

Tactile vest in the disco

Can you have fun dancing when you're deaf? In itself, it shouldn't be a problem, especially when the music played in discos is so loud you can even feel it. Still, deaf people do tend to miss a great deal; what gets through is usually the bass. This can be compensated in part by lighting effects and vibrating floors but the finesse of the music will be lost all the same. A tactile vest helps deaf people feel the more subtle elements of the music.

From air force to dance floor

Military applications can sometimes be interesting for totally different areas.

As in the case of the tactile vest, originally developed for use in tricky helicopter landing situations. The vest is then an integral part of the instrument panel of the helicopter and gives pilots an extra possibility to determine their position in addition to the normal set of instruments. Since the vest transmits information directly to the body of the pilot, he feels, as it were, where he is and can therefore land with out problems in poor visibility or in a sandstorm.

But TNO has gone a step further. What other possibilities are there? Well, the tactile vest for the deaf in discos is one. Of course, the vest needs to be adapted because in the disco the connections have to be wireless. Like adding a source of energy, an interface to interpret commands received by the vest and an FM radio connection to ensure that the vest can be used everywhere without the need for wires.

Tactile vest

A tactile vest is an item of clothing that fits very snugly to the body of the person wearing it. It consists of vibration elements vertically arranged like a kind of corset around the waist, enveloped in two textile layers. The application can be extended to arm, head and leg bands. The vibration elements can vibrate separately and by generating vibration patterns in the vertical rows transmit the essence of the music. It is a very effective method, particularly for the kind of music usually played on the dance floor.

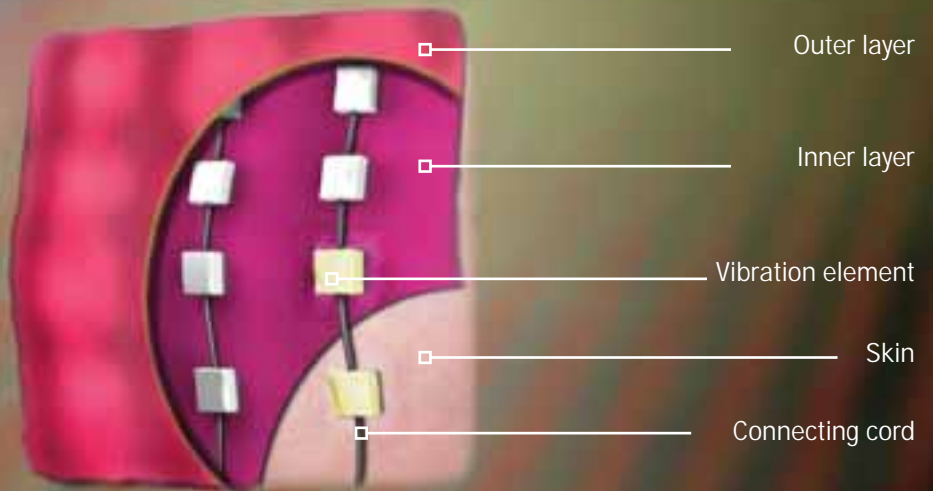


Commands

The vest can be commanded in three ways. It can be pre-programmed for a piece of music, though this is not so handy for the disco of course; the composition is transmitted to all vests on the dance floor via FM radio. A second way is for the vest to respond automatically to the music in much the same way as the lighting on the dance floor does. For the ultimate experience a disco can opt for a new kind of DJ: the TJ, tactile jockey, who can transmit his instructions to the vest via FM radio.

Musical Instrument Digital Interface (MIDI) is a digital notation that electronic (musical) instruments use to exchange musical information in real time. It works with commands and so is suitable for the tactile vest. These commands may be 'apply vibrato' or 'play F sharp now'. The vest converts the commands into vibrations in the elements in the vest. Since these vibrations also vary in terms of intensity, the music is conveyed in all its subtlety.

Structure of the tactile vest



Just for the deaf?

The experience of the vest is so thrilling that even people with normal hearing will find it fantastic. Everyone reacts faster if they are tapped on the shoulder than when their name is called out. A symphony of vibrations directly conveyed to the body is simply unbeatable.

TNO is collaborating on this development with Sense Company and the Utrecht School of Arts.

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Deaf in the Netherlands

We tend to think of the deaf as being the fifty-plus generation. Yet deafness occurs in all age groups. In the Netherlands one in ten people has a hearing problem and of those 1.6 million people, a good 30,000 are totally deaf or their hearing is seriously impaired. People can become deaf or hard of hearing at any age. Deafness can occur during pregnancy or as the result of birth as well as during childhood.

There are many causes of deafness: inherited, if the mother-to-be has German measles, meningitis, viral infections, medicines, poisoning, accidents or exposure to excessive noise. Sometimes the cause is unknown. In recent years much has been done to enable the deaf to participate fully in society. And it does not stop at hearing aids.