RAON A&C

2025 / ENG

SPATIAL SOUND

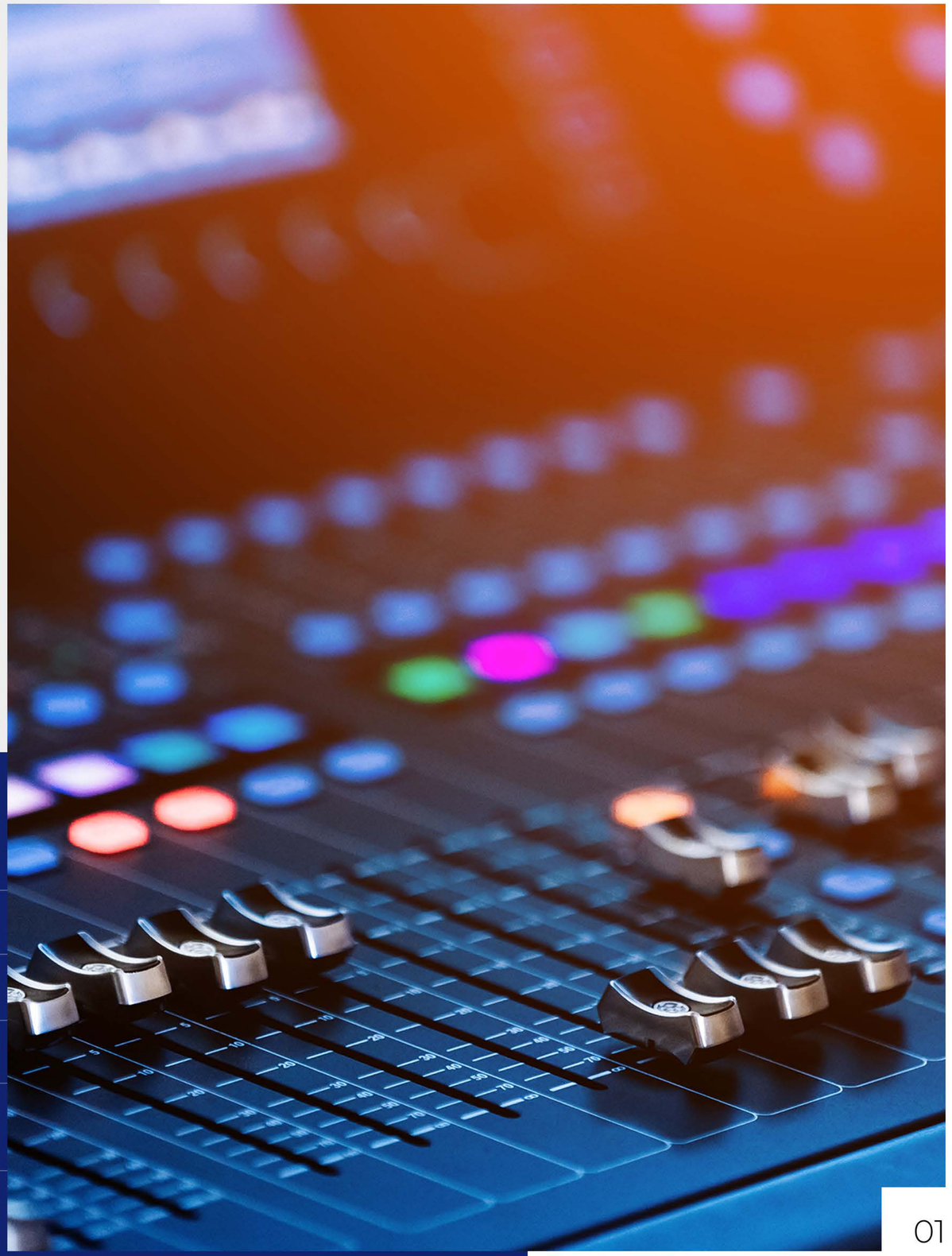


www.raonanc.com/en

Founded as a "VR realistic audio reproduction solution", working with a team of professionals who have accumulated more than **15 years of technology development and supply know-how** at a surround audio provider.

