Switch hearing aid to T-coil
Smart Assistive Listening Transceiver (SALT) is a revolutionary combination of truly Personal Sound Amplifier (PSA) with a versatile Assistive Listening Device (ALD)

As PSA, SALT performs powerful digital sound processing customizable for a specific user hearing loss.

As ALD, SALT operates as an advanced combo Bluetooth™ neck loop, stereo headset, assistive listening and vibration alert device.

But SALT is actually much more...
Ambient sounds picked up by two built-in digital microphones.

Microphone signals as well as audio signals from other sources (wired or Bluetooth) are digitally processed, amplified and enhanced according to user specific hearing lost and individual preferences.

The result is then delivered via an induction loop directly to user’s hearing aid or a tiny in-ear receiver with telecoil.

Alternatively, good quality headphones can be used for those who don’t require permanent hearing help.

SALT delivers advanced, customized signal processing to all types of hearing aids.
SALT integrates a powerful audio processor

SALT integrates a mass-market ultra-low power DSP providing much more computational resources compared to proprietary chips used in most hearing aids.

Greater computational power enables more advanced digital signal processing algorithms. SALT users will benefit from “best in class” adaptive dual microphone and noise reduction algorithms developed by Alango Technologies for voice communications in very noisy environments.

Additionally, all modern hearing aid processing is performed including: frequency equalization with multi-band dynamic range compressor, feedback cancellation, frequency shifting (optional).
Hearing test application: Application plays different tones allowing user to control volume to discover hearing and pain thresholds. Settings are later used to define optimal amplification, frequency equalization and compression thresholds.

Prerecorded test application: Application plays sound files prerecorded in different conditions allowing user to choose the best processing by tapping different areas on the phone screen.

Field tuning application: While being in real conditions user can adjust parameters of the corresponding processing profile by tapping different areas on the phone screen.

Why SALT is truly personal device

SALT signal processing allows easy tuning by User
No need to go to audiologist. User can wirelessly configure SALT processing via a Bluetooth™ application ensuring the best personal hearing in different conditions.
Specific digital processing parameters can be easily downloaded from any SALT device to a mobile phone, PC or tablet via a Bluetooth link.

They can be further used to:

- Backup favorite settings
- Send your personal settings for professional analysis and advice
- Duplicate a device
- Convert them to initial parameters for a newer SALT model
SALT also delivers personally enhanced sound with additional communication functionalities via standard headphones or earbuds.

**So SALT is also:**

- Bluetooth stereo headset for direct communication to your mobile phone and music listening
- Companion microphone decreasing the distance between you and the person you want to hear
- Wireless, up to 30m Bluetooth intercom to communicate with another SALT user directly
- TV assistive listening system transmitting TV sound to SALT device and then to user’s ear
- Vibration alert (alarm, incoming phone call, reminder and unique “virtual hearing dog” capability)
- Talking organizer reminding your important tasks by voice (medicine, calls, events, etc.)
- Wireless leash alerting when your phone is out of range (forgotten or stolen)
- Body sensors data hub acquiring low energy BT signals from body sensors. Enables voice and vibration health alerts, makes automatic emergency calls
- And more...

Why **SALT** is much more than a Bluetooth™ neck loop

**SALT brings the most advanced digital sound processing technologies to all types of hearing aids equipped with Telecoil, even the cheapest ones**
SALT is much more than “just” delivering a powerful DSP technology to induction loop or headphones.

- **BLUETOOTH HEADSET**: Enables voice communication via a hearing aid or headphones with personally amplified sound.
- **COMPANION MICROPHONE**: Virtually decreases the distance between the user and other people.
- **TV LISTENING SYSTEM**: Directly transmits TV sound to user SALT device.
- **INDUCTION LOOP OR HEADPHONES**
- **T-COIL RECEIVER**: Directly receives sound of interest in places fitted with induction loop (theatres, places of worship, banks, ticket kiosks, auditoriums, etc.).
- **VIRTUAL HEARING DOG**: Alerts of important sounds with the help of SALT vibration.
- **WIRELESS INTERCOM**: Communicates with another SALT user directly.
- **LOST PHONE ALERT**: Signals in case a mobile phone is lost or stolen.
Voice communication via a hearing aid or headphones with personally amplified sound

Easy Listen™ technology slowing down incoming speech for better intelligibility

Personally amplified music according to user’s hearing loss

Emergency calls (one-touch or automatic)

Direct link to mobile phone for voice and music

direct wireless Bluetooth link

to induction loop or headphones
Due to a high environmental noise or room reverberation even the most advanced and expensive hearing aid often fail to deliver an intelligible speech to its user. The most efficient solution consists of placing a wireless microphone in a close proximity to the speaker directly transmitting his/her voice to user’s hearing aid. This provides about 10 times signal-to-noise enhancement in realistic scenarios. SALT uses low latency Bluetooth™ audio link to stream sound right into User’s ears. SALT switched into “assistant mode” can be used as a remote microphone.

