

What is claimed:

1. A transducer apparatus comprising
a transducer that senses vibrations and that is adapted to be placed on or pressed against
the non-boney or non-cartilaginous part of the user's head.
2. A transducer apparatus according to claim 1 wherein said vibrations include that arising
from the user's speech.
3. A transducer apparatus according to claim 1 wherein said transducer is an
accelerometer.
4. A transducer apparatus according to claim 1 wherein said transducer is an acoustical
microphone adapted to sense vibrations, where

said acoustical microphone having a housing,
said housing having a hole that serves as the acoustical input port, and
said acoustical microphone is adapted such that said hole is placed on or pressed
against the non-boney or non-cartilaginous part of said user's head.
5. A transducer apparatus according to claim 4 wherein

said hole is covered by a membrane, and
said acoustical microphone is adapted such that said membrane is placed on or pressed
against the non-boney or non-cartilaginous part of said user's head.
6. A transducer apparatus according to claim 5 wherein the said membrane vibrates when
the non-boney or non-cartilaginous part of said user's head vibrates, including
vibrations arising from the user's speech.

7. A transducer apparatus according to claim 1 wherein said non-boney or non-cartilaginous part head is the user's cheek or the under-chin.
8. A transducer apparatus according to claim 1 further comprising a loudspeaker that is placed over or in the ear of the user.
9. A transducer apparatus according to claim 8 wherein said loudspeaker is an acoustical loudspeaker.
10. A transducer apparatus according to claim 8 wherein said loudspeaker is a vibration loudspeaker that is placed on the boney or cartilaginous part of said user's head.
11. A transducer apparatus according to claim 1 wherein
said vibration-sensing transducer having an output, and
said apparatus further comprises a transducer that senses acoustical sounds and having an output.
12. A transducer apparatus according to claim 11 wherein at least one output of either vibration-sensing transducer or acoustical-sensing transducer is connected to an input of an electronic device.
13. A transducer apparatus according to claim 12 wherein said connection is by means of a switching arrangement whose switching may be manually or automatically controlled.
14. A transducer apparatus according to claim 11 further comprising a sensor that detects either or both said vibration-sensing transducer or/and said acoustical-sensing transducer touches the skin of the user.

15. A transducer apparatus according to claim 14 wherein when said sensor senses either or both said vibration-sensing transducer or/and said acoustical-sensing transducer touching said skin of the user,

said acoustical-sensing transducer is disabled or disconnected, and
said output of said vibration-sensing transducer is connected to an input of an electronic device.
16. A transducer apparatus according to claim 14 wherein when said sensor does not sense either or both said vibration-sensing transducer or/and said acoustical-sensing transducer touching said skin of the user,

said output of the acoustical-sensing transducer is connected to an input of an electronic device, and
said vibration-sensing transducer may also be connected to said input of an electronic device or disconnected or disabled.
17. A transducer apparatus according to claim 11 further comprising a summing circuit that sums a portion of said output of the vibration-sensing transducer and a portion of said output of the acoustical-sensing transducer, and the summed output is connected to an input of an electronic device.
18. A transducer apparatus according to claim 1 wherein said transducer apparatus is a earset or headset having a mechanical arm with two ends,

one end is connected to said earset or headset,
other end embodies said vibration-sensing transducer, and
said adaption having said other end arranged such that said vibration-sensing transducer is placed on or pressed against said non-boney or non-cartilaginous part of the user's head.

19. A transducer apparatus according to claim 1 wherein

said vibration-sensing transducer is placed within a helmet or its assembly, and when said helmet is worn by the user, said vibration-sensing transducer is arranged to be placed on or pressed against said non-boney or non-cartilaginous part of the user's head.

20. A transducer apparatus according to claim 1 wherein

said transducer apparatus is placed within a helmet or its assembly, said helmet having straps, said vibration-sensing transducer is placed under, over or within said straps, and

when said helmet is worn by the user with said straps strapped, said vibration-sensing transducer is arranged to be placed on or pressed against said non-boney or non-cartilaginous part of the user's head.

21. A transducer apparatus according to claim 1 wherein

said vibration-sensing transducer apparatus is embodied in a earset or headset, and said earset or headset having an extended part embodying said vibration-sensing transducer.

22. A transducer apparatus according to claim 12 or claim 13 wherein either or both said electronic device or/and said switching arrangement having computation means, where

when said computation means ascertain that the acoustical sounds sensed by said acoustical-sensing transducer is noisy, said output of the vibration-sensing transducer is connected to said input of an electronic device.

23. A transducer apparatus according to claim 11 where
- a first signal processing circuit is connected to said output of the acoustical-sensing transducer,
 - a second signal processing circuit is connected to said output of the vibration-sensing transducer, and
 - either or both said first signal processing circuit or/and said second signal processing circuit may be a passive circuit or active circuit, or a filter, or an amplifier, or an attenuator.
24. A transducer apparatus according to claim 23 where either or both said first signal processing circuit or/and said second signal processing circuit
- is an active circuit,
 - is connected to an input of an electronic device, and
 - having its power obtained from said input of an electronic circuit.
25. A transducer apparatus according to claim 1, further comprising a signal processing circuit, and is connected an electronic device having an input, where
- said signal processing circuit having an input and an output,
 - said transducer having an output connected to said input of said signal processing circuit, and
 - said output of said signal processing circuit is connected to said input of said electronic device.
26. A transducer apparatus according to claim 25 where the power drawn by said signal processing circuit from said input of said electronic device.
27. A transducer apparatus according to claim 25 where said input of said electronic device is the microphone or transducer input of said electronic device.