- Video or Music streaming services
- Smart TVs
- Bluetooth earphones
- Android-based smart devices

Company Name	**RAON A&C**
CEO	**Younsoo Cho**
Founded	**July 2019**
Busuness Area	**Realistic audio solution**
Headquarter & Laboratory	**#305, CT-Center, 20, Daedeok-daero 512beon-gil, Yuseong-gu, Daejeon, Republic of Korea**
Employees	**9**





- Supplying 3D stereo sound for Genie Music Player
- Many years of experience in applying realistic sound to various platforms (TVs, Bluetooth, Chips, Android, iOS, windows, etc.)
- Exhibited at CES (2020, 2023)
- Developed 3D solution for T-50 aviation intercom system Exhibited at ADEX (2019, 2021)
- Performed various government projects related to realistic sound (project manager and working-level manager)
- Exhibited at MWC (2023, 2024, 2025)

- Skilled professionals in 3D Sound Technology
- Advisors from various institutions on acoustic solutions (ETRI, KETI, KAIST, etc.)

- Possesses patents for original technology related to 3D audio (8 registrations in Korea, 1 patent application in the United States, 2 patent applications in China)
- Noise reduction technology (SW implementation)
- Partners with various organizations

Years of experience

- Realistic audio on various portable models: Navigation (iNavi), PMP (Yukyung Viliv, Atree), MP3P (iRiver)
- Equipped on multiple Bluetooth earphones(speakers): Ubixon, C company, Emersys Sound Donut (Bluetooth speaker),etc
- An Automatic Sound Field Solution equipped on TV: LG TV
- Application of realistic audio modules to intercom systems: exhibited at ADEX in collaboration with Hanwha Systems
- Application of stereophonic sound to multimedia chips: Embedded in multimedia chips as a library (supplied to many ARM cores such as MTV, Telechips, TI, etc.)
- Production and supply of various applications with realistic sound: Genie Music, proprietary programs (MAVEN music player, recorder, RAON 3D music player)
- Various R&D collaborations with domestic research institutes (KETI, ETRI)

Streaming Services genie

Video Conferencing Services Gooroomee

Hardware Hanwha Systems, Rhas, CRESYN

Institutes KETI Korea Electronics Technology Institute; ETRI 한국전자통신연구원 Electronics and Telecommunications Research Institute; KAIST Korea Advanced Institute of Science and Technology

RAON A&C is

2025

- Exhibited at MWC2025
- Exhibited at Singapore ATxSG CommunicAsia 2025

2024

- Hanwha Systems Co., Ltd. Partner Registration
- Establishment of Chinese corporation
- Daejeon Specialized Project Legend 50+ Selection
- Exhibited at MWC2024

2023

- Daejeon Defense Venture Center Agreement
- Selected for the TIPS Program
- Attending the 2023 Heilongjiang Roadshow
- Exhibited at MWC2023
- Exhibited at CES2023

2022

- Exhibiting at the Boomup Korea Showcase 2022
- Exhibiting at the 2022 Science Start-up Show
- Participated in NextRise
- Selected as Shinhan Open Innovation 5th×Genie Music
- Signed MOU with fusion Korean music band Eidos
- Signed MOU with Daejeon Cultural and Arts Network Cooperative (DCAN)

