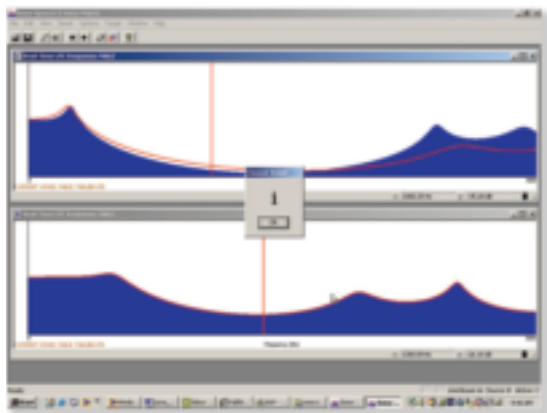
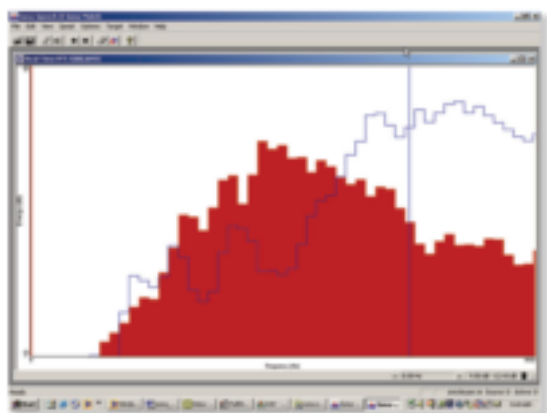


SONA-MATCH

Multiple innovative displays of the spectral patterns of sustained phonation (e.g., vowels and sibilants) are offered with the Sona-Match module. These are particularly useful for articulation training, second-language acquisition, and the singing voice. Sona-Match displays these spectral parameters in real time so that it can be used in therapy for visual feedback or as a teaching tool.



Sona-Match shows the formant patterns of the speaker. Two views can be used to enable the clinician to model desired patterns.



Sibilant training can be accomplished by placing a target (blue outline) of the client's best production followed by target matching while sustaining the desired sibilant (/s/ in this display). The red display is the client's production.



Recommended accessories for Sona-Speech II include a quality microphone, preamp, and headphones.

Recommended Accessories for Sona-Speech II

Microphones provided with sound cards are usually of marginal quality. KayPENTAX recommends a quality microphone, a preamplifier to ensure adequate signal levels are input to the sound card, and headphones (needed for the Auditory Feedback Tools module). KayPENTAX can provide you with these components, which vary depending on your computer (laptop vs. desktop). Consult the company (or your representative) for advice if needed.

Optional Programs for Sona-Speech II

Additional programs are available for Sona-Speech II. These include the Voice Range Profile (VRP) program (Model 4326), the Disordered Voice Database and Program (Model 4337), and Real-Time EGG Analysis (Model 5138). Note that sound cards should have a cutoff frequency (AC coupling) of 5 Hz or less for Real-Time EGG Analysis. Separate fliers on these programs are available from KayPENTAX.

Sona-Speech, Visi-Pitch, CSL, Motor Speech Profile, MDVP, and Facilitator are trademarks of KayPENTAX. Windows is a registered trademark of Microsoft Corporation.

Sona-Speech II, Model 3650

A Powerful, Low-Cost, Speech Therapy Product for Your PC



Importance of Speech Biofeedback

Sona-Speech II extracts acoustic parameters (e.g., pitch, amplitude, and spectral characteristics) during speech/voice production and presents these in real time, providing clients with clear, intuitive visual displays. Using target vocalizations provided by a clinician, client attempts can be directly compared graphically and with auditory playback. Monitoring important speech/voice behaviors with concrete visual displays helps clients reach therapy goals more easily.

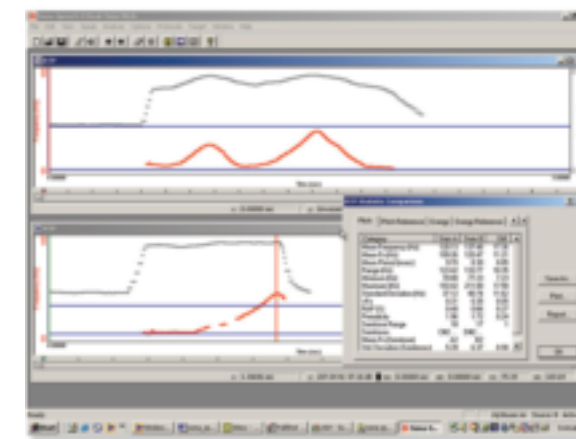
Extensive Measurements of Speech and Voice Behavior

To help objectify a client's baseline performance and subsequent change, Sona-Speech II extracts an extensive range of measurements relevant to speech and voice. In addition to fundamental frequency, amplitude, and spectral measurements, Sona-Speech II contains modules with tasks and concomitant parameters specific to disorders (e.g., dysphonia and motor speech problems). These parameters are displayed graphically and summarized quantitatively; both sets of information can be used in client reports.

