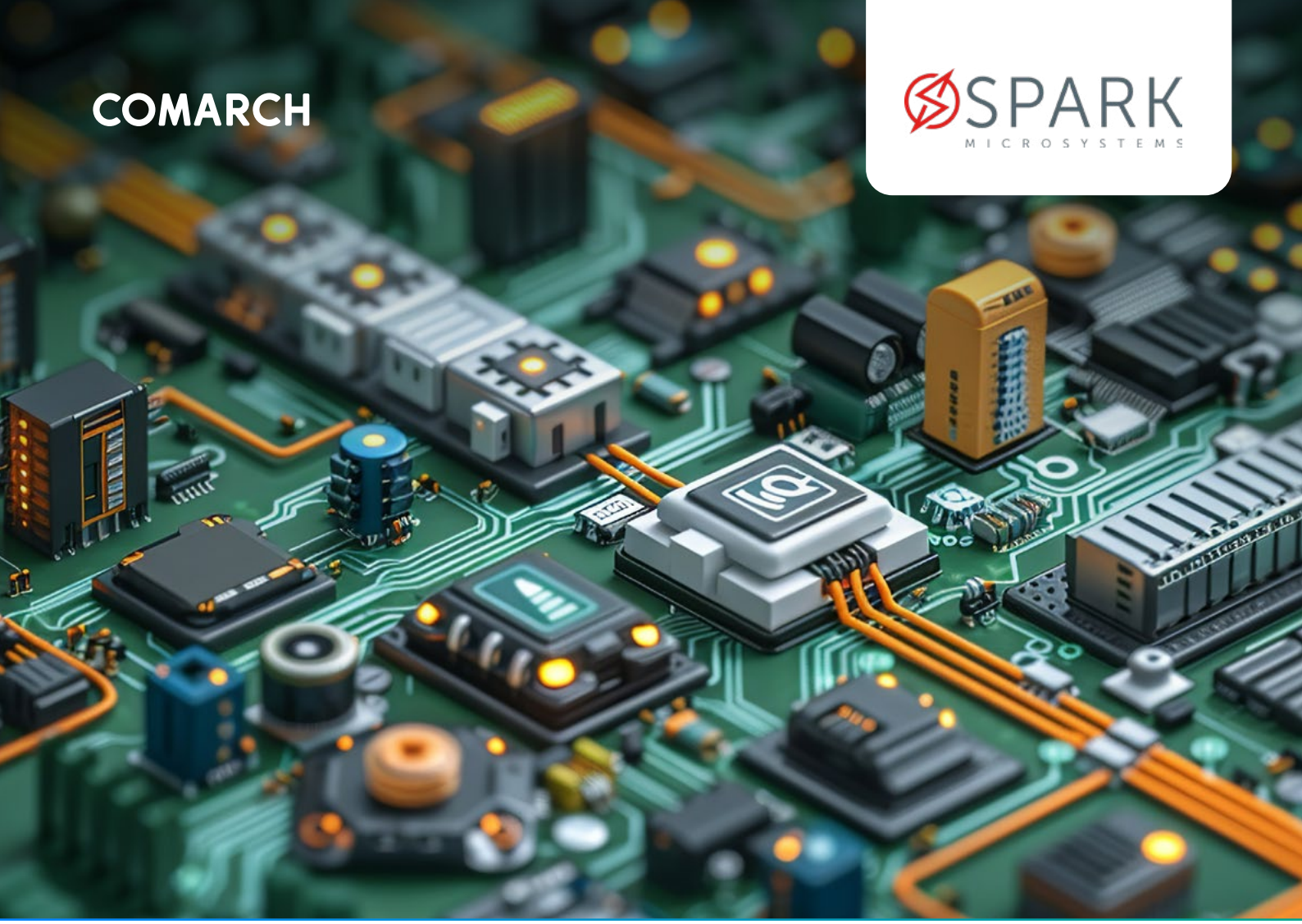
COMARCH



Comarch and SPARK are Shaping the Future of UWB Technology

SPARK Microsystems

SPARK Microsystems is a semiconductor company focused on the development and production of UWB-based communication modules. Using advanced technologies, SPARK is revolutionizing fields such as augmented reality (AR), virtual reality (VR), audio, gaming, and the IoT industry.

Ultra-Wideband in brief

Ultra-Wideband is a technology that enables precise localization of objects (asset tracking products are also in the portfolio of Comarch's product). This is currently the area in which this technology has the widest application. It is known for its low power consumption, wide bandwidth (500 MHz) and ability to transmit large amounts of data. UWB may also be utilized for data streaming, including uncompressed audio transmission.

Next generation of UWB modules

SPARK is working on next-generation components that will provide even better capabilities in terms of performance and available features. To move forward with new solutions, it was necessary to upgrade the UWB stack that controls SPARK's components. The task was taken on by Comarch specialists who have the necessary experience in UWB technology and know best practices when it comes to wireless connectivity.

Working together to improve the UWB stack

The collaboration with SPARK in this respect consisted of two parts.

The first part was the analysis and review of architecture of existing UWB stack. Goals of the first part of the project:

Architecture validation – ensuring scalability, modularity, extensibility and readiness for future features and changing requirements – all aligned with industry best practices

Performance evaluation – checking throughput, reliability, energy efficiency, synchronization, signal processing, data flow, resource allocation, UWB radio usage, and getting rid of design flaws and bottlenecks, making the stack easier for maintenance

Interoperability assessment

Code review and documentation

The result of that work was a detailed technical report, that included improvements, implementation suggestions and new ideas for the already very good and mature SPARK product.

After the discussion with SPARK engineers and setting a backlog of what needs to be done, we have moved to the second part - the implementation of agreed solutions. It consists not only of optimal coding, but also some small proof of concepts, checks, testing and verification to confirm the expected results are there and everything goes into right direction. It is still ongoing and there is a lot of work ahead – all this to make sure that our client's product is even more competitive and works just as SPARK and their clients required.

UWB visible to the people with Quasar EVK Demo

Comarch specialist also carried out the development of Quasar EVK Demo - a special tool for device control. This software provides an easy way to demonstrate the capabilities of SPARK UWB modules not only for SPARK's customers, but also for sales specialists to present great demo scenarios at meetings or events. The software is also used in the testing and development stages, allowing the device to be quickly verified in various modes, options and configurations.

The tool is equipped with an intuitive graphical user interface for reading information from the device and demonstrating its functionality. The GUI proposed by Comarch was based on the customer's requirements and provided already done libraries. In addition, Comarch provided complete documentation for the project. The tool enables users to quickly program and start to work with SPARK UWB modules.

Communication is key to successful collaboration

It is worth emphasizing the commitment and communication of Comarch specialists, who regularly reported on the progress of the project and provided the client's management and engineering team with all the necessary information. This made the verification of innovative concepts and consultations on functionalities much more efficient.

For more information

about our advanced solutions or to request a customized proposal tailored to your unique needs, please feel free to contact Comarch at technologies@comarch.com To find more about our services visit our website:

www.technologies.comarch.com