2021

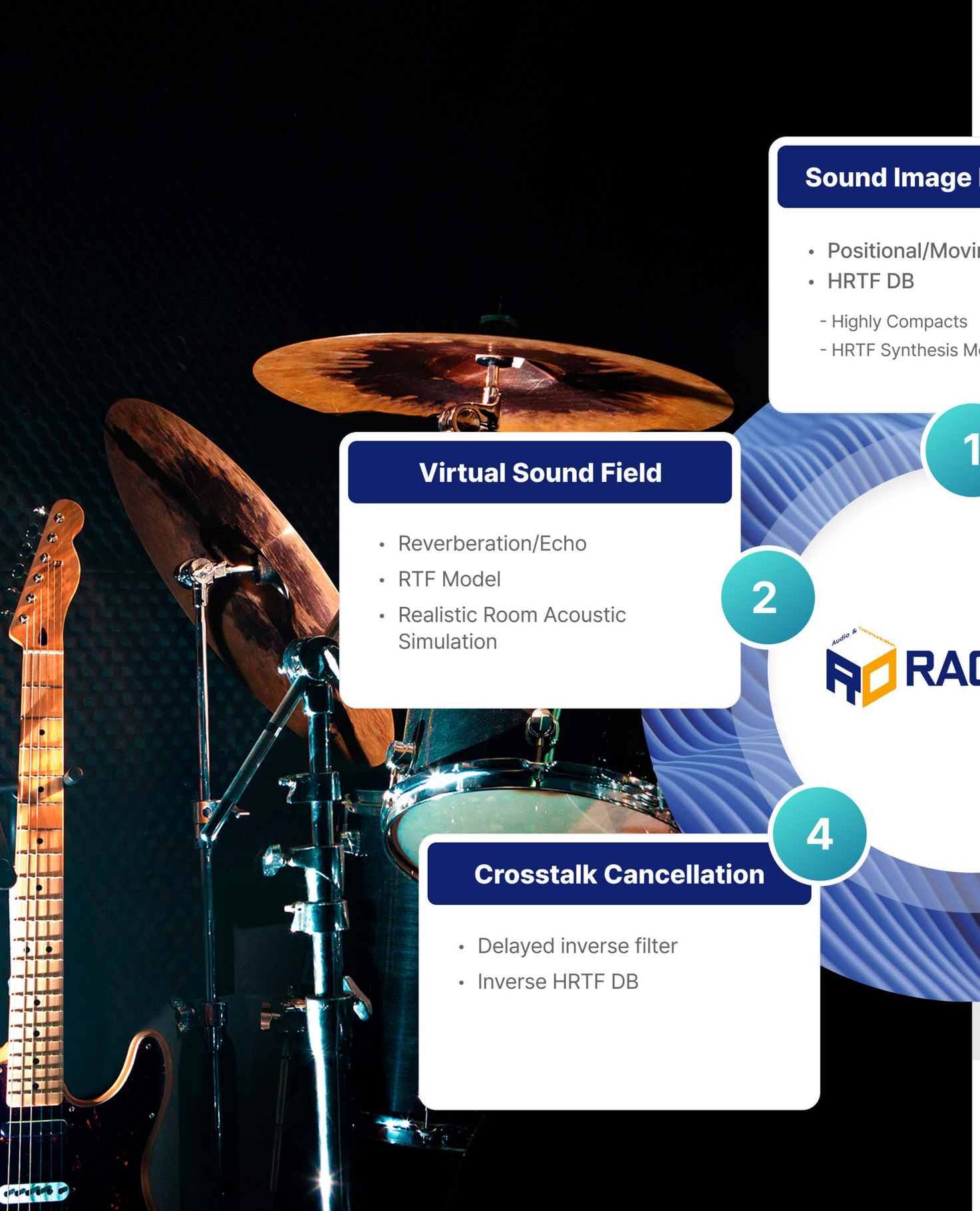
- Selected for the Korea IT Expo in Japan 2021 event
- ADEX 2021 Exhibition
- MWC Barcelona Exhibition

2020

- Attracting investment from Korea Venture Investment
- Remote video conferencing consortium agreement (Gooroomee, KTEI, etc.)
- Venture company certification
- Certification of Excellent Technology Company (T4)
- Business Cooperation Agreement with Hanwha Systems
- Established a company-affiliated research center
- Exhibited at CES 2020 (multi-communication intelligibility enhancement solution)

2019

- Signed a supply contract with Genie Music
- Certified as a women-owned business
- Established RAON A&C Inc.