Overview

Sona-Speech™ II is a low-cost software package that is based on the acclaimed Visi-Pitch™ IV, also from KayPENTAX. Instead of using the robust hardware platform of Visi-Pitch IV, Sona-Speech II relies on standard sound cards for data acquisition and playback, making it an ideal choice for budget-minded clinicians. Sona-Speech II is used as a therapy tool for a broad range of speech and voice problems. It provides real-time visual feedback of important speech/voice parameters and quantitative measurements to track patient performance. Due to the performance limitations and variability of PC sound cards, KayPENTAX recommends Sona-Speech II primarily for routine therapy tasks, rather than for research or rigorous voice lab analysis.

Sona-Speech II offers the clinician tremendous versatility, now with eight separate modules designed for assessment and treatment of voice, articulation, fluency, motor speech (dysarthria), and other communication disorders. Graphically interesting games are also provided to make therapy tasks appealing to children. Sona-Speech II brings the sophistication of KayPENTAX software found in Visi-Pitch IV to the sound card hardware environment. Clinicians will find Sona-Speech II a tremendous bargain and a powerful addition to their clinical tools.



Real-Time Pitch allows clients to monitor pitch and amplitude as they speak. Speech productions can be compared both graphically (using split screen) and quantitatively.

REAL-TIME PITCH

A key module of Sona-Speech II is Real-Time Pitch, which displays fundamental frequency and relative intensity in real time. Stress, timing, intonational patterns, as well as target pitch and/or amplitude values during running speech can be seen as they are said by the client. Split screens allow target vocalizations

to be compared to a client's attempt to imitate critical parameters (e.g., amplitude levels, speech rate, pitch range, etc.). The target and the client's attempt can then be compared visually and quantitatively; audio playback allows the clinician and client to listen critically to important speech/voice behaviors.

For more information on Sona-Speech II, please contact KayPENTAX or your local representative.



World Leaders in Speech, Voice, and Swallowing Instrumentation

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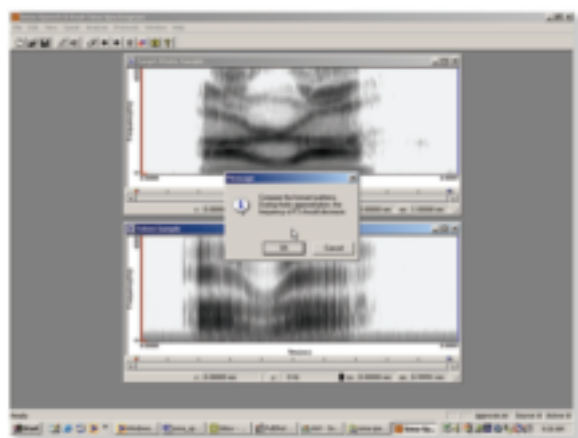
Games are used to motivate children in therapy with visually appealing graphics representing important speech/voice parameters.

VOICE GAMES

The Voice Games module provides animated graphics to represent the same parameters (i.e., pitch and amplitude) extracted in Real-Time Pitch. The games are particularly effective as therapy tasks for motivating children and rewarding good speech/voice behavior. Each game can be modified by the clinician to make a task more or less challenging, depending on the child's level of performance.

REAL-TIME SPECTROGRAM

Previously an optional program, Real-Time Spectrogram is now included as a standard module in Sona-Speech II. The spectrogram has been a benchmark analysis tool of speech signals for over a half-century because of its innovative, revealing three-dimensional display. The real-time performance of this module allows it to be used for selected articulation training (sample protocols are provided) and for voice "typing" of dysphonic voices as recommended by the National Center for Voice and Speech (NCVS).

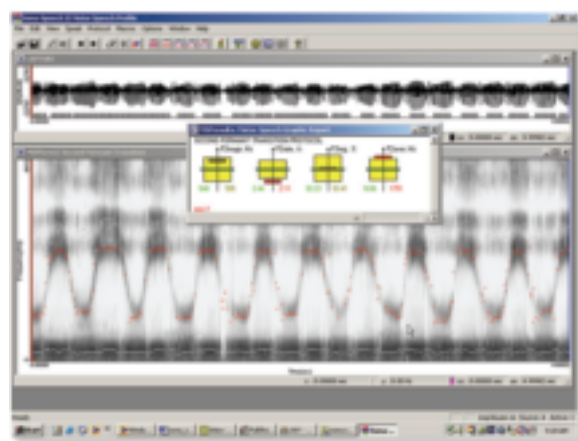


Selected articulation therapy can be accomplished with the Real-Time Spectrogram module. The protocol above is for /r/ training.

