Fact Sheet

EchoKiller®

Compandent's Acoustic Echo Canceller

Compandent provides a suite of signal processing technologies, algorithms, and technical expertise for voice and audio compression and enhancement, for providing state-of-the art voice and audio communications.

Operation

Compandent's EchoKiller® Acoustic Echo Cancellation (AEC) is a proprietary algorithm designed to continuously and adaptively remove acoustic echo from speech.

Acoustic echoes are produced by the open-air acoustic path and the room reverberation between the loudspeaker and the microphone in hands-free full-duplex communication systems. By continuously tracking changes in this acoustic path, EchoKiller effectively eliminates the echo, enhancing quality and improving the clarity of the communication system.

EchoKiller is extremely effective against the acoustic echo experienced in such systems as hands- free cellular telephony, Internet telephony and audio and video conferencing.

Block Diagram

Figure 1 illustrates a block diagram of Compandent's EchoKiller, having flexible controls and optional interconnections with all the hardware and software components. As illustrated in Fig.2, EchoKiller can remove acoustic echo produced by the open-air acoustic path and the room reverberation between the loudspeaker and the microphone in a hands-free, full-duplex communication system.

Performance

- Convergence rate < 1 second
- ERLE > 50dB
- ERLE @ 1 sec >50dB
- No attenuation
- ITU-T G.167 compatible

Implementation

EchoKiller is a proprietary adaptive, algorithm designed as an add-on module. The algorithm has been developed using ANSI C to facilitate porting to each customer's platform of choice. This code will run on any platform with an ANSI C compiler and includes documentation, test programs and test vectors.

Available features:

- Variable programmable filter length
- Variable programmable block length
- Variable programmable non-linear processing for removal of non-linear echo residual
- Variable programmable tradeoff between real-time complexity and performance
- Variable speaker gain
- Variable microphone gain
- Optional add-on interface with Voice Activity Detector (VAD)
- Echo delay detector, to optimize filter performance
- Available for applications running on DSP or under Microsoft™ Windows®, Apple™ Mac®, and any other operating system having ANSI C/C++ compiler.

Compandent's support:

Production of custom versions, as well as assistance with integration and porting of this algorithm, is available through Compandent's support and consultancy service

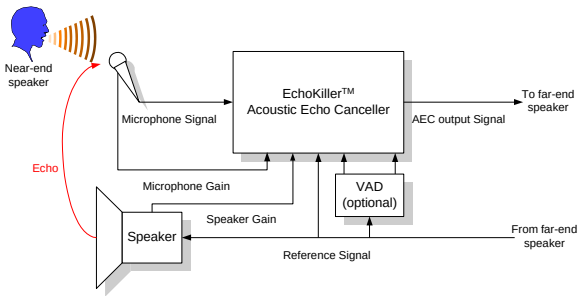

Fig. 1: EchoKiller's block diagram

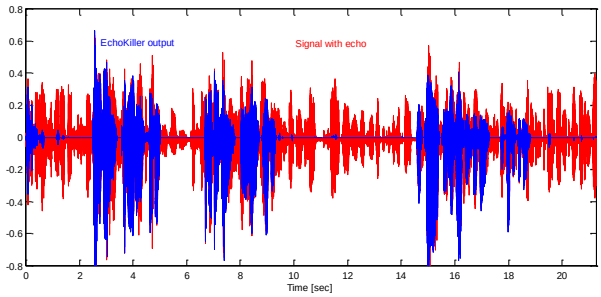

Fig. 2: EchoKiller performance: acoustic background echo removed from near end signal

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