1 Sound Image Localization

- Positional/Moving Sound
- HRTF DB
  - Highly Compacts
  - HRTF Synthesis Module & DB

2 Virtual Sound Field

- Reverberation/Echo
- RTF Model
- Realistic Room Acoustic Simulation

3 Listener Position Tracking

- Head Tracking

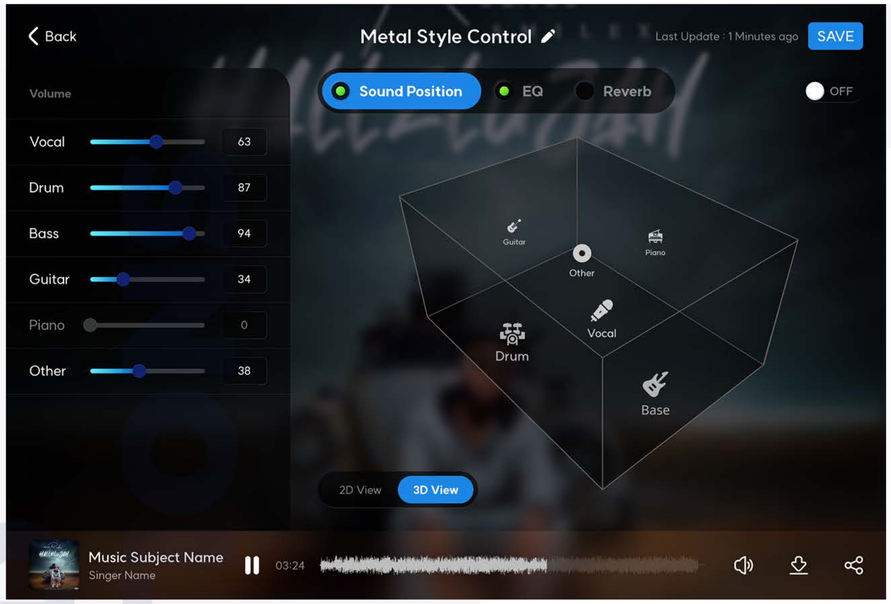
4 Crosstalk Cancellation

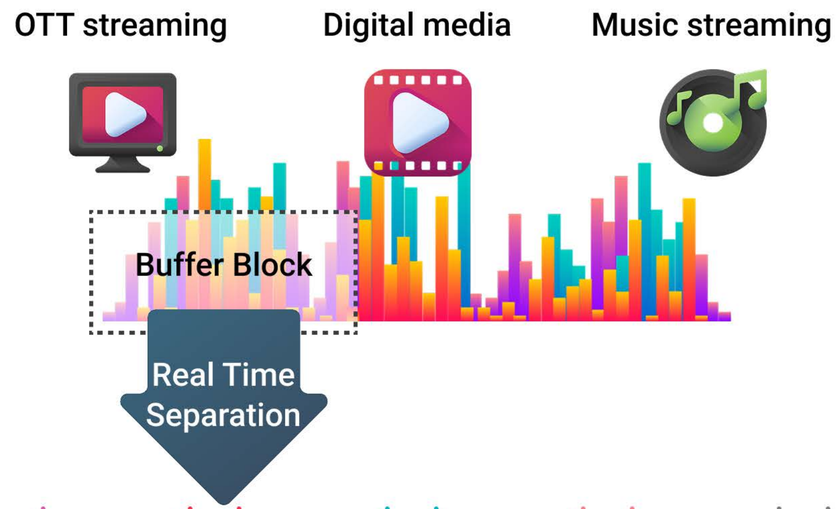
- Delayed inverse filter
- Inverse HRTF DB