**Applications:**
- Lectures and classes
- Restaurants
- Business meetings
- Busy streets
- Cars
Most hearing impaired persons using hearing aids still experience difficulties watching TV in a reverberant living room. Relatively bad quality of most flat panel TV speakers generally worsens the problem making it difficult even for normally hearing people.

The best solution is to transmit TV sound directly to user’s ear. Switch a second SALT into “assistant mode”, connect it to TV output and listen for clear sound via your hearing aid or headphones.

**SALT uses Bluetooth™ audio link to stream TV sound directly into User’s ears**
Person-to-person communication via Bluetooth

Person-to-person verbal communication between hearing impaired people at some distance may be difficult even if two of them are equipped with the most expensive hearing aids.

SALT allows a direct, two way communication between SALT devices. When “intercom” mode is activated, both users voices are sent directly to another device via Bluetooth™ audio link.

Now hearing impaired (and other) people can enjoy two way conversation in any environment: traveling, dinning, driving a car, riding a bicycle, during a flight, wherever...

SALT provides about 10 times (20dB) signal-to-noise enhancement compared to conventional hearing aid usage in noisy environment and even more between distant users.
Hearing loss or deafness is an invisible disability, depriving a person of confidence and sense of security. Taking off his hearing aid, a person with a hearing impairment is no longer receiving any sound information about the environment. As a result - isolation, loneliness, and even threat to life. Real help in this situation can be provided by specially trained hearing dogs or... by SALT!

Fasten SALT to your body, activate "SALT Hearing Dog" mode and receive information about the surrounding noises and everyday sounds with the help of SALT vibration. Now you “feel” doorbells, telephone ringing, human speech, sound alarms, car horns, crying baby, loud screams, etc.

**In what cases is this mode relevant?**
In cases of complete deafness or absence of hearing aid.

**Where to use "SALT Hearing Dog" mode?**
Absolutely everywhere: at home, on the street, in any public place.

"SALT Hearing Dog"
Security, confidence and independence in all situations.
An Audio Frequency Induction Loop (AFIL), commonly referred to simply as an Induction Loop and also known as a Hearing Loop or T-Loop depending on your country of origin, is an assistive listening system that provides access to facilities for those with a hearing impairment.

A. A sound source, such as voice, TV, cinema sound or other audio system is captured using a microphone or via a line out connection.

B. The sound signal is then connected to an Audio Induction Loop Amplifier which generates a current to pass the signal to an induction loop usually made of copper tape or wire.

C. The induction loop (usually) surrounds the area where the listening audience is located and produces a magnetic field.

D. The magnetic field is picked up by the Telecoil (or T-coil) inside SALT devices of hearing impaired members of the audience.

E. SALT tailors the sound to the specific needs of the individual. Sound is delivered into user’s ear directly via headphones or earbuds, without background noise, interference or acoustical distortion and with the full spectrum of sound frequencies required for intelligibility.
Emergency calls and health status monitoring with voice prompts

Suddenly something happened, you are in danger or you feel symptoms of ...
Long press of the SALT main button will make emergency call. Then speak with the operator hands-free via the SALT built in speaker.

SALT may also communicate wirelessly with medical body sensors giving voice feedback to SALT user. For example, heart rate can be monitored and the user can be advised to slow his walk or run (in case the SALT motion sensor detects walking) or take a medicine.

In critical situations, an automatic emergency call can be made.
User can activate a special SALT mode where, in addition to its other functions, SALT starts functioning as an advanced automatic fall detector. Analyzing data from its built-in motion detector, SALT processor can effectively detect user’s fall and following immobility signaling potentially dangerous case. Alarm will be produced to the user by sound and vibration. If not deactivated by user, automatic emergency call will be made to a specified phone number(s).

**JUST FACTS:**

- Every year, approximately one in every three adults age 65 and older will fall. Nearly half of them won’t be able to get up after the fall.
SALT user is informed when his/her phone is out of range

JUST FACTS:

Lookout Inc., which makes the Lookout mobile phone-recovery application for Androids and iPhones, found that nine million of its more than 15 million users lost their mobile phones in 2011:

http://www.thefiscaltimes.com/Articles/2012/03/26/7-Million-a-Day-for-Lost-Phones.aspx#page1

SALT constantly monitors the Bluetooth signal strength of User’s phone. When the phone is forgotten, lost or stolen, the phone is getting out of range. SALT automatically notifies its user with a voice prompt and vibration that the phone is currently out of SALT range.
Voice reminders for important tasks in SALT User’s life

Some tasks are important, some vital.

