DEVICE AND METHOD FOR SPEECH RECOGNITION
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BACKGROUND

The loss of the voice means a significant decrease in the quality of life for the affected patients and limits the natural means of human communication and interaction considerably. The main objective of any development in this field therefore is an artificial substitute for the rehabilitation of a patient's vocal abilities.

PROBLEM

Affected patients need to undergo surgery to have their larynx removed because of a tumor for example. A result of this surgery is the trachea ending in a new opening in the neck; air no longer passes through the mouth and throat. Patients are left unable to produce speech and to experience smells. If no auxiliary means are employed, the remaining volume in the oral cavity will merely allow for enough air to produce a pseudo whispering voice. Methods for the rehabilitation of the vocal abilities applied so far are learning to use esophageal speech ("belching voice"), the usage of electronic auxiliary devices and a tracheoesophageal puncture (TEP) prosthesis (TEP valve) that is surgically inserted. Each of these methods brings disadvantages with it, however, and the voice produced clearly sounds artificial and is of low quality.

SOLUTION

The present invention describes a device for speech recognition to be applied with patients who suffer from a loss or near-loss of their natural speaking voice after a laryngectomy or as a result of a neurological disease leading to the loss of voice. The invention may be applied for the rehabilitation of vocal abilities, as a substitute for the natural voice or for the production of written text.

The apparatus consists of a microphone surgically attached to the oral cavity to capture the remaining vibrations. These vibrations then are wirelessly passed on to a processor where speech recognition is carried out. Based on each patient's individual speech patterns a speech synthesis takes place followed by a conversion into an output signal which is then played back via loudspeakers.
ADVANTAGES

- Voice substituted by a natural sounding voice
- Application for the rehabilitation of vocal abilities and for the production of written text
- Real time generation of the artificial voice signal

SCOPE OF APPLICATION

- Medicine
- Otorhinolaryngology

SERVICE

- Disposition
- Concession agreement
- Development cooperation