5 Audio Source Separation

- Audio Source Separation by individual object

REALISTIC SOUND SOLUTION







Delivering presence and spatial sensation



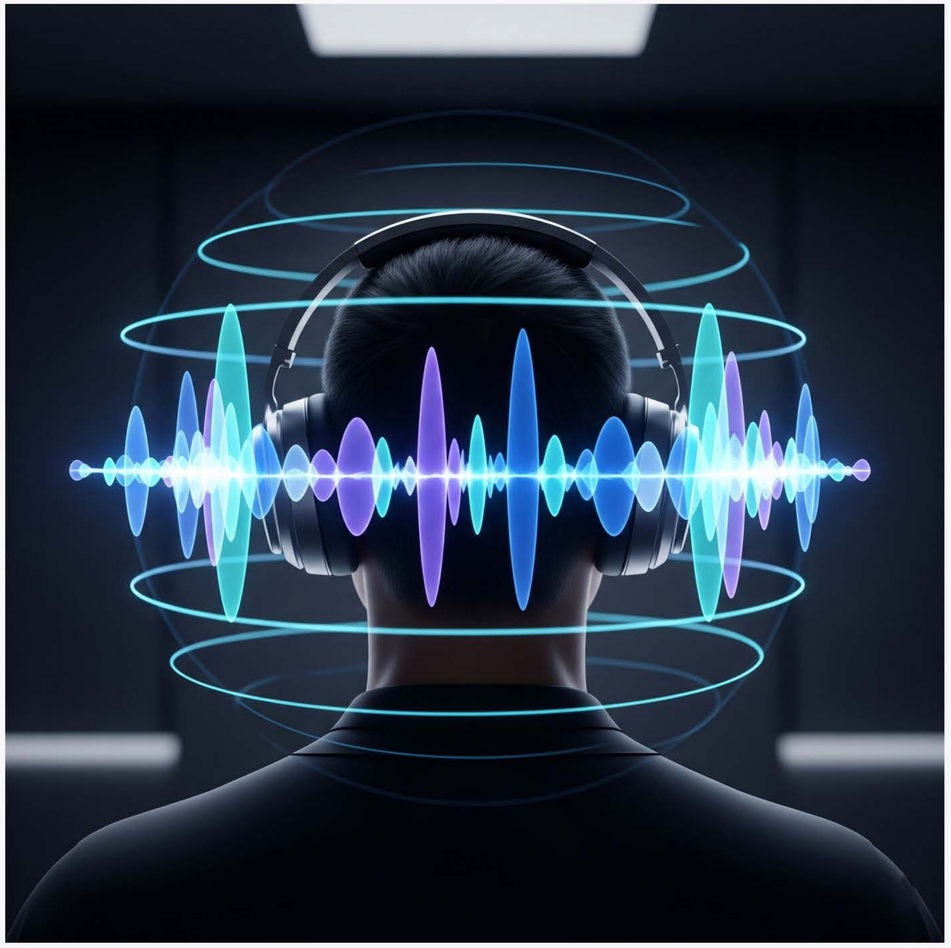
Enhanced surround effect for speaker listening