SALT reminds its User to perform important tasks in a friendly voice. “Take ... pill”, “Call your friend”, “Check sugar level” are few of such reminders. Reminders can be sent to SALT from your mobile phone SALT-organizer application. Vibration alerts are used to ensure user’s attention.

Contrary to mobile phone sound alerts, privacy is fully preserved by SALT. No one around SALT User will notice the voice prompts delivered directly to user’s ear via a hearing aid or headphones.
SALT is a powerful development platform

SALT integrates:
- digital signal processing and control
- wireless and wired communication
- user interface capabilities
- vibration motor
- motion and orientation sensor
- loudspeaker

**Image Description:**
- DSP 120Mhz
- Microcontroller
- Bluetooth module (CSR 8675)
- 4 built-in digital microphones
- Line in
- USB, charge
- Amplifier
- Buttons & LEDs
- Vibration motor
- Motion & orientation sensor
- To a neck loop or standard headphones

**Diagram Notes:**
- SALT HearPhones
- SALT block diagram
Do You know that

SALT is a low cost hearing enhancement solution that will also bring ultimate digital sound enhancement and connectivity to low cost hearing aid users

• About 800 million people around the world are affected by hearing loss. According to the forecasts of the World Health Organization, this number could rise even up to 1.1 billion. And the proportion of the population suffering from this disease, getting younger all the time.

• Only about a third of all people with hearing loss are of retirement age. The majority is of school or working age.

• Childhood deafness is a significant global issue, affecting more than 62 million children younger than 15 years old. Approximately two out of 1,000 babies suffer from hearing loss. Even mild hearing loss can affect a child’s ability to develop speech, language, and social skills.

• The average price of a digital hearing aid is about $1500, with top-of-the-line devices costing $3000-$5000.

• A less than 10 percent of the global need is met through hearing aid production. About 1 out of 40 people needing hearing aids have them in developing countries.

• On average, people with hearing loss wait almost 10 years before they do something about it.

• According to numerous surveys, nearly 50% of hearing impaired cite cost as a main reason for not using hearing aids.
It is our pleasure and our duty...
Alexander Goldin, CEO, Alango Ltd.

First, a few words about Alango...

Alango Technologies is a recognized market leader in developing and licensing front-end digital voice processing technologies for consumer electronics, automotive and other non-medical applications. Our technologies are used in millions of mobile phones, Bluetooth phone accessories and automotive hands-free systems. They effectively clean signals from ambient noises and acoustic echoes, enhance and amplify speech enabling the best quality voice communication between people. This is our business...

And SALT... SALT is our pleasure and our duty. It is our pleasure to return the sense of hearing, the sense of life to people. And it is our duty to utilize our experience and our skills to try making it happen.

SALT is being designed for those who otherwise cannot afford a hearing solution priced thousands of dollars today. We want to deliver it to them for a fraction of cost while actually giving much more. We want all hearing impaired people around the world to enjoy sound, to enjoy voice communication, to be able to work, to lead active life. SALT is for elderly people who need to stay connected, SALT is for middle edge people who need help communicating at work, SALT is also for young people who need an appealing device that does not look as a hearing aid and has a functionality of a consumer device. SALT is also for those to whom even the most expensive hearing aid cannot help – completely deaf people. With its digital signal processing and detection, it can alert a deaf user about environmental sounds via vibration.

We also want SALT to be used by people without hearing loss. SALT can be used for business (Bluetooth speakerphone), leisure (Bluetooth stereo headset), outdoor activity (intercom), safety (motion sensing and sound detection), vibration alert device and other applications. Use it and you will help us to reduce SALT price for those who need help.
Generative Cycle
Hearing enables Communication,
Communication facilitates Understanding,
Understanding elevates Happiness,
Happiness nourishes Life,
Life gives birth to Hearing...

Controlling Cycle
Hearing heads Understanding
Understanding moves Life
Life controls Communication
Communication shapes Happiness
Happiness sharpens Hearing

Destructive Cycle
Without Life there is no Happiness...
Without Happiness there is no Understanding...
Without Understanding there is no Communication...
Without Communication there is no Hearing...
Without Hearing there is no Life...
Don’t hesitate to contact us if you want to be our customer or distributor or just have any comments. We are looking forward hearing from you!
Please, send your comments, thoughts, proposals to info@hearingsalt.com

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