SOUNDCLEAR®

FROM CIRRUS LOGIC

💬 Control 2.5

Low Power "Always On" Voice Activation

Speech control and recognition are gaining increased value as features of mobile and consumer devices. Until now, a major limitation has been the need to use a button or other mechanical control as a trigger to activate and operate a device. With SoundClear® Control 2.5 software technology, it is now possible to use a trigger phrase detector to "wake up" a device in response to speech at any time, thus eliminating physical interaction and the need for key press activation. This software runs continuously in the background, always listening and waiting for a pre-programmed trigger phrase that can be used to launch the desired application.

Supported in more than 40 languages, Control 2.5 permits trigger phrases which can be system or user-defined to awaken devices such as smartphones, tablets and TV remotes. Control 2.5 enables "always on, always listening" voice activation, making it possible to control a device without keeping the application processor awake. This ultra low power solution conserves standby-mode power budgets by reducing power requirements by a magnitude of five when compared with existing market solutions.

Seamless Trigger

The "always on" capability of SoundClear Control 2.5 is achieved through a three-phase, seamless "voice trigger" approach. At phase one, the host application processor is in standby, or ideally, in sleep mode, with the device consuming low power. Control 2.5 maintains the industry's longest and most flexible circular buffer of captured audio while monitoring the device's microphone for activity. Once a trigger phrase is detected, the main application processor will "wake up".

At phase two, once activity has been detected on a microphone, the captured speech is analyzed for the presence of trigger phrases. During analysis, to allow for application processor wakeup delays, all the data received is stored in a long buffer. At this point, the host application processor remains in sleep mode.

Finally at phase three, the trigger phrase has been confirmed and the host application processor is resumed from sleep mode. All captured speech, including the trigger phrase and subsequent voice commands, are in the buffer maintained by Control 2.5. This data is made available for transfer to the application processor for use by the user's speaker verification or Automatic Speech Recognition application, including cloud-based systems.

Features

- One Input channel

- One Output channel

- Single and multi-trigger word detection for a selection of trigger engines including OK Google

- Seamless trigger to search

- Sensory engine support

- Lossless compressed and uncompressed audio stream

- Low power operation

SoundClear Control 2.5

Hardware Platforms

Smart Codec
WM8281

MEMS Microphone – Analog
WM7121PE
WM7132PE
WM7138

MEMS Microphone – Digital
WM7236E

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APPLICATIONS

SoundClear® Control 2.5 is best suited to the following applications:

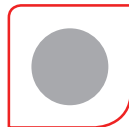| GLASSES | HEADSET | SMARTPHONE | TABLET | REMOTE CONTROL | SPEAKER BOX | WATCH |

The SoundClear Advantage

Cirrus Logic's SoundClear software technology utilizes self-adjusting algorithms to deliver industry leading voice quality, speech recognition, audio recording and high-fidelity playback. SoundClear utilizes intelligent speech and noise tracking, as well as adaptive processing, to exploit speech patterns and environmental conditions while providing advanced processing features such as noise suppression, echo cancelation and virtual surround sound. SoundClear software also features low power consumption for prolonged battery life of portable devices.

| VOICE | PLAYBACK | RECORD | CONTROL | SENSE |

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