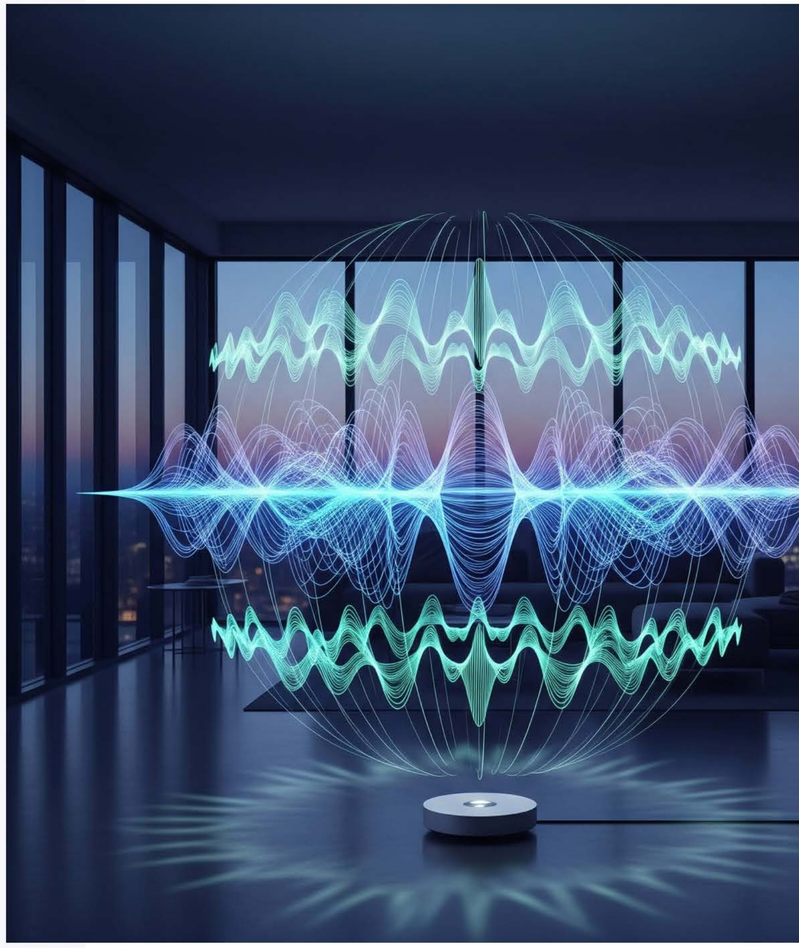
RASES Solution

Raon Audio Source sEparation & Spatial sound

- Separating stereo audio sources into individual objects (instruments and vocals)
- Enables real-time audio sources separation and spatial audio processing simutaneously with audio download, making it suitable for streaming services
- Reduces waiting time for audio source separation and supports for large media files such as movies
- Provides high-quality spatial audio for OTT and large multimedia content audio using channel separation

REALISTIC SOUND SOLUTIONS





360° Spatial Sound Solution

Provides an immersive feeling as if moving within a virtual 3D space

- The 360° spatial sound solution is a next-generation audio software that uses a device's inertial sensors (IMU) to implement real-time spatial audio.
- It provides an immersive audio experience that feels like moving through a virtual 3D space by producing 3D sound coming from all around the listener.
- Head-tracking functionality tracks head movements in real time and dynamically, naturally adjusts the perceived sound positions.
- A spatial audio engine that combines sensor-based head tracking and real-time binaural rendering.
- Optimized for low-latency operation in embedded environments.

REALISTIC SOUND SOLUTIONS



Performance sound source

Online Broadcast

Broadcasting or Recording System

Internet broadcast



Broadcast using YouTube, Vlog, etc.

The perfomer's location information



Immersive sound module that applies positioning and tracking information of multichannel/multi-object sound

Plays changed audio with immersive sound



Multi-channel speaker in the concert hall



Online Performance/ Ensemble Solutions

Deliver an on-site level of immersion to online concert audiences

- Realistic audio solutions for enhancing the immersive experience of live performances and video content, without the need for separate mastering work. Apply the solution to live audio in real-time to enhance the sense of presence and immersion.
- Connecting the solution with the venue's sound system (audio interface or mixing)
- A realistic sound system that compensates for the lack of presence and immersion felt in online ensembles and is compatible with existing systems.
- A control programme designed to set the position and spatial sense of sound sources per channel.

