind, to create an automated system of systems each device should be connected to the network, which creates a huge amount of data to be analysed in real-time or transferred to somewhere in the cloud. But the problem is: how can we analyse such huge amounts of data in real time? The latency is one of the biggest problems in technology and the data should be processed where it was created. The other problem is to create self-sufficient systems that are intelligent enough to complete their

tasks and able to adapt themselves over time. GΩHM has chosen to focus on these problems by taking care of data where it was produced, namely embedded intelligence."

Novel embedded systems

At Turkcell Cem did not really have the opportunity to explore his idea, so he decided to start up a company to tackle these issues. "In fact, I co-founded GΩHM with a former colleague from Turkcell. However, he has decided to move to the United States so we reconstituted our company shareholder structure." As for the focus of GΩHM, Cem states that this "lies on embedded intelligence systems to solve the highly complex problems of the future like autonomous systems and Industry 4.0. We are currently designing and manufacturing novel embedded systems, particularly concentrated on sensors, wireless communications and localisation systems. In Turkey we are competing in a tough environment – it's not easy to be a success. But I think we have a competitive edge in the fact that we combine the software and hardware while most other companies tend to be one or the other."

Saving lives

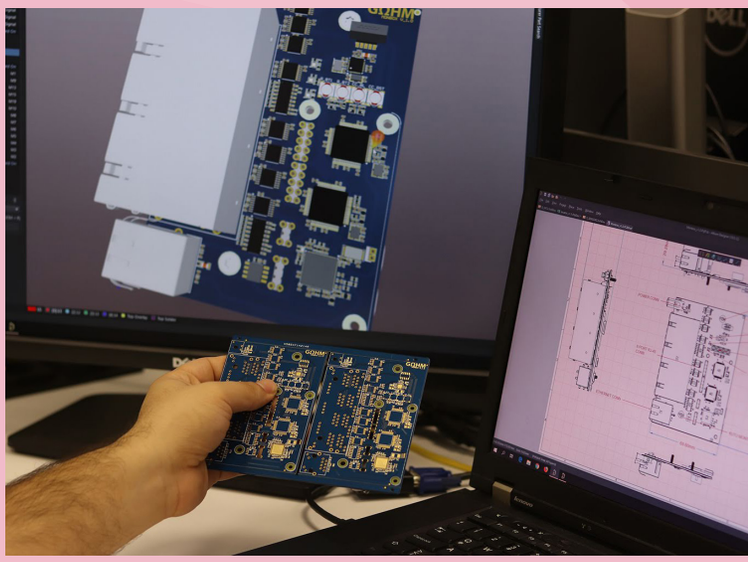
Another key component of GΩHM's business is R&D. "Innovation is very important for us. And that comes through R&D. When we innovate, we create opportunities for new business. For example, look at our first project with ITEA. It's related to wireless communication and needs to solve localisation issues for first responders." Cem is referring to the Safe Rescue project, which will finish in March next year and in which GΩHM is a partner. This has the potential not only to improve the quality of life but actually to save lives of victims and first responders during emergency events. The software being created will increase the emergency dispatcher's situational awareness of an accident by providing a dashboard view of the incident location, superimposed with the status and locations of the first responders, the workers and the victims. In this way emergency dispatchers can track, locate and direct teams to rescue personnel that are at risk.

Business leads …

"We have been working on innovating something new, the 'infrastructure-less indoor positioning system'. This is currently unique and it brings us new opportunities, for example to work with major industry players. We know what problems exist and can provide solutions. In turn, this generates new business opportunities for us. That's important. If you invest in R&D and target the problems faced by partners in the project, you can create another lead for your business. And the opportunity to collaborate with partners all around Europe is a big plus for us. We gain a good understanding of where the technology is right now and where it's going. Our main benefit is not the funding – you can get this through various national funding schemes or from industry. What is unique is the collaboration with the partners in the project. We get a knowledge boost as well as grow our business network, which leads to new business opportunities."

… and opportunities to grow

The experience of Safe Rescue whetted the appetite of GΩHM for more. "Our business has evolved into industrial IoT and we have gained several experiences on industrial manufacturing sites in recent years. We also became involved in another ITEA project, CyberFactory#1 last year." This project, now halfway through its 4-year course, features 28 partners from 7 countries, its goal being to design, develop, integrate and demonstrate a set of key enabling capabilities to foster optimisation and resilience of the Factories of the Future (FoF). "Our role," Cem explains, "is to create a resilient communication system inside a factory, one that can resolve privacy and security issues that cryptographic methods cannot solve. So this project also opens new doors for us. Embedded intelligence has a key role to play in factories of the future as the prevalence of connected devices and autonomy increases. It is a technology that is shifting from cloud to edge, and that is also where we are heading with our solutions. We still regard Turkey as our business base – I think it's important to have a strong home base – but I do see business becoming more international. It will take time. We are still predominantly a company of engineers. But perhaps with a dedicated marketing manager, we will have more chance of expanding our business, also internationally. And, of course, involvement in ITEA projects can give us plenty of support in this respect."



More information

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