

CASE STUDY

**SUMMARY OF COOPERATION BETWEEN
RENESAS AND COMARCH****Creating the Embedded System for a TWS Bluetooth Audio Product**

The Bluetooth Phenomenon

Effective and smooth connectivity plays a crucial role in the fast-changing, digitized reality. Bluetooth technology has been part of our lives for decades – from the earliest, basic, very limited 1.0 version to today's advanced specifications and popular gadgets such as smartwatches, earbuds, speakers wearables, and other devices made for entertainment.

Among the essential innovations proposed to work using Bluetooth in recent years are more complex audio codecs and the new specification for Bluetooth Low Energy (LE) Audio. These new Bluetooth solutions together with True Wireless Stereo (TWS) technology aim to deliver very comfortable and easy to use audio equipment with high-quality sound and reduced energy consumption.

Additionally, Bluetooth Low Energy Audio enables multiple new functionalities, such as Multi-Stream Audio and Auracast (Broadcast Audio). Add the new high-quality, low-power and low-latency LC3 codec to the equation and there it is – a great platform for innovative solutions, devices and products.

Cooperation between Renesas and Comarch

Renesas Electronics Corporation is a global semiconductor manufacturer headquartered in Tokyo, Japan. As of 2022, it is the world's third-largest automotive semiconductor company and one of the largest microcontroller suppliers globally. The company delivers comprehensive solutions based on MCUs, SoCs, analog and mixed-signal integrated circuits, and power devices to a broad range of applications such as automotive, IoT, industrial and infrastructure systems.

Comarch's cooperation with Renesas began in 2021, when a particular need arose – to develop one of Renesas's original solutions based on True Wireless Stereo and Bluetooth technology.



References



Renesas chose Comarch for this project based on their professionalism, skills, expertise and experience in the area of software development and wireless connectivity. We were confident that their team could provide us with services of the highest quality, and we were not mistaken. Comarch's commitment to the process, along with an open-minded attitude, are definitely worth recommending."

Marios Iliopoulos
Applications and PMO Director,
Connectivity and Audio Business Division, Renesas

Together we achieve greater things

As part of the cooperation, Renesas and Comarch worked together to further develop and improve the TWS-based chip solution. Comarch provided a hands-on experienced team of engineers, members of which were specialized in software development, especially in audio technologies, such as True Wireless Stereo and wireless connectivity using Bluetooth Low Energy and Bluetooth Classic.

Intensive onboarding training and discussion about the details of the product during several regular meetings with the client allowed our experts to improve the system architecture, make suggestions, and propose improvements beneficial in the next stages of product development.

After the initial phase, our team started its development tasks alongside the Renesas teams of engineers.

We support them with firmware development and software integration. As the project development progressed, Comarch's team started to expand in order to engage even more and deliver skillful quality assurance services. All in all, Comarch now provides six experienced engineers with hardware and software expertise.

Renesas appreciates the partnership with Comarch, expressing great satisfaction with the high-quality services delivered by Comarch engineers. We are optimistic that our partnership with Renesas will only grow, and our teams will continue to cooperate to deliver the finished solution in this and future projects.