REALISTIC SOUND SOLUTIONS



When multiple people communicate via video, the conversation content is mixed due to simultaneous utterance, making it inconvenient to convey information

Improvement of communication clarity



When multiple people participate in a video call, each participant sets a virtual location similar to the actual conference room and separates the sound to improve information transmission

Video Conferencing Solutions

Experience the presence of an actual meeting

- Solves the mix-up phenomenon that occurs when multiple people speak at the same time in small video conferences by applying spatial audio
- Resolves the inconvenience of toggling audio On/Off during participation in meetings
- Builds and applies a solution for an in-house intranet video conferencing system
- Provides a server-side Library to enable application of the solution to existing video conferencing systems
- Technical support available upon application of the Library

REALISTIC SOUND SOLUTIONS



RAON 3D Music Player

Digital Content
(SW, HW Firmware)

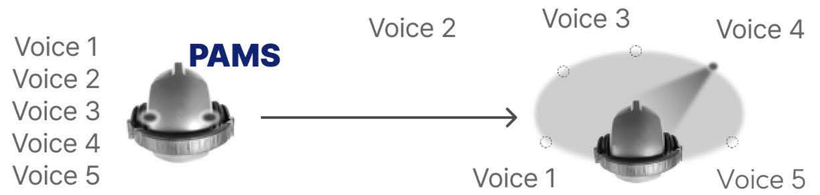
Solutions for digital content such as music and films

- Solutions for digital content such as music and movies, providing immersive and realistic sound in a variety of digital media devices and applications
- Solutions can also be applied to existing digital content to provide a sense of virtual space
- Utilised across a range of digital media devices (earphones, smartphones, TVs, etc.) and applications
- Audio solutions for digital content consist of Immersive Sound, Virtual Speaker, Reverberation, Power Bass, Graphic EQ, and Parametric EQ.



PAMS (Precision Audio Management System)

- Each audio signal entered through multiple channels is spatially distinguished for playback
- Real-time dynamic sound playback is possible by applying distance, direction and spatial information between the listener and the sound source
- Utilize listener head movement information to organically apply and play the spatiality of the sound source to the listener
- When applied to virtual reality content playback, It increases immersion



Core Technology

- rSic (Raon Sound Image Compact) – Sound Positioning and Movement (earphones)
- Reverb based on RTF (Room Transfer Function)
- Adaptive Volume Stabilization

Description

- Input signal: Mono / 2CH / 5.1CH / 7.1CH PCM (Pulse Coded Modulation)
- Output signal: 2CH PCM
- Supported Audio Formats: All sorts of audio formats (WAV, MP3, AAC, OGG, and etc.)
- Sampling Rate (Hz): 8k, 11.025k, 12k, 16k, 22.5k, 24k, 32k, 44.1k, 48k
- Bit Depth (bit): 8, 16, 24, and 32



Virtual Multi Earphone

- Provides a virtual surround effect when listening to sounds produced in 5.1 / 7.1 channels, such as movie soundtracks, in earphones
- Capable of processing stereo, 5.1-channel, and 7.1-channel audio, and when processing multichannel inputs, surround sound effects such as sound coming from virtual sound locations are possible
- Provides a natural listening experience by Utilizing sound image positioning and reverberation technology



Core Technology

- rSIc (RAON Sound Image compact) - Sound Positioning
- Reverb based on RTF (Room Transfer Function)
- Equalizer (Bass Enhancement)

Description

- Input signal: 2CH / 5.1CH / 7.1CH PCM (Pulse Coded Modulation)
- Output signal: 2CH PCM
- Supported Audio Formats: All sorts of audio formats (WAV, MP3, AAC, OGG, and etc.)
- Sampling Rate (Hz): 8k, 11.025k, 12k, 16k, 22.5k, 24k, 32k, 44.1k, 48k, 96k
- Bit Depth (bit): 8, 16, 24, and 32