MOTOR SPEECH PROFILE

Formerly an option strictly for KayPENTAX's CSL™ platform, a simplified version of Motor Speech Profile™ is included in Sona-Speech II. Primarily an analysis tool, this program assesses, in depth, the speech performance of patients with motor speech problems (i.e., dysarthria).

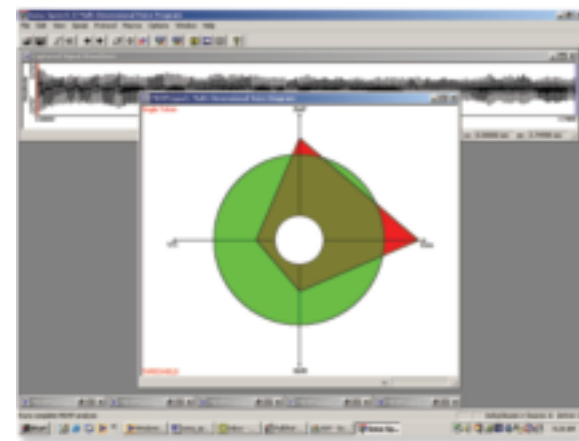
Distinct tasks are elicited in systematic protocols (with message prompts) to help profile the patient's performance and identify potential motor speech problems; results of each task are quantified and graphed against a normative database. For example, a task for analyzing second formant transitions is sensitive in tracking vowel neutralization often observed in dysarthric patients; similarly, diadochokinetic rate and periodicity have been shown to be closely associated with articulatory agility. As with all Sona-Speech II parameters, the data can be included in a report summarizing patient performance.



MSP parameters are sensitive to various aspects of dysarthric speech. This display analyzes second formant transitions, which are frequently diminished in patients who neutralize vowels.

MULTI-DIMENSIONAL VOICE PROGRAM (MDVP)

MDVP™ extracts objective quantitative values on sustained phonation which are displayed graphically and numerically in comparison to a built-in normative database. These are useful in profiling a patient's voice in the initial evaluation and then tracking performance over time. It should be cautioned that MDVP measurements may be affected by some sound cards' performance specifications; for research purposes, KayPENTAX recommends using either Visi-Pitch or CSL hardware platforms, both with known, robust data-acquisition specifications. An optional CD-ROM of some 700 normal and pathological cases is available from KayPENTAX to help familiarize clinicians with acoustic profiles of various disorders.



The MDVP graph provides a useful snapshot of the client's voice quality. Client performance (olive/red) is plotted against normative thresholds (green) that are built into the software.

WAVEFORM EDITOR

This module is a convenient tool for speech waveform acquisition, editing, and playback. Selected portions of a speech sample can be edited and saved to disk. Two-channel data acquisition can be performed using this module. Caution should be exercised when acquiring signals that may be affected by the AC coupling of sound cards.

AUDITORY FEEDBACK TOOLS

Auditory Feedback Tools (AFT) is a highly useful module for critical listening feedback (using headphones) and various types of auditory feedback that have been found to be effective in achieving desired speech behaviors. A key premise of AFT is the seminal role of auditory feedback in speech therapy. Included are high-fidelity amplification, looped playback of selected speech tokens (e.g., word, phrase, or sentence level), Delayed Auditory Feedback (DAF), white-noise masking, speech-rate modification (e.g., prolonging an acquired utterance without altering its pitch on playback), and a metronome pacer. Most of these tools are a subset of features provided in KayPENTAX's Facilitator™, which contains five modes of auditory feedback in a portable (wearable) instrument.

An array of auditory feedback tools is provided to help clients attain therapy goals. High-fidelity feedback is monitored through headphones.



APPLICATIONS

- Voice Disorders
- Motor Speech Disorders
- Voice Typing
- Fluency
- Selected Articulation Training
- Hearing-Impaired Speech
- Professional Voice
- Accent Reduction and Second Language Learning

FEATURES

- Low-cost, powerful software for use with standard PC sound cards
- Real-time displays for visual feedback of critical speech/voice parameters
- Software based on Visi-Pitch IV, the leading speech therapy instrument
- Eight separate modules applicable across the spectrum of speech/voice disorders
- Innovative graphic displays and quantitative measurements
- Auditory feedback tools (based on KayPENTAX Facilitator)
- Vowel and sibilant training
- Single keystroke operation of commonly used protocols
- Games and graphic rewards to motivate children in therapy
- Numeric summaries of client performance for reports

MINIMUM HOST COMPUTER REQUIREMENTS FOR SONA-SPEECH II

- 500 MHz Pentium III PC
- 64 Mbytes RAM
- CD-ROM
- Sound card installed in PC with microphone and speakers
- Windows® XP and Vista operating systems (for KayPENTAX software version 3.2 and higher)
- S-VGA graphic adapter and monitor