Virtual Multi Speaker

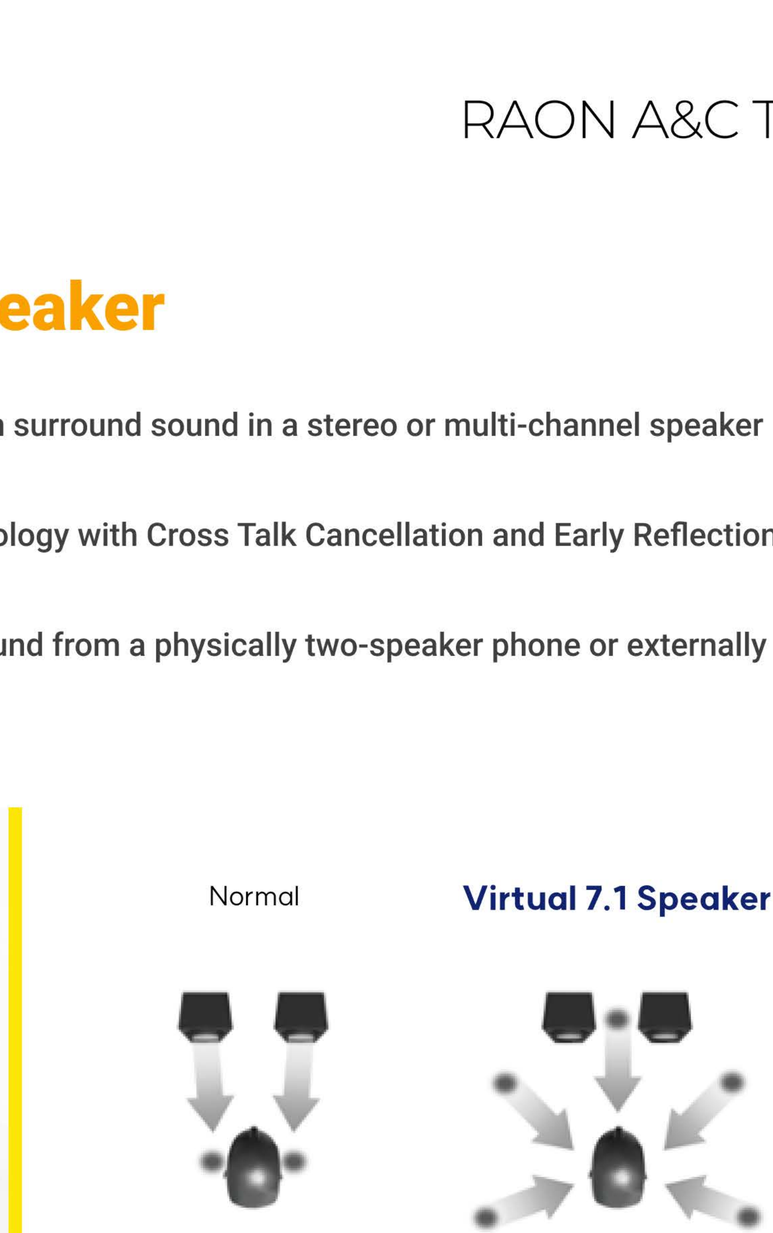
- Effect of providing virtual 5.1ch surround sound in a stereo or multi-channel speaker environment
- Utilizes Sound Widening technology with Cross Talk Cancellation and Early Reflection technology
- Creates wide, rich surround sound from a physically two-speaker phone or externally connected stereo speakers

Core Technology

- rCTC (raon Cross-Talk Cancellation)
- rSIc (Raon Sound Image compact) - Sound Positioning
- Reverb based on RTF (Room Transfer Function)
- High Precision Filter / Sub-band Processing

Description

- Outstanding performance for closely spaced speakers on audio devices
- Input signal: 2CH / 5.1CH / 7.1CH PCM (Pulse Coded Modulation).
- Output signal: 2CH PCM
- Supported Audio Formats: All sorts of audio formats (WAV, MP3, AAC, OGG, and etc.)
- Sampling Rate (Hz): 8k, 11.025k, 12k, 16k, 22.5k, 24k, 32k, 44.1k, 48k
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rReverb (Reverberation)

- The sound reverberates like in a concert hall, providing a sense of spaciousness as if listening to music in a wide area
- Using various filters and room modeling technologies
- Provides the effect of being in a concert hall, on a plate, in a cave, etc



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